DISCLAIMER

The information contained in Victoria University’s 2009 Faculty of Health, Engineering and Science Handbook was current at 31 August 2008.
In today’s university environment, changes to courses occur far more frequently than in the past. For current information on Victoria University’s courses, readers are advised to access the University’s online courses database at www.vu.edu.au/courses
If you have difficulty in accessing this material electronically, please phone (03) 9919 6100 for assistance.

IMPORTANT INFORMATION

The course details in this handbook (plus details of all other Victoria University courses) can also be searched on the University’s online courses database at www.vu.edu.au/courses
This handbook can be downloaded as a pdf file from the Victoria University website at www.vu.edu.au/courses/handbooks
HOW TO USE THIS HANDBOOK

Victoria University’s 2009 Faculty of Health, Engineering and Science Handbook is designed to provide students with detailed information on course structures and subject details for undergraduate and postgraduate courses offered by the faculty in 2009.

NOTE: Courses available to International students are marked with the (I) symbol. The definition of fields used in course tables throughout this handbook include:

**Credit Point** — the number of credit points a subject contributes towards the total points needed to complete a course.

**EFTSL** — Equivalent Full-Time Student Load is a measure of the study load for one year for a student undertaking a course on a full-time basis.

**SC Band** — all Commonwealth supported courses fall within one of four bands of disciplinary areas. These bands are called student contribution bands and are used to determine the maximum student contribution amount, for both commencing and continuing students.

PLEASE NOTE

This handbook provides a guide to courses available within Victoria University’s Faculty of Health, Engineering and Science in 2009. Although all attempts have been made to make the information as accurate as possible, students should check with the faculty that the information is accurate when planning their courses.

NOTE: Prospective students are strongly advised to search the University’s online courses database at www.vu.edu.au/courses for the most up-to-date list of courses. This handbook includes descriptions of courses that may later be altered or include courses that may not be offered due to unforeseen circumstances, such as insufficient enrolments or changes in teaching personnel. The fact that details of a course are included in this handbook can in no way be taken as creating an obligation on the part of the University to teach it in any given year or in the manner described. The University reserves the right to discontinue or vary courses at any time without notice.

OTHER INFORMATION

Information about course fees, articulation and credit transfer, recognition of prior learning, admission and enrolment procedures, examinations, and services available to students can be accessed on the University’s website or by contacting the University directly.
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Graduate Diploma in Food Science (Exit point for the Master of Science in Food Science (SMFO)) 
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Mechanical Stream 
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Biomedical Sciences Stream 
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Biotechnology stream 
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BACHELOR OF ENGINEERING IN ARCHITECTURAL ENGINEERING (I)

Course Code: EBAE

CRICOS No: 040973D

Course Objectives
The course is designed to develop vocational skills for the engineering planning, design, construction, maintenance and management of building environmental and life safety systems. The basic objectives of the course are to produce graduates who:

- have a solid foundation of scientific, engineering and project management knowledge cognate by specific theoretical and practical exposure to the design of building environmental and life safety systems;
- have the ability to communicate effectively, both orally and in writing, and work well in a team situation;
- have an understanding of community need for building infrastructure in the context of societal aspirations and expectations;
- are motivated to continually improve their knowledge base; and
- are immediately productive upon completion of the course and are thus attractive to prospective employers.

The first two years of the degree program involves engineering fundamentals to provide a solid foundation for the applied engineering subjects in the following years of the course. Studies in architecture design practices and architectural history are developed in second and third year. These fundamentals provide students with the basis of understanding all developments in the profession of Architectural Engineering and Engineering in general as technology continually changes and the profession undergoes continual adjustment. The applied engineering subjects building structures, building environmental and life safety systems, and building project management are introduced. In the final two years of the program, students undertake a major in either environmental systems design or structural systems design. An optional integrated 12 weeks industry placement period is available in Architectural Engineering at the end of the third year of the course in a 'summer semester' subject.

Architectural Engineering graduates will have enhanced skills for careers in:

- advanced environmental services system design;
- building renovation and refurbishment;
- building structures design;
- computer aided design and drawing;
- construction planning, management and project supervision;
- cost estimating and project feasibility;
- building energy audits and conservation studies;
- engineering consultation and investigations;
- facilities management and programming;
- interior lighting design;
- risk assessment for building system performance;
- support for preservation Architecture; and
- simulation of building environmental system performance.

Professional Recognition The Bachelor of Engineering in Architectural Engineering will be submitted for recognition by the Building Practitioners Board and Building Control Commission in Victoria. This submission is to meet the minimum academic qualification for registration as a Mechanical or Electrical Engineer, or as a Civil Engineer (Structures) as defined by the responsibilities of these categories of 'Engineer' in the Victorian Building Control Act. The degree satisfies the requirements for accreditation by The Institution of Engineers, Australia and will be submitted for accreditation by the Australian Institute of Building.

Overseas Exchange Program
Each year two students from Victoria University who are enrolled in either Architectural or Building Engineering, are able to undertake studies with full credit for one semester in the third year of the Architectural Engineering degree program at the University of Nebraska - Omaha (UNO), U.S.A. University scholarships are available to assist students in undertaking this exchange. The program at UNO is one of the newest and best resourced Architectural Engineering degrees in the U.S.A., having commenced in 1999 within new propose built buildings and facilities.

Admission Requirements
The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows:

Admission Requirements
Articulation from Associate Diploma or Diploma courses in Building Construction and Design or Engineering. Credit will be given to subjects passed to a sufficient level of competence.

Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

- IELTS - an overall band score of 6+, subject to individual profile; or
- TOEFL - a score of 550+, and a Test of Written English score of 5+.

Course Duration
The course is offered over four years on a full-time basis of 22 contact hours per week. Part-time study may be approved. The course however cannot be completed solely on a part-time basis.

Course Structure
Engineering subject codes commence with 'V'. Science subject codes commence with 'R'.

Year 1
Semester One

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NOTE: Courses available to International students are marked with the (I) symbol.

SCHOOL OF ARCHITECTURAL, CIVIL AND MECHANICAL ENGINEERING

Below are details of courses offered by the School of Architectural, Civil and Mechanical Engineering in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses
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SCHOOL OF ARCHITECTURAL, CIVIL AND MECHANICAL ENGINEERING

Semester Two

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Other Course Specific Notes

Assessment in subjects is designed to monitor a student's progress and achievements as well as to contribute to and enhance their learning. Normally a prescribed range of assessment methods is employed in any subject.

Assessment for the course is by a combination of written assignments, tests, laboratory work and examinations.

Supplementary assessment is normally available in any subject except at the discretion of the Head of School in exceptional circumstances.

Special Consideration in assessment may be granted on the grounds defined by the University Statutes.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

Degree with Honours

A Degree with Honours Program is offered concurrently with the fourth year of the ordinary Bachelor of Engineering program. Normally, students entering the final year of a full-time Bachelor of Engineering program (or its equivalent in part-time mode), will be offered honours candidacy, if they have achieved a minimum hour weighted average of 60 per cent over year levels 1 to 3, have not repeated a subject throughout levels 1 to 3 and have not been granted more than one year completion by compensation throughout the duration of the course. Fourth year honours degree gradings will be determined by the relevant Examiners Board on the basis of the hour weighted average for year level 4.

Industrial Experience

Students are required to undertake a 12 week industrial work experience period during their course. At the end of third year, students will have to undertake a 12 week (minimum) integrated industry placement program. It is intended that this program will meet the 12 week industrial work experience requirements imposed upon all accredited Engineering degree courses by Engineers Australia.

BACHELOR OF ENGINEERING IN BUILDING ENGINEERING (I)

Course Code: EBCB

CRICOS No: 00285BM

Course Objectives

The course is designed to develop vocational skills for the engineering planning, design, construction, maintenance and management of buildings and building services systems. The basic objectives of the course are to produce graduates who:

- have a solid foundation of scientific, engineering and project management knowledge capped by specific theoretical and practical exposure to either the design of building structures or building services systems;
- have the ability to communicate effectively, both orally and in writing, and work well in a team situation;
- have an understanding of community need for building infrastructure in the context of societal aspirations and expectations;
- are motivated to continually improve their knowledge base; and
- are immediately productive upon completion of the course and are thus attractive to prospective employers.

The course recognises societal needs for professional Engineers who have sound technical knowledge and good communication skills and capable of providing appropriate building infrastructure that is affordable, safe and comfortable to live and work within. The course is founded on a broad base of science and engineering fundamentals in the first and second year, with emphasis then given in the third and fourth years to applied discipline-specific topics, design and project work. The three study areas commence in the second and third years of the course and are building structures, building services and building construction and project management. In the final year, the focus for the course becomes planning and project management of the building construction process.

Strong emphasis is given to professionalism, ethics and community responsibility. Local examples of building projects provide experiential learning through site visits together with teaching input from practicing Engineers and other professionals in industry. These provide valuable ‘real-world’ case studies and are a motivational asset to the course.

Professional Recognition

The degree satisfies the requirements for accreditation by Engineers Australia and will be submitted for accreditation by the Australian Institute of Building.

Overseas Exchange Program

Each year two students from Victoria University who are enrolled in either Architectural or Building Engineering, are able to undertake studies with full credit for one semester in the third year of the Architectural Engineering degree program at the University of Nebraska-Omaha (UNO), U.S.A.

University scholarships are available to assist students in undertaking this exchange. The program at UNO is one of the newest and best resourced Architectural Engineering degrees in the U.S.A., having commenced in 1999 within new purpose-built buildings and facilities.

Admission Requirements

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows:

- Persons transferring from other courses or having overseas or at least equivalent standard to those listed above, should apply for admission in the normal manner.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

- IELTS - an overall band score of 6+, subject to individual profile; or
- TOEFL - a score of 550+, and a Test of Written English score of 5+.

Course Duration

The course is offered over four years on a full-time basis. Part-time study may be approved. However, the course cannot be completed solely on a part-time basis. Students must complete 384 credit points.

Course Structure

Engineering subject codes commence with ‘V’. Science subject codes commence with ‘R’.

Year 1

Semester One

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COURSE STRUCTURE

The course is offered over four years on a full-time basis. Part-time study may be approved. However, the course cannot be completed solely on a part-time basis. Students must

- TOEFL - a score of 550+,
- IELTS - an overall band score of 6.5 or above.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

- IELTS - an overall band score of 6+, subject to individual profile, or
- TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5.5.

Admission Requirements

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows.

1. A study abroad exchange program is under investigation with the Department of Civil Engineering at the University of Nebraska at Omaha, Nebraska, USA.

2. Environmental and management issues are covered in specific subjects but also more broadly by integration into a range of other subjects throughout the course. Subject streams

3. There are two major streams in structural and water engineering running through the course, complemented by minor streams in geomechanics and transportation engineering.

4. The course philosophy is very much based on a recognition of society's need for well-rounded engineers who not only have sound technical and communication skills but also a

5. The course is founded on a solid base of science and engineering fundamentals in the first two years, with emphasis then being given in years three and four to applied discipline-specific topics, design, project work, specialist knowledge. Substantial emphasis is given in a range of subjects to sustainability and sustainable engineering practices. A focus on local engineering examples, experiential learning

Other Course Specific Notes

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Industrial Experience

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BACHELOR OF ENGINEERING IN CIVIL ENGINEERING (I)

Course Code: EBCC

CRICOS No: 002859K

Civil Engineering is a broad-based discipline involving the planning, design, construction and management of a wide range of essential community infrastructure including, commercial and industrial buildings, water supply and wastewater systems, irrigation, drainage and flood protection systems, bridges, roads, highways and transportation systems, and port harbour and airport facilities.

The course philosophy is very much based on a recognition of society's need for well-rounded engineers who not only have sound technical and communication skills but also a
good understanding of the environmental, economic, social and political environment in which they must operate.

The course is founded on a solid base of science and engineering fundamentals in the first two years, with emphasis then being given in years three and four to applied discipline-specific topics, design, project work, specialist knowledge. Substantial emphasis is given in a range of subjects to sustainability and sustainable engineering practices. A focus on local engineering examples, experiential learning

A study abroad exchange program is under investigation with the Department of Civil Engineering at the University of Nebraska at Omaha, Nebraska, USA.

Course Objectives

The course is designed to develop skills for the application of engineering principles of planning, design, construction and management of buildings, roads, water supply and all other major community amenities.

Admission Requirements

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

- TOEFL - a score of 550+,
- IELTS - an overall band score of 6+.

Course Duration

The course is offered over four years on a full-time basis. Part-time study may be approved. However, the course cannot be completed solely on a part-time basis. Students must complete 384 credit points.

Course Structure

Engineering subject codes commence with ‘V’.

Science subject codes commence with ‘R’.

Year 1

Semester One

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*Approved Electives from within the School of ACME*

- VAA2031 ARCHITECTURAL HISTORY & DESIGN | 12 | 0.1250 | 2
- VAA3031 ENVIRONMENTALLY SUSTAINABLE DESIGN | 12 | 0.1250 | 2
- VAA3042 HYDRAULIC SERVICES SYSTEMS | 12 | 0.1250 | 2
- VAA3081 BUILDING CONSTRUCTION AND LEGISLATION | 12 | 0.1250 | 2
- VAA4051 BUILDING QUANTITIES AND COSTS | 6 | 0.0630 | 2
- VAA4082 BUILDING CONSTRUCTION AND LEGISLATION | 6 | 0.0630 | 2
- VAM2011 COMPUTATIONS AND ENGINEERING ANALYSIS | 12 | 0.1250 | 2

*Electives from outside School of ACME*

*Subject to approval by Course Co-ordinator*

**Other Course Specific Notes**

- **Assessment**: in subjects is designed to monitor a student’s progress and achievements as well as contribute to and enhance their learning. Normally a prescribed range of assessment methods is employed in any subject.
- **Assessment** is by a combination of written assignments, tests, laboratory work and examinations. Supplementary assessment is not normally available in any subject except at the discretion of the Head of School in exceptional circumstances.
- **Special Consideration in assessment** may be granted on the grounds defined by the University Statutes.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

**Degree with Honours**

A Degree with Honours Program is offered concurrently with the fourth year of the ordinary Bachelor of Engineering program. Normally, students entering the final year of a full-time Bachelor of Engineering program (or its equivalent in part-time mode), will be offered honours candidacy, if they have achieved a minimum hour weighted average of 60 per cent over year levels 1 to 3, have not repeated a subject throughout levels 1 to 3 and have not been granted more than one year completion by compensation throughout the duration of the course. Fourth year honours degree gradings will be determined by the relevant Examiners Board on the basis of the hour weighted average for year level 4.

**Industrial Experience**

Candidates applying for the award of a degree in civil engineering must ensure that they have submitted for approval evidence of having undertaken a minimum of 12 weeks
industrial experience relevant to the course to satisfy Engineers Australia requirements.

**Professional Recognition**

Engineers Australia has granted full recognition for the Bachelor of Engineering in Civil Engineering. Recognition is a requirement for Graduate Membership of Engineers Australia and additionally for equivalent membership of many overseas professional engineering institutions.

**Overseas Exchange Program**

Victoria University has exchange agreements with universities in many countries, some of which are the U.S.A., Canada, Mexico, United Kingdom and many European and Asian countries.

For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.

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**BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING**

Course Code: EBME

CRICOS No: 002861E

The degree is designed to provide the broad education required for a mechanical engineering career. In addition to theoretical and practical engineering content, the course contains integrated studies in economics, administration and communication. The degree emphasises achievement across mechanical engineering disciplines in concert with problem solving, design, engineering applications, innovation, resource management and professional responsibility.

Government institutions and private enterprise employ mechanical engineers in manufacturing, design of products and machines, automatic control of machines and processes, heating and air conditioning systems, machine and condition monitoring, hydraulic and pneumatic systems, computer applications - including finite element analysis, computer-aided design and Computational Fluid Dynamics and research and development in a wide range of fields.

**Course Objectives**

The course is designed to provide an educational standard and vocational skills which will enable graduates to undertake professional practice in the discipline of Mechanical Engineering. Graduates are provided with a basis to progress through postgraduate studies, continuing education courses and participate in learned society endeavours.

**Admission Requirements**

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows.

Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

- **IELTS** - an overall band score of 6+, subject to individual profile; or
- **TOEFL** - a score of 550+, and a Test of Written English (TWE) score of 5+.

**Course Duration**

The course is offered over four years on a full-time basis. The entire course cannot be completed on a part-time basis. Students must complete 384 credit points.

**Course Structure**

Engineering subject codes commence with ‘V’.

Science subject codes commence with ‘R’.

### Year 1

#### Semester One

- **RMA1001** ENGINEERING MATHEMATICS 1A 12 0.1250 2
- **REP1001** ENGINEERING PHYSICS 1A 12 0.1250 2
- **VAN1051** ENGINEERING PROFESSION 12 0.1250 1
- **VAN1011** EXPERIMENTATION AND COMPUTING 12 0.1250 2

#### Semester Two

- **RMA1002** ENGINEERING MATHEMATICS 1B 12 0.1250 2
- **REP1003** ENGINEERING PHYSICS 1C 12 0.1250 2
- **VAN1032** INTRODUCTION TO DESIGN 12 0.1250 2
- **VAN1022** SOLID MECHANICS 1 12 0.1250 2

### Year 2

#### Semester One

- **VAM2011** COMPUTATIONS AND ENGINEERING ANALYSIS 12 0.1250 2
- **VAN2021** SOLID MECHANICS 2 12 0.1250 2
- **VAN2061** ENGINEERING MATERIALS 12 0.1250 2
- **VAN2041** THERMFLUIDS 12 0.1250 2

#### Semester Two

- **VEM2012** MATERIALS AND MANUFACTURE 12 0.1250 2
- **VAN2032** ENGINEERING DESIGN 12 0.1250 2
- **VAM2042** THERMODYNAMICS AND FLUID MECHANICS 1 12 0.1250 2

### Year 3

#### Semester One

- **VAN3021** STRESS ANALYSIS 1 12 0.1250 2
- **VAN3071** DYNAMICS 12 0.1250 2
- **VAN3031** MECHANICAL ENGINEERING DESIGN 1 12 0.1250 2
- **VAN3041** THERMODYNAMICS AND FLUID MECHANICS 2 12 0.1250 2

#### Semester Two

- **VAN3012** SIGNAL ANALYSIS 12 0.1250 2
- **VAN3022** STRESS ANALYSIS 2 12 0.1250 2
BACHELOR OF TECHNOLOGY IN BUILDING SURVEYING

Course Code: EBSB

This course provides a tertiary degree in Building Surveying with exit points at Diploma of Building Surveying qualification level and Advanced Diploma of Building Surveying qualification level.

The first three years of the course (at Sunshine campus) focus on building technology and statutory control of building. This involves completion of twenty-four units of competency learning over two years leading to the Diploma of Building Surveying, followed by completion of an additional nineteen units of competency learning leading to the Advanced Diploma of Building Surveying. Concurrent studies (at Footscray Park campus) provide students with basic professional literacy and numeracy. Subjects prescribed for this purpose are VAN101 Engineering Profession, JCM0110 Mathematics and RMA1001 Engineering Mathematics 1A.

In the final (fourth) year of the course (spread over Footscray Park and Werribee campuses) the focus is on professional practice primarily in the areas of building design, building approval and building construction. Graduates of this course will have completed studies equivalent to the Graduate Certificate in Performance-Based Building and Fire Codes (Course Code: ETQB) at Werribee campus.

Course Objectives

Course Objectives are to produce graduates who have acquired a strong technological base for professional practice in the area of Building Surveying and exhibit valuable graduate attributes as follows: A sound knowledge of the structure and practices of Australian building (design and construction) regulatory systems; an understanding and appreciation of building design and approval, and building construction and inspection, as it is influenced by a variety of political, social, economic, cultural, industrial and technological factors; a broad range of vocational skills that can be used to manage and operate a building surveying business, within either the private sector or public sector, and meet the needs of developers, practitioners, authorities, manufacturers, tradespeople and other significant stakeholders; specific skills that will lead to employment in the fields of design consultancy, certification, approvals and permits, construction management, detailed hydraulic, electrical and mechanical services installations, inspection and maintenance, and facility management; an ability to work independently, ethically and professionally in the provision of building surveying services to clients and/or employers, whether as a sole practitioner or within larger organizations including engineering and building surveying consultancies, building contractors, manufacturers, statutory authorities, local government and state government departments; an ability to adapt to the changing needs of industry, commerce and community, as well as the ability to take a leadership role in promoting institutional and social change with social justice initiatives.
Graduates of this course will have had the opportunity to experience learning in a dual sector environment that assists them in both finding employment and becoming lifelong learners in the broader context. Successful graduates of the Bachelor of Technology in Building Surveying course should be able to demonstrate valuable capabilities as follows:

- Be effective problem solvers in a range of settings including professional practice;
- Locate, evaluate, manage and use information effectively, including critical thinking, information technology skills, information gathering skills, and carrying out statistical and other calculations;
- Communicate effectively in oral and written form as a professional and as a citizen;
- Work as a professional both autonomously and collaboratively.

**Admission Requirements**

Admission at other levels may be approved, e.g., in the case of an applicant having commenced or completed studies leading to a Diploma or Advanced Diploma at an Institute of TAFE or in the case of a mature-age applicant.

**Course Duration**

Four years full-time. Part-time enrolment may also be approved.

**Course Structure**

**Year 1 and Year 2**

Diploma of Building Surveying

- BCGSV5001A Assess the construction of domestic scale buildings * 100
- BCGSV5002A Evaluate materials for construction of domestic scale buildings * 72
- BCGSV5003A Produce working drawings for residential buildings * 90
- BCGSV5004A Apply legislation to urban development and building controls * 36
- BCGSV5005A Apply footing and geomechanical design principles for domestic scale buildings * 36
- BCGSV5006A Assess construction faults in residential buildings * 36
- BCGSV5007A Undertake site surveys and set out procedures to building projects * 72
- BCGSV5008A Apply building control legislation to building surveying * 36
- BCGSV5009A Assess the impact of fire on building materials * 36
- BCSV5010A Interact with clients in a regulated environment * 36
- BCSV5011A Apply building codes and standards to residential buildings * 36
- BCSV5012A Assess timber framed designs for one and two storey buildings * 36
- BCSV5013A Apply principles of energy efficient design to buildings * 36
- BCSV5014A Apply building surveying procedures to residential buildings * 36
- BCSV5015A Assess structural requirements for domestic scale buildings * 72
- BSBADM506A Manage business document design and development * 60
- BSBCM406A Maintain business technology * 40
- CHCCOM4A Develop, implement and promote effective communication techniques * 75
- ICAITU128A Operate a personal computer * 30
- ICAITU129A Operate a word processing application * 30
- ICAITU130A Operate a spreadsheet application * 30
- ICAITU131A Operate a database application * 30
- ICAITU132A Send and retrieve information over the internet using browsers and email * 25

Subtotal for Diploma 1136

**Year 3**

Advanced Diploma of Building Surveying

- BCGSV6001A Assess the construction of buildings up to 3 storey * 72
- BCGSV6002A Produce working drawings for buildings up to 3 storey * 40
- BCGSV6003A Assess construction faults in buildings up to 3 storey * 40
- BCGSV6004A Apply footing and geomechanical design principles to buildings up to 3 storey * 40
- BCGSV6005A Evaluate services layout and connection methods for residential and commercial buildings up to 3 storey * 40
- BCGSV6006A Evaluate the use of concrete for residential and commercial buildings up to 3 storey * 40
- BCSV6007A Assess structural requirements for buildings up to 3 storey * 40
- BCGSV6008A Apply building codes and standards to buildings up to 3 storey * 72
- BCGSV6009A Implement performance based codes and risk management principles for buildings up to 3 storey * 72
- BCSV6010A Apply fire technology to buildings up to 3 storey * 40
- BCSV6011A Apply legal procedures to building surveying * 40
- BCSV6012A Facilitate community development consultation * 40
- BCSV6013A Co-ordinate asset refurbishment * 72
- BCGSV6014A Manage and plan land use * 40
- BCGSV6015A Analyse and present building surveying research information * 90
- BCGSV6016A Apply building surveying procedures to buildings up to 3 storey * 90
- BSX154L606 Manage human resources * 40
- LGAPLEM502A Apply ecologically sustainable development principles to the built environment * 60
- LMFFT4010A Identify and calculate production costs * 36

Subtotal for Advanced Diploma 1004

Total for Years 1 and 2 N/A 1268

**Total for Years 1 and 2 N/A 1268**

Credit Point | EFTSL | SC Band
--- | --- | ---
VAN1051 ENGINEERING PROFESSION | 12 | 0.1250 | 1

Total for Diploma | 1136

Total for Advanced Diploma | 1004

plus Higher Education/Foundation Studies

RMA1001 ENGINEERING MATHEMATICS 1A | 12 | 0.1250 | 2
GRADUATE DIPLOMA IN PROJECT MANAGEMENT

Course Code: EGFR

Course Objectives: To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and procurement. They will also have developed the ability to apply and carry out project management, contract management and evaluate these models, modes of analysis and techniques in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to meet the needs of project managers in industry, equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager and/or become effective members of project management teams. Adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Course Duration: 1 year (full time)

Admission Requirements: A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstance on the basis of experience.

Course Structure

Year One - Semester One

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Plus two electives from Group (b) or (c) as listed below.

Students may exit with a Graduate Certificate in Project Management after successfully completing 4 units (48 credit points).

Year One - Semester Two

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Choose one unit from Group (a)

Choose one elective from Group (b)

Group A Faculty Based Core Units (12 credit points each)

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Group B - Project Management Specific Electives (12 credit points each)

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Students may exit with a Graduate Diploma in Project Management after successfully completing 8 units (96 credit points).
Course Objectives
The aim of this course is to provide students with an opportunity to achieve in-depth comprehension of engineering fundamentals and advanced skills of research and development essential in modern practice of Mechanical Engineering.

Admission Requirements
Admission to the course may be granted to the following applicants:
• holders of a Four Year Bachelor of Mechanical Engineering degree, or an equivalent, accredited for Graduate membership of the Institution of Engineers, Australia, having either an Honours degree or an ordinary degree with significant professional industrial experience.
• applicants with overseas degree in Mechanical Engineering at least at Bachelor level and judged by the School of Architectural, Civil and Mechanical Engineering to be of excellent standard.
• Applicants with qualifications at least at Bachelor level in other engineering and science disciplines with a minimum of three years industrial experience.
In addition, full fee international students must provide evidence of proficiency in the English Language:
• IELTS - an overall band score of 6+;
• TOEFL - a minimum score of 550+ and a TWE (Test of Written English) score of 5+.

Course Duration
The Course is offered over a period of two years full time. Applicants of exceptional standard may get exemption of Semester 1 and may complete the course in one-and-a-half years full time.

Course Structure
(exemption of one or more subjects in this Semester is considered on a case by case basis).

Year 1 Semester 1

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Year 2 Semester 3

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</table>

Other Course Specific Notes
Assessment of the coursework will be a combination of examinations, written assignments, tests, and laboratory work. To achieve a successful Minor Thesis student will have to demonstrate competence in research of an engineering problem, reviewing literature, collecting and analysing data, drawing conclusions and writing the thesis. Assessment of the Minor Thesis is entirely based on the thesis by two examiners, at least one is external to the University.

MASTER OF APPLIED PROJECT MANAGEMENT (I)

Course Code: EMPA

Course Objectives
To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and carrying out project management, contract management and procurement. They will also have developed the ability to apply and evaluate these models, modes of analysis and technique in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to: meet the needs of project managers in industry. equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager / and or become effective member of project management teams. adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Course Duration 2 years (full time)
Admission Requirements A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstance on the basis of experience.

Course Structure
Year One - Semester One

<table>
<thead>
<tr>
<th>Credit Point</th>
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<tbody>
<tr>
<td>VPP5600</td>
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Plus two electives from Group (b) or (c) as listed below.
Students may exit with a Graduate Certificate in Project Management after successfully completing 4 units (48 credit points).

Semester Two

<table>
<thead>
<tr>
<th>Credit Point</th>
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<tbody>
<tr>
<td>AHB5205</td>
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</table>
| Choose one unit from Group (a)
| Choose one elective from Group (b)
| Choose one elective from Group (c) or any other approved VU elective

Students may exit with a Graduate Diploma in Project Management after successfully completing 8 units (96 credit points).

Year Two Semester Three

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<tr>
<th>Credit Point</th>
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<tbody>
<tr>
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</table>
Choose three electives from Group (c) and or any other approved VU elective.

**Semester Four**

<table>
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Group A - Faculty Based Care Units (12 credit points each)

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<tbody>
<tr>
<td>VPP5610</td>
<td>PROJECT PLANNING AND CONTROL</td>
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<td>SPORT RESOURCE MANAGEMENT</td>
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Group B - Project Management Specific Electives (12 credit points each)

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<td>VEH6013</td>
<td>PROJECT MANAGEMENT AND ENTREPRENEURSHIP</td>
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<td>VPP8050</td>
<td>PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 12CP)</td>
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<td>RESEARCH METHODS</td>
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Group C - Business Units (12 credit points each)

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Engineering & Construction Units (12 credit points each)

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<td>VQB5642</td>
<td>PERFORMANCE CODES METHODOLOGY AND STRUCTURE</td>
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<td>VQB5621</td>
<td>FIRE GROWTH, DETECTION AND EXTINGUISHMENT</td>
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<tr>
<td>VQB5632</td>
<td>SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN</td>
<td>12</td>
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<td>VCP5726</td>
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Sustainability (12 credit points each)

<table>
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<tr>
<th>Course Code</th>
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<th>SC Band</th>
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<tbody>
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<td>RCS5131</td>
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<td>12</td>
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<tr>
<td>RCS5172</td>
<td>SOLID WASTE MANAGEMENT</td>
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<tr>
<td>RCS5132</td>
<td>ENVIRONMENTAL LAW AND STANDARDS 2</td>
<td>12</td>
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Information Technology (12 credit points each)

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<tr>
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</thead>
<tbody>
<tr>
<td>RCM6021</td>
<td>LOGISTICS SOLUTIONS AND SYSTEMS</td>
<td>12</td>
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<td>RCM5802</td>
<td>INFORMATION SYSTEMS</td>
<td>12</td>
<td>0.1250</td>
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<tr>
<td>RCM6823</td>
<td>DATABASE DESIGN, MANAGEMENT AND ADMINISTRATION</td>
<td>12</td>
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<td>2</td>
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<tr>
<td>RCM5820</td>
<td>NETWORK OPERATING SYSTEMS ADMINISTRATION</td>
<td>12</td>
<td>0.1250</td>
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<tr>
<td>VGC6142</td>
<td>MANAGING SOFTWARE PROJECTS</td>
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<td>VGC6141</td>
<td>SOFTWARE ENGINEERING</td>
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Sports Management (12 credit points each)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Point</th>
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<th>SC Band</th>
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<tbody>
<tr>
<td>AHS5302</td>
<td>SPORT BUSINESS PROJECT</td>
<td>24</td>
<td>0.2500</td>
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<tr>
<td>AHS5309</td>
<td>SPORT FACILITY MANAGEMENT</td>
<td>12</td>
<td>0.1250</td>
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<tr>
<td>AHM6020</td>
<td>SPORT EVENT MANAGEMENT</td>
<td>12</td>
<td>0.1250</td>
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</table>

**MASTER OF PROJECT MANAGEMENT**

Course Code: EMPR

Course Objectives: To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and procurement. They will also have developed the ability to apply and carry out project management, contract management and evaluate these models, modes of analysis and technique in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to meet the needs of project managers in industry. Equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager / and or become effective member of project management teams. Adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Course Duration: 1.5 years (full time)
Admission Requirements: A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstances on the basis of experience.

Course Structure

<table>
<thead>
<tr>
<th>Year One - Semester One</th>
<th>Credit Point</th>
<th>EFTSL</th>
<th>SC Band</th>
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<tbody>
<tr>
<td>VPP5600 PRINCIPLES OF PROJECT MANAGEMENT</td>
<td>12</td>
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<tr>
<td>BM05519 CONTRACT AND PROCUREMENT MANAGEMENT</td>
<td>12</td>
<td>0.1250</td>
<td>3</td>
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</tbody>
</table>

Plus two electives from Group (b) or (c) as listed below.

Students may exit with a Graduate Certificate in Project Management after successfully completing 4 units (48 credit points).

Semester Two

| AHB5205 PROJECT MANAGEMENT AND PEOPLE | 12 | 0.1250 | 1 |
| VPP5630 RESEARCH METHODS | 12 | 0.1250 | 2 |

Choose one unit from Group (a)
Choose one elective from Group (b)

Students may exit with a Graduate Diploma in Project Management after successfully completing 8 units (96 credit points).

Year Two Semester Three

| VPP8060 PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 24CP) | 24 | 0.2500 | 2 |

Students may exit with a Master's in Project Management after successfully completing the equivalent of 12 units (144 credit points). Students continuing to the Master of Applied Project Management should refer to the structure of the course presented under EMPA.

Group A Faculty Based Core Units (12 credit points each)

| VPP5610 PROJECT PLANNING AND CONTROL | 12 | 0.1250 | 2 |
| BM05602 BUSINESS PROJECT MANAGEMENT | 12 | 0.1250 | 3 |
| AHB5201 SPORT RESOURCE MANAGEMENT | 12 | 0.1250 | 1 |

Group B - Project Management Specific Electives (12 credit points each)

| VPP5620 PROJECT STAKEHOLDERS MANAGEMENT | 12 | 0.1250 | 2 |
| VPP5621 PROJECT RISK MANAGEMENT | 12 | 0.1250 | 2 |
| VEH6013 PROJECT MANAGEMENT AND ENTREPRENEURSHIP | 12 | 0.1250 | 2 |
| VPP8050 PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 12CP) | 12 | 0.1250 | 2 |
| VCP5705 PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY | 12 | 0.1250 | 2 |
| VPP5716 PROJECT DEVELOPMENT ANALYSIS AND REVIEW | 12 | 0.1250 | 2 |
| VCP5736 FACILITY LIFE CYCLE COSTING | 12 | 0.1250 | 2 |
| VCP5745 BUILDING REGULATORY MANAGEMENT | 12 | 0.1250 | 1 |
| VPP5630 RESEARCH METHODS | 12 | 0.1250 | 2 |

Group C - Business Units (12 credit points each)

| BM06630 BUSINESS RESEARCH METHODS | 12 | 0.1250 | 3 |
| BM06622 MANAGING INNOVATION AND ENTREPRENEURSHIP | 12 | 0.1250 | 3 |
| BM05522 HUMAN RESOURCES AND EMPLOYEE RELATIONS | 12 | 0.1250 | 3 |
| BM06510 GOVERNMENT AND BUSINESS RELATIONS | 12 | 0.1250 | 3 |
| BM05575 PLANNING AND CONTROL THROUGH ERP SYSTEMS | 12 | 0.1250 | 3 |
| BLO5406 LAW FOR EVENTS | 12 | 0.1250 | 3 |
| BLO5537 BUSINESS LAW | 12 | 0.1250 | 1 |
| BAO5505 ACCOUNTING FOR EVENTS | 12 | 0.1250 | 3 |
| BA05735 ADVANCED FORECASTING, PLANNING AND CONTROL | 12 | 0.1250 | 3 |
| BM05401 SPECIAL EVENT MANAGEMENT | 12 | 0.1250 | 3 |
| BCD4654 INFORMATION TECHNOLOGY PROJECT MANAGEMENT | 12 | 0.1250 | 2 |
| BH04605 MARKETING MANAGEMENT | 12 | 0.1250 | 3 |
| BE05307 GLOBAL PROCUREMENT | 12 | 0.1250 | 3 |
| BE05522 PUBLIC SECTOR ECONOMICS | 12 | 0.1250 | 3 |

Engineering & Construction Units (12 credit points each)

| VQB5611 RISK ASSESSMENT AND HUMAN BEHAVIOUR | 12 | 0.1250 | 2 |
| VQB5642 PERFORMANCE CODES METHODOLOGY AND STRUCTURE | 12 | 0.1250 | 2 |
| VQB5621 FIRE GROWTH, DETECTION AND EXTINGUISHMENT | 12 | 0.1250 | 2 |
| VQB5632 SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN | 12 | 0.1250 | 2 |
| VCP5726 PROJECT PROCUREMENT MANAGEMENT | 12 | 0.1250 | 2 |

Sustainability (12 credit points each)

| RCS5111 PRINCIPLES OF ENVIRONMENTAL SCIENCE AND MANAGEMENT | 12 | 0.1250 | 2 |
| RCS5131 WATER POLLUTION MONITORING & LIQUID WASTE MANAGEMENT | 12 | 0.1250 | 2 |
| RCS5172 SOLID WASTE MANAGEMENT | 12 | 0.1250 | 2 |
| RCS5132 ENVIRONMENTAL LAW AND STANDARDS 2 | 12 | 0.1250 | 2 |

Information Technology (12 credit points each)

| RCM6021 LOGISTICS SOLUTIONS AND SYSTEMS | 12 | 0.1250 | 2 |
| RCM5802 INFORMATION SYSTEMS | 12 | 0.1250 | 2 |
| RCM6823 DATABASE DESIGN, MANAGEMENT AND ADMINISTRATION | 12 | 0.1250 | 2 |
| RCM5820 NETWORK OPERATING SYSTEMS ADMINISTRATION | 12 | 0.1250 | 2 |
| VEC6142 MANAGING SOFTWARE PROJECTS | 12 | 0.1250 | 2 |
| VEC6141 SOFTWARE ENGINEERING | 12 | 0.1250 | 2 |

Sports Management (12 credit points each)

| AHB5302 SPORT BUSINESS PROJECT | 24 | 0.2500 | 1 |
| AHB5309 SPORT FACILITY MANAGEMENT | 12 | 0.1250 | 1 |
| AHM6020 | 12 | 0.1250 | 1 |
| AHB5202 SPORT EVENT MANAGEMENT | 12 | 0.1250 | 1 |
GRADUATE CERTIFICATE IN PROJECT MANAGEMENT (I)

Course Code: ETPR

Course Objectives: To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and carrying out project management, contract management and procurement. They will also have developed the ability to apply and evaluate these models, modes of analysis and techniques in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to: meet the needs of project managers in industry, equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager / and or become effective member of project management teams. Adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Course Duration: One Semester (full time)

Admission Requirements: A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstance on the basis of experience.

Course Structure:

Year One - Semester One

<table>
<thead>
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Plus two electives from Group (b) or (c) as listed below.

Students may exit with a Graduate Certificate in Project Management after successfully completing 4 units (48 credit points).

Group B - Project Management Specific Electives (12 credit points each)

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<td>VPP5630 RESEARCH METHODS</td>
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Group C - Business Units (12 credit points each)

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<td>BMO5522 HUMAN RESOURCES AND EMPLOYEE RELATIONS</td>
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SUBJECTS

Below are subject details for courses offered by the School of Architectural, Civil and Mechanical Engineering in 2009. IMPORTANT NOTE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

VAA2002 ELECTRICAL POWER SYSTEMS 1
Campus Footscray Park
Prerequisite(s) REP 1003 Engineering Physics 1C
Content Electrical Circuits. Provides students with a sound knowledge of elementary electrical circuits, performance characteristics of motors and generators, and basic electronic devices.
Class Contact three hrs of lectures and two hrs of tutorials/laboratory per week
Assessment Electrical Circuits (EC) - 8 weeks work: Homework submissions (4 @ 5%), 20%; Laboratory Report, 10%; Mid-semester test: (Based on weeks 1-6), 20%. Power Distribution (PD) - four weeks work: Homework submissions (2 @ 5%), 10%, Project (2000 words equivalence), 15%; three hour examination, 50%; Weighting, 66.7% of (EC + PD) + 3hr exam = subject assessment. Based on a project, 20%; and a review of all assignments (which may include tests and other class exercises) set during the semester, 10%; and a final three hour examination, 70%.

VAA3031 ENVIRONMENTALLY SUSTAINABLE DESIGN 1
Campus Footscray Park
Prerequisite(s) VAA2041 Thermafluids.
Learning Outcomes Upon successful completion of this unit, students will have demonstrated:
• an understanding of key issues and design principles involved in sustainable design of buildings and building engineering systems
• an ability to research information, policies and data relevant to these areas
• an ability to outline and evaluate possible solutions applicable to domestic and commercial buildings.
• an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks;
• good communication skills, based on technical reports and oral presentations.
Content This unit of study aims to give students a basic understanding, problem solving skills and design skills in the areas of sustainable design of buildings. Major topics covered include: climate change, basic principles of ecological buildings; buildings of tomorrow: examples and ideas, including natural ventilation in buildings, thermal storage, façade design for daylighting and solar energy transmission, air quality improvement; active measures of renewable energy usage, including solar, wind and geothermal energy; use of rainwater and organic matter.
Required Reading Daniels, K., 1997, The Technology of Ecological Building, Birkhauser; Class notes.
Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.
Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, site visit and/or laboratory reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAA3032 ENVIRONMENTALLY SUSTAINABLE DESIGN 2
Campus Footscray Park
Prerequisite(s) VAA3071 HVAC Systems 1, VAA3031 Environmentally Sustainable Design 1.
Corequisite(s) VAA3072 HVAC Systems 2
Learning Outcomes Upon successful completion of this unit, students will have demonstrated:
• an understanding of the fundamental principles of heat transfer in buildings.
• an ability to locate and effectively interpret information/data relevant to these areas
• an ability to identify, formulate and solve related problems, and to carry out associated mathematical analyses.
• an ability to evaluate solutions against technical, environmental, economic and social criteria.
• good communication skills, based on technical reports and oral presentations.
Content This unit of study aims to give students a basic understanding, problem


Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, site visit and/or laboratory reports, a reflective journal, workbooks(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAA3042 HYDRAULIC SERVICES SYSTEMS

Campus Footscray Park

Prerequisite(s) VAC 2042 Hydraulics

Learning Outcomes

Upon successful completion of this unit, students will have demonstrated:

- an understanding of key issues and design principles involved in hydraulic systems in buildings;
- an ability to locate and effectively use information/data relevant to these areas;
- an ability to identify, formulate and solve related problems, and to carry out associated design work;
- an ability to evaluate solutions against technical, environmental, economic and social criteria;
- an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks;
- good communication skills, based on technical reports and oral presentations.

Content This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of building water supply, sanitary plumbing and stormwater management. It covers the following topics. Types and components of building water supply systems. Assessment of demands and flows. Design criteria, head losses in pipes and fittings. Analysis and design of hot and cold pipework systems. Pumps-pump and pipeline selection. Pressure systems. Selection and arrangement of mains pressure commercial hot water units to supply to hot water fixture outlets. Theory and design of roof drainage, storm water systems and sewer drainage systems including materials, fixtures and fittings, and the general requirements for fully vented and modified, single stacked and modified sewage plumbing systems, all for building sites, residential and multi-storied commercial buildings. Introduction to wastewater treatment processes and building water harvesting/recycling systems.

Required Reading Class Notes; AS 3500 (2003), National Plumbing and Drainage Code Parts 0-4.


Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, site visit and/or laboratory reports, a reflective journal, workbooks(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAA3071 HVAC SYSTEMS 1

Campus Footscray Park

Prerequisite(s) VAN2041 Thermofluids, VAC2042 Hydraulics.


Class Contact Two hrs of lectures and three hrs of tutorials per week.

Assessment Assignment 1: (group assignment, up to 2500 words), 30%; Assignment 2: (group assignment, up to 2000 words + calculations + diagrams), 35%; two hour examination, 35%.

VAA3072 HVAC SYSTEMS 2

Campus Footscray Park

Prerequisite(s) HVAC Systems 1.


Class Contact Two hrs of lectures and three hrs of tutorials per week.

Assessment Assignment 1 (group assignment; up to 3000 words), 30%; Assignment 2 (group assignment; up to 3000 words), 35%; two hour examination, 35%.

VAA3081 BUILDING CONSTRUCTION AND LEGISLATION 1

Campus Footscray Park

Prerequisite(s) VAA2031 Architectural History and Design

Learning Outcomes Upon successful completion of this unit, students will have demonstrated:

- an understanding of the fundamentals of conventional and innovative forms of construction.
VAA4001 ARCHITECTURAL LIGHTING AND COMMUNICATIONS SYSTEMS

Campus: Footscray Park

Prerequisite(s): VAA 3001 Electrical Power Systems 2.

Content:


Required Reading:


Informations Systems, MacDonald Evans.

Class Contact:
- Three hrs of lectures and two hrs of tutorials/labouratory per week.
- Assessment: Architectural Lighting (AL) - three hours per week: Tutorial work: assessment (5 submissions @ 2%), 10%; Project 1 - Assessment of existing lighting system (2000 words equivalence), 20%; Project 2 - Design of a lighting system, 30%; Communications Systems (CS) - two hours per week: Project 1 (Individual report 2000 words equivalence), 15%; Project 2 (Individual report 3000 words equivalence), 25%; Final three hour examination, 50%; Weighting, 50% of (AL + CS ) + 3hr exam = subject assessment

VAA4032 ENVIRONMENTALLY SUSTAINABLE DESIGN 3

Campus: Footscray Park

Prerequisite(s): VAA4032 Environmentally Sustainable Design 2, VAA4011 Architectural Lighting and Communication Systems, VAA3071 HVAC Systems 1, VAA3072 HVAC Systems 2.

Content:
- Introduction to building performance analysis tools (software used by architects and engineers in compliance with energy efficiency provisions of the Building Code of Australia). Computer modelling of buildings including thermal and solar performance, natural ventilation, natural and artificial lighting and CFD. Analysis of alternative scenarios to optimise the performance of the building through the design process.

Learning Outcomes:
- Successful completion of this unit, students are expected to be able to:
  1. model complex situations involving integrated building design in the area of thermal performance, natural ventilation, air conditioning, solar penetration, thermal comfort, and natural artificial lighting;
  2. analyse alternative scenarios to achieve optimised building design.

Required Reading:
- NatHERS software documentation from Sustainability Victoria http://www.sustainability.vic.gov.au/;
- Australian Building Greenhouse Rating Scheme http://www.abc.gov.au/;
- Footscray Park

Class Contact:
- Two hours of lectures and three hours of tutorials per week.
- Assessment:
  - Assignment 1: (report on your home: benchmarks and rating) (30%);
  - Assignment 2: (commercial premises: benchmark historical performance and simulate the impact of various possible renovations) (70%).

VAA4042 BUILDING FIRE SAFETY SYSTEMS

Campus: Footscray Park

Prerequisite(s): Nil.

Content:

Required Reading:
- Australian Building Codes Board (ABC) (2005), Building Code of Australia (BCA) 2005 Volume One, CanPrint Communications Pty Ltd; Class Notes.
VAA4051 BUILDING QUANTITIES AND COSTS
Campus Footscray Park
Prerequisite(s) VAN3052 Engineering Management.
Class Contact two hrs of lectures and 1hr of tutorial and computer lab session per week
Assessment Assignment 1: based on weeks 1-5 (calculations, sketches, computer applications, max word limit of 1000), 15%; Assignment 2: based on weeks 6-11 (calculations, sketches, computer applications, max word limit of 1000), 15%; Class Tutorial Exercises Based on Weeks 1-11 (calculations, sketches, computer applications, max word limit of 500),10%; three hour examination, 60%.

VAA4071 HVAC SYSTEMS 3
Campus Footscray Park
Prerequisite(s) VAA3072 HVAC Systems 2.
Class Contact three hrs of lectures per week.
Assessment Assignment 1: (Group assignment; up to 3000 words), 30%; Assignment 2: (Group assignment; up to 3000 words + calculations + diagrams, 35%; three hour examination, 35%.

VAA4082 BUILDING CONSTRUCTION AND LEGISLATION 2
Campus Footscray Park
Prerequisite(s)Nil.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
• developed an understanding of the nature of building construction in heavily-developed urban environments;
• become familiar with structural features and services installations specific to tall buildings;
• gained an appreciation of the involvement of principal consultants and contractors;
• enhanced their knowledge of urban development and building regulatory procedures, codes and standards;
• become more skilled in space and amenity planning; and
• gained an appreciation of major plant and equipment, techniques and practices typically employed in high-rise construction work.
Required Reading Australian Building Codes Board (ABC) (2005), Building Code of Australia (BCA) 2005 Volume One, CanPrint Communications Pty Ltd; Burnell, R., VAA4082 Class Notes
Class Contact This unit will be delivered in PBL mode, and will comprise 36 hours (3 three hour tutorial), 20%; three hour examination, 50%.
Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, site visit reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAA4091 STRUCTURAL DYNAMICS 1
Campus Footscray Park
Prerequisite(s) RMA 1002 Engineering Mathematics 1B & REP 1003 Engineering Physics 1C.
Content Introduction to structural vibrations. Degree of freedom of a system - vibrations of undamped and damped systems, harmonically excited systems, response systems to harmonically forced excitation, general forcing functions. Eigenvalue for a system, determination of natural frequencies and mode shapes, structural vibration simulation using computer software.
Class Contact two hrs of lectures and one hrs of tutorials per week.
Upon successful completion of this subject, students will be able to:

- be able to understand problems and procedures involved in co-ordination of individual building services.
- be able to understand principles of successful integration of all building services during the design and construction stages.
- be able to conceptualise solutions to construction technology tasks and problems, logistical planning and assembly.
- have enhanced their report writing and oral presentation skills.

**Required Reading**


**Recommended Reading**


In addition, students are required to read current journal articles and other relevant popular publications.

**Class Contact**

This unit will be delivered in PBL mode, and will comprise 36 hours (3 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

The unit is worth 6 credit points.

**Assessment**

Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, site visit reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

**VAC2022 BUILDING MATERIALS AND CONSTRUCTION**

**Campus** Footscray Park

**Prerequisites** Nil

**Learning Outcomes** Upon successful completion of this subject, students will be able to:

- have enhanced their report writing and oral presentation skills.

**Content**

- Sand and crushed rock: excavation, drilling, blasting, conveyance, crushing, screening, washing, storage, use. Concrete: constituents, mix design, laboratory tests and standards for strength, workability, etc (cylinders, slump), properties of fresh and hardened concrete (strength, serviceability, creep, shrinkage, durability), concrete plant arrangements, concrete transport, placing, reinforcement, curing, pumping, spraying, cement grouting. Formwork for concrete. Steel: types and applications, material standards, fabrication, paints / coatings and corrosion protection, delivery and erection. Timber: strength and serviceability properties, effects of microstructure and moisture content (hardwoods, softwoods, grain, gum, chemical constituents, etc), decay / weathering and protection, typical applications, fire resistance. Other materials: overview of properties and applications of masonry, aluminium, glass and selected plastics. Introduction to construction equipment / techniques including use of excavators, dredges, shoveling, pumping and dewatering plant, piledrivers, scaffolding and falsework, winches, cranes, cableways and haulage units. Construction sites: site establishment and facilities required, introduction to OH&S issues. Many of the topics above will be related to case studies on projects such as buildings, bridges, roads, tunnels and dams.

**Required Reading**

None Required

**Recommended Reading**

- McNally, G.H. (1998), Soil and Rock Construction Materials, Spon
- Cement & Concrete Association and Standards Australia (2002), Guide to Concrete Construction, CCA & SAA
- Peurifoy, R.L. and Schexnayder, C.J. (2002), Construction Planning, Equipment and Methods, McGraw Hill
- Illingworth, J.R. (1993), Construction Methods and Planning, Spon

**Class Contact**

5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars, laboratory sessions and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

**Assessment**

This unit aims to provide students with an overview of key concepts involved in the integration of building services with building structure, during the design and construction stages. Students are exposed, through a range of lectures and site visits, to constructability/buildability and co-ordination aspects of building services, as well as to compliance with building codes and regulations. Issues involving integrated building design to minimise construction costs and achieve sustainable construction methods are also introduced.

**Learning Outcomes**

On successful completion of this unit, it is expected that students will be able to:

- have enhanced their report writing and oral presentation skills.

**Content**

- Fluid resistance and boundary layers; Development of pipe friction equations and their use. Fluid flow through pipelines; inter-reservoir pipeline flow, branching pipelines, parallel pipelines; Pumps - positive displacement and rotodynamic systems. Pump performance equations, affinity laws and specific speed. Pump selection for particular duties; Flow in open channels - fundamentals (continuity, energy and momentum equations), discharge equations, specific energy and critical depth relationships, flow transitions and weirs and flumes. Gradually varied flow and water surface profiles. Introduction to unsteady flow conditions.

**Required Reading**


**Recommended Reading**


**Class Contact**

Three hrs of lectures and two hrs of tutorials / laboratory sessions per week.

**Assessment**

Assignment 1: based on video set on boundary layers (Report, sketches, max word limit of 1500), 10%; Assignment 2: based on self selected site visit in week 9 (Report, photographs, sketches, max word limit of 1500), 10%; Tests (3 x 1hr in wks 4,7 &11), 30%; three hour examination, 50%.

**VAC2071 SURVEYING**

**Campus** Footscray Park

**Prerequisites** Nil

**Content**

Surveying Reference and Basic Computations, Mapping, Vertical Measurement and Note Keeping, Angular Measurement and Note Keeping, Circular Curves, Contours and Contouring, Area Computations for Polygons, Rectangular co-ordinates, Computations for Earth Works, Digital Terrain Models, Geographic...
Positioning Systems, Victorian Land Title System.

Required Reading Class notes.


**Class Contact** two hrs of lectures and three hrs of field/tutorials per week.

**Assessment** Field work/tutorials 1: Basic Survey Computations (Max. 500 words), 5%; Field work/tutorials 2: Mapping (Max. 500 words), 5%; Field work/tutorials 3: Transferring a level to determine RL of a point (Max. 500 words), 5%; Field work/tutorials 4: Level traverse to determine RL of many points (Max. 500 words), 5%; Field work/tutorials 5: Determining angles in horizontal plane (Max. 500 words), 5%; Field work/tutorials 6: Circular curve set out (Max. 500 words), 5%; Field work/tutorials 7: Grid leveling and contouring (Max. 500 words), 5%; Field work/tutorials 8: Area and perimeter computations using co-ordinates (Max. 500 words), 5%; two hour examination, 60%; Students are required to pass both Field Work and Examination to receive a pass in the subject.

**VAC2072 HIGHWAY ENGINEERING**

**Campus** Footscray Park

**Prerequisite(s)** Nil

**Content** Earthenworks including equipment, determination of quantities and costs; preparation and use of mass haul diagrams. Route location factors, route selection, horizontal alignment including circular curves and transition curves and superelevation, determination of sight distance; vertical alignment including grades and vertical curves. Pavement design methods for both flexible and rigid pavements; determination of number of equivalent standard axles, use of California Bearing Ratio. Road construction equipment capabilities. Introduction to road drainage methods, surface and subsurface drainage. Road maintenance issues and programs.

**Required Reading** Austroads (1993), Rural Road Design 7th edn; Class Notes.


**Class Contact** three hrs of lectures and two hrs of tutorials/site visits per week.

**Assessment** Assignment 1: site investigations (1500 words), 10%; Assignment 2: geometric standards and super elevation (Calculations & drawings equivalent to approx. 2000 words), 10%; Assignment 3: pavement design (Calculations & drawings equivalent to approx. 2000 words), 10%; three hour examination, 70%.

**VAC2031 STRUCTURAL ANALYSIS**

**Campus** Footscray Park

**Prerequisite(s)** VANC2031 Solid Mechanics 2.

**Content** Virtual Work method of structural analysis: Deflections and rotations of statically determinate trusses, beams and frames; The stiffness method of structural analysis; Solution of redundant beams and frames by equations of slope deflection; The effect of axial force on flexural stiffness; Stiffness analysis using matrices for determinate and indeterminate plane trusses and frames. The flexibility method of structural analysis: Solution of redundant beams and frames. Qualitative and approximate analyses of structures: Use with computer analysis programs to appraise results; Ultimate load (‘plastic’) method of analysis of beams and frames; Frame stability analysis and buckling.


**Class Contact** three hrs of lectures and two hrs of tutorials per week.

**Assessment** Stage test: Based on weeks 1-6, 10%; Homework submissions: Based on 5 from 12 weeks, 5%; Assignment 1: Structural model design/making/testing/reporting (3000 words equivalence), 20%; Assignment 2: Computer structural analysis, 15%; three hour examination, 50%.

**VAC3031 CIVIL ENGINEERING DESIGN 1**

**Campus** Footscray Park

**Prerequisite(s)** VAC 2072 Highway Engineering, VAC2042 Hydraulics.

**Corequisite(s)** VAC3041 Hydrology and Water Resources.

**Learning Outcomes** Upon successful completion of this unit, students will have demonstrated:

- An understanding of how to approach a range of simple civil engineering design problems
- Ability to perform preliminary designs in a number of civil engineering disciplines
- An ability to evaluate design solutions against a range of technical and other criteria
- A number of generic skills including problem identification / formulation / solution, effective communication, ability to work as a member and/or leader of a small team, ability to use a system approach to design, and capacity to undertake life-long learning.

**Content** This unit of study aims to give students design skills in several areas of civil engineering, and to further develop a range of more generic skills including teamwork and communication. Students will work in small design teams to carry out (typically) four designs drawn mainly from the areas of water and road engineering. Each design will involve analysis, calculations and preparation of engineering drawings. Two designs will have associated with them an individual writing task of about 800 words on aspects relating to the design. Students must also prepare and deliver one oral presentation on one of the designs or associated written tasks performed during the semester.

**Required Reading** Class Notes and texts appropriate for each design.

**Recommended Reading** As recommended for each of the subjects on which each design is based.

**Class Contact** This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of design workshop / seminars and student team design work. In addition, students are expected to devote at least the same amount of time for private and/or group work on the design projects. The unit is worth 12 credit points.

**Assessment** Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

**VAC3041 HYDROLOGY AND WATER RESOURCES**

**Campus** Footscray Park

**Prerequisite(s)** VAC2042 Hydraulics.

**Learning Outcomes** Upon successful completion of this unit, students will have demonstrated:

- An ability to apply basic principles of hydrology and hydrology in a range of water-related projects
- Recognition of the importance of social objectives, environmental issues and sustainability concepts in various catchment management and water engineering design projects
- An ability to evaluate solutions against technical, environmental, economic and social criteria.
- An ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks.
- Good communication skills, based on technical reports and oral presentations.


**Class Contact** This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

**Assessment** Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, site visit and/or laboratory reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

**VAC3042 HYDRAULIC ENGINEERING**

*Campus* Footscray Park  
*Prerequisite(s)* VAC 2042 Hydraulics.

**Learning Outcomes**  
Upon successful completion of this unit, students will have demonstrated:

- an understanding of key issues and design principles involved in urban water supply / treatment systems and irrigation works
- an ability to locate and effectively use information / data relevant to these areas.
- an ability to identify, formulate and solve related problems, and to carry out associated design work.
- an ability to evaluate solutions against technical, environmental, economic and social criteria.
- an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks.
- good communication skills, based on technical reports and oral presentations.

**Content** This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of water supply and irrigation engineering. It covers the following topics:

Urban Water Supply Schemes: Demand assessment and management, supply sources, dam types/spillways/outlet works/construction and safety issues, groundwater development works, water quality requirements and various types of treatment to satisfy these, service storage, pumping stations, reticulation system arrangements/ layout and manual/computer analysis, pipeline design and construction.  
Irrigation: Purpose and principles of irrigation, irrigation water quality, channel design and structures, flooded, furrow, sprinkler and trickle irrigation layout and design principles.


**Assignment 1:** Report based on field investigation of foundations

**Assignment 2:** Lab/practical work report on soil testing (calculations, sketches, max word limit 1000), 5%

**Assignment 3:** Solution of geotechnical problems (calculations, sketches, max word limit 1500), 10%; 0.5 hr Test On material covered in weeks 1-5, 10%; three hour examination, 60%.

**VAC3062 GEOTECHNICAL ENGINEERING**

*Campus* Footscray Park  
*Prerequisite(s)* VAC 3061 Geomechanics.

**Learning Outcomes**

- an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks.
- an ability to evaluate solutions against technical, environmental, economic and social criteria.
- an understanding of key issues and design principles involved in basic structural design using timber, steel and reinforced concrete
- an ability to locate and effectively use information / data relevant to this area.
- an ability to identify, formulate and solve related problems, and to carry out associated design work.
- an ability to evaluate solutions against technical, environmental, economic and social criteria.

**Content**

- A review of soil mechanics and practical aspects of geotechnical engineering.

**Required Reading**

- Smith, I. (2006 Elements of Soil Mechanics, 8th edn, Blackwell Science; Class Notes.

**Recommended Reading**


**Class Contact**

- three hrs of lectures and two hrs of tutorials/laboratory work per week

**Assessment**

- Assignment 1: Report based on field geological/sols investigation (calculations, sketches, max word limit 2000), 15%; Assignment 2: Lab/practical work report on soil testing (calculations, sketches, max word limit 1000), 5%;
- Assignment 3: Solution of geotechnical problems (calculations, sketches, max word limit 1500), 10%; 0.5 hr Test On material covered in weeks 1-5, 10%; three hour examination, 60%.

**VAC3092 STRUCTURAL DESIGN**

*Campus* Footscray Park  
*Prerequisite(s)* VAN 2032 Engineering Design

**Learning Outcome** Upon successful completion of this unit, students will have demonstrated:

- an understanding of key issues and design principles involved in basic structural design using timber, steel and reinforced concrete
- an ability to locate and effectively use information / data relevant to this area.
- an ability to identify, formulate and solve related problems, and to carry out associated design work.
- an ability to evaluate solutions against technical, environmental, economic and social criteria.
• an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks.
• good communication skills, based on technical reports and oral presentations.

Content This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of structural design using timber, steel and reinforced concrete. It covers the following topics:


Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of design workshop / seminars and practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, design assignment / project reports including technical calculations, site visits, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAC4021 STRUCTURAL ENGINEERING ANALYSIS AND DESIGN 1

Campus Footscray Park
Prerequisite(s) VAC3092 Structural Design


Class Contact Three hrs of lectures and two hrs of tutorials per week.

Assessment Analysis Part: Stage test: Based on weeks 1-6, 25%; Assignment 1: Structural model design/making/testing/reporting (Calculations, sketches, max equivalent word limit of 1000), 20%; Assignment 2: Computer structural analysis (Calculations, sketches, max equivalent word limit of 1000), 15%; one hour examination, 40%

Design Part: three hour mid-semester supervised assignment. This assessment will be largely open-book, 40%; The assignment will be done under supervision to control plagiarism (Calculations, sketches, max word limit of 1500) 2 hour examination, 60%; Subject final result derived from weightings = 60% to Design part and 40% to Analysis part.

VAC4022 STRUCTURAL ENGINEERING ANALYSIS AND DESIGN 2

Campus Footscray Park
Prerequisite(s) VAC4021 Structural Engineering Analysis & Design 1

Content The analysis topics include the basic concepts of finite element analysis. Element stiffness matrix and mass matrix. Element assembly and solution for unknowns. Analysis of 2D and 2D structures using a commercial finite element analysis package such as STRAND or ANSYS.


Recommended Reading Gilbert, R.J. and Mickleborough, N.C. (1990), Design of Prestressed Concrete, Unwin Hyman; Berwick, B.C. (1993), Construction of Prestressed Concrete Structures, 2nd edn, Wiley.

Class Contact Three hrs of lectures and two hrs of tutorials per week.

Assessment Analysis part: Stage test: Based on weeks 1-6, 20%; Assignment 1: Computer structural analysis (Calculations, sketches, max equivalent word limit of 1500), 40%; one hour examination, 40%;

Design part: Three hour mid-semester supervised assignment, 40% This assessment will be largely open-book. The assignment will be done under supervision to control plagiarism. (Calculations, sketches, max word limit of 1500) 2 hour examination, 60%; Subject final result derived from weightings = 60% to Design part and 40% to Analysis part.

VAC4032 CIVIL ENGINEERING DESIGN 2

Campus Footscray Park
Prerequisite(s) VAC3031 Civil Engineering Design 1; VAC3042 Hydraulic Engineering; VAC4071 Transportation Engineering; VAC4081 Environmental Engineering.

Content This unit aims to broaden students’ design skills in several areas of civil engineering and to further develop a range of more generic skills including teamwork and communication. Students will work in small design teams to carry out (typically) four designs drawn mainly from the areas of water, geotechnical, and transportation engineering. Designs will typically involve analysis, calculations and preparation of engineering drawings. Two designs will have associated with them an individual writing task of about 400 words on aspects relating to the design. Students must also prepare and deliver one oral presentation on one of the designs or associated written tasks performed during the semester.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:

• have developed an understanding of how to approach a simple civil engineering design problem
• be able to perform preliminary designs in a number of civil engineering disciplines
• have completed work designed to improve a number of generic skills including problem identification / formulation / solution, effective communication, working in small teams, ability to use a system approach to design, and capacity to undertake life-long learning.

Required Reading Class Notes and texts as required for each of the prerequisite units relating to the specific designs being undertaken.

Recommended Reading As recommended for each of the prerequisite units as above.

Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of design workshop / seminars and student team design work. In addition, students are expected to devote at least the same amount of time for private and/or group work on the design projects. The unit
is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of class.

VAC4071 TRANSPORTATION ENGINEERING
Campus Footscray Park
Prerequisite(s) Nil.
Content Demand for transport and the significance of transport and freight movement to the economy; road safety issues; transport planning techniques including trip generation, trip distribution, mode split and trip assignment models. Traffic engineering aspects - flow theory; road capacity; headways; gaps; speed analysis. Intersection analysis; use of SIDRA program to aid design and analysis of signalised intersections; traffic survey methods and analysis; local area traffic management studies; travel demand management.


Class Contact two hrs of lectures and one hr of tutorials per week.
Assessment Assignment 1: Site Investigations Report (2000 words), 15%; Assignment 2: Trip generation and trip distribution (Calculations & analysis equivalent to approx. 6 pages), 15%; three hour examination, 70%.

VAC4072 ENVIRONMENTAL PLANNING AND DESIGN
Campus Footscray Park
Prerequisite(s) Nil.
Content This subject covers areas of sustainable rural and urban land development including biophysical and socio-economic data collection and inventories, environmental sensitivity mapping and land capability analysis, green city/urban forest concepts, planning permit issues and processes including meeting procedure, open space concepts and energy and water conservation, residential subdivisions and appropriate street designs.

Required Reading Victoria, Dept. of Infrastructure, 2001, Victoria Planning Provisions (incorporating Rescode.); Class Notes.


Class Contact two hrs of lectures and one hr of tutorials per week.
Assessment Assignment 1: Land development suitability report 1500 words plus sketches, 16%; Assignment 2: Planning meeting report - 1200 words, 10%; Assignment 3: Subdivision and street design - calculations and engineering drawing equivalent to approx. 12 pages, 24%; 1.5 hour examination, 50%.

VAC4081 ENVIRONMENTAL ENGINEERING 1
Campus Footscray Park
Prerequisite(s) VAC 2042 Hydraulics.


Class Contact three hrs of lectures and two hrs of tutorials per week.
Assessment Assignment 1: Report based on material covered in weeks 1-5 (calculations, sketches, max word limit 2000), 15%; Assignment 2: Site visit report (max word limit of 1000), 5%; Assignment 3: Report based on material covered in weeks 6-11 (calculations, sketches, max word limit 1500), 10%; 0.5 hr Test (On material covered in weeks 1-6), 10%; three hour examination, 60%.

VAC4082 ENVIRONMENTAL ENGINEERING 2
Campus Footscray Park
Prerequisite(s) Nil.

Required Reading Class Notes.


Class Contact three hrs of lectures and two hrs of tutorials per week.
Assessment Assignment 1: Report based on material covered in weeks 3-6 (calculations, sketches, max word limit 1500), 10%; Assignment 2: Report based on material covered in weeks 7-9 (calculations, sketches, max word limit 1500), 10%; Assignment 3: Site visit report (max word limit 1500), 10%; 0.5 hr Test (On material covered in weeks 1-6), 10%; three hour examination, 60%.

VAC4091 STRUCTURAL ENGINEERING DESIGN 1
Campus Footscray Park
Prerequisite(s) VAC3092 Structural Engineering Design 1.
Content Demand for transport and the significance of transport and freight movement to the economy; road safety issues; transport planning techniques including trip generation, trip distribution, mode split and trip assignment models. Traffic engineering aspects - flow theory; road capacity; headways; gaps; speed analysis. Intersection analysis; use of SIDRA program to aid design and analysis of signalised intersections; traffic survey methods and analysis; local area traffic management studies; travel demand management.


Class Contact two hrs of lectures and one hr of tutorials per week.
Assessment Assignment 1: Site Investigations Report (2000 words), 15%; Assignment 2: Trip generation and trip distribution (Calculations & analysis equivalent to approx. 6 pages), 15%; three hour examination, 70%.

VAC4091 STRUCTURAL ENGINEERING DESIGN 1
Campus Footscray Park
Prerequisite(s) VAC3092 Structural Engineering Design 1.

Required Reading Class Notes.


Class Contact three hrs of lectures and two hrs of tutorials per week.
Assessment Assignment 1: Report based on material covered in weeks 3-6 (calculations, sketches, max word limit 1500), 10%; Assignment 2: Report based on material covered in weeks 7-9 (calculations, sketches, max word limit 1500), 10%; Assignment 3: Site visit report (max word limit 1500), 10%; 0.5 hr Test (On material covered in weeks 1-6), 10%; three hour examination, 60%.

VAC4091 STRUCTURAL ENGINEERING DESIGN 1
Campus Footscray Park
Prerequisite(s) VAC3092 Structural Design.
Content Wind loads. Design of a steel portal frame building: cladding, secondary "cold formed" members, framing systems for low-rise buildings, roof and wall bracing, computer analysis, frames, columns, connections, knee and splice connections, and "plastic" design of steel frames. Reinforced concrete elements: continuous beams, slender columns, slabs: method of coefficients, yield line analysis and design, strip method, equivalent frame.


Class Contact two hrs of lectures and one hr of tutorials per week.
Assessment Three hour mid-semester supervised assignment (This assessment will be largely open-book), 40%; two hour examination, 60%.

VAC4092 STRUCTURAL ENGINEERING DESIGN 2
Campus Footscray Park
Prerequisite(s) VAC4091 Structural Design.
Content Simply supported beams. Basic methods involving load-balancing, crack control and full prestress. Prestress losses. Transfer. Bending strength. Web and...


**Class Contact** two hrs of lectures and one hr of tutorials per week.

**Assessment** three hour mid-semester supervised assignment. This assessment will be largely open-book. (Calculations, sketches, max word limit of 1500), 40%; two hour examination, 60%.

**VAM2011 COMPUTATIONS AND ENGINEERING ANALYSIS**

**Campus** Footscray Park

**Prerequisite(s)** RMA1002 Engineering Mathematics I A, and VAN1011


**Class Contact** 60 hours in one semester comprising lectures/tutorials/computer laboratory.

**Assessment** Computing test 1: two hours based on weeks 1--5, 30%. Computing test 2: two hours based on weeks 7-11, 30%; Theory test - two hours, 30%; On-going lab assignments (Word limit of 1000), 10%.

**VAM2042 THERMODYNAMICS AND FLUID MECHANICS I**

**Campus** Footscray Park

**Prerequisite(s)** VAN2041 Thermodynamics.


**Class Contact** three hrs of lectures and two hrs of tutorial/laboratory sessions per week.

**Assessment** Class Test: based on weeks 1--6 (calculations, sketchs, max word limit of 1000 words), 10%; Class Test: based on weeks 6--12 (calculations, sketchs, max word limit of 1000 words), 10%; Assessment 3: Lab on Ventture tube (calculations, sketches, max word limit of 1000 words), 10%; Assessment 4: Lab on refrigeration unit (calculations, sketchs, max word limit of 1000 words), 10%; Final Exam: 3hrs, 60%.

**VAM2062 MATERIALS AND MANUFACTURE**

**Campus** Footscray Park

**Prerequisite(s)** VAN2061 Engineering Materials.

**Learning Outcomes** Upon successful completion of this subject, students will be able to demonstrate

- an understanding of processes and key issues related to engineering science in manufacturing and environment.
- an ability to solve a range of numerical engineering problems found in engineering practice and engineering design.
- an ability, within the context of the subject areas above, to find and use relevant information, to formulate and solve specific problems, to work both autonomously and as a member of a team, and to effectively communicate ideas, issues, investigations and results by a variety of methods.


**Required Reading**

- Rajter, J. (2005), Structure and Mechanical Properties of Solids1, Victoria University. Class Notes
- Rajter, J. (2005), Manufacturing Materials: Part 1, Victoria University. Class Notes
- Kalpakjian, S. (2002), Manufacturing Engineering and Technology, Addison-Wesley

**Recommended Reading**


**Class Contact** 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars and laboratory sessions. In addition, students are expected to devote at least this much time for private and/or group study.

**Assessment** An individual portfolio which provides evidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, laboratory reports, site visit / project reports, reflective journals, workbooks, self and peer assessment.

**VAM3012 SIGNAL ANALYSIS**

**Campus** Footscray Park

**Prerequisite(s)** VAM2011 Computation and Engineering Analysis.

**Learning Outcomes** Upon successful completion of this unit, students will have:

- developed an understanding of processes and key issues related to modern measurement and signal analysis principles and techniques relating to mechanical engineering practice.
- demonstrated an ability to solve a wide range of problems and carry out design tasks pertaining to sensor selection and evaluation, and develop computer algorithms for a wide range of signal analysis techniques in the time and the frequency domains.
- completed work designed to improve a number of generic skills including problem identification / formulation / solution, effective oral and written communication, experimental techniques, computer skills and the ability to use a systematic approach to engineering investigation and algorithm development, as well as a capacity to undertake life-long learning.
Content This unit of study aims to give students an understanding of the principles of modern signal measurement and analysis with applications to mechanical engineering. It relies heavily on the development of computer algorithms and the use of specialist engineering software, and covers the following topics: Engineering measurement theory and fundamentals. Instrumentation and sensors for mechanical processes. Dynamic response of measurement systems. Data acquisition systems: analogue-to-digital converters, quantisation. Shannon’s sampling theorem. Aliasing. Anti-aliasing filters. Use of data acquisition and analysis software: Matlab®, DADSP®, HPVee®, Data file manipulation. Signal classification: Static, transient and dynamic signals, deterministic signals, random signals, non-stationary signals. Analysis and interpretation of digital experimental data: Time domain analysis: trends, RMS, moving statistics (mean, RMS), synchronous averaging, transient (shock) signals, probability distribution statistical estimates. Frequency domain analysis: Fast Fourier Transform (FFT), frequency spectra, spectrum types and scaling. Frequency response functions, coherence, signal-to-noise ratio. Introduction to wavelet transforms. The projects involve applications such as shocks and vibrations, noise contaminated signals, acoustic signals and other physical phenomena relating to modern mechanical engineering.


Class Contact This unit will be delivered in PBL mode and based on up to three projects to be undertaken by students working in teams. It will comprise 60 hours (5 hours equivalent per week) of lectures, tutorials, laboratory/field work, workshops and small group project work. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, laboratory reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAM3021 STRESS ANALYSIS 1

Campus: Footscray Park
Prerequisite(s): VAM2021 Solid Mechanics 2.

Required Reading: Lecture Notes by Danh Tran.


Class Contact 5 hrs of lectures and tutorials per week, including Finite Element computer based laboratory using a finite element software.

Assessment Assignment 1: Truss analysis by Solid Mechanics and Finite Element, 1500-2000 words, 10%; Assignment 2: Stress analysis by ANSYS, 1500-2000 words, 10%; Test 1: based on Week 1-4, open book one hour, 10%; Test 2: based on Week 5-8, open book, one hour, 10%; Examination: three hour, open book, 60%.

VAM3031 MECHANICAL ENGINEERING DESIGN 1

Campus: Footscray Park
Prerequisite(s): VAM2032 Engineering Design.
Learning Outcomes: Upon successful completion of this unit, students will have demonstrated:
• significant knowledge and competence in the application of fundamental mechanics and scientific skills to design and selection of mechanical elements.
• development of skills to identify, formulate and solve engineering design problems in a systematic way.
• an ability to use computing methods to solve mechanical engineering design problems.
• ability to work effectively as a member and/or leader of a team and to manage multiple tasks.
• ability to use mechanical engineering design skills to solve a plant design problem experienced in industry.

Content This unit of study aims to give students broad skills in designing a range of machine elements and more integrated plant used in mechanical engineering systems. It covers the following topics: Design of mechanical elements: Design of Power Screws and fasteners. Design of power transmission shafting, gears, cams and followers, Design and selection of rolling contact and journal bearings. Selection of chain drives, belt drives, clutches and couplings. Design of plant equipment: Machine Design, Design of Conveyors, Fan Duct systems, Piping systems. Pipe Flexibility. Programming for the design of mechanical elements and plant Design. Solids modelling of mechanical elements.


Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of lectures, tutorials, workshops and small group project work. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, design software development work, a reflective journal, and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAM3041 THERMODYNAMICS AND FLUID MECHANICS 2

Campus: Footscray Park
Prerequisite(s): VAM2042 Thermodynamics and Fluid Mechanics 1.
Content Availability analysis and second law efficiency of Thermodynamics. Carnot engines. Gas power cycles - the Otto cycle, Diesel cycle, gas-turbine cycle, and jet-propulsion cycle. Vapor and combined power cycles - Rankine cycle, using reheat and regeneration to improve the efficiency of the Rankine cycle. Introduction to viscous flows. Laminar and turbulent flows. Detailed analysis of wall shear flows (pipe and boundary layer) and free shear flows (jets and wakes).


Class Contact three hrs of lectures and two hrs of tutorial/labouratory sessions per week.

Assessment Class Test: based on weeks 1-6 (calculations, sketches, max word limit of 1000 words), 10%; Class Test: based on weeks 6-12 (calculations, sketches, max word limit of 1000 words), 10%; Assessment 3: Lab on external flows (calculations, sketches, max word limit of 1000 words), 10%; Assessment 4: Lab on Engine (calculations, sketches, max word limit of 1000 words), 10%; Final Exam: 3hrs, 60%.

VAM3071 DYNAMICS
Campus Footscray Park
Prerequisite(s) RMA1002 Engineering Mathematics 1B and REP1003 Engineering Physics 1C

Learning Outcomes Upon successful completion of this unit, students will have
• developed an understanding of processes and key issues related to particle dynamics and rigid body dynamics in two and three-dimensional space
• demonstrated an ability to solve a wide range of numerical problems and carry out design tasks on kinematics of particles, plane kinematics of rigid bodies, kinetics of particles, plane kinetics of rigid bodies and three-dimensional kinematics and kinetics of rigid bodies.
• completed work designed to improve a number of generic skills including problem identification / formulation / solution, effective oral and written communication, experimental techniques, computer skills and the ability to use a systematic approach to design, and a capacity to undertake life-long learning.

Content This unit of study aims to give students an understanding of principles of engineering dynamics including particle dynamics and rigid body dynamics (kinematics and kinetics) in two and three dimensional space, as well as to develop problem solving, computing and design skills in the areas of mechanism design and analysis. It covers the following topics. Introduction to dynamics, Kinematics of particles - rectilinear and plane curvilinear motion co-ordinates systems, 3-D curvilinear motion and relative motion. Plane kinematics of rigid bodies - rectilinear and plane curvilinear motion, relative velocity, instantaneous centre of zero velocity, relative acceleration, space curvilinear motion. Kinetics of particles - Newton's law, work and energy, impulse and momentum. Plane kinetics of rigid bodies - moments and products of inertia, Newton's law, work and energy, impulse and momentum. Three-dimensional dynamics of rigid bodies - kinematics, kinetics, gyroscopic motion.


Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of lectures, tutorials, laboratory/workshop, and small group project work. In addition, students are expected to devote at least the same amount of time for private and / or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, laboratory reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAM3072 MECHANICAL VIBRATIONS
Campus Footscray Park
Prerequisite(s) RMA1002 Engineering Mathematics 1B and REP1003 Engineering Physics 1C

Learning Outcomes Upon successful completion of this unit, students will have demonstrated:
• an understanding of key issues involved in the vibratory analysis of mechanical systems.
• an ability to identify, formulate and solve related problems, and to carry out associated design work.
• an ability to evaluate solutions against technical, environmental, economic and social criteria.

• an ability to work effectively as a member and/or leader of a team, and to time manage multiple projects.
• good communication skills, based on technical reports, discussions and debates.

Content This unit of study aims to give students a basic understanding of problem solving and design skills in Mechanical Vibrations. It covers the following topics: Introduction to mechanical vibrations and vibratory elements; Single Degree of Freedom Systems - free vibrations of undamped systems, free vibrations with viscous, coulomb and hysteretic damping, harmonically excited vibrations of undamped systems, response of damped systems to harmonically forced excitation and base motion, response of damped systems, equivalent viscous damping, general forcing functions; Two Degree of Freedom Systems - free vibrations of undamped systems, co-ordinate coupling, forced vibrations; Multi Degree of Freedom Systems - influence coefficients, Eigenvalue problem, determination of natural frequencies and mode shapes; vibration measurement, vibration control, random vibration analysis, random vibration simulation.


Class Contact This unit will be delivered in PBL mode and based on up to three projects to be undertaken by students working in teams. It will comprise 60 hours (5 hours equivalent per week) of lectures, tutorials, laboratory/workfield, workshops and small group project work. In addition, students are expected to devote at least the same amount of time for private and / or group study. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment / project reports including technical calculations, laboratory reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAM4021 COMPUTATIONAL MECHANICS
Campus Footscray Park
Prerequisite(s) VAM3022 Stress Analysis 2, VAM3072 Mechanical Vibration.


Required Reading Lecture Notes.


Class Contact 5 hrs of lectures and tutorials per week for 12 weeks, including computer based laboratory using software.


VAM4032 MECHANICAL ENGINEERING DESIGN 2
Campus Footscray Park
Prerequisite(s) VAM3031 Mechanical Engineering Design 1.

Content This unit aims to broaden students' design skills in several areas of mechanical engineering and to further develop a range of more generic skills including teamwork and communication. Students will generally work in small design teams to carry out projects relating to introductory design for optimisation, graphical optimisation, analytical and numerical search methods, linear programming, design for quality and Taguchi principles, and experimental optimisation.
Learning Outcomes On successful completion of this unit, it is expected that students will
• have developed an understanding of standard problem formulation for optimisation.
• have developed a working knowledge of graphical, analytical and numerical optimisation procedures.
• have learned the fundamental concepts of: quantifying quality in design, designing for quality, and design and assessment experimental optimisation procedures.

Required Reading Semencigl, E., VAM4032 Lecture notes.


Class Contact This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of lectures, design workshops / seminars and student team design work. In addition, students are expected to devote at least the same amount of time for private and/or group work on the design projects. The unit is worth 12 credit points.

Assessment Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of class.

VAM4041 HEAT TRANSFER AND COMBUSTION

Campus Footscray Park

Prerequisite(s) VAM3040 Thermodynamics and Fluid Mechanics 1.


Class Contact three hrs of lectures and two hrs of tutorials per week.

Assessment Assignment 1: based on weeks 1-6 (maximum 1500 words), 10%; Assignment 2: based on weeks 7-12 (maximum 1500 words), 10%; Test 1: based on weeks 1-6, 10%; Test 2: based on weeks 7-12, 10%; Laboratory Program: based on weeks 1-10, 10%; three hour examination, 50%.

VAM4042 FLUID DYNAMICS

Campus Footscray Park

Prerequisite(s) VAM3041 Thermodynamics and Fluid Mechanics 2.


Class Contact two hrs of lectures and three hrs of tutorials per week.

Assessment Assignment 1: based on weeks 1-3, 15%; Assignment 2: based on weeks 1-6, 15%; Assignment 3: based on weeks 7-8, 20%; Assignment 4: based on weeks 7-12, 20%; Assignment 5: based on weeks 7-12, 30%.

The assessment tasks will demonstrate that students are capable of presenting sustained intellectual arguments. Some of the arguments take the form of narratives, whilst some of the arguments will be intensely mathematical, but illustrative of the narratives. It is expected that the written work will be based on rational argument and it will not be based on dubious ways of knowing and epistemologies. It is anticipated that students will be able to celebrate the achievements of scientific method over primitive myths. Each assessment task will be 500-1000 words.

VAM4062 MANUFACTURING AND POLYMER TECHNOLOGIES

Campus Footscray Park

Prerequisite(s) VAM 2062 Materials and Manufacture.


Class Contact four hrs of lectures (common tutorials, site visits) and one hr of tutorials and laboratory classes per week.

Assessment Test 1 in week 5, 10%; Test 2 in week 11, 10%; Laboratory Reports and Assignments. Students are required to achieve a minimum of 40% in these assessment tasks to successfully complete the subject.

Assignments and laboratory reports have a limit of 2500 words (excluding diagrams, graphs, appendices and bibliography), 25%; three hour examination, 55%.

VAM4072 ADVANCED MECHANICS

Campus Footscray Park

Prerequisite(s) VAM4021 Computational Mechanics.


Required Reading Lecture notes.

VAM4082 AUTOMOTIVE ENGINES, ENERGY AND ENVIRONMENT
Campus Footscray Park
Prerequisite(s) VAM3041 Thermodynamics.
Content

Required Reading

Recommended Reading

Class Contact
60 hours in one semester comprising lectures, tutorials and practical laboratory sessions.
Assessment
Test 1: based on weeks 1-6 (calculation, sketch and maximum 1500 words), 15%; Test 2: based on weeks 6-12 (calculation, sketch and maximum 1500 words), 15%; Written laboratory reports, assignment and presentation (calculation, sketch and maximum 2000 words), 20%; Final Exam: three hours, 50%.

VAM4092 TRANSPORTATION AND PACKAGING DYNAMICS
Campus Footscray Park
Prerequisite(s) VAM3972 Mechanical Vibrations
Learning Outcomes
Upon satisfactory completion of the subjects students should have a good understanding of key principles underpinning the design of protective packaging for transportation, be familiar with experimental techniques relevant to performance testing of packaging and be equipped with specialist knowledge relevant to seeking employment in this field.

Content

Required Reading
Recommended Reading

Class Contact
60 hours in one semester comprising lectures, tutorials and practical laboratory sessions.
Assessment
Test 1: 90 minutes based on weeks 1-5
Test 2: 90 minutes based on weeks 6-10
A written laboratory report on package performance testing – calculations, figures and diagrams, discussion (max 1000 words) 15%
Essay on an aspect of modern packaging/transportation technology (max 1500 words) and its oral presentation (10 minutes) 20%
Exam – 3 hours 50%
• Levers and moments. 2D statical equilibrium. Free body force diagrams.
• Pin jointed trusses.
• Beams, loads and reactions. Internal forces in beams. Bending moment and shearing force diagrams for beams.
• 3D statical equilibrium.
• Direct stress and strain. Elastic modulus. Simple bending stress and strain. Shear stress and strain. Shear modulus; Poisson’s ratio.

Required Reading
• University, “WebCT” web site for the subject.

Recommended Reading

Class Contact 5 hrs equivalent per week made up of a mix of small group work, lectures, and workshops. In addition, students are expected to devote at least this much time for private and/or group study.

Assessment An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include two major parts: a skills audit and an assignment set which includes structural model making, drawings and project reports.

VAN1032 INTRODUCTION TO DESIGN
Campus Footscray Park
Prerequisite(s) Nil

Learning Outcomes Upon successful completion of this subject, students will:
• be able to identify apparent and real design problems and identify alternatives for a given design problem
• be able to evaluate various alternatives against various design criteria, such as environmental, economical, technical, human and legal
• be able to think independently and develop and exercise imagination and insight to solve a given engineering project
• have demonstrated an ability to work effectively as a member of a team, to write technical reports and to time manage multiple tasks
• have a sound understanding of graphic procedures appropriate to Engineering design and achieved a basic level of engineering graphic skills
• have demonstrated an appropriate level of professional written and oral communication skills.
• be able to prepare and use computer generated drawings as a means of communicating Engineering design to others
• be able to use the knowledge gained from this subject to conduct effective project-based, laboratory and measurement activities and report presentations for subjects at higher years of the course.

Content
• the design process and the history of Engineering design
• creative thinking in design, generating and evaluating design alternatives
• technical, environmental, human, economic, legal criteria for evaluation of design alternatives
• making the final decision in design
• professional Engineering drawing practice, projections and views, dimensioning, layout, assembly, detailed drawings and sketching
• computer generated drawings utilizing the commercial industry standard software AutoCAD.

Required Reading
• Fogler, H.S. and LeBlanc, S.E., 1995, Strategies for Creative Problem Solving, Prentice Hall PTR.

Recommended Reading

Class Contact 5 hrs equivalent per week made up of small group work, team meetings, workshops, seminars and presentations. In addition, students are expected to devote at least this much time for private and/or group study.

Assessment An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include skills audits, design project reports, design drawings and models, reflective journals, design notebooks, self and peer assessment, oral presentations.

VAN1051 ENGINEERING PROFESSION
Campus Footscray Park
Prerequisite(s) Nil

Learning Outcomes Upon successful completion of this subject, students will:
• be able to make effective oral presentations;
• be able to produce written text in a variety of genres
• be able to articulate at a fundamental level the “language of engineering”;
• have developed independent, self reflective learning and evaluation skills;
• have developed an understanding of the importance of science and engineering in a civilised society;
• have demonstrated a knowledge of appropriate ethical behaviour in professional engineers;
• be able to research and analyse engineering problems and identify a range of appropriate solutions;
• be able to demonstrate an understanding of environmental issues and sustainable development;
• be able to demonstrate an ability to work effectively as a member of a team and to manage multiple tasks;
• be able to demonstrate time management skills to complete a project in a specified time.

Content This subject gives students an understanding of how society has developed as a result of science and engineering, exploring the need for and the responsibilities of the professional engineer. Professional written and oral communication skills, time management and teamwork skills, self reflection and evaluation skills will be developed in the context of engineering issues. Topics considered include the role of an engineer, ethics, approaches to problem solving and design, the environment and sustainable development. Content is divided equally between consideration of these engineering issues and the development of written and oral communication skills.

• VU, Faculty of Arts 2006, Handbook of Communication Skills for first year students in the Faculty of Science, Engineering and Technology, 7th edn.

Recommended Reading

Class Contact 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

Assessment An individual portfolio which provides evidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, project reports, reflective journals, workbooks, self and peer assessment.

VAN2021 SOLID MECHANICS 2
Campus Footscray Park
Prerequisite(s) VAN1022 Solid Mechanics 1

Learning Outcomes Upon successful completion of this subject, students will be able to demonstrate:
• An understanding of and an ability to calculate the deflection of beams.
• Familiarity with failure modes of compression members.
• An understanding of the concepts of principal stress and Mohr’s circle.
• An understanding of twist and torsion in structures, and an ability to determine shear stress and angle of twist in simple structures.

Content
• Properties of sections, including area, centroids, first and second ‘moments’ of area.
• Polar moment of area. Principal axes of sections. Parallel axis theorem.
• Deflection of simple determinate beams. Deflections by Macaulay’s method and superposition.
• Failure modes and loads for compression members, includes squashing / elastic buckling and combined effect of direct and bending stresses.
• Stresses and strains in two dimensions, Mohr’s circle, principal stress.
• Elastic bending stresses and shear stress distribution in beams.
• Unsymmetrical bending. Shear centre. Principal axes.
• Torsion in solid and thin-wall tubes. Open and closed sections.
• Simple frames under bending.
Required Reading
- University, “WebCT” web site for this subject.

Recommended Reading

Class Contact
5 hrs equivalent per week made up of a mix of small group work, lectures, and workshops. In addition, students are expected to devote at least this much time for private and/or group study.

Assessment
An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include two major parts: a skills audit and an assignment set which includes structural model making, drawings and project reports.

VAN2032 ENGINEERING DESIGN
Campus: Footscray Park
Prerequisite(s): VAN 1022 Solid Mechanics 1

Learning Outcomes
Upon successful completion of this subject students will be able to demonstrate:
1. An understanding of the concepts for static and dynamic and structural actions.
2. The ability to apply concepts in the appropriate determination of design loads to an introductory level.
3. The ability to apply concepts in the design of simple structural and mechanical elements.
4. The ability to critically evaluate the sensibility of design outcomes.
5. The ability to present design outcomes in a professional manner.
6. The ability within the context of the subject areas, to formulate and solve specific design problems.
7. The ability to work both autonomously and as a member of a team, and effectively communicate design investigations by a variety of means.

Content
The structural design covers: Static dead and live loads, The fundamental rationale in choosing design loads and the calculation of specific loads. Design of simple structural steel beams and columns. Design of bolted and welded connections in simple shear or tension. The mechanical design covers: Design uncertainties and reliability, Theories of Static Failure, Load and High cycle fatigue failure, Linear and torsional impact failure. Many of the topics will be related to case studies such as building components and mechanical elements.

Required Reading
None required.

Recommended Reading
AS720-1 Timber Structures Code, Standards Australia.
AS4100 Steel Structure Code (2002), Standards Association of Australia.

Class Contact
5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars and presentations. In addition, students are expected to devote at least this much time for private and/or group study.

Assessment
An individual portfolio which provides documented evidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, project reports including technical calculations, reflective journals, workbooks, self and peer assessment.

VAN2041 THERMOFLUIDS
Campus: Footscray Park
Prerequisite(s): REP1002 Engineering Physics 1B, RMA1002 Engineering Mathematics 1B

Content

Application of these equations to pipe flows.

Required Reading
Recommended Reading

Class Contact
three hrs of lectures and two hrs of tutorial/laboratory sessions per week.

Assessment
Class Test: based on weeks 1-6 (calculations, sketches, max word limit of 1000 words), 10%; Class Test: based on weeks 6-12 (calculations, sketches, max word limit of 1000 words), 10%; Assessment 3: Lab on stability of floating body (calculations, sketches, max word limit of 1000 words), 10%; Assessment 4: Lab on Tube and Shell heat exchanger (calculations, sketches, max word limit of 1000 words), 10%; Final Exam: 3hrs, 60%.

VAN2061 ENGINEERING MATERIALS
Campus: Footscray Park
Prerequisite(s): VAN1022 Solid Mechanics 1 and REP1001 Engineering Physics 1A

Learning Outcomes
Upon successful completion of this subject, students will be able to demonstrate:
1. An understanding of processes and key issues related to engineering science in manufacturing and environment.
2. An ability to solve a range of numerical engineering problems found in engineering practice and engineering design.
3. An ability, within the context of the subject areas above, to find and use relevant information, to formulate and solve specific problems, to work both autonomously and as a member of a team, to effectively communicate ideas, issues, investigations and results by a variety of methods, and to work in culturally diverse settings.

Content

Required Reading
- Class Notes.

Recommended Reading

Class Contact
5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars, laboratory sessions and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

Assessment
An individual portfolio which provides evidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits,
laboratory reports, site visit / project reports, reflective journals, workbooks, self and peer assessment.

VAN3052 ENGINEERING MANAGEMENT
Campus Footscray Park
Prerequisite(s) Nil

Required Reading

Recommended Reading

Class Contact
three hrs of lectures; 1hr of tutorial and 1hr of computer laboratory session per week.

Assessment
Tutorial 1: based on weeks 1-6 (calculation, sketches max words 200), 10%; Tutorial 2: based on weeks 7-11 (calculation, sketches max words 200), 10%; Assignment 1: Use of application software Excel (computer applications, max word 300), 10%; Assignment 2: Use of application software MSProject 2000 (computer applications, max word 300), 10%; three hour examination, 60%.

VAN4011 ENGINEERING PROJECT 1
Campus Footscray Park
Prerequisite(s) Completion of all subject prescribed in Year 3
Content This subject constitutes a major capstone task for the engineering courses listed above, and provides students with the opportunity to integrate and further develop a range of technical and generic skills acquired in earlier course years. It will typically involve: preliminary investigation and follow-up explicit formulation of an engineering related problem, review of relevant literature and/or discussion with a range of stakeholders, critical analysis of the problem, development/testing of a range of possible alternative solutions, and evaluation of these against social, environmental and economic criteria prior to selection of a “best” solution.

This project will normally be continued in VAN4012, semester 2. Students are also required to undertake a number of activities relating to improvement in communication skills, resume preparation, job application, and development of good interview techniques.

Learning Outcomes
On successful completion of this unit, it is expected that students will
• be able to apply engineering knowledge and problem solving and project management skills learnt from the course.
• be able to formulate, plan, design and/or construct and test solutions for an engineering problem specific to their chosen discipline.
• have developed skills in working with technical support staff, fellow students, and (usually) industry and/or community representatives.
• have developed work-related skills including job application and interview techniques.

Required Reading
Lecture and class notes from various prerequisite units relating specifically to the project undertaken.

Recommended Reading
To be advised by the project supervisor on a similar basis to that above.

Class Contact
This unit will be effectively delivered in PBL mode, and will comprise 48 hours (4 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote an average of at least 6 hours per week for private and/or group work on the project and related issues. The unit is worth 12 credit points.

Assessment
Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio will typically be based on individual project participation (which may be demonstrated by a project reflective journal plus peer group / staff observations) and contribution to a comprehensive project report (around 50%), plus a project oral presentation, professional employment application and mock interview. Further details on portfolio components will be issued to students during the first week of classes.

VAN4012 ENGINEERING PROJECT 2
Campus Footscray Park
Prerequisite(s) Satisfactory completion of VAN4011 Engineering Project 1.
Content This subject constitutes a major capstone task for the engineering courses listed above, and provides students with the opportunity to integrate and further develop a range of technical and generic skills acquired in earlier course years. It will typically involve; preliminary investigation and follow-up explicit formulation of an engineering related problem, review of relevant literature and/or discussion with a range of stakeholders, critical analysis of the problem, development/testing of a range of possible alternative solutions, and evaluation of these against social, environmental and economic criteria prior to selection of a “best” solution.

(The project work undertaken here will normally be a continuation of that carried out in VAN4011).

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
• be able to apply engineering knowledge and problem solving and project management skills learnt from the course.
• be able to formulate, plan, design and/or construct and test solutions for an engineering problem specific to their chosen discipline.
• have developed skills in working with technical support staff, fellow students, and (usually) industry and/or community representatives.

Required Reading
Lecture and class notes from various prerequisite units relating specifically to the project undertaken.

Recommended Reading
To be advised by the project supervisor on a similar basis to that above.

Class Contact
This unit will effectively be delivered in PBL mode, and will comprise 48 hours (4 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote an average of at least 6 hours per week for private and/or group work on the project and related issues. The unit is worth 12 credit points.

Assessment
Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio will typically be based on individual project participation (which may be demonstrated by a project reflective journal plus peer group / staff observations) and contribution to a comprehensive project report (around 70%), plus a project oral and poster presentation (around 30%). Further details on portfolio components will be issued to students during the first week of classes.

VAN4051 ENGINEERING PROJECT MANAGEMENT
Campus Footscray Park
Prerequisite(s) VAN3052 Engineering Management
Content The role of engineering project management in the industry. Roles of Project Manager. Tendering process, strategies and practices. Forms of construction contracts. Contract administration phases. Cost management system for the progressive cost control of a project. Plan site administration of medium sized projects. Financial feasibility for long-term development projects, break-even analysis, engineering project evaluation, and preparation of project cash flow budgeting, current construction industry practices. Understand various forms of project delivery methods. Developing quality management system, Developing quality assurance process; measuring process performance; feedback and corrective action; responding to external changes; alternative approaches to total quality management; identifying the required resources - in terms of human, machines and materials; understanding the need vs. wants; selecting and apportioning in a resource limited situation; managing through people; motivation; use of power; management styles; effective project communication; Non adversarial approach to people management; role of unions and employer organisations in engineering industry; legal aspects relating to contracts, responsibility and liability of a manager running a small engineering company.

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
• understand project cash flow and budget with respect to project control at various stages of the projects.
• undertake preliminary financial feasibility of a typical engineering facility.
• participate effectively as a member of a multi-discipline project control group.
• understand and implement quality management in an engineering industry.
• understand the role of unions and employer organisations in engineering industry.
• deal with resource conflict and be able to resolve them.
• develop an understanding of processes involved in running a successful engineering business.
VAR2001 MECHATRONICS 1
Campus Footscray Park
Prerequisite(s) NIL

Content Co-ordinate and measurement systems, actuator and control systems, application of kinematics and dynamic concepts, trajectory planning and control, electronic and mechanical devices, sensors and instrumentation, application of power motors, actuators and transmission devices.

Required Reading

Recommended Reading

Class Contact
Three hours of lectures and two hours of tutorials per week.

Assessment
Laboratory report #1, 5%; Laboratory report #2, 5%; Laboratory report #3, 5%; Assignment (maximum 1500 words), 10%; Mid-semester test, 10%; Tutorial presentation, 5%; three hour examination, 60%.

VCC8001 RESEARCH THESIS FULL TIME
Campus Footscray Park
Prerequisite(s) NIL

Content The subject will enable students to: identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the School of the Built Environment and by a joint supervisor external to the Department. The external supervisor will be an academic from another Department/School at Victoria University or from another institution or an industry practitioner.

Required Reading To be advised by lecturer.

Class Contact Six hours per week for two semesters.

Assessment Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the School or the institution and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiners’ discretion. Each examiner will independently recommend one of the following outcomes to his/her assessment of the thesis; (a) pass without further examination; (b) pass, subject to corrections to the satisfaction of the School’s Research and Graduate Studies Committee; (c) candidate to pass a written or oral examination to pass thesis; (d) deferred for resubmission after major revision; (e) fail. In the event that there is disagreement between the examiners, a third examiner will be appointed.

VCC8002 RESEARCH THESIS FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/Research/ResearchTraining/MajorResearchAreas/AssessmentcriteriaandCoreResearchGraduateAttributescanbefoundontheOfficeforPostgraduateResearchwebsiteatthefollowinglink:http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/Policies/PoliciesandGuidelines/

VCC8011 RESEARCH THESIS (PART-TIME)
Campus Footscray Park
Prerequisite(s) NIL

Content The subject will enable students to: identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the School of the Built Environment and by a joint supervisor external to the Department. The external supervisor will be an academic from another Department/School at Victoria University or from another institution or an industry practitioner.

Required Reading To be advised by lecturer.

Class Contact Six hours per week for two semesters.

Assessment Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the School or the institution and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiners’ discretion. Each examiner will independently recommend one of the following outcomes to his/her assessment of the thesis; (a) pass without further examinations; (b) pass, subject to corrections to the satisfaction of the School’s Research and Graduate Studies Committee; (c) candidate to pass a written or oral examination to pass thesis; (d) deferred for resubmission after major revision; (e) fail. In the event that there is disagreement between the examiners, a third examiner will be appointed.

VCC8012 RESEARCH THESIS (SEMESTER 1/2)
Campus Footscray Park
Prerequisite(s) NIL

Content The subject will enable students to: identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both
the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the School of the Built Environment and by a joint supervisor external to the Department. The external supervisor will be an academic from another Department/ School at Victoria University or from another institution or an industry practitioner.

Required Reading To be advised by lecturer.

Class Contact Six hours per week for two semesters.

Assessment Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the School or the institution and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiners’ discretion. Each examiner will independently recommend one of the following outcomes to his/her assessment of the thesis: (a) pass without further examinations; (b) pass, subject to corrections to the satisfaction of the School’s Research and Graduate Studies Committee; (c) candidate to pass a written or oral examination to pass thesis; (d) deferred for resubmission after major revision; (e) fail. In the event that there is disagreement between the examiners, a third examiner will be appointed.

VCC8012 RESEARCH THESIS (PART TIME)
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VCC8040 PROJECT WORK (FULL-TIME)
Campus Footscray Park

Prerequisite(s) Research Methodology or Concurrently with it.

Learning Outcomes Students will be able to define and solve problems and issues related to industry. Be capable of analysing and finding appropriate solutions to problems using analytical and statistical techniques.

Content The subject enables students to: identify a project problem and critically review relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the project undertaken, both clearly and accurately in a written report. The report topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The report will normally be from 8000 to 15,000 words. It will detail the problem, relevant literature, analysis conducted, conclusions and recommendations. Students will be supervised by an academic member of staff and where appropriate by a supervisor from another institution or from industry.

Required Reading To be advised by lecturer.

Class Contact Six hours per week for one semester.

Assessment Assessment will be by project work and report.

VCC8054 PROJECT WORK
Campus Footscray Park

Prerequisite(s) Research Methodology or Concurrently with it.

Learning Outcomes Students will be able to define and solve problems and issues related to industry. Be capable of analysing and finding appropriate solutions to problems using analytical and statistical techniques.

Content The subject enables students to: identify a project problem and critically review relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the project undertaken, both clearly and accurately in a written report. The report topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The report will normally be from 8000 to 15,000 words. It will detail the problem, relevant literature, analysis conducted, conclusions and recommendations. Students will be supervised by an academic member of staff and where appropriate by a supervisor from another institution or from industry.

Required Reading To be advised by lecturer.

Class Contact Three hours per week for one semester.

Assessment Assignments, 20%; group project, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.
VCP5610 Project Management Planning and Control

Campus Footscray Park
Prerequisite(s) VCP5400 Project Management Fundamentals (normally).

Content The subject will review the development process of a project from its inception through to feasibility and go-ahead decision; detail design documentation, construction commissioning and life cycle planning; evaluate the role and function of Project Management in this process; explain the purpose and to detail the theoretical basis of various techniques used for planning and managing the building process. The subject content includes: Systems approach to project planning; basic principles and theory of systems analysis; current trends in community project planning. Overview of subject and introduction to project. Management of a ‘Public Interest Project’. Preparation of financial feasibility of a building project; factors involved, issues to be considered at concept stage; introduction of a case study. Capital decision making for project managers; cost concepts and cost factors. Project control and cost planning at feasibility and design stage. Cost versus quality assurance. Project control during construction phase; breakdown of the project for estimating, budgeting and financial control; project team planning; networks and other scheduling techniques; resource levelling; line of balance concepts. Project cost planning and control in public sector; pre-construction cost control, construction cost control; N.P.W.C. cost control method: data support system to cover - contingency, indexation and methods of monitoring and reporting. Project team planning: duties and responsibilities of the project manager. Planning techniques for high rise building construction, multi-activity chart; principles of production engineering applied to repetitive processes in building construction; special problems of high-rise design and construction. Principles of decision analysis; review of mathematical theory; application to decision process under uncertainty. Value engineering concepts and its application to building design and construction; application of value analysis in project management. Role and responsibilities of client’s member on P.M. team; risk sharing at various stages of project between the parties involved in the process; role of P.M. in client awareness of risks and rewards.

Required Reading To be advised by lecturer.


Class Contact Three hours per week for one semester.

Assessment One major group project, 40%; two individual assignments, 20%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5620 Project Management and Contracts

Campus Footscray Park
Prerequisite(s) VCP5400 Project Management Fundamentals (normally).

Content The subject will develop students’ skills in the use of a number of software packages in the areas of General Project Management Information Systems and Specialised Project Management Information Systems. Students will gain appreciation of where computer packages can aid the project management process for feasibility and sensitivity analysis, planning and monitoring and information processing and decision support functions. The subject content includes the decision to computerise, hardware and software procurement considerations, current computer usage in this industry; overview of computer hardware and software, current computer trends; overview of Project Management Information Systems (spreadsheet/financial modelling, planning and resource control, Data Base Management Systems (DBMS), and 4th Generation Languages (4GLs)); detailed investigation of at least two software packages from item above; managing change and introduction of computers, the machine/human interface, training and installation problems and opportunities simulation modelling as an alternative to traditional, activity based management systems; trends in CAD and its impact on Project Management; quality control and Project Management Information Systems.

Required Reading To be advised by lecturer.


Class Contact Three hours per week for one semester.

Assessment Individual assignment, 15%; group assignment presentation, 5%; report, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5705 Project Management and Information Technology

Campus Footscray Park
Prerequisite(s) Nil.

Content This subject will develop students’ skills in the use of a number of software packages in the areas of General Project Management Information Systems and Specialised Project Management Information Systems. Students will gain appreciation of where computer packages can aid the project management process for feasibility and sensitivity analysis, planning and monitoring and information processing and decision support functions. The subject content includes the decision to computerise, hardware and software procurement considerations, current computer usage in this industry; overview of computer hardware and software, current computer trends; overview of Project Management Information Systems (spreadsheet/financial modelling, planning and resource control, Data Base Management Systems (DBMS), and 4th Generation Languages (4GLs)); detailed investigation of at least two software packages from item above; managing change and introduction of computers, the machine/human interface, training and installation problems and opportunities simulation modelling as an alternative to traditional, activity based management systems; trends in CAD and its impact on Project Management; quality control and Project Management Information Systems.

Required Reading To be advised by lecturer.


Class Contact Three hours per week for one semester.

Assessment Individual assignment, 15%; group assignment presentation, 5%; report, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5716 Project Development

Campus Footscray Park
Prerequisite(s) Nil.

Content The subject will develop skills and techniques to assess and manage building property and to appreciate the role and objectives of developers and property managers. Subject content examines Management of property in the economy: An overview: typology of property relationship between project management and Property Management. Feasibility and economic issues in development of property: Elements of a property development feasibility study. Parameters of property investment. Decisions including market analysis and financial evaluation techniques. Property investment criteria and considerations. Management of the development process (a client perspective): client briefing; formation of project team; design

**Required Reading**
To be advised by lecturer.

**Recommended Reading**

**Class Contact**
Three hours per week for one semester.

**Assessment**
Assignments, 15%; project group, 45%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

**VCP5726 PROJECT PROCUREMENT MANAGEMENT**
Campus Footscray Park

**Prerequisite(s)** Nil.

**Content**
The subject will develop an understanding of procurement systems and modern building technology with respect to procurement options available to project sponsors including build-ability and use-ability issues: The subject content provides an overview of procurement systems and modern technology and the problems that have arisen from it; the lessons to be learned from them and how to try and avoid similar pitfalls in the future. Forms of traditional and non-traditional procurement options such as D&B, GMP, BOO/BOT. Modern building materials and the problems that are being encountered in their use, including concrete, cement sheet, brickwork, etc. Building materials and their modern usage, including aluminium, steel and plastics; looking at usage and cost considerations. Modern formwork systems. Fire protection approach to building. On-site considerations. Materials handling — cranes, hoists, concrete control, concrete pumping and mix design criteria, safety factors and cost implications. Modern construction techniques.

**Required Reading**
To be advised by lecturer.

**Recommended Reading**

**Class Contact**
Three hours per week for one semester.

**Assessment**
Assignments, 15%; group project, 45%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

**VCP5745 BUILDING REGULATORY MANAGEMENT**
Campus Footscray Park

**Prerequisite(s)** Nil.

**Content**

**Required Reading**
To be advised by lecturer.

**Recommended Reading**

**Class Contact**
Three hours per week for one semester.

**Assessment**
Assignments, 20%; group project, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

**VCP5736 FACILITY LIFE CYCLE COSTING**
Campus Footscray Park

**Prerequisite(s)** Nil.

**Content**
A description of and the need for consideration of lifecycle costing; maintainability and efficiency. Terotechnology: why we need to use terotechnology in building industry; economic and technical factors - measures of performance; present state of knowledge. An integrated treatment of design, specification, construction use, maintenance and re-use phases for building and the effect on the life-cycle costs of the building. Discounting theory. Time value of money; discounting formulae; inflation; depreciation, taxation; before and after-tax project return; evaluation methods for economy studies. Theory of life-cycle cost optimisation. Basis of theoretical analysis of costs; total life-cost concepts; maintenance costs and capital costs; energy costs and capital costs; taxation and other factors; constraints; technical and others. Practice of life-cycle cost optimisation. Case study; practical issues; introduction; outline of factors to be considered in building obsolescence and refurbishment; market aspects; physical aspects and limitations; authorities and regulatory constraints; economic constraints. Measurement and the assessment of utilisation of resources during each phase of the building process. Design phase (including brief documentation); construction phase; functional (occupational) life; re-evaluation as to refurbish or demolish phase. Asset management using an integrated planning and budgeting approach. Need for an integrated system; provision of funds at regular intervals and/or in emergency situations; fabric of building and other services; total assets management; case-studies - Latrobe system, others. Operational control. Control systems; identification of effective, preventive and remedial measures. Establishment of a maintenance policy. Preventive maintenance; corrective maintenance; records and register for maintenance as a control tool; accounting and costs records and criteria. Degradation of buildings. Identification of maintenance approaches for building structure, fabric, equipment and plant; nature and causes of degradation. Information and management systems. Building services supervisory system; description Local Monitoring and Central Systems (LMCSs); Central Supervisory Systems (CSS). Building engineering services information and management systems; functions; commercially available packages; selection, evaluation of benefits. Case study presentation and review.

**Required Reading**
To be advised by lecturer.

**Recommended Reading**

**Class Contact**
Three hours per week for one semester.

**Assessment**
Assignments, 20%; group project, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.
telecommunications project and provide an understanding of differences between
generic and telecom project management: Telecommunications trends and practice.
ITU standards. Management of Telecommunications infrastructure projects. Landline
projects. Wireless projects. Telecommunications services projects management.
Software-based projects. Data and IP services projects. Telecommunications project
initiation. Project life cycle. Telecommunications laws and regulations. Tender and
contract management. Requirements and change management. Quality control,
compatibility and interconnection requirements. Risk analysis and arrangement.
Project integration management. Testing and telecommunications network
management.

Required Reading To be advised by lecturer.

Recommended Reading Pruitt, J.B., Telecommunications Project Management
(Intertec Pub. Corp./Telephony). Tenplan, K., Communication Networks Management,
Telecommunication Union TSS Recommendations.

Class Contact Three hours per week for one semester.

Assessment Assignments, 20%; group project, 40%; examination, 40%. Students
must attain a mark of at least 50% in each assasessable component to pass this
subject.

VMC5672 NUMERICAL TECHNIQUES AND PROGRAMMING
Campus Footscray Park

Prerequisite(s) Nil.

Content Computer arithmetic and errors. Linear algebra, matrix decomposition,
solution of linear equations, eigenvalue problems. Non-linear equations. Curve fitting,
splines. Partial differential equations, parabolic, elliptic and hyperbolic equations.
Implementation by computer programming.

Required Reading Press et al., 2002, Numerical recipes in C++: The art of scientific
computing, Cambridge University Press. Schilling and Harris, 2000, Applied numerical

Recommended Reading Chapman, 2002, MATLAB programming for engineers,

Class Contact Three hours weekly (one lecture, two tutorials/computer based
laboratory) for 12 weeks.

Assessment Final assessment, 50% (Five assignments on computer implementation
of numerical algorithms, each of 2500-5000 words 10% each). Final Examination,
three hours, (50% of final assessment). Students must attain a mark of at least 50% in
each component to pass this subject.

VMC5771 COMPUTER AIDED ENGINEERING
Campus Footscray Park

Prerequisite(s) Nil.

Content Solid modelling: bottom-up modelling, top-down modelling. Key points, lines,
areas, volumes Solid Modelling primitives. Boolean operations. Solid modelling from
imported CAD files. Rigid body motion analysis: virtual prototyping processes Model
hierarchy, objects, measures, constraints, parts, joints, forces. Markers, construction
Static Stress Analysis. Post Processing and graphic presentation of results. Integrated
workbench, animation and simulation of engineering problems.

Required Reading Zeid, 2004, Mastering CAD/CAM, McGraw-Hill. Feng and Tang,
2001, Classical and Computational Solid Mechanics, World Scientific. Zienkiewicz and

Recommended Reading Moaveni, 1999, Finite Element Analysis, Prentice Hall. Cook,
1995, Finite Element Modelling for Stress Analysis, Wiley. Manuals of the following
software: ADAMS, SOLIDWORKS, PRO/ENGINEER, ANSYS, ABAQUS, NASTRAN.

Class Contact Three hours weekly for 12 weeks, comprising of one lecture and two
tutorials.

Assessment Three assignments, 60% (each of 20% based on analytical and
computational works and report of 5000-7500 words); three-hour final examination,
40% (open book). Students must attain a mark of at least 50% in each component to pass this subject.

VMES5782 SPECIALIST ELECTIVE
Campus Footscray Park

Prerequisite(s) VNM5771 Research Techniques.

Content One of the following topics, subject to staff availability: VMES5782Composite
materials design, VMF5882 Flow measurement techniques, VMSS5772 Optimization,
VMSS5772 Transportation and packaging dynamics.

Required Reading As recommended by the lecturers.

Recommended Reading As recommended by the lecturers.

Class Contact Three hours weekly comprising of lectures, tutorials and laboratory for
12 weeks.

Assessment As specified by the Lecturer of the Specialist Elective chosen.

VMB5881 ADVANCED FLUID-THERMODYNAMICS
Campus Footscray Park

Prerequisites Nil.

Learning Outcomes 1. Understand and be able to apply the various turbulence models
to solve practical fluid related engineering problems. 2. Understand and be able to
calculate the heat transfers from conduction, convection and radiation. 3. Understand
the combustion phenomena in internal combustion engines and in fire spread in
buildings.

Content Viscous flow, laminar boundary layers, wall-bounded shear flows, flow
stability, flow separation, free shear flows. Turbulence models, Navier-Stokes and
Reynolds equations, general conservation equations, modelling of production,
diffusion, and dissipations in turbulent flows. Heat transfer, modelling of heat
transfers from conduction, convection and radiation, application in modelling
the smoke spread in buildings and internal combustion. Combustion, combustion
equations, premixed laminar flames, gaseous diffusion flames, turbulent flames.

Required Reading Cengel and Turner, Fundamentals of Thermal-Fluid Sciences,
An Engineering Approach to the Calculation of Aerodynamic Flows: Laminar, Turbulent
& Transitional Boundary Layer Methods, Inviscid Methods & Stability/Transition
Methods, Springer-Verlag, 1999 Schlichting et al, Boundary Layer Theory, Springer-
Verlag, 1999

Recommended Reading Work, Advanced Thermodynamics for Engineers, McGraw
Viscous Fluid Flow, MacGraw-Hill, 1991

Class Contact Three hours weekly of lectures, tutorials, and laboratory for 12 weeks.

Assessment Two assignments (20%)(each of 10%, 2500-5000 words), one one-hour
test (10%), laboratory (20%), and Final three hour examination (50%).

VMP5872 RESEARCH PROJECT
Campus Footscray Park

Prerequisites VWM5771 Research Techniques.

Content Methods of formulating research problem, literature survey, Techniques of
poster presentation, final report, research seminar. Carrying out a research project
of choice: acquiring data, processing data. Presenting findings in seminar, by poster
presentation and writing research report.

Required Reading Evans, 1995, How to write a better thesis or report, Melbourne
University Press.

Recommended Reading Beer, D., and McMurray, D., 1997, A guide to writing as an
Engineer, Wiley.

Class Contact Lectures, tutorials and project presentation in the form of poster and
seminars, three hours per week for 12 weeks.

Assessment Project presentation, 40% (Project proposal 10%, poster presentation
10%, seminar presentation 20%); Final Report, 60%. Students must attain a mark of
at least 50% in each component to pass this subject.

VRB8001 RESEARCH THESIS 1 FULL TIME
This unit of study is part of a research degree program. Information on research
topics for the Faculty of Health, Engineering and Science may be found on
the faculty website at the following link: http://www.vu.edu.au/Faculties/
HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office
for Postgraduate Research website at the following link: http://www.vu.edu.au/
Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VRB8002 RESEARCH THESIS 2 FULL TIME
This unit of study is part of a research degree program. Information on research
topics for the Faculty of Health, Engineering and Science may be found on
the faculty website at the following link: http://www.vu.edu.au/Faculties/
HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office
for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OficcerofPostgraduateResearch/PolicyProcessesandGuidelines/

VMR8011 RESEARCH THESIS 1 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorsResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OficcerofPostgraduateResearch/PolicyProcessesandGuidelines/

VMR8012 RESEARCH THESIS 2 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorsResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OficcerofPostgraduateResearch/PolicyProcessesandGuidelines/

VMT5882 COMPUTATIONAL FLUID DYNAMICS
Campus Footscray Park
Prerequisite(s) Nil
Content The numerical schemes used for CFD, their accuracy and stability limit. Turbulence models: eddy viscosity concept, k-?, RNG models; turbulence models near the wall. Boundary and initial conditions specification, wall boundary, open boundary, inlet and exit; How to divide the computation domain into small regions; Grid generation and near wall requirement; CFD simulations for smoke spread during a fire in building, air-conditioning system, air flow inside an engine manifold and exhaust system. Basic concept of LES and DNS, their applications and limitations.
Class Contact Three hours of lectures, tutorials, and computer-based laboratory per week for 12 weeks.
Assessment Three assignments, 30% (each of 10%, 2500-5000 words); one one-hour test, 10%; laboratory, 20%; final three-hour examination, 50%. Students must attain a mark of at least 50% in each component to pass this subject.

VMM5781 ADVANCED DYNAMICS AND VIBRATIONS
Campus Footscray Park
Prerequisite(s) Nil
Class Contact Three hours weekly of lectures and tutorials, laboratory for 12 weeks.
Assessment Four assignments, 30% (each of 10%, 2000-3000 words); laboratory, 20%; one three-hour open book examination, 50%. Students must attain a mark of at least 50% in each component to pass this subject.

VMW5782 COMPUTATIONAL DYNAMICS
Campus Footscray Park
Prerequisite(s) VMM5781 Advanced Dynamics and Vibration.
Class Contact Three hours per week for 12 weeks, comprising of lectures, tutorials, experimental laboratory and computer-based laboratory.
Assessment Three assignment, 20% (each of 10% and 2500-5000 words); laboratory, 20%; one three-hour final examination, 50%. Students must attain a mark of at least 50% in each component to pass this subject.

VMW5682 MANUFACTURING MATERIALS
Campus Footscray Park
Prerequisite(s) Nil
Content Advanced topics in the following areas: Fabrication processes in casting, cutting and solid shaping and their relationship to polymeric, ceramic and metallic materials. Selection of materials for clean manufacturing.
Class Contact Lectures, tutorials and seminars, three hours/week for 12 weeks.
Assessment Three assignments, 60% (each of 4000-5000 words; two two-hour tests, 40%.

VMWS771 RESEARCH TECHNIQUES
Campus Footscray Park
Prerequisite(s) Nil
Content An overview of the history of engineering and scientific research. An introduction to the philosophy of science and the ideas of Popper, Kuhn, Feyerabend and others. Design and Analysis of Experiment. Error and uncertainty. Statistical Data Analysis. Taguchi method for design and experiments.
Class Contact Three hours per week of lectures, tutorials and laboratory-based assignments for twelve weeks.
Assessment Four assignments, 40% (each of 10%, of 2500-5000 words); final three-hour examination, 60%. Students must attain a mark of at least 50% in each component to pass this subject.

VMW5682 EXPERIMENTAL TECHNIQUES AND SIGNAL PROCESSING
Campus Footscray Park
Prerequisite(s) Nil
Content Engineering measurement theory and fundamentals; Instrumentation for mechanical processes; Signal conditioning and dynamic response of measurement systems; Data acquisition systems; Frequency filters. Interfacing with computers. Signal theory: Time domain analysis; Synchronistic averaging, probability distribution estimates and statistical parameters; Frequency domain analysis: Fast Fourier Transform (FFT); Shock Response Spectrum; Frequency response functions, coherence, signal-to-noise ratio; Non-stationary signals; Non-Gaussian signals.
VPPS600 PRINCIPLES OF PROJECT MANAGEMENT
Campus Footscray Park
Prerequisites Nil.
Co-requisites Nil.

Learning Outcomes It will equip professionals already in industry with advanced principles and techniques of project management to enable them to assume the role of project manager and/or become effective members of project management teams.

Content The unit of study (UoS) will introduce and define project management as applicable to the concept, development design and documentation, procurement and maintenance, of any facilities including buildings and infrastructure. To introduce participants to Project Management Principles and learn about working in a project team environment. The UoS examines the following topics. Introduction to Project Management: PM’s role in achieving a successful project in industry and environment; definitions of the Management and Project Management. Trends in project management - historically and the current environment; managerial perspective; trend towards various modes of project delivery. Comparison of performance in public/private sectors; overview of future developments. The interrelationship between owner, developer, financial sources, designers and contractors. Role and task of functional activities of project managers: setting of project objectives; feasibility analysis; setting of budget; control of contract time and quality; risk apportionment between various parties. Design to user requirements: planning for life-cycle of the facility; management of small to medium size projects; role descriptions of project manager, architect, consultants and owners. Environmental and social constraints. Preparation EIS for building development project. Case studies illustrating the various aspects of project management.

Required Reading Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.


Class Contact Three hours per week for one semester.

Assessment Assignments, 20%; group project, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPPS660 PROJECT STAKEHOLDERS MANAGEMENT
Campus Footscray Park
Prerequisites Nil.
Co-requisites VPPS600 Principles of Project Management.

Learning Outcomes It will equip professionals already in industry with processes and knowledge to deal with project scenarios. It will enable them to assume the role of and participating in the various functions involved in the project. The UoS will make the various stakeholders aware of their responsibilities as well as their liabilities.

Content The unit of study (UoS) will develop an understanding and appreciation of management environment in Australia; evaluate current state of standard forms of contracts and its relevance to procurement of buildings by project management techniques. The UoS examines formal organisational structures; role of project manager. Evaluation of managerial thought; management process - human and organisational aspect; human behaviour in organisations; current trends in organisational structure; comparison of U.S. and Australian management scene; overview of Australian management trends in construction industry. An introductory examination of the Australian legal system. The role of Parliaments and the process of passing and the effect of legislation. The authority and the hierarchy of the Courts. General principles of contract law. An examination of the new draft form of A$40000 form of contract. A comparison of standard forms of contracts. An outline of the law relating to the principles concerning project management. Examination of the different types of project management. Formation of a contract. Terms of a contract. Avoidance. Discharge of a contract. Remedies. Quantum merit. Contractual and working relationship between various stakeholders in the project. Roles and Responsibilities of each stakeholder; risk apportionment between various stakeholders as well as determination of risks to be covered by assurances, bonds or other instruments.

Required Reading Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.


Class Contact Three hours per week for one semester.

Assessment By assignments and projects and class participation. Assignment 1, 30%; exercises and assignments, 40%; class participation, 10%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPPS610 PROJECT PLANNING AND CONTROL
Campus Footscray Park
Prerequisites Nil.
Co-requisites Nil.

Learning Outcomes It will equip professionals already in industry with advanced principles and techniques of project management to enable them to assume the role of project manager and/or become effective members of project management teams.

Content The unit of study (UoS) will review the development process of a project from its inception through to feasibility and go-ahead decision; detail design documentation, construction commissioning and life cycle planning; evaluate the role and function of Project Management in this process; explain the purpose and to detail the theoretical basis of various techniques used for planning and managing the process. The UoS content includes: Systems approach to project planning; basic principles and theory of systems analysis; current trends in community project planning. Overview of UoS and introduction to project. Management of a Public Interest Project. Preparation of financial feasibility of a development project: factors involved, issues to be considered at concept stage; introduction of a case study. Capital decision making for project managers; cost concepts and cost factors. Project control and cost planning at feasibility and design stage. Cost versus quality assurance. Project control during development phase; breakdown of the project for estimating, budgeting and financial control; project time planning; networks and other scheduling techniques; resource levelling; line of balance concepts. Project cost planning and control in public sector; pre-development cost control; cost control method: data support system to cover contingency, indexation and methods of monitoring and reporting. Project team planning: duties and responsibilities of the project manager. Planning techniques for repetitive construction, multi-activity chart; principles of production engineering applied to repetitive processes in projects; special problems of repetitive projects. Principles of decision analysis; review of mathematical theory; application to decision process under uncertainty. Value engineering concepts and its application to design and development; application of value analysis in project management. Role and responsibilities of client’s member on P.M. team; risk sharing at various stages of project between the parties involved in the process; role of P.M. in client awareness of risks and rewards.

Required Reading Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.


Class Contact Three hours per week for one semester.

Assessment One major group project, 40%; two individual assignments, 20%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this UoS.
Upon completion of the UoS, the students should be able to understand risk and risk profile in a typical project, conduct a simple risk assessment and develop a risk management plan.

Content This unit of study (UoS) studies the fundamentals of risk management and risk management theories in relation to projects, definitions of risks and opportunities, risk management system, risk identification and classification, risk probability and impact, qualitative risk analysis techniques, quantitative risk analysis techniques, risk treatment methods, decision making, risk perception, risk communication, risk analysis software introduction, risk versus opportunity. Case studies are used to examine and develop understanding of risk management system and its implementation.

Required Reading Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.


Class Contact Three hours per week for one semester.

Assessment Assignments, 50%; Exam, 50%.

VPP5621 PROJECT RISK MANAGEMENT
Campus Footscray Park
Prerequisites Nil.
Co-requisites Nil.

Learning Outcomes Upon the completion of this UoS, the students should be able to understand the range of research methods and techniques and how they contribute to the development of specific skills and knowledge in project risk management.

Content This unit of study (UoS) aims at informing students of the range of research methods appropriate to the project management discipline and developing basic skills for carrying out research. It introduces nature of research, types of research, research problems and objectives, literature review, research design, research ethics, data collection, measurement and analysis methods, typical qualitative and quantitative methods, development of research proposal, advanced information retrieval skills, etc.

Required Reading Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.


Class Contact Three hours per week for one semester.

Assessment Assignments, 15%; group project, 45%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPP8050 PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 12CP)
Campus Footscray Park
Prerequisites VPP5621 and concurrently with it. Nil.

Learning Outcomes Students will be able to define and solve problems and issues related to industry. Be capable of analysing and finding appropriate solutions to problems using analytical and statistical techniques.

Content The unit of study (UoS) enables students to: identify a project problem and critically review relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the project undertaken, both clearly and accurately in a written report. The report will normally be from 8000 to 15,000 words. It will detail the problem, relevant literature, analysis conducted, conclusions and recommendations. Students will be supervised by an academic member of staff and where appropriate by a supervisor from another institution or from industry.

Required Reading Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.


Class Contact A three-hour briefing is given to students at the start of the UoS. Three hours per week for two semesters.

Assessment Assessment will be by project work and report.

VPP8060 PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 24CP)
Campus Footscray Park
Prerequisites VPP5621 and concurrently with it. Nil.

Learning Outcomes Students will be able to define and solve problems and issues related to industry. Be capable of analysing and finding appropriate solutions to problems using analytical and statistical techniques.

Content The unit of study (UoS) enables students to: identify a project problem and critically review relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the project undertaken, both clearly and accurately in a written report. The report will normally be from 15,000 to 35,000 words. It will detail the problem, relevant literature, analysis conducted, conclusions and recommendations. Students will be supervised by an academic member of staff and where appropriate by a supervisor from another institution or from industry.

Required Reading Formal class notes will be provided to students for each UoS. These
Upon the completion of this Unit of Study (UoS), the students should have developed an in-depth knowledge of particular fields which they choose; be able to carry out independent research; have developed creative, critical and analytical thinking and effective problem-solving; have developed written and verbal communication skills in accepted standards of scholarship, style and presentation.

Learning Outcomes
 Upon the completion of this Unit of Study (UoS), the students should have developed an in-depth knowledge of particular fields which they choose; be able to carry out independent research; have developed critical, creative and analytical thinking and effective problem-solving; have developed written and verbal communication skills in accepted standards of scholarship, style and presentation.

Content
 The student needs to choose a topic related to project or project management from the real world. Identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyze data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 30,000 to 50,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the university and by a joint supervisor from the industry.

Required Reading
 Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Recommended Reading

Class Contact
 A three-hour briefing is given to students at the start of the subject. Six hours per week for one semester.

Assessment
 Assessment will be by project work and report.

VPP8070 MINOR THESIS (PART TIME - OVER 2 SEMESTERS)

Campus Footscray Park
Prerequisites VPP5630 Research Methods
Co-requisites VPP5630 Research Methods

Learning Outcomes
Upon the completion of this Unit of Study (UoS), the students should have developed an in-depth knowledge of particular fields which they choose; be able to carry out independent research; have developed critical, creative and analytical thinking and effective problem-solving; have developed written and verbal communication skills in accepted standards of scholarship, style and presentation.

Content
The student needs to choose a topic related to project or project management from the real world. Identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyze data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 30,000 to 50,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the university and by a joint supervisor from the industry.

Required Reading
Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Recommended Reading

Class Contact
A three-hour briefing is given to students at the start of the subject. Twelve hours per week, one semester.

Assessment
Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the Department or the institution and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiners’ discretion. Each examiner will independently recommend one of the following outcomes to his/her assessment of the thesis; (a) pass without further examination; (b) pass, subject to corrections to the satisfaction of the Department’s Research and Graduate Studies Committee; (c) candidate to pass a written or oral examination to pass thesis; (d) deferred for resubmission after major revision; (e) fail. In the event that there is disagreement between the examiners, a third examiner will be appointed.

VPP8080 MINOR THESIS (FULL TIME - OVER 1 SEMESTER)

Campus Footscray Park
Prerequisites VPP5630 Research Methods
Co-requisites VPP5630 Research Methods

Learning Outcomes
Upon the completion of this subject, the students should have developed an in-depth knowledge of particular fields which they choose; be able to carry out independent research; have developed critical, creative and analytical thinking and effective problem-solving; have developed written and verbal communication skills in accepted standards of scholarship, style and presentation.

Content
The student needs to choose a topic related to project or project management from the real world. Identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyze data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 30,000 to 50,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the university and by a joint supervisor from the industry.

Required Reading
Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Recommended Reading

Class Contact
A three-hour briefing is given to students at the start of the subject. Twelve hours per week, one semester.

Assessment
Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the Department or the institution and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiners’ discretion. Each examiner will independently recommend one of the following outcomes to his/her assessment of the thesis; (a) pass without further examination; (b) pass, subject to corrections to the satisfaction of the Department’s Research and Graduate Studies Committee; (c) candidate to pass a written or oral examination to pass thesis; (d) deferred for resubmission after major revision; (e) fail. In the event that there is disagreement between the examiners, a third examiner will be appointed.
Below are details of courses offered by the School of Computer Science and Mathematics in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses.

**NOTE:** Courses available to International students are marked with the (I) symbol.

### COURSES BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND AVIATION (I)

**Course Code:** SBCA  
**CRICOS No:** 023702B

**Course Objectives:**
The Bachelor of Science in Computer Science and Aviation aims to provide participants with:
- a practical and applied approach to the concepts of computer science and aviation;
- a range of skills in computer science, the mathematical sciences and aeronautical theory subjects at a level sufficient to satisfy the requirements for the issue of a Commercial Pilot’s Licence (CPL), and Instrument Rating.

The specific aims of the course are to provide students with the opportunity to:
- obtain level two accreditation from the Australian Computer Society (ACS) by passing all compulsory computer science subjects, and thus gaining professional recognition;
- develop skills and competence in aviation theory. The course is structured so that students can integrate practical flying training along with their academic studies and if choosing to do so and following the guidelines given, will complete the degree at the same time as qualifying for the issue of a Commercial Pilot’s Licence (CPL) and Command Instrument Rating.

**Course Duration**
The course is offered over three years full-time and part-time equivalent.

**Admission Requirements**
To qualify for admission to the course an applicant should have successfully completed Year 12 of the Victorian Certificate of Education (VCE), with a study score of at least 20 in English and 22 in Mathematical Methods, or have the equivalent of these qualifications. Completing Specialist Mathematics leads to an ENTER score 3 points higher. Alternatively, entry is via TAFE articulation or under mature age provisions. In addition, students must pass the prescribed medical examination conducted by a Civil Aviation Safety Authority-Approved Aviation Medical Examiner in order to be permitted to commence flying training.

Applicants may be interviewed. Consideration by a Faculty panel may be given to relevant work experience, and any other activities undertaken demonstrating ability to achieve in this course.

Applicants entering with a Private Pilot’s License or higher will be given full credit for completed aviation subjects and can join the course with advanced standing provided they meet the admission requirements. The course provides existing pilots the opportunity to upgrade their non-flying skills as well as providing them with a degree qualification which is likely to be necessary if they are to further their career in the aviation industry.

**Course Structure**

#### Year 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Point</th>
<th>EFTSL</th>
<th>SC Band</th>
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<tr>
<td>RCA1010</td>
<td>INTRODUCTORY AVIATION</td>
<td>12</td>
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<td>RCM1115</td>
<td>COMPUTER SYSTEMS AND ARCHITECTURE</td>
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<td>RCA2060</td>
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#### Year 3

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One Computing Elective from the list below

#### Computing Electives

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FACULTY OF HEALTH, ENGINEERING AND SCIENCE

Other Course Specific Notes To qualify for the award of Bachelor of Science in Computer Science and Aviation, a total of 288 credit points are needed. No stage completions exist for this course.

Assessment
The assessment for each subject is detailed in the subject listing.

BACHELOR OF SCIENCE IN COMPUTATIONAL FINANCIAL MATHEMATICS

Course Code: SBCF
CRICOS No: 052404E

Course Objectives
A great many businesses in the unpredictable world of commerce employ sophisticated and computationally intensive mathematical tools to help corporations determine strategies for market trading and risk profiling. As a result, virtually all major banking, investment and energy companies employ graduates with expertise in mathematics and/or computing. This course is designed to address this demand by coupling a program in computing and mathematical sciences with a focus on finance and risk management. There is no other undergraduate course in the country, and indeed very few internationally, that seeks to combine Finance with both the disciplines of Computer Science and the Mathematical Sciences in this way.

Course Duration
The course is offered over three years full-time and part-time equivalent.

Admission Requirements
To qualify for admission to the course an applicant should have successfully completed Year 12 of the Victorian Certificate of Education (VCE), with a study score of at least 20 in English and 22 in Mathematical Methods or have the equivalent of these qualifications.
Alternatively, entry is via TAFE articulation or under mature age provisions.

Course Structure

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*For those doing ACE1145 in Semester One, RCM1614 to be taken over summer semester.

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</table>
To qualify for the award of Bachelor of Science in Computational Financial Mathematics, a total of 288 credit points are needed. No stage completions exist for this course.

**BACHELOR OF SCIENCE IN COMPUTER SCIENCE (I)**

**Course Code:** SBCO

**CRICOS No:** 023700D

**Course Objectives**

The program aims to provide graduates with the analytical ability, factual knowledge and communication skills that will suit them for employment in business and industry in one or more of the following areas:

- computing: programming, software development, systems design and analysis, applications development, technical support.
- statistics: data analysis, quality improvement, market research, forecasting, econometrics.
- operations research: production planning and scheduling, simulation studies, transportation planning, resource allocation.
- financial modelling: investment analysis, project evaluation.
- secondary teaching: mathematics, computer science.

One of the most significant features of the courses is the attempt to involve students in the solution of real world problems. Naturally, problem-solving is a large component of all the subjects taught in the course but, starting in the first year, special emphasis is placed on problem formulation and report writing.

All students undertake at least one industry project in the third year of the course. These projects tend to be related to problems encountered in specific areas of the manufacturing industry, banking or finance, government statutory authorities, or services such as hospitals and local councils.

As evidenced by the high rate of job placement in the areas listed above, graduates have been well-received in industry, commerce and government.

**Admission Requirements**

To qualify for admission to the course an applicant should have successfully completed Year 12 of the Victorian Certificate of Education (VCE), with a study score of at least 20 in English and 22 in Mathematical Methods, or have the equivalent of these qualifications. Completing Specialist Mathematics leads to an ENTER score 3 points higher.

Alternatively, entry is via TAFE articulation or under mature age provisions.

**Course Duration**

The courses are offered on a full-time basis over three years. Summer evening subjects are also offered to assist students to complete their studies.

**Course Structure**

Computer Science

Year 1

**Semester 1**

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Students can complete ACE1145 or RCM1613 in Semester 1

**Semester 2**

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or

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Students may complete RCM1114 or RCM1614 in Semester 2. Students who completed ACE1145 in Semester 1 may do RCM1613 in Semester 2

Year 2

**Semester 1**

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Three electives from lists A, B or C below under SBIA (each worth 12 credit points)36 credit points

**Semester 2**

Four electives from lists A, B or C below under SBIA (each worth 12 credit points)48 credit points

Year 3

**Semester 1**

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Two subjects from lists A, B or C below (each worth 12 credit points) 24 credit points

**Semester 2**

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Three electives from lists A, B or C under SBIA (each worth 12 credit points) 36 credit points

List A

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List B
- RCM3111  DATA COMMUNICATIONS & NETWORKS 2  
- RCM3112  USER INTERFACE DESIGN        
- RCM3115  Architectures for Enterprise Wide Computing  
- RCM3211  DATABASE SYSTEMS 3           
- RCM3311  OBJECT ORIENTED PROGRAMMING 2  
- RCM3312  INTELLIGENT SYSTEMS         
- RCM3313  SOFTWARE ENGINEERING 2      
- RCM3314  OBJECT ORIENTED ANALYSIS AND DESIGN  
- RCM3520  INTERNET COMPUTING USING XML  
- RCM3950  INTERNET DATA MANAGEMENT     
- RCM3960  INTERNET SECURITY            
- RCM3970  COMPUTER GRAPHICS FOR GAME PROGRAMMING  

List C
- RCM1712  MATHEMATICAL FOUNDATIONS 2  
- RCM2321  MATHEMATICS OF CONTINUOUS PROCESSES B  
- RCM2511  IMAGE PROCESSING 1           
- RCM2611  LINEAR STATISTICAL MODELS    
- RCM2612  FORECASTING                 
- RCM2614  STATISTICAL DATA MINING      
- RCM2712  MATHEMATICS OF CONTINUOUS PROCESSES A  
- RCM2713  MODELLING FOR DECISION MAKING 
- RCM2911  LINEAR OPTIMISATION MODELLING 
- RCM2912  PROJECT SCHEDULING           
- RCM2915  STOCHASTIC AND COMBINATORIAL OPTIMISATION  
- RCM3511  IMAGE PROCESSING 2           
- RCM3611  REGRESSION ANALYSIS          
- RCM3613  TIME SERIES ANALYSIS         
- RCM3615  MULTIVARIATE STATISTICS      
- RCM3617  QUALITY IMPROVEMENT AND EXPERIMENTAL DESIGN  
- RCM3711  COMPUTATIONAL METHODS        
- RCM3720  CRYPTOGRAPHY, COMPUTER AND NETWORK SECURITY  
- RCM3911  SIMULATION                   

Other Course Specific Notes To qualify for the award of Bachelor of Science in Computer Science, a total of 288 credit points are needed. No stage completions exist for this course. Additionally, students must complete a minimum of 3 subjects from List A and 5 subjects from List B.

**GRADUATE DIPLOMA IN COMPUTER SCIENCE (I)**

**Course Code:** SGCS

**Course Objectives**
The Graduate Diploma programs are designed for graduates who want to acquire professional competence in Computer Science and/or the Mathematical Sciences. Each Graduate Diploma develops graduates who have a sound conceptual foundation, including practical understanding of recent developments in computer technology and how these may be applied to solve a wide range of problems in business and industry. The Graduate Diploma in Computer and Mathematical Sciences offers a strong mathematical sciences component.

**Admission Requirements**
Entry to each course is open to applicants with a first degree. Preference will be given to applicants whose degree contains major studies in a quantitative discipline. Other applicants whose occupation or experience indicates that they have the capacity to succeed may be accepted into the course.

**Course Duration**
Each course is offered on both a full-time (one year) and a part-time basis. Part-time students will normally take two years to complete the course. Lectures will normally be offered in the evenings, however, some of the subjects are available during the day.

**Course Structure**
Two streams of subjects are available:
- Computer Science;
- Computer Programming;
- Information Systems;
- Multimedia & Networking;
- Software Engineering;
- Mathematical Sciences;
- Production and Distribution Management;
- Modelling for Finance;
- Data Analysis;
The courses provide maximum flexibility allowing specialisation in either one or a combination of the two streams.

To complete a Graduate Diploma, students are required to pass four Computer Science subjects and four Mathematical subjects.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<td>RCM5805</td>
<td>COMMUNICATION AND NETWORKS</td>
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Plus 4 x Approved Electives (12 credit points each)

Elective List

<table>
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<tr>
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<td>RCM5811</td>
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<td>RCM6821</td>
<td>DECISION SUPPORT TECHNOLOGY</td>
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<td>RCM6822</td>
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<td>RCM6823</td>
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<tr>
<td>RCM6825</td>
<td>MULTIMEDIA SYSTEMS DESIGN AND DEVELOPMENT</td>
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<td>RCM6844</td>
<td>SOFTWARE ENGINEERING 1</td>
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</table>

Other electives can be selected from outside this list. Please consult with the Course Coordinator.

**GRADUATE DIPLOMA IN SOFTWARE ENGINEERING (I)**

**Course Code:** SGSE

**Course Objectives:**

The Graduate Diploma program is designed for graduates who want to acquire professional competence in software engineering. The Graduate Diploma program develops graduates to have a sound knowledge and technical skills in the areas of software specification, design, implementation and management. This program has strong programming and software engineering components.

Successful students can articulate with full credit into the Master of Science in Software Engineering program.

**Admission Requirements:**

Entry to this course is open to applicants with a first degree in computing. Preference will be given to applicants whose degree contains major studies in a quantitative discipline. Other applicants whose occupation or experience indicates that they have the capacity to succeed may be accepted into the course.

**Course Duration:**

The course is offered on both a full-time (one year) and a part-time basis. Part-time students will normally take two years to complete the course. Lectures will normally be offered in the evenings, however, some of the subjects are available during the day.

**Course Structure:**

To complete the Graduate Diploma in Software Engineering requires the successful completion of four cores subjects and four elective subjects.

**Semester 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Points</th>
<th>EFTSL</th>
<th>SC Band</th>
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<tr>
<td>RCM6822</td>
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<tr>
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AND TWO x Approved Electives in Computer Science (12 credit points each)

**Semester 2**

<table>
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<tr>
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<th>SC Band</th>
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<tr>
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<td>OBJECT ORIENTED PROGRAMMING GD2</td>
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<td>RCM6841</td>
<td>SOFTWARE ENGINEERING 2</td>
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</table>

AND TWO x Approved Electives in Computer Science (12 credit points each)

**BACHELOR OF SCIENCE (HONOURS) IN COMPUTER SCIENCE (I)**

**Course Code:** SHCS

Students who do exceptionally well in their degree studies may be given the opportunity to gain an Honours degree by completing a fourth year of study in a specific field. This year is designed to assist students who may wish to proceed to higher degrees by research, but it also enables students to concentrate their studies more intensely on areas of particular interest.

The Honours year requires students to select coursework units from one of the fields of Computer Science, Statistics, and Operations Research. As well, a minor thesis must be completed.

**Course Structure:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Points</th>
<th>EFTSL</th>
<th>SC Band</th>
</tr>
</thead>
<tbody>
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<td>RCM6827</td>
<td>RESEARCH PERSPECTIVES IN COMPUTER SCIENCE</td>
<td>12</td>
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1 approved Computer and Science elective (1 x 12 credit points)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credit Points</th>
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<th>SC Band</th>
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<tr>
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<td>THESIS (2 UNITS)</td>
<td>24</td>
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</tbody>
</table>

2 approved Computer and Science electives - (2 x 12 credit points)
Bachelor of Science (Honours) Computer Science and Mathematics (I)

Course Code: SHMM

Course Objectives
Students who do exceptionally well in their degree studies may be given the opportunity to gain an Honours degree by completing a fourth year of study in a specific field. This year is designed to assist students who may wish to proceed to higher degrees by research, but it also enables students to concentrate their studies more intensely on areas of particular interest.

The Honours year requires students to select coursework units from one of the fields of Computer Science, Statistics, and Operations Research. As well, a minor thesis must be completed.

Course Structure

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>EFTSL</th>
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<tr>
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<td>AND TWO approved Maths/Stats electives (12 credit points each)</td>
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<td>RCM6107</td>
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<tr>
<td>RCM6827</td>
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<tr>
<td>AND ONE approved elective (12 credit points)</td>
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</table>

Master of Science in Computer and Mathematical Sciences (I)

Course Code: SMCM

Course Objectives
The Masters programs develop a sound theoretical knowledge of contemporary Computer Science techniques and/or the techniques in one specified field of study from the Mathematical Sciences. Emphasis is also placed on the application of these techniques in areas of business and industry.

Admission Requirements
To qualify for admission to the course an applicant must have successfully completed an appropriate degree or an equivalent combination of qualifications and experience. Applicants must be competent in tertiary level mathematics and computing.

Applicants with any of the following qualifications may apply for credits against specific coursework subjects up to the indicated maximum.
(a) A degree in computer science (4).
(b) A four year honours degree in computer science (12).
(c) A pass degree (without a major in computer science) followed by an appropriate graduate diploma (8).
(d) A combination of qualifications and experience equivalent to (a), (b), or (c) above.

Course Duration
The course is offered on a full-time basis over two years or on an equivalent part-time basis.

Course Structure

Year 1
4 x Approved Electives in Computer Science 1 48
4 x Approved Electives in Computer Science 2 48

Year 2
4 x Approved Electives 1 48

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>EFTSL</th>
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<td>2 x Approved Electives 2 24</td>
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</table>

Mathematical Science Subjects

Year 1
2 x Approved Electives in Computer Science 1 24
2 x Approved Electives in Mathematics 1 24
2 x Approved Electives in Computer Science 2 24
2 x Approved Electives in Mathematics 2 24

Year 2
2 x Approved Electives in Computer Science 1 24
2 x Approved Electives in Mathematics 1 24

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>EFTSL</th>
<th>SC Band</th>
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<tbody>
<tr>
<td>RCM6103</td>
<td>THESIS (4 UNITS)</td>
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<tr>
<td>RCM6102</td>
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<tr>
<td>2 x Approved Electives 1 24</td>
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</tbody>
</table>

Students must obtain a pass in 14 semester units and a thesis equivalent to two semester units; or 12 semester units and a thesis equivalent to four semester units.

For the award of MSc in Computer Science, at least 8 units must be selected from the Computer Science stream. For the award of MSc in Computer and Mathematical Sciences, at least 6 units must be selected from the Mathematical Sciences stream.

Thesis
Where possible the candidate will be encouraged to choose a topic related to his/her own work situation.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Points</th>
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<tr>
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<td>THESIS (4 UNITS)</td>
<td>48</td>
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</table>

Master of Science in Computer Science (I)

Course Code: SMCS

Course Objectives
The Masters programs develop a sound theoretical knowledge of contemporary Computer Science techniques and/or the techniques in one specified field of study from the Mathematical Sciences. Emphasis is also placed on the application of these techniques in areas of business and industry.

Admission Requirements
To qualify for admission to the course an applicant must have successfully completed an appropriate degree or an equivalent combination of qualifications and experience.
Applicants must be competent in tertiary level mathematics and computing. Applicants with any of the following qualifications may apply for credits against specific coursework subjects up to the indicated maximum.
(a) A degree in computer science.
(b) A four year honours degree in computer science.
(c) A pass degree (without a major in computer science) followed by an appropriate graduate diploma.
(d) A combination of qualifications and experience equivalent to (a), (b), or (c) above.

Course Duration
The course is offered on a full-time basis over two years or on an equivalent part-time basis.

Course Structure

Year 1
Semester 1
4 x Approved Electives in Computer Science (12 credit points each)

Semester 2
4 x Approved Electives in Computer Science (12 credit points each)

Year 2
Semester 1
4 x Approved Electives (12 credit points each)

Semester 2


Credit Point EFTSL SC Band

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<tr>
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<th>Credit Points</th>
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<tr>
<td>AND 2 Approved Electives (12 credit points each)</td>
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</table>

Please note that a thesis unit can also be completed across two consecutive semesters by enrolling in the following two 24 credit point units.

<table>
<thead>
<tr>
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Elective List

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<td>RCM5602</td>
<td>QUALITY MANAGEMENT AND STATISTICS</td>
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<td>INFORMATION SYSTEMS</td>
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<td>RCM5803</td>
<td>DATA STRUCTURES AND PROGRAMMING</td>
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<td>RCM5805</td>
<td>COMMUNICATION AND NETWORKS</td>
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<td>ADVANCED INFORMATION SYSTEMS</td>
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<td>SOFTWARE DEVELOPMENT</td>
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<td>OPERATING SYSTEMS</td>
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<td>ARTIFICIAL INTELLIGENCE</td>
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<td>NETWORK OPERATING SYSTEMS ADMINISTRATION</td>
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<td>INTRODUCTION TO MULTIMEDIA SYSTEMS</td>
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<td>RCM5822</td>
<td>NETWORK MULTIMEDIA SYSTEMS</td>
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<td>WEB PROGRAMMING</td>
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<td>INTELLIGENT WEB SYSTEMS</td>
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<td>RCM6105</td>
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<td>INTERNET SECURITY</td>
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<td>ENTERPRISE - WIDE COMPUTING</td>
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<td>DISTRIBUTED SYSTEMS</td>
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<td>RCM6841</td>
<td>SOFTWARE ENGINEERING 2</td>
</tr>
<tr>
<td>RCM6842</td>
<td>ADVANCED TOPICS IN SOFTWARE ENGINEERING</td>
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<td>RCM6845</td>
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<td>RCM6906</td>
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Students must obtain a pass in 14 semester units and a thesis equivalent to two semester units; or 12 semester units and a thesis equivalent to four semester units.

For the award of MSc in Computer Science, at least 8 units must be selected from the Computer Science stream. For the award of MSc in Computer and Mathematical Sciences, at least 6 units must be selected from the Mathematical Sciences stream.

Thesis
Where possible the candidate will be encouraged to choose a topic related to his/her own work situation.
The growth in world trade is increasing in size and dynamics and the trend is likely to continue. In particular the Asia Pacific region in which Australia is located has the most dynamic trend. As a profession, Logistics is core to the efficiency of such growth and as a consequence there is a growing need for expertise in the systems and technical support associated with the industry. The Logistics industry is heavily dependent on the development and maintenance of the systems associated with movement of materials and the associated services. The logistics/engineering systems deliver the operating reliability and maintenance effectiveness and delivery of service. The assessment of professionalism within the industry is directly related to the logistics systems and support that an enterprise can provide to its own functions as well as those of its customer and suppliers.

The Master of Science in Logistics Systems and Support provides specialised logistic education for those professionals working in the senior logistics positions and related operations businesses. This includes senior technical managers and executives in logistics, manufacturing and service organisations and those aspiring to those roles.

The course brings together a range of knowledge and skills that are needed by such managers. It provides a strong foundation in technical, logistics and people skills. It has attractions not only in the logistics industry but also manufacturing, mining, utilities, information technology, defence and service operations.

**Course Duration**
18 months

**Admission Requirements**
To qualify for admission to the course an applicant must have successfully completed a relevant degree with good grades, or a postgraduate diploma plus adequate work experience in an employment associated with logistics or transport management. Students who gain admission may be required to undertake additional or preliminary coursework as directed by the Course Coordinator.

For international students the requirements are the same as for all School of Computer Science and Mathematics PG courses. Overseas students must provide evidence of proficiency in the English Language as follows:

International English Testing System – a minimum overall test score of 6.5 and no individual band score of less than 6.0.

**Course Structure**

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<tr>
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<th>Credit Point</th>
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**MASTER OF SCIENCE IN SOFTWARE ENGINEERING (I)**

**Course Code:** SMSE

**Course Objectives**

The Master of Science in Software Engineering provides students with the basic knowledge and technical skills in the areas of software specification, design and implementation. Specific skills pertinent to the development and management of large software projects. Human communication skills including the professional presentation of ideas, designs and solutions, and the documentation associated with software development projects. Management skills, in relation to: a software project from concept to delivery; the units derived during software development; people, as part of a team and as a leader. The ability to deal with constantly changing technology by using knowledge and understanding of concepts and applying them to real problems in a variety of contexts. Professional awareness, including social and legal responsibility and ethics.

**Admission Requirements**

To qualify for admission to the course an applicant must have successfully completed an appropriate degree or an equivalent combination of qualifications and experience. Applicants must be competent in tertiary level mathematics and computing (which may have to be demonstrated in special tests).

Applicants with any of the following qualifications may apply for credits against specific coursework subjects up to the indicated maximum:

(a) A degree in with major studies in software engineering (4)
(b) A four year honours degree in (12)
(c) A pass degree (without a major in software engineering) followed by software engineering graduate diploma (8)
(d) A combination of qualifications and experience equivalent to (a), (b), or (c) above.

**Course Duration**

The course is offered on a full-time basis over two years or an equivalent part-time basis.

For candidates given credit, the minimum duration must be at least the equivalent of one and a half years of full-time study following a three year degree.

**Course Structure**

To complete the Master of Science in Software Engineering requires the successful completion of eight core subjects, six elective subjects and a minor thesis, (2 subject equivalence), or eight core subjects, four elective subjects and a major thesis, (4 subject equivalence).

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**Credit Point EFTSL SC Band**

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SUBJECTS

Below are subject details for courses offered by the School of Computer Science and Mathematics in 2009.

IMPORTANT NOTE: Not all electives subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

RCA1010 INTRODUCTORY AVIATION
Campus Footscray Park
Prerequisite(s) Nil.
Content Aerodynamics and theory of flight, flight control systems, basic instruments. Domestic and international flight procedures, social structure of the regulatory system, domestic and international. Domestic legal rules, international treaties, domestic safety systems and safety experience. International safety experience.
Required Reading As set by the lecturer in charge.
Recommended Reading As recommended by the lecturer in charge.
Class Contact One four hour seminar per week for one semester.
Assessment One major assignment 30% and one final examination 70%.

RCA1020 BASIC AERONAUTICAL KNOWLEDGE
Campus Footscray Park
Prerequisite(s) RCA1010 (The Civil Aviation Safety Authority also expects that students will have flown five hours before attempting this subject).
Content Basic Aeronautics, engineering and mechanics sufficient to pass the BAK test as required by the CASA.
Required Reading As required by the Lecturer in charge.
Recommended Reading As recommended by the Lecturer in charge.
Class Contact The equivalent of one four hour seminar per week for one semester.
Assessment One final (principally multiple choice) examination worth 100% as required by the Civil Aviation Safety Authority.

RCA2020 METEOROLOGY AND HUMAN FATORS FOR THE CPL
Campus Footscray Park
Prerequisite(s) RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).
Content Aircraft navigation theory, and legal theory as required for the Commercial Pilot’s Licence subject ‘CHUF Human Factors (Aeroplane and Helicopter) for the CPL’ and ‘CMET Meteorology (Aeroplane and Helicopter) for the CPL’ examined by the Civil Aviation Safety Authority.
Required Reading As required by the Lecturer in charge.
Recommended Reading As recommended by the Lecturer in charge.
Class Contact The equivalent of one four hour seminar per week for one semester.
Assessment Two Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2030 NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL
Campus Footscray Park
Prerequisite(s) RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).
Content Aircraft navigation theory, and legal theory as required for the Commercial Pilot’s Licence subject ‘CNAV Navigation (Aeroplane and Helicopter) for the CPL’ and ‘CLWA Flight rules and Air Law (Aeroplane and Helicopter) for the CPL’ examined by the Civil Aviation Safety Authority.
Required Reading As advised by the Lecturer in Charge of the subject.
Recommended Reading As advised by the Lecturer in Charge of the subject.
Class Contact The equivalent of one four hour seminar per week for one semester.
Assessment One Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2040 AERODYNAMICS FOR THE CPL
Campus Footscray Park
Prerequisite(s) RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).
Content Aircraft navigation theory, and legal theory as required for the Commercial Pilot’s Licence subjects ‘CADA Aerodynamics (Aeroplane and Helicopter) for the CPL’ examined by the Civil Aviation Safety Authority.
Required Reading As advised by the Lecturer in Charge of the subject.
Recommended Reading As advised by the Lecturer in Charge of the subject.
Class Contact The equivalent of one four hour seminar per week for one semester.
Assessment Two Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2050 AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL
Campus Footscray Park
Prerequisite(s) RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).
Content Aircraft navigation theory, and legal theory as required for the Commercial Pilot’s Licence subject ‘CSYA Aircraft General Knowledge for the CPL’ examined by the Civil Aviation Safety Authority.
Required Reading As advised by the Lecturer in Charge of the subject.
Recommended Reading As advised by the Lecturer in Charge of the subject.
Class Contact The equivalent of one four hour seminar per week for one semester.
Assessment One Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2060 OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL
Campus Footscray Park
Prerequisite(s) RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).
Content Aircraft Operations theory, and flight planning as required for the Commercial Pilot’s Licence subject ‘CFPA CPL Operations Performance and Flight Planning’ examined by the Civil Aviation Safety Authority.
Required Reading As advised by the Lecturer in Charge of the subject.
Recommended Reading As advised by the Lecturer in Charge of the subject.
Class Contact The equivalent of one four hour seminar per week for one semester.
Assessment One Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA3010 INSTRUMENT RATING (IREX)
Campus Footscray Park
Prerequisite(s) Content Aircraft flight planning theory sufficient to complete the IREX examination set by the Civil Aviation Safety Authority.
Class Contact 2 x three hour workshops per week for one semester, or equivalent.
Assessment Examination as required by the Civil Aviation Safety Authority.
RC RECTOX METEOROLOGY AND HUMAN FACTORS FOR THE ATPL
Campus Footscray Park
Prerequisite(s) RCA 2020, RCA 2030, RCA 2040, RCA 2050, RCA 2060.
Content Meteorology and Human Factors sufficient to meet the requirements of the CASA examinations in these topics.
Required Reading To be advised by lecturer.
Recommended Reading To be advised by lecturer.
Class Contact The equivalent of one three hour seminar each week for one semester.
Assessment One 90 minute multiple choice examination and one 60 minute multiple choice examination.

RC B040 FLIGHT PLANNING FOR THE ATPL
Campus Footscray Park
Prerequisite(s) RCA 2020, RCA 2030, RCA 2040, RCA 2050, RCA 2060.
Content Aircraft flight planning theory sufficient to pass the Air Transport Pilot’s Licence theory subject “ATPL Flight Planning” examined by the Civil Aviation Safety Authority.
Required Reading Thom, T. et al, 2000, Aeroplane Operations Performance and Planning for the Air Transport Pilot, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.
Class Contact 1 x three hour workshops per week for one semester, or equivalent.
Assessment Examination as required by the Civil Aviation Safety Authority.

RC R050 NAVIGATION AND AIR LAW FOR THE ATPL
Campus Footscray Park
Prerequisite(s) RCA 2020, RCA 2030, RCA 2040, RCA 2050, RCA 2060.
Content Navigation and flight and air law sufficient to meet the requirements of the CASA examinations in these topics.
Required Reading To be advised by lecturer.
Recommended Reading To be advised by lecturer.
Class Contact The equivalent of one three hour seminar each week for one semester.
Assessment Two 90 minute multiple choice examinations.

RC R060 AERODYNAMICS AND AIRCRAFT SYSTEMS FOR THE ATPL
Campus Footscray Park
Prerequisite(s) TBA
Content Aircraft aerodynamics and systems theory sufficient to pass the Air Transport Pilot’s Licence theory subject “ATPL Aerodynamics and Systems” examined by the Civil Aviation Safety Authority.
Required Reading Thom, T. et al, 2000, Aeroplane Operations Performance and Planning for the Air Transport Pilot, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.
Class Contact 1 x three hour workshop per week for one semester or equivalent.
Assessment Examination as required by the Civil Aviation Safety Authority.

RC R070 PERFORMANCE AND LOADING FOR THE ATPL
Campus Footscray Park
Prerequisite(s) RCA 2020, RCA 2030, RCA 2040, RCA 2050, RCA 2060.
Content Aircraft performance theory, and loading theory sufficient to pass the Air Transport Pilot’s Licence theory subject “ATPL Performance and Loading” examined by the Civil Aviation Safety Authority.
Required Reading Thom, T. et al, 2000, Aeroplane Operations Performance and Planning for the Air Transport Pilot, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.
Class Contact 1 x three hour workshop per week for one semester or equivalent.
Assessment Examination as required by the Civil Aviation Safety Authority.

RC M1115 COMPUTER SYSTEMS AND ARCHITECTURE
Campus Footscray Park, Hong Kong
Prerequisite(s) Nil.
Required Reading Nil.
Recommended Reading Brookshear, J.G., 2005, Computer Science: An Overview, 8th edn, Addison-Wesley.
Class Contact Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment Final examination, 70%; assignment and tests, 30%.

RC M1121 DATABASE SYSTEMS 1
Campus Footscray Park
Pre-requisite(s) RCM1311 Programming 1, RCM1114 Introduction to Computing and the Internet, or equivalents.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Outline the benefits and functions of databases and their application;
2. Describe and give examples of key Relational Database Model concepts;
3. Implement a working relational database with multiple tables using a relational DBMS;
4. Illustrate a database and its relationships with a relational schema;
5. Describe the basics of query languages and how to manage a database using SQL;
6. Explain how to use, and use both Entity Relationship and Extended Entity Relationship analysis to develop ER and EER diagrams.
Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures and laboratory tutorials.
Assessment Industry and community-based assignment and tests (30%); Final examination (70%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.
On successful completion of this unit, students are expected to be able to:
1. Discuss and apply fundamental aspects of computer program development;
2. Describe software development activities;
3. Develop algorithms using basic programming constructs;
4. Create and manipulate primitive data types and structured data types;
5. Apply basic object-oriented software principles in problem solving.

Content: Introduction to object-oriented programming. Basic constructs of a programming language; sequence, selection and iteration. Use of predefined classes from libraries. Create classes and objects. Applets.


Recommended Reading: Nil.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and laboratory tutorials.

Assessment: Practical work and assignment (30%); Final examination (70%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

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Forty-eight (48) hours or equivalent for one semester comprising lectures and laboratory tutorials.

Assessment: Tests (40%); Final examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

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RCM1711 MATHEMATICAL FOUNDATIONS 1

Campus: Footscray Park

Pre-requisite(s): VCE Further Mathematics: or equivalent.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:
1. Sincerely work with the algebra of sets and propositions;
2. Simplify boolean expressions and solve problems requiring boolean logic;
3. Perform arithmetic on vectors and matrices;
4. Apply matrices to the geometric transformation of vectors;
5. Solve simultaneous linear equations using matrix methods.

Content: Revision of fundamental principles: basic algebra, functions and graphs. Set theory: basic principles, operations and applications. Functions and their definitions and behaviour in terms of sets. Propositional logic and Boolean algebra. Linear algebra: vectors, matrices; applications to geometry and linear equations. Use of a computer algebra system for exploration and enhancement.


Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials.

Assessment: One mid-semester test (15%); Laboratory work (10%); Final examination (75%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.

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RCM1712 MATHEMATICAL FOUNDATIONS 2

Campus: Footscray Park

Pre-requisite(s): RCM1711 Mathematical Foundations 1; or equivalent.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:
1. Perform arithmetic on complex numbers and plot them on an Argand diagram;
2. Use the binomial theorem for expansion of algebraic forms;
3. Explain the concepts of differentiation and integration, and the relationship between them;
4. Differentiate standard algebraic and transcendental functions, using the product, quotient and chain rules;
5. Perform indefinite and definite integration, using substitution, integration by parts and partial fractions;
6. Apply simple numerical methods to equation solving and quadrature problems;
7. Solve simple differential equations taken from a variety of applications.

Content Introduction to computer algebra software. Complex numbers: definition and basic operations, rectangular, polar and exponential forms. Combinatorics and the binomial theorem. Introduction to calculus: derivatives, rules for differentiation, applications to curve sketching, maxima and minima and solution of equations.


Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorials and computer laboratories.

Assessment One mid-semester test (15%); Laboratory work (15%); Final examination (70%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.

RCM1713 DISCRETE MATHEMATICS
Campus Footscray Park, Hong Kong
Prerequisite(s) RCM1711 Mathematical Foundations 1.

Content Introduction to the computer algebra system Maple. Recursive Functions. Algorithms - worst case and asymptotic analysis, ε, θ and O notation. Algorithm design - greedy algorithms. Graph theory - definitions, terminology, adjacency, incidence, paths, cycles, multigraphs, digraphs, weighted graphs, Eulerian graphs and digraphs, Hamiltonian graphs and digraphs, path algorithms, trees, graph colouring, matching. Introduction to the computer algebra system Maple. Recursive Functions. Algorithms - worst case and asymptotic analysis, ε, θ and O notation. Algorithm design - greedy algorithms. Graph theory - definitions, terminology, adjacency, incidence, paths, cycles, multigraphs, digraphs, weighted graphs, Eulerian graphs and digraphs, Hamiltonian graphs and digraphs, path algorithms, trees, graph colouring, matching.

Learning Outcomes: Students will gain confidence in analysing algorithms for speed and efficiency, using formal and informal methods, as well as an ability to solve practical and applied problems in graph (network) theory.

Required Reading Discrete Mathematics, Notes for RCM1713, Alasdair McAndrew


Class Contact Four hours per week for one semester, comprising two hours of lectures, and two hours of laboratory/tutorials.

Assessment Final examination, 70%; assignment and tests, 30%.

RCM2111 DATA COMMUNICATIONS AND NETWORKS 1
Campus Footscray Park, Hong Kong
Prerequisite(s) RCM1115 Computer Systems and Architecture.


Class Contact Four hours per week for one semester, comprising three one-hour lectures and two one-hour laboratory/tutorial.

Assessment Final examination, 80%; assignment and tests, 20%.

RCM2112 OPERATING SYSTEMS
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Prerequisite(s) RCM1115.


Required Reading

Recommended Reading Operating Systems, Third Edition, Gary Nutt, 2004

Class Contact Four hours per week for one semester, comprising two one-hour lectures and two hours laboratory/tutorial.

Assessment Final examination, 80%; assignment(s) 20%.

RCM2113 MULTIMEDIA SYSTEMS DESIGN
Campus Footscray Park
Prerequisite(s) RCM1114 Introduction to Computing and the Internet, RCM1115 Computer systems and Architecture.


Required Reading To be advised by lecturer.


Class Contact Four hours per week for one semester, comprising one two-hour lectures and one two-hour laboratory/tutorial.

Assessment Final examination, 70%; assignment and tests, 30%.

RCM2213 COMPUTER GRAPHICS
Campus Footscray Park
Prerequisite(s) RCM312 Programming 2 or equivalent.

Content This subject introduces the principles of computer graphics and the art in the representation of 2D and 3D pictures, and gives experience in using graphics package OpenGL. The topics cover graphics also includes popular graphics algorithms and techniques for generating 2D and 3D animations. In addition, some advanced topics, such as curves, surface and shading are discussed. Students will have considerable practice in 2D and 3D graphics programming with package OpenGL.


Class Contact Two one-hour lectures and two one-hour laboratory for one semester.

Assessment Laboratory, 10%; Assignment(s), 30%; Final examination, 60%.

RCM2218 DATABASE SYSTEMS 2
Campus Footscray Park, Sydney, Hong Kong, Malaysia, Singapore
Prerequisite(s) RCM2111 Database Systems 1, or equivalent.

Learning Outcomes On successful completion of this unit, students are expected to be able to:

- Understand the fundamental roles of data analysis, database design and transaction specification in the development of database applications.
- Demonstrate good skills in data analysis and database design.
- Demonstrate good skills in transaction analysis and transaction specification.
- Have the ability to implement database transactions effectively.

Content This unit will cover the following topics:

- Data analysis and modelling using the Enhanced Entity-Relationship model and normalisation.
- Constraints beyond the EER model, and advanced data modelling issues.
- Database transactions: concept, ACID properties, specification.
- Transaction processing: commit and rollback, concurrency control, locking, scheduling, and recovery.
- Database application development using embedded SQL.
- Database security.


Class Contact Forty eight (48) hours over one 12-week semester comprising of two (2) hours per week delivered as lectures and two (2) hours per week of tutorial/laboratory classes.

Assessment Final examination, 80%; test, 20%.

RCM2311 OBJECT ORIENTED PROGRAMMING 1
Campus Footscray Park, Sydney, Hong Kong, Malaysia

Prerequisite(s) RCM1311 Programming 1

Content This subject covers the critical concepts and features that support object-oriented programming. Classes and data abstraction, graphical user interfaces, threads, streams, exceptions, system design, data structures, and collections. Mastery of these concepts provide the foundation to practice object-oriented programming in a productive way and the subsequent mastery of the finer points of object-oriented programming.


Class Contact Four hours per week for one semester, comprising two hours of lectures and two hours of laboratory/tutorial.

Assessment Final examination, 70%; assignment, and practical work 30%.

RCM2312 SOFTWARE ENGINEERING 1
Campus Footscray Park, Hong Kong

Prerequisite(s) RCM1311 Programming 1; RCM1312 Programming 2.

Content This subject represents an introduction to traditional software development and object oriented analysis and design. It is designed to prepare students for final year computer projects. Topics to be covered include: software life cycle, software process, teams, requirements analysis and specification, structured and object oriented design, documentation of software systems. Testing. Reusability and Portability. Implementation.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. learn the importance and the goal of software engineering;
2. understand the basic methodologies and techniques for software engineering; 3. understand the basics for playing a role as a software engineer in the software development process, rather than a programmer only; and 4. make the software development process more systematic and productive by applying the material introduced by this unit.


Recommended Reading To be advised by lecturer.

Class Contact Four hours per week for one semester, comprising three one-hour lectures and one one-hour laboratory/tutorial.

Assessment Mid-semester test 10%, Final examination, 70%; assignments: 20%.

RCM2313 SOFTWARE DEVELOPMENT
Campus Footscray Park, Sydney, Hong Kong

Prerequisite(s) RCM1312 Software Engineering 1; RCM1312 Programming 2.

Content The aim of this subject is to develop an appreciation of the process whereby software is developed in a production environment students will build upon and reinforce their knowledge of software engineering principles by working in a team on a real-life production project.


Class Contact Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Assessment Final examination, 20% Labs, 30%Assignments, 25% Mid-Semester Test, 25% Final Test.

In order to pass, students must obtain at least 25% of labs and assignments, and 25% of tests in this subject.

RCM2315 ADVANCED PROGRAMMING
Campus Footscray Park, Hong Kong, Malaysia, Singapore

Prerequisite(s) RCM1312 Programming 2.

Content Fundamental data types; Class definition; Polymorphism; Operator overloading; Characters and strings; Input & Output; Exception handling; Data Structures and collections; Features and facilities found in this programming language.

Required Reading To be advised by lecturer.


Class Contact Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Assessment Final examination, 70%; assignment and tests: 30%.

RCM2316 NETWORK OPERATING SYSTEM ADMINISTRATION
Campus Footscray Park

Prerequisite(s) RCM2111 Data Communications and Networks I.

Content Protocols and Standards. TCP/IP protocol suite, connecting devices. Addressing. Routing. ARP. IP. ICMP. IGMP. UDP. TCP. SCTP. Multicasting. DNS. TELNET. SNMP. SMTP. SWAP.


Class Contact Four hours per week for one semester comprising of two one hour lectures and one hour laboratory and one hour tutorial.

Assessment Final examination, 80%; laboratory work 20%.

RCM2321 MATHEMATICS OF CONTINUOUS PROCESSES B
Campus Footscray Park

Prerequisite(s) RCM2712 Mathematics of Continuous Processes A.


Required Reading Nil.


Class Contact 2 x one hour lecture and 2 x one hour tutorial for one semester.

Assessment 20% mid-semester test; 80% end of semester examination.

RCM2511 IMAGE PROCESSING 1
Campus Footscray Park, Sydney, Malaysia

Prerequisite(s) RCM1114 Introduction to Computing and the Internet, and one of RCM1711 or RCM1712.

Co-requisites Nil.


Required Reading None.

RCM2611 LINEAR STATISTICAL MODELS
Campus Footscray Park
Prerequisite(s) RCM1614 Applied Statistics 2.
Class Contact Four hours per week for one semester, comprising one two-hour lecture and one one-hour tutorial and one one-hour laboratory. 
Assessment Final examination, 70%; assignment: 30%.

RCM2612 FORECASTING
Campus Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s) RCM1614
Required Reading Nil.
Class Contact Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory. 
Assessment Project, 40%; Examination, 60%.

RCM2614 STATISTICAL DATA MINING
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Prerequisite(s) RCM1614
Content Statistical datamining methods, cluster analysis, discriminant analysis, issues in sampling and estimation, using the bootstrap, non-parametric methods.
Required Reading Giudici, P. 2004 Applied Data Mining, Wiley.
Class Contact Four hours per week for one semester, comprising two one-hour lectures, one one-hour tutorial and one one-hour practical.
Assessment Final examination, 60%; assignments and tests, 40%.

RCM2713 MODELLING FOR DECISION MAKING
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Prerequisite(s) RCM1712
Content Overview of the modelling process: problem identification, factors and assumptions, formulation and solution, interpretation comparison of results with original problem. Setting up models, interpretation of mathematical models. Interpolation, extrapolation, spectral decomposition and fitting models to data. Applications of continuous models via differential equations and data fitting. Discrete versus continuous modelling and discrete/continuous combinations with examples of general interest in a variety of fields.
Class Contact Four hours per week for one semester.
Assessment Final examination, 80%; assignments, 20%.

RCM2810 ADVANCED INTERNET PROGRAMMING
Campus Footscray Park, Sydney (Alpha Belta College), Hong Kong, Malaysia, Singapore
Prerequisite(s) RCM1114, RCM1311, RCM1711
Content XHTML and JavaScript: interaction between a web-page and a user; input validation and submission of a form; response to submission of a form; connecting an OOM to a GUI. The bridge between XHTML/JavaScript and an embedded object: applets and scriptlets as examples of embedded objects; how to use XHTML to initialize parameters of an an applet, and to use JavaScript to control the parameters at runtime; how to adapt an applet to read initial values of parameters from an XHTML page, and to read parameter values at run-time from an XHTML/JavaScript page; DHTML: CSS style-sheets, positioning elements, layering a page, interaction between the user and the web-page; Server-side topics: communication through sockets, creating a simple browser and a simple HTTP server, PHP, MySQL; Emerging internet technologies such as SOAP for accessing objects, and Wireless ML for WAP-enabled devices.
Class Contact Four hours per week for one semester, comprising one two-hour lecture and one two-hour laboratory/tutorial.
Assessment Laboratory work, 12%; mid-semester practical examination (3 hours duration), 30%; end-of-semester practical examination (3 hours duration), 58%.
In order to pass, students must obtain at least 50% of the total marks given in this subject.

RCM2911 LINEAR OPTIMISATION MODELLING
Campus Footscray Park
Prerequisite(s) Nil.
Content Introduction to linear programming; Mathematical models; Graphical solution; Maximisation and minimisation problems; Spreadsheet models. Sensitivity analysis for LP; Applications of LP. Transportation problem. Assignment & Trans-shipment Simplex method, Hungarian method. Pure and mixed integer linear programming; Knapsack problems.
Class Contact Four hours per week; two hour lecture and two hour tutorial and/or laboratory.
Assessment Participation in tutorials, 5%; test 15%; assignment, 10%; final examination, 70% three hours; to obtain a grade of pass or better, a student must obtain 40% or more in the final examination.
RCM2912 PROJECT SCHEDULING
Campus: Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s): Nil
Required Reading: Lecture notes provided by lecturer.
Class Contact: Four hours per week for one semester comprising two hours lectures and two hours laboratory/tutor.
Assessment: Two Assignments 30%, Final Examination 70%.

RCM2914 PROJECT AND INVENTORY ANALYSIS
Campus: Footscray Park
Prerequisite Nil
Co-requisite Nil
Learning Outcomes: To be able to understand the life span of a business project from conception to disposal, what the elements of costs and benefits of a project are, and how alternative project proposals are evaluated. This subject also teaches various inventory issues, including the Economic Order Quantity models of Inventory Control.
Content: Project Life cycle: phases and costing of life cycles; Project Evaluation: time value of money, break-even analysis, payback, Return on Investment; Inventory: cost components, models for Economic Order Quantity, reorder Points, Safety Stock, Quantity Discounts.
Recommended Reading: (1) Burke, R., 2003, Project Management: Planning and Control Techniques, 4/e, John Wiley.
Class Contact: Four hours per week for one semester, comprising two-one hour lectures and two one-hour laboratory/tutor.
Assessment: Class Test 1 hour 20% P2, I2, W2, A2 One Group Assignment, 2 or 3-persons 20% P2, I2, W2, C2, D2 Final Examination 3 hours 60% P2, I2, W2, A2

RCM2915 STOCHASTIC AND COMBINATORIAL OPTIMISATION
Campus: Footscray Park, Hong Kong, Malaysia, Singapore
Prerequisite(s): RCM1613 or equivalent.
Content: Decision Analysis: Decision Making without and with Probabilities; Decision Trees, EVPI and EVSI. Multicriteria Decision Making: Scoring Model, Analytical Hierarchy Process; Spreadsheet Analysis. Selected Combinatorial Optimisation Models: Network Models—spanning tree, shortest path, and maximum flow problems; Set Covering Problem; Cutting Stock Problem; Bin Packing Problem. Queuing Theory: Basic components of a queuing model, arrival and service time distributions; operating characteristics of a queuing system; multiple server models; no waiting time and finite population; Economic Analysis; Spreadsheet Analysis.
Recommended Reading: Anderson, Sweeney and Williams; 1999, Contemporary Management Science with Spreadsheets, South Western College Publishing. Subject notes will be supplied to supplement the textbook as necessary.
Class Contact: Four hours per week for one semester; two hours lecture and two hour tutorial/lab.
Assessment: Participation in Tutorials, 5%; Class Test, 15%; Assignment, 10% Final examination, 70%. To obtain a grade of pass or better a student must obtain 40% or more in the final examination.

RCM2917 LOGISTICS TECHNOLOGY AND SIMULATION
Campus: Footscray Park
Prerequisite: RCM 1114 or equivalent
Co-requisites
Learning Outcomes: After completing the subject, a student is expected to be familiar with the technologies used to identify and locate the materials, and exchanging information relevant to logistics industry. They should be able to structure a logistics problem in a form that can be simulated; Develop models and their solutions using a simulation language.
Content: Scope of Logistics; Logistics technologies e.g. Bar Code, RFID, EDI; Simulation modelling concepts: Application of simulation model (SIMAN, ARENA) for a logistic system.
Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutor.
Assessment: Class Test 1 hour 15% P2, I2, W2, A2 One Individual Assignment 25% P2, I2, W2, A3, D2 Final Examination 3 hours 60% P2, I2, W2, A2

RCM2930 3D WEB TECHNOLOGIES
Campus: Footscray Park, Sydney, Hong Kong, Malaysia.
Prerequisite(s) RCM1312
Content: VRML/Java3D programming. Structure of a VR Object; Basic structures and adjustment of pre-defined simple and complex scenes. Adding processing capabilities to VR models by scripting languages. Adding audio-visual effects (light, sound, image texture mapping, audio and video), higher level tools for creating 3D virtual worlds and other approaches to 3D web content; scene graphs. Creating and navigating the virtual world. Creating interactive 3D graphic models and animations by Java 3D.
Required Reading: Lecture notes provided by the lecturer.
Class Contact: Four hours per week comprising of lectures and two hours of tutorial and computer laboratory.
Assessment: Normally Two Assignments, 30%; final examination, 70%.

RCM3001 PROJECT 1
Campus: Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s): 10 Electives
Content: This subject is based and involves projects with industry sponsors selected by the University. Students work in groups under the supervision of an Academic Staff member. For computing projects students are required to submit a specification document, a final project report and demonstrate the software. For non-competing projects students are required to submit a project specification and a final project report. In addition, all groups present progress and final oral presentations to other students, staff and industry partners.
Required Reading: Nil
Recommended Reading: Nil
Class Contact: Four hours per week
Assessment: Based on performance in the projects oral presentations and quality of final reports.

RCM3002 PROJECT 2
Campus: Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s): ACE1145 or Year 12 English or competence in English, Must have completed year 2.
Content: Appropriate to the project involved, the student will be required to produce a number of documents such as test plan, design project report, user manual, e-poster...
and CD-ROM. The student will be continually supervised under the guidance of the subject co-ordinator and their project supervisors via weekly meetings at various stages of the project. The student’s ability as a competent communicator in industry settings will be further developed through workshop activities. The writing of a group project report, writing professional applications, preparing for and role playing interviews and developing oral presentation skills will be included in the workshops.

**Required Reading**

**Recommended Reading**
Handbook of Communication Skills for First Year Students in the Faculty of Science, Engineering and Computing.

**Class Contact**
1x two hr project meetings with subject co-ordinator and project supervisor; 1x two hr workshop.

**Assessment**
- Presentation, 10%;
- User Acceptance Test, 20%;
- Attendance of Meetings and Online Logbook, 5%;
- Documentation, User Manual, 20%;
- Final Presentation & e-Poster, 20%;
- Written Employment Application, 15%;
- Interviews, 10%. All items of assessment must be completed in order for a final result to be obtained in this subject.

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**RCM3021 LOGISTICS ANALYSIS AND SOLUTIONS**

**Campus**
Footscray Park, Sunbury, Werribee, Uoong-Chin, Sunway-Malaysia.

**Prerequisite(s)**
BE04123 Global Logistics and BE05203 Supply and Value Networks.

**Content**
The unit of study aims to familiarise students with the process of resolving logistics related business problems through the process of conducting logistics audits and relating them to a number of problem areas. Topics include: Project Based Learning techniques; logistics audit methodologies; problem identification; problem resolution; report preparation directed towards the analytical aspects of logistics.

**Learning Outcomes**
- Structure a specific problem and analyse the current industry environment in which the problem exists.
- Use audit report methods as a basis to provide management with options and viable solutions for a range of issues such as: Transport; Storage; Material Handling; Inventory; Procurement. Apply Problem Based Learning techniques as the learning medium.

**Required Reading**

**Recommended Reading**

**Class Contact**
Equivalent to three hours per week. Normally to be delivered as two hours of lectures and one hour of tutorials, workshops or modules or a delivery mode as approved by the Faculty of Business and Law. Unit of study equal to 12 credit points.

**Assessment**
- Minor assignment (1000 words), 20%;
- Major assignment (3000 words), 30%;
- Case studies (500 words), 5 x 10%.

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**RCM3111 DATA COMMUNICATIONS & NETWORKS 2**

**Campus**
Footscray Park

**Prerequisite(s)**
RCM2111 Data Communications & Networks 1

**Content**

**Required Reading**
to be advised by lecturer

**Recommended Reading**

**Class Contact**
Four hours contact per week for one semester comprising two one hour lectures and two one-hour laboratory/tutorial.

**Assessment**
Final examination, 70%; assignments, 30%.

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**RCM3112 USER INTERFACE DESIGN**

**Campus**
Footscray Park, Sydney, Hong Kong, Malaysia

**Prerequisite(s)**
RCM1114, RCM1115

**Content**

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**RCM3115 ARCHITECTURES FOR ENTERPRISE WIDE COMPUTING**

**Campus**
Footscray Park, Sydney, Hong Kong, Malaysia

**Prerequisite(s)**
RCM2118, RCM2315

**Content**
The client/server model. Comparison to mainframe environment; legacy system connections; mission critical services. Client and server roles. Network services; middleware and controlware; Two, three and n-tier architectures; integration layers; interfacing protocols and procedures. Client/server analysis modeling.

**Assessment**
- Presentation, 10%;
- User Acceptance Test, 20%;
- Written Employment Application, 15%;
- Interviews, 10%. All items of assessment must be completed in order for a final result to be obtained in this subject.

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**RCM3200 SELECTED TOPICS IN OPEN RES AND STATS**

**RCM3211 DATABASE SYSTEMS 3**

**Campus**
Footscray Park, Sydney, Hong Kong, Malaysia

**Prerequisite(s)**
RCM2218 Database Systems 2.

**Content**
Data warehouse, datamart, knowledge discovery in databases, data mining algorithms, online analytic processing (OLAP), online transaction processing (OLTP), hypercubes, star schemas, Multidimensional analysis, ROLAP and MOLAP.

**Assessment**
- Final examination, 70%;
- tests/assignments, 30%.

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**RCM3311 OBJECT ORIENTED PROGRAMMING 2**

**Campus**
Footscray Park, Hong Kong

**Prerequisite(s)**
RCM3132 Programming 2; RCM3211 Object Oriented Programming 1.

**Content**
The unit explores advanced Java object-oriented programming techniques and their distributed characteristics in the Internet environment. Topics covered include: JavaBeans, Network Programming, JDBC, Servlets, Java Server Faces (JSF), Mobile Technologies using Java.

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to:
1. Broaden their knowledge of the Java platform as well learning ‘new’ topics: 2. Java’s S /O system, JAR - Java Archives, Java security, Java Containers, JavaBeans, Network programming: Client Server programming, Socket programming, Server-side programming: JSP, JDBC, Servlets, Wireless programming Required Reading To be advised by lecturer.

**Required Reading**

**Recommended Reading**
Class Contact: Four hours per week for one semester, comprising three one hour lectures and one one hour lab/tute.
Assessment: Mid-semester examination 10%, assignments 20%, Final examination, 70%

**RCM312 INTELLIGENT SYSTEMS**
Campus: Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s): RCM312 Programming 2 and RCM1114 Introduction to Computing and the Internet
Content: Introduction to intelligent systems and artificial intelligence, including a study of knowledge representation and problem solving strategies of rule-based expert systems, fuzzy logic, artificial neural networks and genetic algorithms. Practical work includes JESS expert system shell.
Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment: Final examination, 80%; assignment(s), 20%.

**RCM3313 SOFTWARE ENGINEERING 2**
Campus: Footscray Park, Malaysia, Hong Kong, RCM3313
Content: Topics include inspection and formal review, good programming practice, software testing, software estimation, project planning, software process improvement and capability maturity models.
Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment: Final examination, 80%; assignment 20%. In order to pass, students must obtain at least 50% of the total marks given in this subject, including at least 40% of the examination mark and at least 40% of the internal marks.

**RCM3314 OBJECT ORIENTED ANALYSIS AND DESIGN**
Campus: Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s): RCM2311 Object Oriented Programming 1.
Content: Review of object oriented design approaches; the Unified Modeling Language (UML); introduction to Rational Rose; the Unified Method; and Agile modeling approach. Design of domain layer; design of storage layer for the use of persistent objects; user interface design considerations; applying the patterns approach to analysis and design.
Required Reading: Larman, C., 2005, Applying UML and Patterns Pearson Education.
Class Contact: Four hours per week for one semester comprising of two one-hour lectures and two one-hour laboratory/tutorial.
Assessment: Final examination, 70%; Assignment and test, 30%.

**RCM3316 ADVANCED MATHEMATICAL TECHNIQUES**
Campus: Footscray Park
Prerequisite(s): RCM2321
Content: A selection of one or more of the following topics:
- Asymptotic and perturbation techniques: Taylor’s Theorem and 1st Hospital’s Rule, Order Symbols, Asymptotic Expansions, asymptotic series versus convergent series, introduction to perturbation theory, perturbation and Asymptotic of Algebraic and Transcendental Equations, application to solution of differential equations, regular versus singular perturbation, application to expansion of integrals, Gamma function, transforms, integration by parts, Laplace method, method of stationary phase, method of steepest descent, developing Maple code to solve applicable problems.
- Advanced techniques for differential equations: methods for non-constant coefficient ordinary differential equations, analytic techniques to solve linear partial differential equations, heat equations, wave equation, Black-Scholes option pricing formula, Navier Stokes equation including viscous and incompressible flow. Green’s functions and reformulation to integral form.
- Computational techniques to include finite element method, Crank-Nicholson, elementary methods for integral equations and singular quadrature.
- Advanced computational techniques: Integration and quadrature including Newton-Cotes, Romberg-Cotes, adaptive schemes, Gaussian quadrature, Peano theorem and generation of error bounds for a variety of measures, application to Taylor theorem, integral transforms and integral equations of the first and second kind, multi-dimensional quadrature.
Required Reading: Nil
Class Contact: 2 x one hr. 1x1hr tutorial, 1xhrs Laboratory for one semester.
Assessment: 15% Lab work, 15% mid-semester test (90 minutes), 70% end of semester examination (3 hours).

**RCM3413 FINANCIAL MODELLING**
Campus: Footscray Park, RCM3413
Prerequisite(s): RCM2511 Image Processing, RCM312 Programming 2
Content: Image file types. Topology and geometry; applications to boundary detection, skeletonization and image resizing. Quantization and dithering. Advanced frequency domain filtering, including inverse filtering and Wiener filtering; the Fast Fourier Transform. Shape and size analysis: grayscale morphology and shape descriptors. Lossy compression and the JPEG standard. Wavelets and their applications.
Implementation of image processing algorithms.
Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment: Final examination, 70%; assignment and tests, 30%.

**RCM3611 REGRESSION ANALYSIS**
Campus: Footscray Park, RCM3611
Prerequisite(s): RCM2611
Content: Review of linear model theory. The signs of, and solution to, common problems with the assumptions necessary for inference in the least squares regression method. Using Generalised Linear Models to overcome a number of these problems. Logistic regression and log linear models. Non-linear regression methods.
Recommended Reading: Myers, R.H. ‘Classical and Modern Regression with Applications’ 2nd Ed. 1990, Duxbury.
Class Contact: four hours per week for one semester, mix of lectures, tutorials and computer laboratory.
Assessment: Final Examination 60% Assignments 40%.

**RCM3613 TIME SERIES ANALYSIS**
Campus: Footscray Park, Hong Kong, Singapore, RCM3613
Prerequisite(s): RCM2612 Forecasting or equivalent.
Recommended Reading: To be advised by lecturer

Class Contact Four hours per week comprising two hours lecture and two hour laboratory.
Assessment Final examination, 50%; project, 50%.

RCM3615 MULTIVARIATE STATISTICS
Campus Footscray Park
Prerequisite(s) RCM2712 Mathematics of Continuous Processes A.
Content Fundamental statistical methods. Multivariate analysis including methods of analysis of variance (ANOVA), analysis of covariance (ANCOVA), principal components analysis (PCA) and cluster analysis. Model building techniques and diagnostics. The use of statistical software packages.
Class Contact Four hours per week for one semester, comprising two hours of lectures and two hour of laboratory/tutorial.
Assessment Final examination, 80%; Test, 20%.

RCM3617 QUALITY IMPROVEMENT AND EXPERIMENTAL DESIGN
Campus Footscray Park
Prerequisite(s) RCM1713 Discrete Mathematics.
Content The design and analysis of experiments. Sampling and the experimental planning process. Experimental design concepts: factorial designs, fractional factorial designs, response surface methodology, and process optimization. The use of statistical software packages.
Class Contact Two hrs of lectures and two hr tutorial/laboratory per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment Final examination, 70%; assignment and tests, 30%.

RCM3711 COMPUTATIONAL METHODS
Campus Footscray Park
Prerequisite(s) RCM1614 Applied Statistics 2.
Content This subject is designed for students interested in applying knowledge of programming techniques to solving applied computational problems. Topics include approximation and interpolation, optimization and root finding, quadrature, spectral decomposition and methods for differential equations. A variety of practical applications will be considered, set in a high level programming environment.
Required Reading Nocito, C., 2003, Introduction to Computational Methods, Prentice Hall.
Class Contact Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment Final examination, 80%; Mid-year test, 20%.

RCM3720 CRYPTOGRAPHY, COMPUTER AND NETWORK SECURITY
Campus Footscray Park, Sydney, Malaysia
Prerequisite(s) RCM1711 Mathematical Foundations 1 and RCM1712 Mathematical Foundations 2 or equivalent.
Class Contact Four hours per week: two hours lecture, and two hour tutorial or laboratory.
Assessment Final examination, 80%; assignment and tests, 20%.

RCM3820 INTERNET COMPUTING USING XML
Campus Footscray Park, Sydney (Alpha Beta College), Hong Kong, Malaysia.
Prerequisite(s) RCM1114
Content Introduction to XML: definition, benefits, etc.; XML tools; XML namespaces; Document Type Definitions; XML Schema; Extensible Stylesheet Language; XML Forms; XSL Formatting Objects; Resource Description Framework and Dublin Core.
Required Reading To be advised.
Class Contact Four hours/week: two hours of lectures and two hours of computer laboratory.
Assessment Two assignments, 30%; final examination, 70% (3 hours duration).

RCM3911 SIMULATION
Campus Footscray Park, Hong Kong
Prerequisite(s) Pass in eight electives (advisory). Students should have successfully completed second year.
Content On completion of the subject, students should be able to: understand the philosophy and concepts of simulation; have a good knowledge and understanding of a modern simulation language including principles of modelling; design, justify, and implement computer-based models of the operation of manufacturing and business systems.
Required Reading SCM3911 Lecture Notes.
Class Contact Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.
Assessment Final examination, 70%; assignment and tests, 30%.

RCM3940 COMPUTATIONAL RISK MODELLING
Campus Footscray Park.
Prerequisite(s) RCM1311, RCM1711
Class Contact Hull, J.C., 2003, Options, Futures, and Other Derivatives, 5th edn, Prentice Hall.
Class Contact Two hrs of lectures and two hr tutorial/laboratory per week for one semester.
Assessment Assignment, 20%; final examination, 80%.

RCM3950 INTERNET DATA MANAGEMENT
Campus Footscray Park, Sydney (Alpha Beta College), Hong Kong, Malaysia.
Prerequisite(s) RCM2313
Content Introduction to Class; Introduction to ASP.NET; Introduction to Visual Studio .NET; Using Server Controls; Using ASP.NET Rich Controls; Using Visual Basic. NET. Within an ASP.NET Page; Managing Data Sources; Building Data-Driven ASP.NET Applications; Building Data-Driven Web Applications; Configuring an ASP.NET Application; Troubleshooting and Deploying an ASP.NET Application.
Required Reading Introduction to ASP.NET, Kathleen Kaleata, © 2002 Course Technology, 0-619-06321-1.
Class Contact Four hours per week for one semester, comprising one two-hour lecture and two one-hour laboratory/tutorial.
On successful completion of this unit, students are expected to be able to:

1. Recognize and describe basic security vulnerabilities, in terms of human, software, hardware and environmental factors;
2. Devise processes to ensure greater security;
3. Differentiate between different types of security attacks;
4. “Harden” a computer system or network, including network components, wireless peripherals and desktop machines.

Content


Firewalls: hardware and software. Port security. Communications: telnet and ftp; ssh and sftp.

WWW security: web browsers and servers. Secure Socket Layer (SSL).


Required Reading


Recommended Reading


Cryptography and network security: Principles and practice (2nd ed.). Prentice Hall.

Class Contact

Forty-eight (48) hours or equivalent for one semester comprising lectures and computer laboratories.

Assessment

One mid-semester test (15%); one laboratory report (15%); one industry-based project (20%); one 2-hour final examination (50%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.

This subject focuses on modelling the financial flows associated with investment both in commercial projects and in financial assets. Topics may include: the riskless investment: compound interest, present-value and future-value of a sequence of dated cash-flows, measures of rate-of-return, the single-period risky investment, the Markowitz mean-variance comparison of investments; reduction of risk through portfolio optimisation; the capital asset pricing model; extension to multi-period risky investments; financial instruments underlying sources of finance, bonds, shares, options, futures, currencies; Black/Scholes pricing of options; interest rate risk (duration and convexity); software-packages for financial modelling.

Required Reading


Recommended Reading


Class Contact

Three hours per week comprising two hours of lectures and one one-hour tutorial.

Assessment

Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RBCM5601 FORECASTING

Campus: Footscray Park, Sydney, Hong Kong, Malaysia

Prerequisite(s) RBCM1614 or equivalent

Content


Required Reading

Nil.

Recommended Reading


Class Contact

Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory.

Assessment

Project, 40%; Examination, 60%.

RBCM5602 QUALITY MANAGEMENT AND STATISTICS

Campus: Footscray Park, Hong Kong

Prerequisite(s) Two undergraduate statistics subjects.

Content


Required Reading

To be advised by lecturer.

Class Contact

Three hour mix of lectures, tutorials, practice and laboratory classes.

Assessment

Final examination, 80%; Mid-semester tests, 20%.

RBCM5800 OBJECT ORIENTED PROGRAMMING GD1

Campus: Footscray Park, Hong Kong

Prerequisite(s) Nil.

Content

Programming language; basic object oriented concepts; programming, algorithm development and elementary data structures objects and classes.

Required Reading

To be advised by lecturer.

Class Contact

Three hours per week for one semester comprising two hours of lectures and one one-hour practical.

Assessment

Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.
RCM5801 INTRODUCTION TO COMPUTER SCIENCE
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Pre-requisite(s) Nil
Content
Computer hardware concepts and organisation. Introduction to operating systems and environments. Introduction to computer networks and the Internet. Overview of object oriented methodology. Algorithms design and development.
Required Reading
Nil
Recommended Reading
Class Contact
Three hours per week comprising two hours of lectures and one one-hour tutorial.
Assessment
Final examination, 70%; assignment and tests, 30%.

RCM5802 INFORMATION SYSTEMS
Campus Footscray Park, Hong Kong.
Prerequisite(s) Nil
Content
Database concepts and design methodology; hierarchical, network and relational models; relational approach and relational calculus; object-oriented approach to database design; conceptual models and query interfaces; database management and administration functions, shared access control, security, recovery and query interfaces; study and use of fourth generation languages for query, update and report generation.
Required Reading
To be advised by lecturer.
Class Contact
Three hours per week for one semester, comprising two-hour lecture and one-hour practical.
Assessment
Final examination, 25%; assignment and tests, 25%.

RCM5803 DATA STRUCTURES AND PROGRAMMING
Campus Footscray Park
Prerequisite(s) RCM5800 Object Oriented Programming GD1
Content
Program development and testing using Software Engineering principles; object oriented programming languages; organisation and manipulation of data; the software environment; object oriented design and analysis. Abstract data types.
Required Reading
To be advised by lecturer.
Class Contact
Three hours per week for one semester comprising two-hour lecture and one two-hour practical.
Assessment
Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5805 COMMUNICATION AND NETWORKS
Campus Footscray Park, Hong Kong.
Pre-requisite(s) Nil
Content
Introduction - types of networks, master/slave polling networks, equality networks, network structure, switchings, layered design of networks and the ISO reference model - protocols, interfaces, communication techniques, multiplexing; public networks in Australia - Datel, DDS, Austpac, etc.; local area networks - transmission media, topologies, access control, comparison of local area network products; PC Networks - servers, workstations, network disks, directory structure, network security, access control and file locking.
Required Reading
To be advised by lecturer.
Class Contact
Three hours per week for one semester comprising two one-hour lecture and one two-hour practical.
Assessment
Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5807 ADVANCED INFORMATION SYSTEMS
Campus Footscray Park, Hong Kong.
Prerequisite(s) RCM5802 Information Systems or equivalent.
Content
Data analysis and modelling using the Enhanced Entity-Relationship model and normalisation. Constraints beyond the EER model, and advanced data modeling issues. Database transactions: concept, ACID properties, specification. Transaction processing: commit and rollback, concurrency control, locking, scheduling, and recovery. Database application development using embedded SQL.
Required Reading
To be advised by lecturer.
Recommended Reading
Class Contact
Two hour lecture and one hour laboratory per week.
Assessment
Final examination, 80%; test, 20%.

RCM5810 SOFTWARE DEVELOPMENT
Campus Footscray Park
Prerequisites RCM5800
Co-requisites
Learning Outcomes
On the completion of the subject, students should be able to
• distinguish between the design process and the implementation process
• appreciate the different demands for implementation of software when using different software development paradigms
• work in a team environment and understand the importance of personnel management
• appreciate the complexity of deliverable software products and
develop an object-oriented three-tier real-world application.
Content
Introduction to VB .NET
• Microsoft .NET Framework
• VB control structures: Selection and Iteration
• Array, Sub Procedures and Function Procedures
• Graphical User Interface Design and Programming
• Using VB .NET Supplied Class
• Writing Class Definitions and
• Object Oriented Programming in VB .NET
• Introduction to DBMS, SQL and ASP .NET
• Exception Handling
Required Reading
Recommended Reading
Class Contact
Three hours per week for one semester, comprising two-hour lecture and one-hour laboratory/tutorial.
Assessment
20% Laboratory
30% Assignment. This is technology based assignment with a level of difficulty appropriate for 30% of the total mark in the subject.
25% Mid Semester Test
25% Final Test
In order to pass, students must obtain at least 25% of the combined Laboratory and Assignment mark and 25% of Test mark in this subject.

RCM5811 OPERATING SYSTEMS
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Pre-requisite(s) RCM5801 or equivalent
Learning Outcomes
On successful completion of this unit, students are expected to be able to understand the tasks accomplished by a computer’s operating system as the interface between user and computer and also as the resource manager for the computer system. Students gain some practical experience using operating systems.
Content
Required Reading
Recommended Reading
Class Contact
Three hours per week for one semester, comprising two one-hour lectures and one hour laboratory/tutorial.
Assessment
70% final examination 30% test and assignment
RCM5813 ARTIFICIAL INTELLIGENCE
Campus Footscray Park
Prerequisite(s) Nil.
Content LISP; knowledge representation - semantic nets, problem solving, search, frames; knowledge based systems - rule-based systems; logic programming; developing an expert system.
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising two hours of lectures and one one-hour practical.
Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5814 COMPUTER GRAPHICS
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Pre-requisite(s) RCM8000 or equivalent
Content This subject introduces the principles of computer graphics and the art in the representation of 2D and 3D pictures, and gives experience in using graphics packages such as OpenGL. The topics coverage also includes popular graphics algorithms and techniques for generating 2D and 3D animations. In addition, some advanced topics, such as curves, surface and shading are discussed. Students will have considerable practice in 2D and 3D graphics programming with package OpenGL.
Class Contact Two one-hour lectures and two one-hour laboratory for one semester
Assessment Laboratory, 10%; Two assignment, 30%; Final examination, 60%

RCM5820 NETWORK OPERATING SYSTEMS ADMINISTRATION
Campus Footscray Park
Prerequisite(s) RCM8005 Communication and Networks.
Required Reading To be advised by the lecturer.
Class Contact Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory/tutorial.
Assessment Final examination, 50%; assignment and tests, 50%.

RCM5821 INTRODUCTION TO MULTIMEDIA SYSTEMS
Campus Footscray Park
Prerequisite(s) Nil
Required Reading To be advised by the lecturer.
Class Contact Three hours per week for one semester, comprising one one-hour lectures and one two-hour laboratory/tutorial.
Assessment Final examination, 80%; assignments, 20%.

RCM5822 NETWORK MULTIMEDIA SYSTEMS
Campus Footscray Park
Prerequisite(s) RCM821 Introduction to Multimedia Systems.
Class Contact Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory/tutorial.
Assessment Final examination, 80%; assignments, 20%.

RCM5824 OBJECT ORIENTED PROGRAMMING GD2
Campus Footscray Park, Hong Kong
Prerequisite(s) RCM8000 Object Oriented Programming GD1
Content This subject provides practice to object oriented programming and methodology using advanced features and the application programming interface of the Java programming language. A deeper discussion of classes and objects, encapsulation, polymorphism, inheritance, relationships among classes of objects and programming with related classes along with exception handling, multithreading, file I/O and building GUI components.
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising two hours of lectures and one one-hour laboratory.
Recommended Reading Deitel, H.M., and Deitel, P.J., 2005, Java How to Program, 6th edn, Prentice-Hall.
Assessment Final examination, 75%; assignment and laboratory, 25%.

RCM5825 WEB PROGRAMMING
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Pre-requisite(s) Competency in Java
Required Reading Deitel, Deitel and Nieto, 2001 or later, Internet and World Wide Web: How to Program, Prentice Hall.
Class Contact Two hour lectures and 1 hour laboratory per week.
Assessment Final Examination 58%, mid-semester practical test 30%, laboratory 12%.

RCM5827 INTELLIGENT WEB SYSTEMS
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Pre-requisite(s) RCM802 and RCM807, RCM803
Content The rapid development of Web technology has made World Wide Web an important and popular application platform for disseminating information and searching information as well as conducting business. This subject introduces students the recent advances in web technology for intelligent web systems and applications development. The subject covers topics on Web search, Web mining, linkage analysis, Web communities, web services and semantic Web. After the completion of this study, students will have a deep understanding in this developing area and be able to develop applications based on the knowledge learnt.
Recommended Reading
No formal class contact, however, there will be regular meetings with the students' supervisors.

Equivalent to three hours per week. Normally to be delivered as two 90-minute sessions in the form of seminars or project discussions.


Content

The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Required Reading

To be advised by supervisor.

Class Contact

No formal class contact, however, there will be regular meetings with the students' supervisors.

Assessment

The thesis will normally be assessed by at least two examiners from an appropriate area of expertise.

RCM5902 OPTIMISATION TECHNIQUES

Campus Footscray Park

Prerequisite(s) Nil

Content

Lecture Program Topics: Decision Tree and AHP; Maximal flow problems, Shortest-route problem, Minimal spanning tree problem, Estimating network flows; Queuing.

Required Reading

To be advised by lecturer.

Class Contact

Three hours per week for one semester comprising lectures/tutorials.

Assessment

Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6021 LOGISTICS SOLUTIONS AND SYSTEMS

Campus City Flinders, Liaoning-China, Sunway-Malaysia.

Prerequisite(s) Nil

Content

The unit of study aims to familiarise students with the process of resolving logistics related business problems through the process of conducting logistics audits and relating them to a number of problem areas. Topics include: Problem Based Learning techniques; logistics audit methodologies; problem identification; problem resolution; report preparation directed towards the analytical aspects of logistics.

Learning Outcomes

Structure a specific problem and analyse the current industry environment in which the problem exists. Use audit report methods as a basis to provide management with options and viable solutions for a range of issues such as: Transport; Storage; Material Handling; Inventory; Procurement. Apply Problem Based Learning techniques as the learning medium.

Required Reading


Recommended Reading


Class Contact

Equivalent to three hours per week. Normally to be delivered as two hours of lectures and one hour of tutorials, workshops or modules or a delivery mode as approved by the Faculty of Business and Law. Unit of study equal to 12 credit points.

Assessment

Case study/Problem solutions: 5 cases x 10 = 50%; One major project assignment, 4000 word report and oral presentation: 50%.

RCM6102 THESIS (2 UNITS)

To be completed in one semester.

Campus Footscray Park

Prerequisite(s) Nil

Content

The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Required Reading

To be advised by the supervisor.

Class Contact

No formal class contact, however, there will be regular meetings with the students’ supervisors.

RCM6103 THESIS (4 UNITS)

To be completed in one semester

Campus Footscray Park

Prerequisite(s) Nil

Content

The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Required Reading

To be advised by supervisor.

Class Contact

No formal class contact, however, there will be regular meetings with the students’ supervisors.

Assessment

The thesis will normally be assessed by at least two examiners from an appropriate area of expertise.

RCM6105 THESIS (1 UNIT) (PART-TIME) (FOR TWO SEMESTERS)

RCM6104 THESIS (1 UNIT)

(1st semester code, thesis to be completed over two semesters)

Campus Footscray Park

Prerequisite Nil

Co-requisite(s) Nil

Content

The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Required Reading

To be advised by the supervisor.

Class Contact

No formal class contact, however, there will be regular meetings with the students’ supervisors.

RCM6105 THESIS (1 UNIT)

(2nd semester code, thesis to be completed over two semesters)

Campus Footscray Park

Prerequisite Nil

Co-requisite(s) Nil

Content

The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Required Reading

To be advised by the supervisor.

Class Contact

No formal class contact, however, there will be regular meetings with the students’ supervisors.

RCM6106 THESIS (2 UNITS)

2nd semester code, thesis to be completed over two semesters

Campus Footscray Park, Hong Kong

Prerequisite(s) Nil

Content

The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Required Reading

To be advised by supervisor.

Class Contact

No formal class contact, however, there will be regular meetings with the students’ supervisors.

Assessment

The thesis will normally be assessed by at least two examiners from an appropriate area of expertise.
RCM6107 THESIS (2 UNITS)
(2nd semester code, thesis to be completed over two semesters)
Campus Footscray Park
Prerequisite(s) Nil
Co-requisite(s) Nil
Content The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies; and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.
Required Reading To be advised by the supervisor.
Class Contact No formal class contact, however, there will be regular meetings with the students’ supervisors.

RCM6501 IMAGE PROCESSING ALGORITHMS
Campus Footscray Park
Prerequisite(s) Nil
Content An introductory subject which covers the fundamental algorithms used in image processing and pattern recognition. The topics include: point, algebraic and geometric operations; smoothing and edge detection, linear convolution, median and max/min filters, segmentation, Hough methods, morphological operations; image coding and compression. Introduction to pattern recognition algorithms. Artificial neural networks for pattern recognition, face recognition.
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising lectures/practicals/tutorials.
Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes. Final examination, 70%; assignments and laboratory works, 30%.

RCM6601 RELIABILITY AND MAINTENANCE
RCM6606 TIME SERIES ANALYSIS
Campus Footscray Park
Prerequisite(s) RCM5601 or equivalent.
Required Reading To be advised by lecturer.
Class Contact Three hours per week comprising two hours lecture and one hour laboratory.
Assessment Final examination, 50%; project, 50%.

RCM6607 STATISTICAL COMPUTING
Campus Footscray Park
Prerequisite(s) Nil
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising lecture and practical.

Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6608 MULTIVARIATE ANALYSIS
Campus Footscray Park, Hong Kong, Malaysia
Prerequisite(s) Nil
Content This subject extends the concepts of estimation and statistical analysis to handle problems involving multivariate variables. Some of the more commonly used multivariate statistical procedures are presented in detail. The topics consist of: Covariance and Correlation; Population and sample covariance and correlation matrices; properties and tests. Linear combinations and multiple and partial correlation. Multivariate Normal Distribution: Features, properties and the key role it plays in many multivariate statistical procedures. Tests on mean vectors. Specific Procedures: Multivariate multiple regression, multivariate analysis of variance, canonical correlation, discriminant analysis, principal components, factor analysis and clustering techniques.
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising lecture and tutorial.
Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6702 INTERNET DATA REPRESENTATION 1
Campus Footscray Park, Sydney, Hong Kong, Malaysia
Prerequisite(s) RCM6822 Internet Programming or equivalent subject.
Content XML data access and use; Metadata, such as Resource Description Framework; DRL tools; DRL definition and declaration, such as XML Schema; Parsers and validators; Presentation of DRL data; Research applications of the DRL.
Recommended Reading ;
Class Contact Two hour lecture and one laboratory/tutorial per week.
Assessment Final examination, 70%; Assignments, 30%.

RCM6710 INTERNET DATA MANAGEMENT 1
Campus Footscray Park, Hong Kong, Malaysia
Prerequisite(s) RCM2313 or Internet Programming subject.
Content Introduction to Class; Introduction to ASP.NET; Introduction to Visual Studio.NET; Using Server Controls; Using ASP.NET Rich Controls; Using Visual Basic. NET Within an ASP.NET Page; Managing Data Sources; Building Data-Driven ASP.NET Applications; Building Data-Driven Web Applications; Configuring an ASP.NET Application; Troubleshooting and Deploying an ASP.NET Application.
Required Reading Introduction to ASP.NET, Kathleen Kalata, © 2002 Course Technology, 0-566-07321-1.
Class Contact Three hours per week for one semester, comprising two one-hour lecture and one one-hour laboratory/tutorial.
Assessment 15% Labs 35% Assignment 25% Mid-Semester Test 25% Final Test In order to pass, students must obtain at least 25% of Labs and Assignment, and 25% of Tests in this subject.

RCM6812 CRYPTOGRAPHY COMPUTER & NETWORK SECURITY
Campus Footscray Park Campus
Prerequisite(s) A year of tertiary mathematics
Co-requisite(s)
Learning Outcomes At the completion of the subject, students should:
• understand the theoretical algorithms which underlay modern cryptography,
• be able to implement these algorithms in Java,
• understand how a cryptosystem is used as part of a security system,
• recognize the strengths and limitations of cryptography,
• be able to apply public-key or secret-key cryptosystems to a variety of security tasks
Content
Basic number theory; prime numbers, primarily testing, factorization, 
implementation in Java. Simple cryptosystems; methods of attack. Public key 
cryptosystems: RSA, Rabin, El Gamal. Uses and weaknesses. The knapsack 
cryptosystem and its cryptanalysis. Block ciphers, hash functions and message 
authentication codes. Modes of encryption. DES and Rijndael.

Required Reading
& Sons, 2003
Applied Cryptography, Bruce Schneier, Wiley 1996
Modern Cryptography: Theory and Practice, Wenbo Mao, Prentice Hall 2003
Introduction to Cryptography with Java Applets, David Bishop, Jones & Bartlett 2002
Java Cryptography, Jonathan Knudsen, O’Reilly & Associates 1999
Cryptography for Internet and Database Applications: Developing Secret and Public Key Techniques With Java, Nicholas Galbreath, Wiley 2002

Class Contact
3 hours/week: 2 lectures and 1 computer laboratory
Assessment
2 mid semester tests: 10% each (1 hour duration)
1 programming project: 15%
Final exam: 65% (3 hour duration)

RCM6813 INTERNET SECURITY
Campus Footscray Park
Prerequisites RCM5800 and RCM5802
Co-requisites
Learning Outcomes
At the completion of the subject, students should:
• understand the theoretical algorithms which underlay modern network security,
• be able to implement these algorithms in Java,
• understand how a cryptosystem is used as part of a security system,
• recognize the strengths and limitations of cryptography,
• recognize and use appropriate security measures for a variety of security tasks
Content
Required Reading
Recommended Reading Practical Cryptography, Neils Ferguson and Bruce Schneier, 
Wiley 2003
& Sons, 2003
Java Cryptography, Jonathan Knudsen, O’Reilly & Associates 1999
Cryptography for Internet and Database Applications: Developing Secret and Public Key Techniques With Java, Nicholas Galbreath, Wiley 2002

Class Contact
3 hours/week: 2 lectures and 1 computer laboratory
Assessment
Two mid semester tests: 15% each (1 hour duration)
Final exam: 70% (3 hour duration)

RCM6814 ENTERPRISE - WIDE COMPUTING
Campus Footscray Park
Prerequisites RCM5800, RCM5802, RCM5805, RCM6822
Co-requisites
Learning Outcomes
On successful completion of this subject, student should be able to
1. develop electronic commerce applications with Internet and World Wide Web 
technology;
2. understand how to build secure electronic commerce with information security 
technology and payment systems;
3. make business trend prediction with data mining technology.
Content
Introduction to electronic commerce. Internet and World Wide Web technology. 
Data warehouses and data mining technology. Information security technology. 
Electronic payment.
Required Reading
J. Han and M. Kamber. Data Mining: Concepts and Techniques. Morgan Kaufmann 
Publishers, 2000
Class Contact
3 hours/week: lectures, tutorials, seminars and computer laboratory
Assessment
Examination (70%): 3 hours duration, closed book written paper.
Teamwork assignment: case study of electronic commerce development for group 
working. This technology based assignment with a level of difficulty appropriate for 
30% of the total mark in the subject.

RCM6815 THEORETICAL COMPUTER SCIENCE 1
Campus Footscray Park, Hong Kong, Malaysia, Singapore
Pre-requisite(s) Discrete Mathematics
Content
Theoretical computer science is the foundation of computer science and this 
subject introduces some of the central topics in theoretical computer science. It 
covers computability theory, formal languages, logic and automated deduction, 
computational complexity (including NP-completeness), and programming language 
semantics.
Required Reading
Ron Sigal, Elaine J. Weyuker, Theoretical Computer Science by Martin Davis, Elsevier, 
1994.
Class Contact
Three hours per week for one semester, comprising two hours of lectures and one 
hour of laboratory.
Assessment
Assignment 40% and final examination 60%.

RCM6819 USER INTERFACE DESIGN
Campus Hong Kong, Footscray Park.
Prerequisite(s) RCM6822 Internet Programming
Content
Cognitive frameworks for HCI. Interaction styles. Help and error messages. 
application development. User testing. Software metrics
Required Reading
Recommended Reading
Shneiderman, B., 1998, Designing the User Interface, 
Class Contact
Examination (70%): 3 hours duration, closed book written paper.
Assignment 40% and final examination 60%.

RCM6820 DISTRIBUTED SYSTEMS
Campus Footscray Park, Hong Kong
Pre-requisite(s) Nil
Content
This subject will study advanced topics in Networking with emphasis on Distributed 
Systems. After completing the subject the students will have gained a understanding 
of the following topics: OSI layers, Client-Server models and group programming, 
Networking programming, Distributed Systems
Required Reading
**RCM6821 DECISION SUPPORT TECHNOLOGY**  
Campus: Hong Kong, Footscray  
Prerequisite(s): Nil.  
Content: Processes and phases of organisational decision making and modelling. Online analytic processing (OLAP) vs online transaction processing (OLTP). Decision support framework and applications. Data requirements and benefits of decision support systems. Structure, components and types of decision support systems. Data mining concepts. Data warehouse vs production systems. Warehouse data characteristics and requirements. Data fusion and data scrubbing. Data models for data warehouse and data mart. Star schemas and hypercubes. Multidimensional analysis ROLAP MOLAP and HOLAP. Data warehouse administration. Warehouse database management technology.  
Class Contact: Three hours per week two hours lecture and one-hour laboratory/tutorial.  
Assessment: Final examination 70%. Assignment/Test 30%.

**RCM6822 INTERNET PROGRAMMING**  
Campus: Footscray Park, Hong Kong  
Prerequisite(s): Competency in a programming language.  
Required Reading: Deitel, Deitel and Nieto, 2001 or later. Internet and World Wide Web: How to Program, Prentice Hall. D.R. Watson’s Five hypertexts on Internet Programming, all available on the school’s intranet at https://samples/rcm6822/Launcher.html or http://melba.vu.edu.au/~rcm6822/  
Class Contact: Three hours per week, two hours lecture and one-hour laboratory/tutorial.  
Assessment: Final examination 70%. Assignment/Test 30%.

**RCM6823 DATABASE DESIGN, MANAGEMENT AND ADMINISTRATION**  
Campus: Footscray Park, Hong Kong  
Prerequisite(s): Good knowledge of relational databases; basic understanding of UNIX.  
Class Contact: Two hour lectures and one hour laboratory per week.  
Assessment: Final Examination, 70%; Assignment, 30%.

**RCM6825 MULTIMEDIA SYSTEMS DESIGN AND DEVELOPMENT**  
Campus: Footscray Park  
Prerequisite(s): Introduction to Multimedia RCM5821.  
Content: The aim of this subject is to develop a clear understanding of the processes and current methodologies used in the design and development of multimedia systems. The subject introduces some new 3D web graphics technologies related to multimedia system development, including Java 3D and Virtual Reality Modeling Language (VRML).  
Required Reading: To be advised by the lecturer.  
Class Contact: Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory.  
Assessment: Final Examination, 50%; Project, 50%.

**RCM6827 RESEARCH PERSPECTIVES IN COMPUTER SCIENCE**  
Campus: Footscray Park  
Prerequisite(s): Enrolled Honours Student.  
Content: Writing a research proposal, performing a literature review, writing a thesis, giving presentations, human research ethics, intellectual property.  
Required Reading: To be advised.  
Recommended Reading: To be advised.  
Class Contact: Four per week for one semester.  
Assessment: A mix of written and oral presentations.

**RCM6830 KNOWLEDGE ENGINEERING AND E-COMMERCE TECHNOLOGY**  
Campus: Footscray Park, Hong Kong  
Prerequisite(s): Competency in a programming language.  
Content: This subject introduces students to concepts of knowledge and systems engineering with particular emphasis on electronic commerce systems. A study is made of the current and past technologies that have enabled the recent growth and establishment of electronic commerce. The supporting technologies needed for the three-tiered architecture of electronic commerce sites, i.e. front end interfaces, middleware and backend servers together with their databases, are investigated in detail and form the basis of practical exercises.  
Required Reading: To be advised by lecturer.  
Class Contact: Three hours per week for one semester comprising two one-hour lectures and one one-hour laboratory/tutorial.  
Assessment: Final examination, 80%; assignment/tests, 20%.

**RCM6841 SOFTWARE ENGINEERING 1**  
Campus: Footscray Park, Hong Kong, Malaysia  
Prerequisite(s): RCM6844 Software Engineering 1.  
Content: This subject reviews the software engineering knowledge areas, analyse software process improvement methods and introduces new progresses of software engineering. Topics include capability maturity models, requirement management, project planning, project tracking and oversight, configuration management, quality assurance, and agent oriented software engineering.  
Class Contact: Two hours lecture and one hour laboratory/tutorial per week for one semester.  
Assessment: Final examination, 70%; assignment, 30%. Students must obtain at least 40% standard in the assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

**RCM6842 ADVANCED TOPICS IN SOFTWARE ENGINEERING**  
Campus: Footscray Park, Hong Kong, Malaysia, Singapore  
Prerequisite(s): RCM6841 Software Engineering 2.  
Content: Analysis, discussion and implementation of issues from research papers in
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an area of Software Engineering. For instance, papers on Goal-based methods in Scenario-based Design. Topics include: Analyzing Requirements, Prototyping, Usability Evaluation, etc.

**Recommended Reading**

**Class Contact**
Two hour lecture and one hour laboratory per week.

**Assessment** Contributions to projects, laboratories and seminars, 50%; assignments, 50%.

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**RCM6843 SOFTWARE ENGINEERING PROJECT**
Campus: Footscray Park, Hong Kong, Malaysia

**Pre-requisite(s)**
RCM6841 Software Engineering 2, or equivalent.

**Co-requisite(s)**
Nil.

**Learning Outcomes**
On successful completion of this unit, it is expected that students will be able to:

- understand and gain experience in managing software development process
- have ability in systematic development of software systems
- gain experience in software development in at least one of industrial and business applications such as computer games, financial systems, medical information systems, etc.
- demonstrate good ability in applying knowledge and skills in the computing and software engineering areas, including user interface development, database management systems, networking, wireless/mobile computing, web based and general application development environments.

**Content**
This is a project based unit and will be organised as follows:

- Each student will work on a project as a member of a software development team, or on a personal software project;
- Each project will focus on an industrial and business application such as computer games, financial systems, medical information systems, etc;
- Each project requires the application of knowledge and skills in one or more of the computing and software engineering areas including user interface development, database management systems, networking, wireless/mobile computing, web based and general application development environments;
- Each project practices the software engineering process, generating work products of requirement document, design document, testing report, system manual, project plan and progress log.

**Required Reading**
Project guideline.

**Recommended Reading**

**Class Contact**
Thirty six (36) hours over one 12-week semester comprising of three (3) hours project session per week.

**Assessment**
Two project oral presentations, 15% each; System document (requirement, design, testing report, manual and progress log), 70%.

System document will be evaluated as a whole. No mark will be granted to each individual component.

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**RCM6844 SOFTWARE ENGINEERING 1**
Campus: Footscray Park, Hong Kong, Malaysia.

**Prerequisite(s)**
Nil.

**Content**
This subject covers software engineering knowledge in areas of software management, software verification and validation. Review topics including software process and software life-cycle models, software process improvement, requirement, classical analysis and design, object oriented analysis and design. Detailed topics include inspection, review, software testing, software estimation, project planning, project personnel and organization.

**Recommended Reading**

**Class Contact**
Two hours lecture and one hour laboratory/tutorial per week for one semester.

**Assessment**
Final examination, 70%; assignment, 30%. Students must obtain at least 40% standard in the assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

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**RCM6845 OBJECT ORIENTED TECHNOLOGY**
Campus: Footscray Park, Hong Kong, Malaysia

**Prerequisite(s)**
Two semesters of Java programming.

**Content**
JavaBeans Component Model - Overview, Inspeccion, Properties of Beans; Networking - InetAddress Class, URL Class, URLClassLoader Class, URLConnection Class, Sockets, Server Sockets, Datagram Clients/Servers; Servlet overview and architecture, HttpServlet Class, HttpServletRequest Interface, HttpServletResponse Interface, Handling HTTP get and post Requests, setting up the Apache Tomcat Server, deploying a web application, session tracking; JSP Overview, scripting components, standard actions, directive, custom tag libraries; EJB Overview, session beans, EJB transactions.

**Required Reading**

**Recommended Reading**

**Class Contact**
Two hours lecture and one hour laboratory/tutorial per week for one semester.

**Assessment**
Final examination, 70%; Practical/Assignment, 30%. Students must obtain at least 40% standard in the practicals and assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

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**RCM6846 OBJECT ORIENTED DESIGN**
Campus: Footscray Park, Hong Kong, Malaysia

**Prerequisite(s)**
RCM5824 Object Oriented Programming GD2 or equivalent.

**Content**
Unified Modelling Language (UML); Introduction to Rational Rose; Unified Method and the design of the domain layer; Concepts of persistence and transactions in an OOD context; Interaction layer design considerations; Introduction to an Object Oriented development environment and OODBMS (JABE); Implementation and deployment models; Packages, subsystems and models; Design patterns and frameworks.

**Required Reading**

**Recommended Reading**

**Class Contact**
Two hours lecture and one hour laboratory/tutorial per week for one semester.

**Assessment**
Final examination, 70%; assignment, 30%. Students must obtain at least 40% standard in the assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

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**RCM6902 MATHEMATICAL PROGRAMMING 1**
Campus: Footscray Park

**Prerequisite(s)**
Consent of lecturer.

**Content**
Overview of mathematical programming; review of linear constraints, convexity, the primal and dual problems; the simplex method, slack variables, optimality, post-optimality and sensitivity analysis, integer (linear) programs; commercial packages for mathematical programming, Applied LP Models.

**Required Reading**
To be advised by lecturer.

**Class Contact**
Three hours per week for one semester comprising lectures/tutorials.

**Assessment**
Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

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**RCM6904 SIMULATION**
Campus: Footscray Park

**Prerequisite(s)**
Nil.

**Content**
Problem formulation using the concepts of entities, attributes, files, events etc. Generating random numbers from discrete and continuous distributions. Practical coding experience using SLAMII including debugging and verifying that the translated model executes as intended. Systems approach, flow diagram and problem analysis for discrete event systems. Network modelling involving queuing, resources, pre-
emission, priorities and machine breakdown. Design and analysis of simulation experiments. Practical coding experience using SLAMII.

Required Reading To be advised by lecturer.

Class Contact Three hours per week for one semester comprising lectures/tutorials.

Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

**RCM6905 SEQUENCING AND SCHEDULING**

Campus Footscray Park

Prerequisite(s) Nil


Required Reading To be advised by lecturer.

Class Contact Three hours per week for one semester comprising lectures and tutorials.

Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

**RCM6906 OPTIMISATION TECHNIQUES**

Campus Footscray Park

Prerequisite(s) Consent of lecturer.

Content Lecture Program Topics: Decision Tree and AHP; Maximal flow problems, Shortest-route problem, Minimal spanning tree problem, Estimating network flows; Queueing Theory; Combinatorial Models: CSP, SCP, & BPP. Spreadsheet Analysis.

Required Reading To be advised by lecturer.

Class Contact Three hours per week for one semester comprising lectures/tutorials.

Assessment Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

**RCM8001 RESEARCH THESIS 1 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

**RCM8002 RESEARCH THESIS 2 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

**RCM8011 RESEARCH THESIS 1 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

**RCM8012 RESEARCH THESIS 2 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

**RMA1001 ENGINEERING MATHEMATICS 1A**

Campus Footscray Park, Werribee

Prerequisite(s) Year 12 mathematics or its equivalent.

Content Basic algebra, including index, log laws, indical and log equations, algebraic expansions; Functions, straight line, parabolic, circle etc. Mod function. Domain, range, inverse functions; Trig. Functions and their graphs, period amplitude, degrees radians. Basic trig identities, Inverse Trig functions. Converting atCosx+bSinx to single Sin, Cosine terms; Limits, continuity, differentiation, rules, higher derivatives, Implicit differentiation. Tangents and Normals; Parametric differentiation, derivatives of logs and exponentials. Rates of change, maximum and minimum problems. Trig and inverse trig derivatives, logarithmic differentiation; Introduction to integration. Fundamental theorem of Integral Calculus. Substitution rule. Areas, Mean values, Root mean square; Methods of integration, partial fractions, simple integration by parts; Introduction to differential equations, separation of variables, population growth, air resistance; Complex numbers; Vectors.


Class Contact 60 hours of lectures/tutorials per semester.

Assessment There will be class tests, worth 30%, and an end of semester examination worth 70%. No word length limit applies.

**RMA1002 ENGINEERING MATHEMATICS 1B**

Campus Footscray Park

Prerequisite(s) A pass in RMA1001 Engineering Mathematics 1A.

Content Descriptive statistics, data, histograms etc. Describing data, mean, median, mode, quantities, measures of dispersion.

Assessment There will be class tests, worth 30%, and an end of semester examination worth 70%. No word length limit applies.

**RMA1010 INTRODUCTORY MATHEMATICS**

Campus Footscray Park

Prerequisite(s) Nil

Content Semester one: Algebra and Graph Sketching: Polynomials and other algebraic functions, expansion and factorisation. Factor theorem and algebraic division.


Required Reading To be advised by lecturer. 

Subject Hours Four hours per week for two semesters based on two hour lectures and two hour tutorial sessions. 
Assessment Tests and assignments, 40%; one three-hour examination at the end of each semester, 60%. A satisfactory level of assessment for each component is required for a subject pass.

RMA1110 MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1
Campus Werribee, St. Albans
Prerequisite(s) One of the Year 12 mathematics subjects
Content Revision of basic algebra and logarithms. Discussion of units, accuracy, precision and significant figures in experimental work. An introduction to matrices and matrix manipulation. Functions and graphs. Solutions of polynomial equations and the general concept of an equation and its solution. Introduction to the methods and applications of differential calculus - local and global max/min. Fitting functions to points and the method of least squares. 

Recommended Reading Some web based references provided during presentation of the subject.
Class Contact Four hours per week for one semester consisting of one, one hour lecture and three hours of practice classes.
Assessment Test 1 (week 3), 15%; Test 2 (week 10), 25%; Final Examination, 60%.

RMA1120 STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2
Campus Werribee, St. Albans
Prerequisite(s) One of the Year 12 mathematics subjects
Content Representing data graphically and standard summary statistics. Elementary notions of probability and random variable (discrete and continuous). The binomial and normal variables. Point and interval estimation and testing hypotheses on proportions, means and variances. 

Class Contact Four hours per week for one semester consisting of one, one hour lecture, one, two hour tutorial and one, one hour computer laboratory.
Assessment Tutorial test (15%), computer test/assignment (15%) examination (70%).

RMA2120 MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2
Campus Werribee
Prerequisite(s) RMA1110. 

Required Reading To be advised. 
Class Contact Four hours per week for one semester consisting of 1 hr lecture, 2 hrs tutorial and 1 hr tutorial/computer lab.
Assessment Tutorial test (15%), Computer test (15%), Examination (70%)

RMA3071 INTRODUCTION TO COMPUTER UTILISATION
Campus Werribee
Prerequisite(s) Nil
Content Web design, Hypertext Mark-up Language (HTML), C Program, Microsoft Excel.

Required Reading To be advised. 
Class Contact Three hours per week for one semester, comprising one-hour lectures and two one-hour tutorial/lab.
Assessment Final examination: 70%; Assignment/test: 30%.

RMA4001 ADVANCED MATHEMATICS FOR ELECTRICAL ENGINEERS
Campus Footscray Park
Prerequisite(s) VEL2002 Linear Systems and Mathematics 2B.
Content A range of topics are to be selected from the following areas: (1) Numerical linear algebra, (2) Constraint and unconstraint optimization problems, (3) Iterative solutions of nonlinear algebraic equations and ordinary differential equations, (4) Mean square theory of random processes.

Class Contact 60 hours of lecture/tutorial per semester.
Assessment Mid-semester test 40% Examination 60%.
Below are details of courses offered by the School of Electrical Engineering in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

**NOTE:** Courses available to International students are marked with the (I) symbol.

### COURSES BACHELOR OF ENGINEERING IN ELECTRICAL AND ELECTRONIC ENGINEERING

**Course Code:** EBEE

**CRICOS No:** 002860F

The Bachelor of Engineering in Electrical and Electronic Engineering is a flexible degree that allows students to specialise in four disciplinary areas. Embedded Systems, Microelectronic Systems, Communications Systems and Power Systems Engineering. The course is delivered using a Problem Based Learning (PBL) methodology which uses real world problems as a significant part of the learning process.

The first two years of the course develop the basic concepts in electrical and electronic engineering, computer systems and programming, together with related engineering sciences, mathematics, design projects and laboratory studies. Students have the opportunity to choose their field of specialisation in later years of the course.

### Course Objectives

The main objectives of the course are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the particular areas of Embedded Systems, Microelectronic Systems, Communication Systems and Power Systems Engineering; develop attitudes of personal initiative and enquiry in students that they may continue to further education and meet the technological changes in their profession; develop oral and written communications and an understanding of society and the engineer’s role in society; provide for professional recognition by the Engineers Australia and other professional bodies.

### Course Structure

#### Year 1

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### Streams

**Specialist Stream Units (1 - 6) - Communication Systems Engineering**

- **VET3100** ANALOG AND DIGITAL COMMUNICATIONS
  - 6 credit points
  - EFTSL: 0.0625
  - SC Band: 2
- **VET3200** DIGITAL MODULATION AND CODING
  - 6 credit points
  - EFTSL: 0.0625
  - SC Band: 2
### Units of Study

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**Specialist Stream Units (1 - 6) - Embedded Systems Engineering**

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**Specialist Stream Units (1 - 6) - Microelectronic Systems Engineering**

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**Specialist Stream Units (1 - 6) - Power Systems Engineering**

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**Elective Units**

Students in a Specialisation Stream may choose elective units from the units in another Specialisation Stream subject to prerequisites from the electives listed below or from outside the School of Electrical Engineering. Units from outside the School are subject to the approval of the Program Coordinator.

<table>
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<tr>
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**Note:** Units elected outside the above list require approval of the Course Coordinator.

**Other Course Specific Notes**

Articulation Students successfully completing an Advanced Diploma in an appropriate subject will normally be granted 96 credit points exemption in the Bachelor of Electrical and Electronic Engineering. Students with other entry qualifications will be considered on an individual basis.

Honours Requirements To be eligible for consideration for a degree with honours:

(a) students will have achieved a minimum hour weighted average of 60% over year levels 1 to 3;
(b) students would not have repeated a subject throughout year levels 1 to 3;
(c) students will not have been granted more than one stage completion throughout the duration of the course; and
(d) discretion to award honours grading that do not meet criteria above will rest with the Head of School.

Eligibility for admission to a degree with honours will be determined at the end of year level 3 for students who are enrolled on a full time basis or, a part time basis or, who have transferred into the course with exemptions.

Degrees with honours grading will be calculated using hour weighted averages. The level of awarded honours will be determined by the hour weighted average for year level 4. The following grading will apply:

- **H1** First Class honours 80-100
- **H2A** Second Class Honours, Upper 70-79
- **H2B** Second Class Honours, Lower 60-69
- **P** Pass 50-59

Industrial Experience Candidates applying for the award of Bachelor of Engineering Degree in Electrical and Electronic Engineering must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

Professional Recognition Engineers Australia has granted full recognition for the Bachelor of Engineering in Electrical and Electronic Engineering. Recognition is a requirement for Graduate Membership of Engineers Australia and additionally for equivalent membership of many overseas engineering institutions.

Overseas Exchange Program Victoria University has exchange agreements with Universities in many countries; some of which are the USA, Canada, Mexico, United Kingdom and many European and Asian countries.

For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.
BACHELOR OF ENGINEERING SCIENCE IN ELECTRICAL AND ELECTRONIC ENGINEERING

Course Code: EBES

Course Objectives
The Bachelor of Engineering Science in Electrical and Electronic Engineering is a degree that provide students with a broad grounding in Embedded Systems, Computer Networking, Power Electronics and Analog Electronics. Much of the course is delivered using a Problem Based Learning (PBL) methodology which uses real world problems to aid the learning process.

Course structure: First year units in electrical, electronic, computing, mathematics and physics studies are designed to provide a firm foundation for a wide range of higher level units in later years of the course. In years two and three, the students will be introduced to the tools, techniques and theories of Embedding Systems, Networking, Automation, Analog and Power Electronics. The course has a focus on practical applications and design and project work forms a significant component of the total program. Students will apply the theories and techniques learned in the course to both team projects as well as an individual project in year 3 of the course.

Students completing their studies at an appropriate standard may be granted up to two years of credit into the Bachelor of Engineering degree. In addition, those students completing Year 1 of the program will be able to transfer to Year 2 of the Bachelor of Engineering in Electrical and Electronic Engineering course.

Course Structure
Year 1
Semester 1

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Semester 2

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Year 2
Semester 1

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Year 3
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Elective units - total of 12 credit points.

Semester 2

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Elective Units - total of 12 Credit Points.

Note: Business electives must be approved by the Course Coordinator.

Other Course Specific Notes
Assessment within a unit has two main purposes. The first is to provide feedback to students on their learning as an integral component of learning and teaching (formative assessment). The second is to assess whether, and to what extent, students have achieved the learning outcomes specified for that unit. Assessment may take a number of forms including reports, laboratory work, oral presentations, and both open and closed book examinations.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations is included on final examination papers. Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

Articulation
Students successfully completing Year 1 of the Bachelor of Engineering Science in Electrical and Electronic Engineering may transfer to the Bachelor of Engineering in Electrical and Electronic Engineering.

Students successfully completing an Advanced Diploma in an appropriate area will normally be granted 96 credit points exemption in the Bachelor of Engineering Science or Electrical and Electronic Engineering. Students with other entry qualifications will be considered on an individual basis.

Professional Recognition
An application has been made to Engineers Australia for recognition at Engineering Technologist level of the Bachelor of Engineering Science in Electrical and Electronic Engineering.

Overseas Exchange Program
Victoria University has exchange agreements with Universities in many countries; some of which are the USA, Canada, Mexico, United Kingdom and many European and Asian countries.

For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.
BACHELOR OF ENGINEERING IN ROBOTIC ENGINEERING (FOR CONTINUING STUDENTS ONLY)

Course Code: EBRE
CRICOS No: 047048G

Course Objectives
This course is envisaged to integrate existing relevant subjects and resources within the Faculty of Health, Engineering and Science to appeal to incoming high ENTER level students with mechanical, electronic and computer interests along with the essential background in mathematics and physics. The structure of the course is to provide a common core progression with the revised Mechanical Engineering degree course linked with specialist subjects in robotics. Student completing this course will find employment as specialist engineers in the mechanical and electronic engineering interface in industry and research.

Admission Requirements
To qualify for admission to the course an applicant must have successfully completed a course of study at year 12 level or equivalent.
In addition to satisfying the entry requirements for Australian resident students or demonstrating equivalence, overseas students must provide evidence of proficiency in the English language:
• IELTS - an overall band score of 6-7, subject to individual profile; or
• TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

Course Duration
The course is offered over four years on a full-time basis or part-time equivalent

Course Structure
Engineering Unit of Study codes commence with ‘V’.
Science Unit of Study codes commence with ‘R’.

Year 1
Semester 1

<table>
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Year 2
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Year 3
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Semester Two

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Semester Two

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Elective units must be approved by the Course Coordinator.

Other Program Specific Notes
Articulation
Students successfully completing an Advanced Diploma in an appropriate subject will normally be granted 96 credit points exemption in the Bachelor of Engineering in Robotic Engineering. Students with other entry qualifications will be considered on an individual basis.
Honours Requirements
To be eligible for consideration for a degree with honours:
(a) students will have achieved a minimum hour weighted average of 60% over year levels 1 to 3;
(b) students would not have repeated a subject throughout year levels 1 to 3;
(c) students will not have been granted more than one stage completion throughout the duration of the course; and
(d) discretion to award honours grading that do not meet criteria above will rest with the Head of School.
Eligibility for admission to a degree with honours will be determined at the end of year level 3 for students who are enrolled on a full time basis or, a part time basis or, who have transferred into the course with exemptions.

Grades with honours grading will be calculated using hour weighted averages. The level of awarded honours will be determined by the hour weighted average for year level 4. The following grading will apply:
H1 First Class honours 80-100
H2A Second Class Honours, Upper 70-79
H2B Second Class Honours, Lower 60-69
P Pass 50-59

Industrial Experience / Exposure to Professional Practice
Candidates applying for the award of Bachelor of Engineering in Robotic Engineering must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

Professional Recognition
Engineers Australia has granted full recognition for the Bachelor of Engineering in Robotic Engineering. Recognition is a requirement for Graduate Membership of Engineers Australia and additionally for equivalent membership of many overseas engineering institutions.

Overseas Exchange Program
Victoria University has exchange agreements with Universities in many countries; some of which are the USA, Canada, Mexico, United Kingdom and many European and Asian countries.
For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.

GRADUATE DIPLOMA IN TELECOMMUNICATION ENGINEERING (FOR CONTINUING STUDENTS ONLY)

Course Code: EGTE

Course Objectives
The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of telecommunication engineering.

Admission Requirements
Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent.
Full-Fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by:
(a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or,
(b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

Course Duration
The duration of the course, in normal mode of delivery, is one year for full-time students and a part-time equivalent for part-time students.

Course Structure
The course is unit based and consists of two core units of study, a set of elective units of study, and a minor project (of two units). A unit is worth 12 credit points.

The eligibility for the Graduate Diploma requires the successful completion of 8 units comprising either (a) the two core units of study and six elective units of study, or (b) the two core units of study, four elective units of study, and a minor unit.

The minor project may be substituted with the two project units.

Core Units of Study

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Elective Units of Study

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Project Units of Study

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Project

Assessment
Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations. Supplementary assessments are not normally available.
The course is unit based and offers a range of study units comprising of core and elective units of study in a chosen area of specialization, a research project (of four units), and a Test of Written English score of 5+.

Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering or a four year Bachelor of Applied Science (Honours) degree in an appropriate field, or an equivalent. Applicants with a three year Bachelor of Applied Science degree (in an appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to complete some preliminary subjects that will strengthen their knowledge and skills in Computer Systems Microelectronic Engineering.

Full-fee paying international students are required to have qualifications equivalent to those above, and in addition, they must provide evidence of proficiency in English Language, as assessed by:

- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

Course Structure
The course is of one year duration for full-time students and a part-time equivalent for part-time students.

The course is of one year duration for full-time students and a part-time equivalent for part-time students.

Course Objectives
The objective of the course is to provide opportunity for practising electrical and electronic engineers to:

- broaden their technological base from their first degree to a chosen area of specialisation;
- obtain an in-depth understanding of the relevant theoretical principles involved in the chosen area of specialisation;
- develop skills necessary to carry out independent research and development work related to the chosen areas of specialisation;
- acquire expertise and keep abreast with the latest developments in the chosen area of specialisation.

Admission Requirements
Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent. Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by:

- International English Language Testing System - an overall band score of 6+ subject to individual profile, or,
- Test of English as a Foreign Language - a score of 550+.

Course Duration
The duration of the course, in normal mode of delivery, is two years for full-time students and a part-time equivalent for part-time students.

Course Structure
The course is unit based and consists of research projects (2 units), a core unit and elective subjects. The completion of the course requires successful completion of two units of research project, the core unit and at least five units of elective subjects of which at least three must be from Computer and Microelectronics Engineering disciplines.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Point</th>
<th>EFTSL</th>
<th>SC Band</th>
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<tr>
<td>VEH6002 IC DESIGN</td>
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<td>VEH6003 EDA TOOLS AND DESIGN METHODOLOGY</td>
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<td>VEH6007 ADVANCED VLSI DESIGN</td>
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<td>VEH6014 RF AND MIXED SIGNAL DESIGN</td>
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<td>VEH6016 VERILOG HDL</td>
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<tr>
<td>VEH6018 ANALOG &amp; MIXED SIGNAL DESIGN</td>
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<td>VEH6101 ASIC DESIGN TECHNIQUES</td>
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<td>VEH6102 CUSTOM IC DESIGN</td>
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<td>VEH6121 BASIC IC DESIGN/DEVICES</td>
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<td>VEH6122 CUSTOM IC DESIGN A</td>
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<td>VEH6152 MICROPROCESSOR DESIGN TECHNIQUES</td>
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a project management program (of four units). A unit is worth 12 credit points. The completion of the course requires the completion of 16 units comprising of four core units of study in a chosen area of specialization, four elective units of study in the chosen area of specialisation, four other units at Masters level from any Masters programs, and, either a research project in the chosen area of specialisation, or the project management program.

*Please see the NOTE below:

### Automation Engineering Specialisation

#### Core Units of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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<tr>
<td>VEA6311</td>
<td>MODELLING AND COMPUTER CONTROL</td>
<td>12</td>
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<td>VEA6312</td>
<td>MODEL BASED PROCESS CONTROL</td>
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<td>VEA6321</td>
<td>FUZZY AND NEURAL CONTROL</td>
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<tr>
<td>VEA6322</td>
<td>PROCESS INSTRUMENTATION AND CONTROL</td>
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#### Elective Units of Study

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<tr>
<td>VEA6331</td>
<td>ROBOTICS AND PROGRAMMED CONTROL</td>
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<tr>
<td>VEA6332</td>
<td>ELECTRONIC CONTROL OF MOTORS</td>
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<tr>
<td>VEA6341</td>
<td>MEASUREMENT TECHNOLOGY</td>
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<tr>
<td>VEA6342</td>
<td>POWER DISTRIBUTION SYSTEMS</td>
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<tr>
<td>VEA6351</td>
<td>POWER SYSTEMS OPERATION AND CONTROL</td>
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<tr>
<td>VEA6352</td>
<td>DIGITAL SIMULATION OF PROTECTION SYSTEMS</td>
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### Computer Engineering Specialisation

#### Core Units of Study

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<td>VEC6111</td>
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<td>VEC6112</td>
<td>ADVANCED MICROPROCESSORS</td>
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<td>VEC6121</td>
<td>OBJECT ORIENTED SOFTWARE</td>
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<tr>
<td>VEC6122</td>
<td>OPERATING SYSTEMS AND MULTIPROCESSING</td>
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#### Elective Units of Study

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<td>VEC6141</td>
<td>SOFTWARE ENGINEERING</td>
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<tr>
<td>VEC6142</td>
<td>MANAGING SOFTWARE PROJECTS</td>
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<tr>
<td>VEC6151</td>
<td>DATABASE AND QUERY SYSTEMS</td>
<td>12</td>
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<td>MICROPROCESSOR DESIGN TECHNIQUES</td>
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<td>VEC6152</td>
<td>APPLIED KNOWLEDGE SYSTEMS</td>
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### Microelectronic Engineering Specialisation

#### Core Units of Study

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<td>VEH6001</td>
<td>HDL AND HIGH LEVEL SYNTHESIS</td>
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<td>VEH6002</td>
<td>IC DESIGN</td>
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<td>VEH6003</td>
<td>EDA TOOLS AND DESIGN METHODOLOGY</td>
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<td>VEH6004</td>
<td>DIGITAL SYSTEM DESIGN</td>
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#### Elective Units of Study

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<td>VLSI DIGITAL SIGNAL PROCESSING SYSTEMS</td>
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<td>VEH6009</td>
<td>RELIABILITY AND TESTABILITY IN IC DESIGN</td>
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<td>RF AND MIXED SIGNAL DESIGN</td>
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<td>VEH6016</td>
<td>VERILOG HDL</td>
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<td>VEH6017</td>
<td>DIGITAL SYSTEM DESIGN WITH VERILOG HDL</td>
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<td>VEH6018</td>
<td>ANALOG &amp; MIXED SIGNAL DESIGN</td>
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### Photonic Engineering Specialisation

#### Core Units of Study

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<td>VPP6511</td>
<td>FIBRE OPTIC COMMUNICATION SYSTEMS</td>
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<td>ADVANCED FIBRE OPTICS</td>
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<td>VPP6521</td>
<td>OPTICS AND LASERS</td>
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<td>VPP6522</td>
<td>DIGITAL COMMUNICATIONS OVER OPTICAL NETWORKS</td>
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#### Elective Units of Study

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<td>QUANTUM OPTICS</td>
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<td>VPP6532</td>
<td>OPTICAL FIBRE SENSORS</td>
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<td>VPP6541</td>
<td>OPTICAL MATERIALS</td>
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<tr>
<td>VPP6542</td>
<td>DATA ACQUISITION</td>
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### Telecommunication Engineering Specialisation

#### Core Units of Study

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<td>COMMUNICATION SYSTEM MODELING AND SIMULATION 1</td>
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<td>VET6502</td>
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<td>VET6510</td>
<td>COMMUNICATION THEORY</td>
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<td>VET6520</td>
<td>DIGITAL COMMUNICATION PRINCIPLES</td>
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#### Elective Units of Study

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<tr>
<td>VET6511</td>
<td>DATA NETWORK ANALYSIS AND DESIGN</td>
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<td>VET6512</td>
<td>INTELLIGENT NETWORKS AND NETWORK MANAGEMENT</td>
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<td>VET6521</td>
<td>DIGITAL SWITCHING AND SIGNALLING SYSTEMS</td>
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<td>VET6522</td>
<td>TELECOMMUNICATION TARIFF STRUCTURES AND TELETRAFFIC ENGINEERING</td>
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<td>VET6531</td>
<td>WIRELESS COMMUNICATION SUBSYSTEMS</td>
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<td>VET6532</td>
<td>MICROWAVE AND SATELLITE COMMUNICATION SYSTEMS</td>
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<td>VET6541</td>
<td>MULTIMEDIA AND INTERNET TECHNOLOGY</td>
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FACULTY OF HEALTH, ENGINEERING AND SCIENCE

Credit Point EFTSL SC Band

VEH6542 MOBILE AND PERSONAL COMMUNICATION SYSTEMS 12 0.1250 2
VEH6551 MICROWAVE ELECTRONIC CIRCUIT DESIGN 12 0.1250 2
VEH6552 COMPUTER NETWORKS AND NETWORKING SOFTWARE 12 0.1250 2
VEH6561 LOCAL AREA AND BROADBAND NETWORKS 12 0.1250 2
VEH6562 DIGITAL SIGNAL PROCESSING 12 0.1250 2

Project Units

VEE6000 RESEARCH PROJECT 48 0.5000 2
VEE6050 PROJECT MANAGEMENT PROGRAM 48 0.5000 2

Assessment

Assessment will be based on a combination of written assignments, laboratory and project works, and formal examinations and presentations. Supplementary assessments are not normally available.

NOTE: The School of Electrical Engineering reserves the right to decide which of the specialization streams would run at any given time, without giving any prior notice. Prospective students are advised to contact the school before embarking on a particular specialization.

MASTER OF ENGINEERING IN MICROELECTRONIC ENGINEERING (FOR CONTINUING STUDENTS ONLY)

Course Code: EMMI

The major role of professional engineers in the Australian workforce is to act as agents for change through the development of technically sound, economically viable and socially acceptable solutions to complex and new technical problems.

In this context, the microelectronics engineer today is faced with many challenges brought about by the rapid advances in computer, multimedia and telecommunications technology. The Master of Engineering course in Microelectronic Engineering addresses all aspects of this technology, from high level specification of microelectronic systems, through implementation alternatives, and the effective use of design tools, to realisation of integrated circuits. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the microelectronics industry. An important feature of the course is the opportunity it provides for the students to design their own integrated circuits.

The Chipskills program is a Victorian Government initiative that seeks to develop a range of professional and vocational training programs in areas relevant to the semiconductor industry. The project involves Victoria University, RMIT University, Industry and Victorian State Government.

Development and delivery of this course is shared between each of the partner universities.

Course Objectives

The general aims of the course are to provide graduates with:

(a) high levels of both logical and lateral thinking development so that the graduates can lead constructive change through innovation;
(b) the ability to use a multi-disciplinary engineering philosophy towards the synthesis, design and integration of solutions; and
(c) a level of professional development in confidence, judgement and experience such that the implementation of proposed solutions proceeds successfully.

The specific aims of the course are to:

(a) develop integrated circuit design expertise in embedded systems, digital, mixed signal and system-on-chip systems design and verification;
(b) develop a basic understanding of the device physics, the fabrication process and the testing to the level needed by IC designers;
(c) develop the advanced technical and algorithmic skills necessary to master state of the art microelectronic technology;
(d) develop research skills necessary to obtain specialist knowledge of issues pertinent to integrated circuit design;
(e) cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Admission Requirements

Admission to the course normally requires a four year Bachelor of Engineering degree in Electronic Engineering or Computer Engineering or Communication/Telecommunication Engineering or a four-year Bachelor of Science (Honours) degree in an appropriate field, or an equivalent qualification.

Applicants with a three year Bachelor of Science degree (in appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to take additional (preliminary) subjects that will strengthen their knowledge and skills in digital systems, analog electronics and microprocessor systems.

Full fee paying international students must have qualifications which are equivalent to those listed above. In addition they must provide evidence of proficiency in the English language as assessed by:

- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

A panel comprising of academics from each of the partner universities will carry out student selection into this course.

Course Duration

The duration of the course, in normal mode of delivery, is one and a half years full-time or part-time equivalent for Masters course.

Course Structure

The Master of Engineering course is structured to allow students to exit at different academic levels with either, Graduate Certificate, Graduate Diploma or Master of Engineering qualifications. The completion of the Graduate Certificate in Microelectronic Engineering requires successful completion of four units, Graduate Diploma in Microelectronic Engineering requires successful completion of either eight units or six units and minor project, and Master of Engineering in Microelectronic Engineering requires successful completion of either eight units and major project or ten units and minor project.

Year 1

Credit Point EFTSL SC Band

Core Units

VEH6001 HDL AND HIGH LEVEL SYNTHESIS 12 0.1250 2
VEH6002 IC DESIGN 12 0.1250 2
VEH6003 EDA TOOLS AND DESIGN METHODOLOGY 12 0.1250 2
AND FIVE of Approved Elective Units of Study

Electives

VEH6004 DIGITAL SYSTEM DESIGN 12 0.1250 2
VEH6007 ADVANCED VLSI DESIGN 12 0.1250 2
VEH6008 VLSI DIGITAL SIGNAL PROCESSING SYSTEMS 12 0.1250 2
VEH6009 RELIABILITY AND TESTABILITY IN IC DESIGN 12 0.1250 2
VEH6014 RF AND MIXED SIGNAL DESIGN 12 0.1250 2

VEE6000 RESEARCH PROJECT 48 0.5000 2
VEE6050 PROJECT MANAGEMENT PROGRAM 48 0.5000 2

Assessment

Assessment will be based on a combination of written assignments, laboratory and project works, and formal examinations and presentations. Supplementary assessments are not normally available.

NOTE: The School of Electrical Engineering reserves the right to decide which of the specialization streams would run at any given time, without giving any prior notice. Prospective students are advised to contact the school before embarking on a particular specialization.

MASTER OF ENGINEERING IN MICROELECTRONIC ENGINEERING (FOR CONTINUING STUDENTS ONLY)

Course Code: EMMI

The major role of professional engineers in the Australian workforce is to act as agents for change through the development of technically sound, economically viable and socially acceptable solutions to complex and new technical problems.

In this context, the microelectronics engineer today is faced with many challenges brought about by the rapid advances in computer, multimedia and telecommunications technology. The Master of Engineering course in Microelectronic Engineering addresses all aspects of this technology, from high level specification of microelectronic systems, through implementation alternatives, and the effective use of design tools, to realisation of integrated circuits. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the microelectronics industry. An important feature of the course is the opportunity it provides for the students to design their own integrated circuits.

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Course Objectives

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(a) high levels of both logical and lateral thinking development so that the graduates can lead constructive change through innovation;
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Admission to the course normally requires a four year Bachelor of Engineering degree in Electronic Engineering or Computer Engineering or Communication/Telecommunication Engineering or a four-year Bachelor of Science (Honours) degree in an appropriate field, or an equivalent qualification.

Applicants with a three year Bachelor of Science degree (in appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to take additional (preliminary) subjects that will strengthen their knowledge and skills in digital systems, analog electronics and microprocessor systems.

Full fee paying international students must have qualifications which are equivalent to those listed above. In addition they must provide evidence of proficiency in the English language as assessed by:

- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

A panel comprising of academics from each of the partner universities will carry out student selection into this course.

Course Duration

The duration of the course, in normal mode of delivery, is one and a half years full-time or part-time equivalent for Masters course.

Course Structure

The Master of Engineering course is structured to allow students to exit at different academic levels with either, Graduate Certificate, Graduate Diploma or Master of Engineering qualifications. The completion of the Graduate Certificate in Microelectronic Engineering requires successful completion of four units, Graduate Diploma in Microelectronic Engineering requires successful completion of either eight units or six units and minor project, and Master of Engineering in Microelectronic Engineering requires successful completion of either eight units and major project or ten units and minor project.

Year 1

Credit Point EFTSL SC Band

Core Units

VEH6001 HDL AND HIGH LEVEL SYNTHESIS 12 0.1250 2
VEH6002 IC DESIGN 12 0.1250 2
VEH6003 EDA TOOLS AND DESIGN METHODOLOGY 12 0.1250 2
AND FIVE of Approved Elective Units of Study

Electives

VEH6004 DIGITAL SYSTEM DESIGN 12 0.1250 2
VEH6007 ADVANCED VLSI DESIGN 12 0.1250 2
VEH6008 VLSI DIGITAL SIGNAL PROCESSING SYSTEMS 12 0.1250 2
VEH6009 RELIABILITY AND TESTABILITY IN IC DESIGN 12 0.1250 2
VEH6014 RF AND MIXED SIGNAL DESIGN 12 0.1250 2

VEE6000 RESEARCH PROJECT 48 0.5000 2
VEE6050 PROJECT MANAGEMENT PROGRAM 48 0.5000 2

Assessment

Assessment will be based on a combination of written assignments, laboratory and project works, and formal examinations and presentations. Supplementary assessments are not normally available.

NOTE: The School of Electrical Engineering reserves the right to decide which of the specialization streams would run at any given time, without giving any prior notice. Prospective students are advised to contact the school before embarking on a particular specialization.
The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of telecommunication engineering.

Course Objectives: The Master of Engineering Science in Micro and Nano Electronic Engineering addresses fundamental aspects of design, from high level specification of micro and nano electronic circuits and systems, through the implementation of layout and routing, and the effective use of EDA design tools, to prepare an integrated circuit to its pre-fabrication stage.

The micro and nano electronics engineer today is faced with many challenges brought about by the rapid advances in computers, multimedia and wireless networking technology. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the microelectronics industry. The specific aims of the course are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the area of micro and nano electronics; develop the advanced technical skills necessary to master state of the art micro/nano electronic design and implementation; cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Course Duration: The course is of one year duration for full-time students and a part-time equivalent for part-time students. Admission Requirements: Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering or a four year Bachelor of Applied Science (Honours) degree in an appropriate field, or an equivalent. Applicants with a three year Bachelor of Applied Science degree (in an appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to complete some preliminary subjects that will strengthen their knowledge and skills in micro/nano electronic engineering. Full-fee paying international students are required to have qualifications equivalent to these above, and in addition, they must provide evidence of proficiency in English Language, as assessed by:
- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

Course Structure: The course and theEE units are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the area of micro and nano electronics; develop the advanced technical skills necessary to master state of the art micro/nano electronic design and implementation; cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Course Objectives: The Master of Engineering Science course in Micro and Nano Electronic Engineering addresses fundamental aspects of design, from high level specification of micro and nano electronic circuits and systems, through the implementation of layout and routing, and the effective use of EDA design tools, to prepare an integrated circuit to its pre-fabrication stage.

The micro and nano electronics engineer today is faced with many challenges brought about by the rapid advances in computers, multimedia and wireless networking technology. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the microelectronics industry. The specific aims of the course are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the area of micro and nano electronics; develop the advanced technical skills necessary to master state of the art micro/nano electronic design and implementation; cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Course Duration: The course is of one year duration for full-time students and a part-time equivalent for part-time students. Admission Requirements: Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering or a four year Bachelor of Applied Science (Honours) degree in an appropriate field, or an equivalent. Applicants with a three year Bachelor of Applied Science degree (in an appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to complete some preliminary subjects that will strengthen their knowledge and skills in micro/nano electronic engineering. Full-fee paying international students are required to have qualifications equivalent to these above, and in addition, they must provide evidence of proficiency in English Language, as assessed by:
- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

Course Structure: The course is unit based in which 8 core units must be completed to successfully graduate from this course.

Core Units of Study (Semester 1)

<table>
<thead>
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Core Units of Study (Semester 2)

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Assessment: Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations.

MASTER OF ENGINEERING SCIENCE (TELECOMMUNICATION ENGINEERING) (FOR CONTINUING STUDENTS ONLY)

Course Code: EMTE

Course Objectives: The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of telecommunication engineering.

Course Duration: The duration of the course, in normal mode of delivery, is a one year for full-time students and a part-time equivalent for part-time students. Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by:
- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

Course Structure: The course is unit based and the completion of the course requires the successful completion of eight (8) units consisting of two core units and six (6) other units (at Master level) of which at least four (4) must be from the Telecommunication Engineering discipline.

Core Units of Study

<table>
<thead>
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Elective Units of Study

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<td>VET6522</td>
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<td>VET6532</td>
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MASTER OF ENGINEERING IN TELECOMMUNICATION ENGINEERING (FOR CONTINUING STUDENTS ONLY)
Course Code: EMTT

Course Objectives
The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of telecommunication engineering.

Admission Requirements
Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent.
Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by; (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

Course Duration
The duration of the course, in normal mode of delivery, is one and a half years for full-time students and a part-time equivalent for part-time students.

Course Structure
The course is unit based and consists of two core units of study, a set of elective units of study, a minor project (of two units), and a major project (of four units). A unit is worth 12 credit points.

The eligibility for the Master of Engineering requires the successful completion of 12 units, comprising either (a) the two core units of study, eight elective units of study, and a minor project, or (b) the two core units of study, six elective units of study, and a major project.

Core Units of Study

<table>
<thead>
<tr>
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Elective Units of Study

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Project Units of Study

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Projects

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Assessment
Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations. Supplementary assessments are not normally available.

MASTER OF ENGINEERING SCIENCE IN WIRELESS AND NETWORK ENGINEERING
Course Code: EMWN

Course Objectives
The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of Wireless and Network engineering.

Admission Requirements
Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent.
Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by; (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

Course Duration
The duration of the course, in normal mode of delivery, is one year for full-time students and a part-time equivalent for part-time students.

Course Structure
The course is unit based and consists of eight (8) units consisting of two core units and six (6) other units (at Master level) of which at least four (4) must be from the Telecommunication Engineering discipline.

Core Units of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Point</th>
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Core Units of Study
Semester 2

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Assessment
Assessment will be based on a combination of written assignments, laboratory exercises, project work and formal examinations.

MASTER OF ENGINEERING (BY RESEARCH)
Course Code: ERIT, EROT

Year 1
Semester 1

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Semester 2

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Year 1 Semesters 1 & 2 Part Time

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Year 2
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GRADUATE CERTIFICATE IN MICROELECTRONIC ENGINEERING (FOR CONTINUING STUDENTS ONLY)
Course Code: ETMI

The major role of professional engineers in the Australian workforce is to act as agents for change through the development of technically sound, economically viable and socially acceptable solution to complex and new technical problems.

In this context, the microelectronics engineer today is faced with many challenges brought about by the rapid advances in computer, multimedia and telecommunication technology. The Master of Engineering course in Microelectronic Engineering addresses all aspects of this technology, from high level specification of microelectronic systems, through implementation alternatives, and the effective use of design tools, to realisation of integrated circuits. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the microelectronics industry. An important feature of the course is the opportunity it provides for the students to design their own integrated circuits.

The Chipskills program is a Victorian Government initiative that seeks to develop a range of professional and vocational training programs in areas relevant to the semiconductor industry. The project involves Victoria University, RMIT University, Industry and Victorian State Government.

Development and delivery of this course is shared between each of the partner universities.

Course Objectives
The general aims of the course are to provide graduates with:
(a) high levels of both logical and lateral thinking development so that the graduates can lead constructive change through innovation;
(b) the ability to use a multi-disciplinary engineering philosophy towards the synthesis, design and integration of solutions; and
(c) a level of professional development in confidence, judgement and experience such that the implementation of proposed solutions proceeds successfully.

The specific aims of the course are to:
(a) develop integrated circuit design expertise in embedded systems, digital, mixed signal and system-on-chip systems design and verification;
(b) develop a basic understanding of the device physics, the fabrication process and the testing to the level needed by IC designers;
(c) develop the advanced technical and algorithmic skills necessary to master state of the art microelectronic technology;
(d) develop research skills necessary to obtain specialist knowledge of issues pertinent to integrated circuit design;
(e) cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Admission Requirements
Admission to the course normally requires a four year Bachelor of Engineering degree in Electronic Engineering or Computer Engineering or Communication/Telecommunication Engineering or a four-year Bachelor of Science (Honours) degree in an appropriate field, or an equivalent qualification.
Applicants with a three year Bachelor of Science degree (in appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to take additional (preliminary) subjects that will strengthen their knowledge and skills in digital systems, analog electronics and microprocessor systems.
Full fee paying international students must have qualifications which are equivalent to those listed above. In addition they must provide evidence of proficiency in the English language as assessed by:
- IELTS - an overall band score of 6.5, subject to individual profile; or
- TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.
A panel comprising of academics from each of the partner universities will carry out student selection into this course.

Course Duration
The duration of the course, in normal mode of delivery, is one and a half years full-time or part-time equivalent for Masters course.

Course Structure
The Master of Engineering course is structured to allow students to exit at different academic levels with either, Graduate Certificate, Graduate Diploma or Master of Engineering qualifications. The completion of the Graduate Certificate in Microelectronics Engineering requires successful completion of four units, Graduate Diploma in Microelectronics Engineering requires successful completion of either eight units or six units and minor project, and Master of Engineering in Microelectronic Engineering requires successful completion of either eight units and major project or ten units and minor project.

Year I
Core Units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
<th>EFTSL</th>
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<td>IC DESIGN</td>
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<td>EDA TOOLS AND DESIGN METHODOLOGY</td>
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One approved elective (12 credit points)

Electives

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<td>RELIABILITY AND TESTABILITY IN IC DESIGN</td>
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<td>VEH6014</td>
<td>RF AND MIXED SIGNAL DESIGN</td>
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<td>VEH6016</td>
<td>VERILOG HDL</td>
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<tr>
<td>VEH6017</td>
<td>DIGITAL SYSTEM DESIGN WITH VERILOG HDL</td>
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</table>

Other Course Specific Notes: *Note: All Special Electives for Chipskills program are to be approved by the Course Directors (RMIT & VU).

GRADUATE CERTIFICATE IN MICRO AND NANO ELECTRONICS

Course Code: ETMN

The major role of professional engineers in the Australian and global workforce is to act as agents for change through the development of technically sound, economically viable and socially acceptable solution to complex new technical problems.
In this context, micro and nano electronic engineers today are faced with many challenges brought about by the rapid advances in computer, multimedia and telecommunication technology. The Graduate Certificate in Micro and Nano Electronics addresses all fundamental aspects of this technology, from high level specification of micro and nano electronic systems, through implementation alternatives, and the effective use of design tools, to realisation of integrated circuits. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the industry. An important feature of the course is the opportunity it provides for the students to design their own integrated circuits.

Course Objectives
The general aims of the course are to provide graduates with:
(a) high levels of both logical and lateral thinking development so that the graduates can lead constructive change through innovation;
(b) the ability to use a multi-disciplinary engineering philosophy towards the synthesis, design and integration of solutions; and
c) a level of professional development in confidence, judgement and experience such that the implementation of proposed solutions proceeds successfully.

The specific aims of the course are to:
(a) develop integrated circuit design expertise in embedded systems, digital, mixed signal and system-on-chip systems design and verification;
(b) develop the advanced technical and algorithmic skills;
(c) develop research skills necessary to obtain specialist knowledge of issues pertinent to integrated circuit design;
(d) cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Admission Requirements
Admission to the course normally requires a four year Bachelor of Engineering degree in Electronic Engineering or Computer Engineering or Communication/Telecommunication Engineering or a four-year Bachelor of Science (Honours) degree in an appropriate field, or an equivalent qualification.
Applicants with a three year Bachelor of Science degree (in appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to take additional (preliminary) subjects that will strengthen their knowledge and skills in digital systems, analogue electronics and microprocessor systems.
Full fee paying international students must have qualifications which are equivalent to those listed above. In addition they must provide evidence of proficiency in the English language as assessed by:

IELTS - an overall band score of 6.5, subject to individual profile; or
TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.
• IELTS - an overall band score of 6.5, subject to individual profile; or
• TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

Course Duration
The duration of the course, in normal mode of delivery, is one semester full time or part time equivalent.

Course Structure
The completion of the Graduate Certificate in Micro and Nano Electronics requires successful completion of four core units over one semester.

Year 1
Core Units of Study

<table>
<thead>
<tr>
<th>Credit Point</th>
<th>EFTSL</th>
<th>SC Band</th>
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<td>VEH6009</td>
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Assessment
Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations.

GRADUATE CERTIFICATE IN TELECOMMUNICATION ENGINEERING (FOR CONTINUING STUDENTS ONLY)
Course Code: ETTT

Course Objectives
The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of telecommunication engineering.

Admission Requirements
Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent.

Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by; (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a test of Written English score of 5+.

Course Duration
The duration of the course, in normal mode of delivery, is a half year for full-time students and a part-time equivalent for part-time students.

Course Structure
The course is unit based and consists of two core units of study, and a set of elective units of study. A unit is worth 12 credit points. The eligibility for the Graduate Certificate requires the successful completion of 4 units, comprising the two core units of study and two elective units of study.

Core Units of Study

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Elective Units of Study

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Assessment
Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations. Supplementary assessments are not normally available.

GRADUATE CERTIFICATE IN WIRELESS AND NETWORK ENGINEERING
Course Code: ETWN

Course Objectives
The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of Wireless and Network engineering.

Admission Requirements
Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent.

Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by; (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a test of Written English score of 5+.

Course Duration
The duration of the course, in normal mode of delivery, is a half year for full-time students and a part-time equivalent for part-time students.

Course Structure
The course is unit based and consists of two core units of study, and a set of elective units of study. A unit is worth 12 credit points. The eligibility for the Graduate Certificate requires the successful completion of 4 units, comprising the two core units of study and two elective units of study.

Units of Study
BACHELOR OF SCIENCE (HONOURS) - PHYSICS

Course Code: SHPC

Course Objectives
The course aims to broaden and deepen the student's knowledge and understanding of physics by the completion of advanced courses and to provide a basic training in the skills necessary to undertake research in physics. Research training will include the ability to devise, design and carry out research intended to yield data relevant to the solution of specific problems, the ability to develop and refine working hypotheses, to critically analyse data and to report results in an appropriate manner.

The research project is normally undertaken in one of the following areas of expertise of the section: optical fibre sensors, laser physics, optoelectronic imaging, applied optics and vacuum technology.

Admission Requirements
To qualify for entry to the Honours program the applicant should have completed the requirements for a pass degree with major studies in an appropriate discipline. Entry is at the discretion of the Applied Physics section and applicants should normally have obtained a 'credit' average in the final year of the pass degree. For mature age applicants, an appropriate combination of qualifications and experience will be considered.

Course Duration
The course will be offered on a full-time basis over one year or part-time equivalent.

Course Structure

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Academic Progression
A student will not be allowed to repeat the Honours year or any component of it without the permission of the Course Co-ordinator.
SUBJECTS

Below are subject details for courses offered by the School of Electrical Engineering in 2009. IMPORTANT NOTE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

REP1001 ENGINEERING PHYSICS 1A
Campus Footscray Park
Prerequisite(s) Nil.
Content
Physical Units and Dimensions; Physical quantities, system of units and standards, dimensions, unit conversion, significant figures.
Mechanics: Scalars and vectors, displacement, velocity and acceleration, motion in one and two dimensions, force, Newton’s laws of motion, friction, work and energy, conservation laws. Momentum and conservation laws, impulse and collisions, rotational motion, moments of inertia, centre of mass, torque, angular momentum, statics.
Wave Motion & Optics: SHM, damped harmonic motion, forced oscillations and resonance, oscillatory motion, mechanical and acoustic waves, superposition and standing waves, electromagnetic waves, reflection and refraction of light, mirrors and lenses, wave optics, thin films, polarization.
Fluids: Density, pressure, Pascal’s law, equation of continuity, Bernoulli’s equation.
Class Contact Students will be required to use the text book (required reading) extensively.
Assessment Class tests conducted throughout the semester (5 x 4% tests), 20%; Laboratory performance (5 x 4% laboratories during the semester), 20%; End of semester examination 60%.

REP1002 ENGINEERING PHYSICS 1B
Campus Footscray Park
Prerequisites EPP1001 Engineering Physics 1A or equivalent. Students without formal academic qualifications in physics but with significant relevant experience may be considered for direct entry into this subject.
Class Contact Students will be required to use the text book (required reading) extensively.
Assessment Class tests conducted throughout the semester (5 x 4% tests), 20%; Laboratory performance (5 x 4% laboratories during the semester), 20%; End of semester examination 60%.

REP4100 DATA ACQUISITION
Campus Footscray Park
Prerequisite(s) Completion of 1st year in an appropriate B.Eng., B.Eng.Sc., B.Sc., B.App.Sc or B.Ed. course.
Learning Outcome On successful completion of this unit, students are expected to be able to have a sound grasp of experimental measurement and error handling techniques; to be able to use a variety of transducers in appropriate circuits for measurement of physical parameters; to be able to automate a simple experiment using a graphical programming environment.
Content
Experimental data handling: measurements and errors. Types of errors, combining errors. Graphical analysis, statistical distributions. Sensors and transducers: Transducer types, e.g. resistive, voltage, current, capacitive, inductive. Transducer circuits such as bridges and operational amplifiers. Generalised measurement systems. Computer laboratory interfacing: Analogue to digital conversion: Data acquisition, time varying signals and the sampling theorem. Digital to analogue conversion: Generation of DC and AC voltages. Adaptive computer control: Digital input and output. General Purpose Interface Bus (GPIB); description and overview. Graphical programming: Fundamentals of a graphical programming environment for the creation of a ‘virtual instrument’, e.g. LabVIEW. Project: Students will be assigned projects that will involve the automation of an experiment, both in terms of the hardware and software requirements. Required Reading Kirkup, L., 1994, Experimental Methods, John Wiley & Sons; Old; Bishop, R. H., 2004, Learning with LabVIEW 7 Express, Pearson Prentice Hall, Upper Saddle River, NJ.
Class Contact 48 hours per semester of lecture/tutorial/laboratory sessions.
Assessment Assignments 20%; End of semester examination 40%; Project and laboratory reports 40%.

REP4200 DIRECTED STUDIES IN PHYSICS 2
Campus Footscray Park
Prerequisite(s) Satisfactory completion of a first year physics sequence of at least two semester’s duration.
Content A selection of topics from the following:
Classical Mechanics; Thermodynamics*; Electromagnetism*; Optics*; Quantum Mechanics*; Nuclear Physics*; Relativity; High Energy Physics; Electrical and Electronic Machines.
* Advanced studies which extend the material covered in first year subjects.
Required Reading No text will be prescribed. Students will be expected to read widely around the topics in the subject.

Specialist Books: According to the topics chosen for each student or group of students with a similar background.

Class Contact: 60 hours per semester of lecture/tutorial/seminar/laboratory sessions.

Assessment: A series of regular group assignments and tests will be negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for a second year physics subject in a technological degree in the content areas covered by this subject whilst recognising the differing backgrounds of the students undertaking the subject - especially in mathematics.

**RPH4300 EINSTEIN’S THEORY OF RELATIVITY**

**Campus**: Footscray Park

**Prerequisite(s)**: Nil

**Content**
- Newtonian Relativity; Frame of Reference transformations; Einstein’s relativistic postulates; Time dilation and length contraction; Relativistic velocity and mass; E=mc²; Introduction to General Relativity.

**Required Reading**
- No text will be prescribed. Students will be expected to read widely around the topics in the subject.

**Recommended Reading**

**Class Contact**: 24 hours per semester of lecture/tutorial/seminar sessions.

**Assessment**: 60% assignments submitted throughout the semester - approximate length of no more than eight A4 pages each; 40% classroom presentation chosen from a range of topics provided by the lecturer in charge.

**RPH4411 PHYSICS 4 (HONOURS)**

**Campus**: Footscray Park

**Prerequisite(s)**: Eligibility for entry to the Bachelor of Science (Honours) in Physics program.

**Content**
- Compulsory core units of quantum mechanics, statistical mechanics and research methods, plus elective units from the following areas: optical waveguides and sensors, relativity, surface physics, ion beam techniques, optics of materials, laser physics, lasers and optoelectronics, fibre optics, solid state physics, diffraction from crystals, nuclear physics. Other electives may be approved, including those offered at other universities. All electives must be approved by the Course Co-ordinator.

**Research Thesis**: A research project will be undertaken in one of the Physics research areas, under the supervision of a member of academic staff. Subject to approval, research may be undertaken at a laboratory outside the University.

**Required Reading**

**Recommended Reading**
- This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au.Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ResearchThesis/ResearchThesis.html.

**Assessment**: The grade for RPH4411 shall be either “S” or “U”. An “S” grade will be awarded for satisfactory progression in both the coursework and research thesis components, for which the overall result for 2 semesters will be provided under RPH4412.

**RPH4412 PHYSICS 4 (HONOURS)**

**Campus**: Footscray Park

**Prerequisites**: Eligibility for entry to the Bachelor of Science (Honours) in Physics program.

**Co-requisites**: None

**Learning Outcomes**
- Advanced coursework: To gain a deeper understanding of quantum mechanics and statistical mechanics, and in addition undertake further studies in areas of physics related to the thesis.

**Research Thesis**: To gain experience in the conduct of a research project.

**Content**
- Coursework: Compulsory core units of quantum mechanics, statistical mechanics and research methods, plus elective units from the following areas: optical waveguides and sensors, relativity, surface physics, ion beam techniques, optics of materials, laser physics, lasers and optoelectronics, fibre optics, solid state physics, diffraction from crystals, nuclear physics. Other electives may be approved, including those offered at other universities. The Course Co-ordinator must approve all electives.

**Research Thesis**: A research project will be undertaken in one of the Physics research areas, under the supervision of a member of academic staff. Subject to approval, research may be undertaken at a laboratory outside the University.

**Required Reading**

**Recommended Reading**
- This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au.Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ResearchThesis/ResearchThesis.html.

**Assessment**: The grade for RPH4411 shall be either “S” or “U”. An “S” grade will be awarded for satisfactory progression in both the coursework and research thesis components, for which the overall result for 2 semesters will be provided under RPH4412.

**RPH8001 RESEARCH THESIS 1 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au.Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ResearchThesis/ResearchThesis.html.

**Assessment**: The grade for RPH4411 shall be either “S” or “U”. An “S” grade will be awarded for satisfactory progression in both the coursework and research thesis components, for which the overall result for 2 semesters will be provided under RPH4412.

**RPH8002 RESEARCH THESIS 2 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au.Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ResearchThesis/ResearchThesis.html.

**Assessment**: The grade for RPH4411 shall be either “S” or “U”. An “S” grade will be awarded for satisfactory progression in both the coursework and research thesis components, for which the overall result for 2 semesters will be provided under RPH4412.

**RPH8003 RESEARCH THESIS 1 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au.Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ResearchThesis/ResearchThesis.html.

**Assessment**: The grade for RPH4411 shall be either “S” or “U”. An “S” grade will be awarded for satisfactory progression in both the coursework and research thesis components, for which the overall result for 2 semesters will be provided under RPH4412.
RPH8012 RESEARCH THESIS 2 PART TIME

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering, and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Research/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficofPostgraduateResearch/PolicyProcessesandGuidelines/

VEA2101 INTRODUCTION TO COMPUTER CONTROL AND AUTOMATION

Campus Footscray Park
Pre-requisite(s) VEF1002 Enabling Sciences 1B
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. program PLCs;
2. apply PID algorithm to effectively control a system;
3. use appropriate sensors and actuators in an engineering setting;
4. use A-to-D and D-to-A for interfacing.

Content

Required Reading

Recommended Reading

Class Contact
30 hours of contact for one semester comprising 20 hours of lectures/tutorials and 10 hours of laboratory sessions.

Assessment
Laboratory Assignments (30%); Tests (10%); Examination (60%).

VEA2102 INDUSTRIAL CONTROL SYSTEMS AND ELECTRONICS MANUFACTURING AUTOMATION

Campus Footscray Park
Pre-requisite(s) VEA2101 Introduction to Computer Control and Automation
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. explain SCADA systems and its components as well as being able to design a SCADA system for a simple manufacturing plant;
2. explain the whole electronics manufacturing process in general and PCB design and production in particular;
3. design a PCB for a given electronic circuit that could be produced in volume by outsourcing to other companies.

Content

Required Reading

Recommended Reading

Class Contact
30 hours of contact comprising 18 hrs of lectures/tutorials and 12 hours of laboratory sessions.

Assessment
Laboratory Assignments (50%); Tests (10%); Examination (40%).

VEA3001 INTRODUCTION TO CONTROL SYSTEMS A

Campus Footscray
Prerequisites VEF2002 Systems and Mathematics 2B
Co-requisites Nil.

Learning Outcomes
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

On successful completion of this unit, students are expected to be able to:
1. have a basic understanding of the use of transfer functions, signal flow graphs and block diagrams in the description and analysis of control systems.

Content
The unit is designed to enable it to both ensure that students develop an understanding of Control Engineering, and to provide support for students requiring knowledge of Control Engineering in a concurrently studied Engineering Design unit.

Recommended Reading
Ives, R., Introduction to Control Systems 3B Lecture Notes, Victoria University, 2008.

Assessment
Class Contact 30 hours of class contact per semester, 2 hours lecture/tutorial and 0.5 hours of laboratory exercises per week.

VEA3002 INTRODUCTION TO CONTROL SYSTEMS B

Campus Footscray
Prerequisites VEA3001 Introduction to Control Systems A
Co-requisites Nil.

Learning Outcomes
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

On successful completion of this unit, students are expected to be able to:
1. be able to write and execute C programs on the DS1102 system.
2. be able to operate the DS1102 system using both the Control Desk GUI and through Matlab/Simulink.
3. understand how execution time impacts upon and limits the ability to achieve real time control.
4. be able to convert between State-Space and transfer function models of a LTI system.
5. understand that State-Space models enable the representation of internal signals, and may be used to model MIMO systems.

Content
This unit of study further develops the student’s knowledge of Control Systems and Control Engineering. The unit is designed to enable it to both ensure that students develop an understanding of Control Engineering and to provide support for students requiring knowledge of Control Engineering in a concurrently studied Engineering Design unit. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

To be able to complete the unit in real time control.

End of semester examination 65%, Mid-semester test 15%, and laboratory 20%.
VEA4001 DISCRETE TIME CONTROL SYSTEMS A
Campus Footscray
Prerequisite(s) VEA3001 Introduction to Control Systems A
Co-requisite(s) Nil.
Learning Outcomes The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to: To have a basic understanding of the use of pulse transfer functions in the description and analysis of computer controller systems. To be able to convert a continuous-time transfer function model into a zero-order hold equivalent pulse transfer function model. To be able to convert between pulse transfer function models and difference equation models. To be able to perform analysis and design of discrete-time control systems with the Root Locus method. To be able to perform analysis and design of discrete-time control systems with the use of Bode diagrams in conjunction with the Bilinear transformation. To understand the need of performance trade-off in control design problems. To be able to use Matlab/Simulink to analyse and design discrete-time control systems. To be able to use the DSPace DS1102 DSP card and Real-Time Workshop for rapid prototyping.
Content This unit of study further develops the student’s knowledge of Control Systems and Control Engineering and to provide support for students requiring knowledge of Computer Controlled Systems in a concurrently studied Engineering Design unit. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may vary to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the subject will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.
Class Contact 30 hours of class contact. 2 hours lecture/tutorial and 0.5 hours of laboratory exercises per week
Assessment End of semester examination 65%, a mid-semester test 15% and laboratory 20%.

VEA4200 FUZZY CONTROL AND APPLICATIONS
Campus Footscray Park
Prerequisite(s) VEA3001 Introduction to Control Systems A.
Learning Outcomes The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises. On successful completion of this unit, it is expected that students will be able to: To be able to understand the basic mathematical concepts of fuzzy sets. To be able to understand the structure of fuzzy logic controller. To be able to design and implement fuzzy logic controller. To be able to use Matlab/Simulink to analyse and design fuzzy control systems. To be able to use the DSpace DS1102 DSP card and Real-Time Workshop for rapid prototyping of the fuzzy control systems.
Content Introduction to fuzzy sets theory: vagueness and uncertainty formalisation problem, fuzzy sets theory and probability theory comparison and discussion, fuzzy set definitions, properties of fuzzy sets, operations on fuzzy sets. Fuzzy relations: classical relations, fuzzy relations, operation on fuzzy relations, the extension principal. Natural language formalisation and approximate reasoning: linguistic variables, fuzzy propositions, fuzzy if - then statements, inference rules. Theoretical fundamentals of fuzzy control: the structure of a fuzzy controller, the rule base, the data base, the inference engine, choice of fuzzification and defuzzification procedures. Software and hardware tools for fuzzy control. Fuzzy controller design using software packages. Fuzzy controller implementation. Applications of fuzzy control.
Required Reading Required Reading K. M. Passino and S. Yurkovich, Fuzzy Control, Addison-Wesley, 1998.
Class Contact 30 hours comprising 15 hours of lectures/tutorial and 15 hours of laboratory and project work.
Assessment Class tests/assignments throughout the semester 20%; Laboratory work 40%; Project work 40%.

VEA4400 ROBOTICS AND AUTOMATION
Campus Footscray Park
Prerequisite(s) VEF1004 Electrical Fundamentals 1B.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
- apply programmable logic controllers and manipulators in factory automation.
- program robots for manufacturing tasks.
- analyze and design vision systems for automatic inspection and guidance.

VEA6300 RESEARCH PROJECT
Campus Footscray Park
Prerequisite(s) VEA6310, VEA6320
Content Each student will undertake an individual research under the guidance of an academic staff on a suitable topic, over the duration of a semester. Lectures, seminars, and regular meetings will be held collectively on expose students to research related matters such as Research Methodology, Literature Reviews, Feasibility Studies, Experiment Design, Modelling and Simulation Techniques and Tools, Results Validation and Decision Making, Report Writing, Structured Documentation, and Scientific Presentation.
Required Reading To be advised by the supervisor of the project.
Recommended Reading To be advised by the supervisor of the project.
Class Contact Twelve hours per week for one semester, comprising three hours per week group seminar, three hours per week (on average) individual meetings, discussions, etc. with the respective supervisors, and six hours per week independent study.
Assessment Regular seminar presentations (3 seminars, each of 20 min. duration) 30%; Final report (Approximately 25,000 words) 50%; Final presentation (of 40 min. duration) 20%. Final report is to be examined by an external examiner who could also be present at the final presentation.

VEA6310 LINEAR SYSTEMS AND CONTROL
Campus Footscray Park
Prerequisite(s) A knowledge of linear control systems covered in a standard B.Eng. course.
Class Contact Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.
Assessment Two Class Tests (1 hr each) 20%; Final Examination (3 hrs) 80%. A pass in each component is necessary for a subject pass.

VEA6311 MODELLING AND COMPUTER CONTROL
Campus Footscray Park
Prerequisite(s) VEA6310 or equivalent subjects.
Content Overview of computer control. Sampling of continuous-time signal. Computer-


Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Assessment: Tests, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

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**VEA6312 MODEL BASED PROCESS CONTROL**

**Campus:** Footscray Park

**Prerequisite(s)**: VEA6310 or equivalent subjects.

**Content**: Overview of model based control design. Model complexity and the model building process. Design of robust control systems by the internal model control method; performance and robustness trade-off. Difficulty in the realisation of continuous-time Smith Predictors; design of the unified predictive controller (UPC). Analysis of design parameters and tuning of the UPC.

**Required Reading**: To be advised by the lecturer.


**Class Contact**: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

**Assessment**: Tests, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

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**VEA6320 OPTIMAL FILTERING AND PARAMETER ESTIMATION**

**Campus:** Footscray Park

**Prerequisite(s)**: A knowledge of linear control systems covered in a standard B.Eng. course.


**Recommended Reading**: Anderson B.D.O. and Moore, J. B., 1979, Optimal Filtering, Prentice Hall, New Jersey. 

**Class Contact**: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

**Assessment**: Two Class Tests (1 hr each) 20%; Final Examination (3 hrs) 80%. A pass in each component is necessary for a subject pass.

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**VEA6321 FUZZY AND NEURAL CONTROL**

**Campus:** Footscray Park

**Prerequisite(s)**: Nil

**Co-requisite Nil**


**Class Contact**: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

**Assessment**: To be advised by the lecturer.

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**VEA6322 PROCESS INSTRUMENTATION AND CONTROL**

**Campus:** Footscray Park

**Prerequisite(s)**: Nil


**Required Reading**: To be advised by the lecturer.

**Recommended Reading**: To be advised by the lecturer.

**Class Contact**: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

**Assessment**: Laboratory exercises, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

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**VEA6331 ROBOTICS AND PROGRAMMED CONTROL**

**Campus:** Footscray Park

**Prerequisite(s)**: Completed an undergraduate degree in Engineering or Science


**Class Contact**: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

**Assessment**: Assignments and laboratory exercises: 60%; Examination: 40%. A pass in each component of assessment is required for a subject pass.

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**VEA6332 ELECTRONIC CONTROL OF MOTORS**

**Campus:** Footscray Park

**Prerequisite(s)**: Nil

**Co-requisite Nil**


**Required Reading**: To be advised by the lecturer.


**Class Contact**: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

**Assessment**: Tests/Assignments, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

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**VEA6341 MEASUREMENT TECHNOLOGY**

**Campus:** Footscray Park

**Prerequisite(s)**: Nil

**Content**: Application of electronics for instrumentation of real plant. Analogue devices used for signal conditioning and processing. Techniques for dealing with interference. Interfacing digital and analogue circuits. Transducers and their application.

**Required Reading**: To be advised by the lecturer.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

**VEA6342 POWER DISTRIBUTION SYSTEMS**

**VEA6350 MINOR PROJECT**

Campus: Footscray Park

Prerequisite(s): VEA6310, VEA6320

Content: Each student will undertake an individual research on a topic allocated to him or her under the supervision of an academic staff over the duration of a semester.

Regular meetings will be held between the students and their supervisors in the form of seminars where students will report their progress in the form of formal presentations. In addition, informal meetings between students and their supervisors will take place as and when required. In the process, the student will be exposed to research related matters such as Research Methodology, Literature Reviews, Feasibility Studies, Experiment Design, Modelling and Simulation Techniques and Tools, Results Analysis and Validation, Report Documentation and Presentation.

Required Reading: To be advised by the supervisor of the project.

Recommended Reading: To be advised by the supervisor of the project.

Class Contact: Six hours per week for one semester, comprising three hours per week group seminar, and three hours per week (on average) individual meetings, discussions, etc. with respective supervisors.

Assessment: Regular seminar presentations (3 seminars, each of 20 min. duration) 30%; Final report (Approximately 12,000 words) 50%; Final presentation (of 30 min. duration) 20%.

**VEA6351 POWER SYSTEMS OPERATION AND CONTROL**

**VEA6352 DIGITAL SIMULATION OF PROTECTION SYSTEMS**

**VEB1100 ENGINEERING DESIGN AND PRACTICE 1A**

Campus: Footscray Park

Pre-requisite(s): Year 12 mathematics or its equivalent.

Learning Outcomes:

On successful completion of this unit, students are expected to be able to:

1. Apply knowledge of basic science and engineering fundamentals;
2. Communicate effectively, not only with engineers but also with the community at large;
3. Display in-depth technical competence in at least one engineering discipline;
4. Work on problem identification, formulation and solution;
5. Utilise a systems approach to design and operational performance;
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
7. Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
8. Describe the principles of sustainable design and development;
9. Discuss professional and ethical responsibilities and display a commitment to them;
10. Recognise the need for undertaking lifelong learning.

Content: This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF1002 and VEF1004. Teams of students will have an Electrical Engineering staff member as a 'coach or mentor' whilst working on these problems. ‘Specialist’ staff from the VEF1002 and VEF1004 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other faculties will be available to provide workshops to assist students with the development of generic skills.


Recommended Reading: To be advised by the lecturer.

Class Contact: 10 hours per week or equivalent for one semester.

Assessment: Students will be assessed in this unit on the basis of a portfolio, in which they are required to demonstrate the attainment of learning outcomes using: self and peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

**VEB2100 ENGINEERING DESIGN AND PRACTICE 1B**

Campus: Footscray Park

Pre-requisite(s): VEB1001 PBL & Engineering Practice 1A or VEB1100 Engineering Design and Practice 1A, or equivalent.

Learning Outcomes:

On successful completion of this unit, students are expected to be able to:

1. Apply knowledge of basic science and engineering fundamentals;
2. Communicate effectively, not only with engineers but also with the community at large;
3. Display in-depth technical competence in at least one engineering discipline;
4. Work on problem identification, formulation and solution;
5. Utilise a systems approach to design and operational performance;
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
7. Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
8. Describe the principles of sustainable design and development;
9. Discuss professional and ethical responsibilities and display a commitment to them;
10. Recognise the need for undertaking lifelong learning.

Content: This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF1002 and VEF1004. Teams of students will have an Electrical Engineering staff member as a ‘coach or mentor’ whilst working on these problems. ‘Specialist’ staff from the VEF1002 and VEF1004 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other faculties will be available to provide workshops to assist students with the development of generic skills.


Recommended Reading: To be advised by the lecturer.

Class Contact: 10 hours per week or equivalent for one semester.

Assessment: Students will be assessed in this unit on the basis of a portfolio, in which they are required to demonstrate the attainment of learning outcomes using: self and peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

**VEB2100 ENGINEERING DESIGN AND PRACTICE 2A**

Campus: Footscray Park

Pre-requisite(s): Normally successful completion of first year EBEE or equivalent.

Co-requisite(s): Normally VEF2001 Linear Systems and Mathematics 2A and VEF2003 Systems and Applications 2C.

Learning Outcomes:

On successful completion of this unit, students are expected to be able to:

1. Apply knowledge of basic science and engineering fundamentals;
2. Communicate effectively, not only with engineers but also with the community at large;
3. Display in-depth technical competence in at least one engineering discipline;
5. Utilise a systems approach to design and operational performance;
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
7. Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
8. Describe the principles of sustainable design and development;
9. Discuss professional and ethical responsibilities and display a commitment to them;
10. Recognise the need for undertaking lifelong learning.

Content
This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF2001 and VEF2003. Teams of students will have an Electrical Engineering staff member as a coach or mentor whilst working on these problems. Specialist staff from the VEF2001 and VEF2003 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other Faculties will be available to provide workshops to assist students with the development of generic skills.

Required Reading
There are no prescribed readings for this unit. Students will be guided by the unit co-ordinator to material relevant to the student’s design project.

Recommended Reading
To be advised by the lecturer.

Class Contact
To be advised by the lecturer.

Assessment
Students will be assessed in this unit on the basis of attendance and participation (10%), project presentations (10%), oral presentations (10%), written technical paper (10%) and report (10%) as well as a portfolio (50%). In the portfolio, students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

VEB2200 ENGINEERING DESIGN AND PRACTICE 2B
Campus Footscray Park
Pre-requisite(s) Normally successful completion of VEB2001 PBL & Engineering Practice 2A or VEB2100 Engineering Design and Practice 2A or equivalents.
Co-requisite(s) VEF2002 Systems and Mathematics 2B and VEF2004 Systems and Applications 2D or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Apply knowledge of basic science and engineering fundamentals;
2. Communicate effectively, not only with engineers but also with the community at large;
3. Display in-depth technical competence in at least one engineering discipline;
4. Work on problem identification, formulation and solution;
5. Utilise a systems approach to design and operational performance;
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
7. Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
8. Describe the principles of sustainable design and development;
9. Discuss professional and ethical responsibilities and display a commitment to them;
10. Recognise the need for undertaking lifelong learning;
11. Locate, evaluate, manage and use information effectively.

Content
This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF2002 and VEF2004. Teams of students will have an Electrical Engineering staff member as a coach or mentor whilst working on these problems. Specialist staff from the VEF2002 and VEF2004 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from the other schools will be available to provide workshops to assist students with the development of generic skills.

Required Reading
To be provided upon commencement of the unit to suit the student’s design project(s).

Recommended Reading
To be advised by the lecturer.

Class Contact
10 hours per week or equivalent for one semester.

Assessment
Students will be assessed in this unit on the basis of a portfolio, in which they are required to demonstrate the attainment of learning outcomes using: self and peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

VEB3100 ENGINEERING DESIGN AND PRACTICE 3A
Campus Footscray Park
Pre-requisite(s) VEB2002 PBL & Engineering Practice 2B or VEB2200 Engineering Design and Practice 2B and VEF2004 Systems and Applications 2D
Co-requisite(s) Stream Specialist Unit 1

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Apply knowledge of basic science and engineering fundamentals;
2. Communicate effectively, not only with engineers but also with the community at large;
3. Display in-depth technical competence in at least one engineering discipline;
4. Work on problem identification, formulation and solution;
5. Utilise a systems approach to design and operational performance;
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
7. Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
8. Describe the principles of sustainable design and development;
9. Discuss professional and ethical responsibilities and display a commitment to them;
10. Recognise the need for undertaking lifelong learning;
11. Locate, evaluate, manage and use information effectively.

Content
This unit is designed to create the opportunity for students to integrate generic skills with the learning and content from the concurrent third year subjects. The PB and opportunity to students to form a holistic consideration of problems which are not only technical in nature but also exercise the students generic skills. Students are required to demonstrate critical thinking, problem solving skills, systems thinking and professional engineering practice. The unit is delivered in PBL mode and will encourage students to become independent learners and self reflect about professional communication processes and practices.

Required Reading
There are no prescribed readings for this unit. Students will be guided by the unit co-ordinator to material relevant to the unit.

Recommended Reading
To be advised by the lecturer.

Class Contact
10 hours per week for one semester.

Assessment
Students will be assessed in this unit on the basis of a portfolio, oral presentations, project demonstration, and written technical report. In the portfolio students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports. The weights of the components mentioned above are: Workshop attendance and participation: 10% Oral presentation: 10% Semester and final team product demonstration: 30% Written technical report: 30% Reflective Journal Portfolio: 20%
and testing of the hardware and/or software by a suitably qualified engineering technologists or engineers.

**Content**
Application of system analysis and design principles to develop a detailed specification, detailed design and test plan for a project with substantial software and/or hardware components. Development of the system is undertaken in a staged process, with deliverables and presentation at the end of each stage.

**Required Reading**

**Recommended Reading**

**Class Contact**
30 hours of contact comprising 12 hrs of lectures/tutorials and 24 hours of laboratory and project work.

**Assessment**
Project work (60%); Examination (40%).

**VEB3102 ENGINEERING PROJECT 3B**

**Campus** Footscray Park

**Pre-requisite(s)** VEB3101 Engineering Project 3A

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to demonstrate their abilities to work independently and professionally on a substantial hardware and/or software project. Students are expected to also be able to:
1. apply theories and techniques from various specialisations to solve complex engineering problems;
2. implement and test a project according to a detailed specification and test plan.

**Content**
Application of software, hardware techniques and research skills acquired in the course to implement and test an individual project according to a detailed specification and test plan.

**Required Reading**
There is no prescribed reading for this unit. Students will be guided by the unit coordinator to material relevant to the project.

**Recommended Reading**
Nil

**Class Contact**
30 hours of Project work.

**Assessment**
Project work (100%).

**VEB3200 ENGINEERING DESIGN AND PRACTICE 3B**

**Campus** Footscray Park

**Pre-requisite(s)** VEB3001 PBL Design Problems 1 or VEB3100 Engineering Design and Practice 3A, and Year 3 semester 1 Stream Core Unit.

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to:
1. apply knowledge of basic science and engineering fundamentals;
2. communicate effectively, not only with engineers but also with the community at large;
3. display in-depth technical competence in at least one engineering discipline;
4. work on problem identification, formulation and solution;
5. utilise a systems approach to design and operational performance;
6. function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
7. discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
8. describe the principles of sustainable design and development;
9. discuss professional and ethical responsibilities and display a commitment to them;
10. recognise the need for undertaking lifelong learning;
11. locate, evaluate, manage and use information effectively.

**Content**
This unit is designed to create the opportunity for students to integrate generic skills with the learning and content from their chosen specialisation unit. The PBL approach to this unit of study requires students to form a holistic consideration of problems which are not only technical in nature but also exercise the students' generic skills.

Students are required to demonstrate critical thinking, problem solving skills, systems thinking and professional engineering practice. The unit is delivered in PBL mode and will encourage students to become independent learners and self-reflective about professional communication processes and practices.

**Required Reading**
There are no prescribed readings for this unit. Students will be guided by the unit coordinator to material relevant to the unit.

**Recommended Reading**
To be advised by the lecturer.

**Class Contact**
10 hours per week for one semester.

**Assessment**
Students will be assessed in this unit on the basis of a portfolio, oral presentations, project demonstration, and written technical report. In the portfolio students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/video project presentations and written project reports. The weightings of the components mentioned above are: Workshop attendance and participation: 10%; Oral presentation: 10%; Semester and final team product demonstration: 30%; Written technical report: 30%; Reflective Journal Portfolio: 20%
VEB4200 ENGINEERING DESIGN 4B

Campus: Footscray Park
Pre-requisite(s): VEB4100 Engineering Design 4A
Co-requisite(s): For each PBL problem the directed elective units will be recommended by the supervisor.

Learning Outcomes
In addition to the learning outcomes from the Years 1 to 3 Engineering Design and Practice units, an successful completion of this unit, students are expected to be able to:

1. Undertake problem identification, formulation and solution;
2. Explain environmental and sustainability issues in problem solution;
3. Utilise a systems approach to complex design problems;
4. Synthesise solutions, and use analysis to verify designs, using computing tools where appropriate;
5. Demonstrate skills in prototyping and testing engineering projects;
6. Manage a project, designing to specification, and meeting outcomes and reporting timelines;
7. Manage information and documentation;
8. Interface with and communicate with other designers who may be working on related project tasks;
9. Write a competent feasibility study, progress reports, and a substantial final report;
10. Deliver fluently, oral presentations, and a high quality final presentation supported with appropriate audio/visual aids.

Content
In this unit, students will commence a major design problem resulting in a complete and working outcome which meets the agreed specifications and demonstrates an understanding of professional engineering standards. The project will continue in the follow-on second semester unit VEB4200. The student will define the problem, develop functional specifications (in collaboration with the project supervisors), and write a concise project contract. A feasibility study is the next stage. Possible alternative engineering solutions are conceptualised and evaluated using objective criteria functions. Cost, reliability, sustainability and environmental impacts should also be considered in choosing the best approach, which the student should be able to defend in an objective way. All progress work on the design should be documented in notebooks, and written progress reports and oral presentation will be required during the course of the problem. The final report should document the complete design process, the synthesis and analysis of the design, prototyping, experimental testing, refinement of the design, the final product and full performance testing and comparison with the specifications. Projects should where possible originate from industry, and address real problems which the industrial sponsors are confronting. Each student will work individually on a defined part of a design problem, but these parts may be components of a bigger project requirement. Supervisors: Each student will continue with the academic staff supervisor assigned in VEB4001, and the industrial supervisor from the sponsor company where appropriate. In addition to formal written and oral reports, the student should maintain regular informal reporting channels to both supervisors.

Required Reading
There are no prescribed readings for this unit. Students will be guided by the unit co-ordinator to material relevant to the project being undertaken.

Recommended Reading

Class Contact
One hour per week or equivalent for one semester comprising on average ½ hour/week in progress presentations, and ½ hour/week meeting with the project supervisor. Most of the work in this unit will occur outside formal classes.

Assessment
Written progress reports, progress oral presentations, the final oral presentation, and the final project report (50%); Successful completion of a working project design which meets the project specifications (30%); The overall quality of the design process and the project as a whole (20%).

VEC6111 COMPUTER TECHNOLOGY

Campus: Footscray Park
Prerequisites: Nil

Content
The subject investigates high level design techniques used in computer system hardware development. The subject examines the algorithmic state machine design method. Controller and architecture division. Controller design methods. Linked and partitioned state machines. Register transfer language and synthesis. Logical faults and test vector generation. Asynchronous system analysis and design.

Required Reading
To be advised by the lecturer.

Class Contact
Three hours per week for one semester.

Assessment
Final examination, 65%; tests, 35%;
VEC6112 ADVANCED MICROPROCESSORS
Campus Footscray Park
Prerequisites A course in C programming.
Content The subject will provide the student with an appreciation of operating system's functions and requirements, including real-time operation, and will examine the use of concurrent languages. The subject examines the following topics: Operating system's functions. Program scheduling. Pipeline design techniques. Data and instruction stream. Parallelism. Contention and arbitration. Message passing techniques. Lock out prevention. Mutual exclusion. Tagged memory systems; cache memory. FIFO, multi port. Multiprocessor operating systems. Process to process or mapping vs process sharing. Diagnostic and performance profiling program. Recovery procedure. Application program and operating system interaction. Throughout measurement. Multiprocessing. analysis of various multiprocessors, data flow machines and non Neumann machines. RISC Array Processors Embedded systems, real time applications.
Required Reading To be advised by the lecturer.
Class Contact Three hours per week for one semester comprising lecture, tutorials and laboratories.
Assessment Examination 100%

VEC6121 OBJECT ORIENTED SOFTWARE
Campus Footscray Park
Prerequisites Nil
Co-requisites Nil
Content This subject will study the object oriented approach to software development through the analysis, design and implementation phases of the software life cycle. Its content includes the object oriented (OO) concepts of classes, inheritance, polymorphism, encapsulation; and the use of Object Oriented languages and environments. It applies the techniques to engineering applications.
Required Reading To be advised by the lecturer
Class Contact Three hours per week for one semester comprising two hours lectures/tutorials and one one-hour laboratory.
Assessment Assignments 35%; examination 65%.

VEC6122 OPERATING SYSTEMS AND MULTIPROCESSING
Campus Footscray Park
Prerequisites A course in C programming.
Content The subject will provide the student with an appreciation of operating system's functions and requirements, including real-time operation, and will examine the use of concurrent languages. The subject examines the following topics: Operating system's functions. Program scheduling. Pipeline design techniques Data and instruction stream. Parallelism. Contention and arbitration. Message passing techniques. Lock out prevention. Mutual exclusion. Tagged memory systems; cache memory. FIFO, multi port. Multiprocessor operating systems. Process to process or mapping vs process sharing. Diagnostic and performance profiling program. Recovery procedure. Application program and operating system interaction. Throughout measurement. Multiprocessing. analysis of various multiprocessors, data flow machines and non Neumann machines. RISC Array Processors Embedded systems, real time applications.
Required Reading To be advised by the lecturer.
Class Contact Three hours per week for one semester.
Assessment Assignment, 20%; laboratory, 15%; examination 65%.

VEC6131 COMPUTER INTERCONNECTION HARDWARE
Campus Footscray Park
Prerequisites Nil
Content The subject develops an understanding of microprocessor interconnection schemes and of the hardware and software aspects of computer networks. The topics covered are: review of synchronous and asynchronous design techniques; characteristics of bus lines and interface design; single-master buses; multiple-master buses; DMA circuits; synchronisation; computer to computer interconnection schemes, principle of operation standardisation and OSI model; protocol-to-protocol transfers, protocols, bidirectional links; error handling; links, concentrators and multiplexers; TDM circuits, PCM multiplexing; modern and network (e.g. token ring) interface design.
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising two hours per week lectures/tutorials and one one-hour laboratory.
Assessment Final examination 65%; assignments and laboratory work, 35%.
Students must attain a satisfactory level of performance in each assessable component to obtain a subject pass.

VEC6132 DIGITAL SYSTEM MODELLING AND SIMULATION
Campus Footscray Park
Prerequisites Nil
Content The subject will accustom the student with the computer aided design environment, and examines modelling and software techniques applicable to digital design problems. Topics to be studied include computer aided design tools, software, user interfaces; discrete event modelling and modelling languages VHDL; digital logic simulators. FPGA implementation.
Required Reading To be advised by the lecturer.
Class Contact Three hours per week for one semester comprising two hours of lecture/tutorial and one one-hour laboratory.
Assessment Final examination, 65%; assignments and laboratory work 35%. Students must attain a satisfactory level of performance in each assessable component to obtain a subject pass.

VEC6141 SOFTWARE ENGINEERING
Campus Footscray Park
Prerequisites Approved preliminary course in Software Engineering.
Content The subject will strengthen the student's knowledge of concepts required to produce high quality software systems within known limitations of resources using sound engineering principles and effective tools. The subject examines principles of software engineering. The topics covered are part of the software life cycle. Requirements elicitation, requirements analysis and specification. the use of formal specification languages such as 'Z'. Analysis and design methods using graphical notations e.g. UML, implementation considerations, testing strategies and construction of test cases, software engineering environments and CASE tools.
Class Contact Three hours per week for one semester comprising approximately 70% lectures/tutorials and 30% laboratory.
Assessment Examination, 65%; laboratory work, tests and assignments 35%. Students must satisfy examiners in each assessable component to pass the subject.

VEC6142 MANAGING SOFTWARE PROJECTS
Campus Footscray Park
Prerequisite(s) VEC5011 Software Engineering.
Content The subject will develop and improve the skills required to successfully plan and manage software development efforts. The subject content includes: the role of specification in the product life cycle; systems analysis and design; feasibility study and development cycle; the applicability of DP techniques to technical program management; defining software requirements, documentation; preparation of good project plans, size and function point metrics and their use in estimation of time and costs; implementing management controls for design and integration; the use of standard project management techniques and software packages; team working, codes of practice, whole life costing, system support plans; hardware/software integration and testing, product support and maintenance, controlling changes to software and documentation; control of the programming support environment. The assignment and laboratory work consists of design, analysis and management of a large scale software project.
Required Reading To be advised by lecturer.
Class Contact Three hours per week for one semester comprising approximately 65% lectures/tutorials and 35% laboratory.
Assessment Examination, 50%; assignments and project work, 50%.

VEC6151 DATABASE AND QUERY SYSTEMS
Campus Footscray Park
Prerequisites Nil
Content The subject will further the understanding of the design implementation and applications of database systems. The subject examines introduction to database systems; different database models; examples of current systems; overviews and use of DBMS, physical data organisation, database architecture, SQL, query by example; query optimisation; design theory for relational databases, database integrity and security; implementation issues, distributed system.
VEG152 APPLIED KNOWLEDGE SYSTEMS
Campus Footscray Park
Prerequisite(s) Nil
Content The subject provides an introduction to Knowledge Based Systems. It gives an overview of expert systems, neural networks, knowledge programming and natural language systems and examines software associated with these. The subject will familiarise the students with a number of techniques for applying knowledge based systems to real world problems in the control, monitoring and planning domains, including how to select appropriate tools to analyse problems.
Class Contact Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.
Assessment Tests/Assignments: 35%; Examination: 65%. A pass in each component of assessment is required for a subject pass.

VED4001 ENGINEERING DESIGN & PROJECTS 4A
Campus Footscray Park
Prerequisite(s) Completed year 3 of the course.
Content The subject consolidates engineering design experience by requiring each student to undertake an individual engineering design project, selected from a list of projects on offer. Projects are sourced from industry and academia, and span both semesters. In this subject, progress to a viable halfway stage is expected. Each student is supervised by a staff member expert in the area of the project. Oral presentation skills, and report writing ability are further developed from the level attained in third year.
The theory component covers the philosophy of system design, and designing for variability, emphasising the gulf between designing a working prototype, and designing for production. Worst case and Monte Carlo techniques are covered.
Class Contact 48 hours per semester, consisting of 36 hours of project work and project reporting, and 12 hours of lectures. Students are expected to spend additional non-class time on project work.
Assessment Project contract 5%, feasibility study report 10%, progress talks 5%, final presentation talk 10%, project stage A report, and project progress and quality 45%, assignments, tests 25%.

VEE3001 INTRODUCTION TO ELECTRICAL MACHINES
Campus Footscray Park
Prerequisites VEG2004 Systems and Applications 2D
Co-requisites Nil.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
- Develop an understanding of the structure of A.C. electrical machines and the purpose of the various components. To develop equivalent circuit models for the machines. Learn to calculate the operating characteristics of machines using the equivalent models (power, torque, efficiency, power factor etc.). To develop an understanding of stator dynamics of machines. Develop an understanding of appropriate applications of A.C. machines in industries.
- Content This unit of study is intended to provide a sound knowledge of induction and synchronous machines including equivalent circuits, performance analysis based on the equivalent circuits, and operating characteristics under varying operating conditions. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented. Unit Content: Introduction to induction motor and rotating field. Equivalent circuit of an induction motor. Power, torque, efficiency, power factor calculations. Induction motor starting. Speed control of induction motor. Introduction to synchronous machines. Synchronous motors and their characteristics. Synchronous generators. Loci of synchronous motor. Synchronous motor starting.
Class Contact 30 hrs of class contact: Two and an half hours per week.
Assessment Written examination 65% Test 20% Laboratory 15%.

VEE3002 INTRODUCTION TO ELECTRICAL POWER SYSTEMS
Campus Footscray Park
Prerequisites VEG2004 Systems and Applications 2D
Co-requisites Nil.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
- Develop an understanding of power systems components.
- Understand the configuration and operation of a power system.
- Develop skills in calculating the electrical parameters in a power system.
- Gain knowledge in ways of controlling frequency and voltage in a power system.
Content This unit of study is intended to provide an introduction to electrical power systems. The unit will cover topics of generation, transmission, and distribution systems at introductory levels. Various types of generation systems will be introduced. Different types of transmission/distribution systems and associated gears will be introduced. Models of long, medium and short transmission lines will be introduced to assist in calculation of power, voltage, current and power factor. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.
Class Contact 30 hrs of class contact. Two and an half hours per week.
Assessment Written examination 65% Test 20% Laboratory 15%.

VEE4100 ELECTRICAL ENERGY SYSTEMS ANALYSIS AND OPERATION
Campus Footscray Park
Corequisite(s) VEE3002 Introduction to Electrical Power Systems
Learning Outcome On successful completion of this unit, students are expected to be able to:
- Describe the effect of voltage and angle on real and reactive power.
- Apply techniques of load flow solutions including calculations of voltage, angles, losses, generated reactive power, slack power, etc.
- Model accurately a multi-BUS system and carry out load flow studies.
- Identify solutions to power system problems.
Content Electricity distribution in the deregulated Australian power industry. Admittance model and Network Calculations Load flow analysis techniques, Gauss Siedel and Newton Raphson methods, uses of load flow analysis, cases studies. Economic operation of power systems. The planning, design and operation of electrical energy transmission and distribution networks.
- planning, design standards and performance requirements.
- voltage control.
- power quality and reliability.
- overvoltage protection.
• earthing and safety.
• embedded generation.
• power electronic systems for performance improvement.


**Class Contact** 30 hours comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

**Assessment** Assignment and Laboratory Exercises 40%; End of semester examination 60%; A pass in each component of assessment is required for a subject pass.

### VEE4200 ELECTRIC ENERGY SYSTEMS PROTECTION

**Campus** Footscray Park

**Corequisite(s)** VEE3002 Introduction to Electrical Power Systems

**Learning Outcome** On successful completion of this unit, students are expected to be able to:

- Analyse and describe the various protection schemes for transmission and distribution applications.
- Develop protection drawings/single line diagram for specific protection scheme.
- Coordinate overcurrent protection in radial and non-radial networks.
- Design basic distance protection scheme.

**Content** This subject covers the planning, design and operation of electrical protection systems for the generation, transmission and distribution of electric energy; planning, design standards and performance requirements; principles and types of protection systems (overcurrent, impedance, differential, backup, losses); application to generators, motors, transmission lines, transformers, busbars, and distribution; instrument transformer steady state and transient behaviour; electrical studies for planning and design of protection systems; power system communications for protection application.

**Required Reading** Lecture notes provided.


**Class Contact** 30 hours of class contact comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

**Assessment** Assignment and Laboratory Exercises 40%; End of semester examination 60%; A pass in each component of assessment is required for a subject pass.

### VEE4400 HIGH VOLTAGE ENGINEERING

**Campus** Footscray Park

**Corequisite(s)** VEE3002 Introduction to Electrical Power Systems

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

- Analyse and describe the various insulated technologies
- Analyse surge propagation and its impact on electrical networks
- Study circuit breaker operation

**Content** Electrical insulation properties and characteristics, insulator selection, insulation co-ordination in electric energy systems, sources of overvoltages, lightning impact on transmission and distribution networks, surge propagation theory, circuit interruption theory and circuit breaker operation.

**Required Reading** Lecture notes provided.


**Class Contact** 30 hours of class contact comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

**Assessment** Assignment and Laboratory Exercises 40%; End of semester examination 60%; A pass in each component of assessment is required for a subject pass.

### VEE4500 POWER ELECTRONICS

**Campus** Footscray

**Prerequisites** VEE2004 Systems and Applications 2D

**Co-requisites** Nil

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Understand the basics and operations of power semiconductor switches. 2. Know the building blocks of power electronics conversion. 3. Analyse AC/DC and DC/DC power converters. 4. Able to analyse and design different types of switching power supplies in different modes of operation. 5. Able to demonstrate the knowledge of electronic speed control techniques for DC motor drives for different applications.

**Content** Introduction to the theory, design and analysis of conversion of electric power by means of power electronics, including AC to DC and DC to DC power converters. The fundamental knowledge of electronic speed control techniques for DC motor drives for different applications. AC/DC single-phase and three-phase power converters: Diode and SCR bridge rectifiers. DC-DC switching Mode Power Converter, buck converters and boost converters, Buck-boost converters. Unipolar and bipolar voltage switching method. Flyback converters, push pull converters. First quadrant, two quadrant and four quadrant drive. Different electronic speed control techniques for DC motor drives.

**Required Reading**

**Recommended Reading** N.Mohan, 2003, First Course on Power Electronics and Drives, MANPERE.

**Class Contact** 30 hrs of class contact consisting of 2 hrs of Lecture/tutorial per week and 0.5 hrs of Laboratory per week.

**Assessment** Students will be assessed in this unit of study on the basis of an end of semester examination, a mid-semester test and requires satisfactory performance of laboratory based components of this unit.

### VEE4700 POWER SYSTEM COMMUNICATION, MONITORING AND INSTRUMENTATION

**Campus** Footscray

**Prerequisites** Nil

**Co-requisites** Nil

**Learning Outcomes** The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

**Content** Introduction to communication principles and terminologies used in power systems. Leading global organisations and their standards Power system automation and integration concepts. Discussion on architectures, protocols as utilised in power system communication networks. Middleware technologies Information embedded power systems. Power system security aspects, SCADA and contingency analysis Network sensitivity methods; generation dispatch Operating metering Tariffs and wholesale energy trading Future technologies and their implications for power system communications.


**Class Contact** 30 hours of class contact.

**Assessment** Students will be assessed in this unit of study based on an end of semester examination 60%, a team assignment 10%, word limit: 1000, a class test 10% and laboratory exercises 20%.

### VEE4800 ALTERNATIVE ENERGY SYSTEMS

**Campus** Footscray

**Prerequisites** Nil

**Co-requisites** Nil
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
- Understand different alternative energy sources and their availability.
- Know the design and operation principles of alternative energy systems. Analyse economic and environmental impact of the alternative energy systems. Demonstrate an awareness of current applications of alternative energy systems.

Content
The aim of this unit of study is to introduce students to unconventional energy sources such as solar, wind, biomass and fuel cells etc. and energy storage; problem facing the Electricity Supply Industries in Australia and its choices. The unit will focus on: Overview of major alternative sources and their energy content Environmental and economic advantages of using alternative energy generation technologies along with the concept of sustainability in order to provide the basis for the consideration of alternative energy systems. The unit will cover: Conventional energy systems and green house effect Evaluation and feasibility studies of solar energy, wind energy, fuel cells, hydrogen generation, bio-fuel, tidal and geothermal systems. Analysis and modelling of above systems. Economic analysis of above systems. Design of hybrid systems and integration.

Required Reading

Recommended Reading

Class Contact
4 hours per week. Total 48 hours comprising lecture/tutorials/lab.

Assessment
Students will be assessed in this unit on the basis of an end of semester examination, a midterm seminar and requires satisfactory performance of laboratory based components of this unit.

VEE6000 RESEARCH PROJECT
Campus Footscray Park
Prerequisite(s) Completion of at least eight units of the course.

Content
Each student will undertake an in-depth investigation of a topic allocated in the student’s area of specialisation, over the duration of a semester, under the guidance of an academic supervisor. The student will produce a report and present it to an audience as a presentation. The project will be exposed to research related matters such as research methodology, literature surveys, problem definition, feasibility studies, experiment design, modelling and simulation, analysis of results, formulation of conclusions, documentation, and presentation.

Required Reading
To be advised by the supervisor of the project.

Recommended Reading
To be advised by the supervisor of the project.

Class Contact
Twelve hours per week for one semester comprising three hours per week group seminars, three hours per week group meetings and discussions with fellow researchers and project supervisors; and six hours per week of independent study.

Assessment
Regular seminar presentations (3 seminars, each of 20 min. duration) 30%; Final Report (Approximately 25,000 words) 50%; Final presentation (of 40 min. duration) 20%.

VEE6050 PROJECT MANAGEMENT PROGRAM
Campus Footscray Park
Prerequisite(s) Completion of at least eight units of the course.

Content


Required Reading
Project Management Institute, 2000, A Guide to Project Management Body of Knowledge, Newton Square, Pensylvania, USA.

Recommended Reading

Class Contact
For each unit: Three hours per week, comprising lectures, tutorials, seminars, and group activities.

Assessment
For each unit: Class Test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%.

VEE8001 RESEARCH THESIS 1 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/Researchareas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VEE8002 RESEARCH THESIS 2 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/Researchareas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VEE8011 RESEARCH THESIS 1 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/Researchareas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VEE8012 RESEARCH THESIS 2 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/Researchareas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VEF1001 ENABLING SCIENCES 1A
Campus Footscray Park
Prerequisite(s) Year 12 mathematics or its equivalent.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
- Perform basic differentiation and integration
- Calculate rates of change in maximum and minimum problems
- Perform integration by parts
- Use Newton’s laws to calculate displacement, velocity and acceleration
- Apply the rules of conservation of energy and momentum.

Content
Basic algebra, including index, log laws, indicial and log equations, algebraic expansions; Functions, straight line, parabola, circle etc. Mod function. Domain, range, inverse functions; Trig. Functions and their graphs, period amplitude, degrees
VEF1002 ENABLING SCIENCES 1B
Campus Footscray Park
Prerequisite(s) VEF 1001 Enabling Sciences 1A.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• Have an understanding of statistics including the Normal, exponential, Poisson and Hyper geometric distributions.
• Have an understanding of Electric and magnetic fields and calculate the forces acting on charged particles
• Understanding of wave/particle duality and the Bohr model of the atom.
Content Descriptive statistics, data, histograms etc. Describing data, mean, median, mode, quantities, measures of dispersion; Introduction to probability, sample space, mutually exclusive and independent events. Intro to PDFs and intro. to Normal distribution; Normal distribution, mean of n variates, 3,2,1 sigma confidence limits. Binomial, Poisson distributions; Exponential, Hypergeometric distr. Normal approx. to Binomial and Poisson. Sample mean. Central limit theorem; Determinants, matrices, Cramer’s rule, inversion; Solution of systems of algebraic equations. Row operation, Gaussian elimination, echelon form, ranks; Newton Raphson, numerical integration. Midpoint, Trapezoidal and Simpsons rules; Introduction to series and some convergence tests; Simple power series and the Maclaurin series; Partial integration. Midpoint, Trapezoidal and Simpsons rules; Introduction to series and some convergence tests; Simple power series and the Maclaurin series; Partial integration. Midpoint, Trapezoidal and Simpsons rules; Introduction to series and some convergence tests; Simple power series and the Maclaurin series; Partial integration.
Assessment Class Contact 60 hours of lectures/tutorials per semester. Assessment Class tests 30% End of semester examinations 70%.

VEF1003 ELECTRICAL FUNDAMENTALS 1A
Campus Footscray Park
Prerequisite(s) Year 12 mathematics or its equivalent.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• To have a basic understanding of the concepts, units and interrelationship between electric charge, voltage and power.
• To understand and be competent in the application of Kirchhoff’s Laws for circuit analysis.
• To be competent in the application of the Nodal Voltage Method, and the concept of equivalence (including Thevenin’s and Norton’s Theorems) to the solution of linear DC circuit analysis.
• To understand the different types of gain, and input and output resistance of an amplifier.
• To be able to analyse the following ideal operational amplifier circuit applications: inverting and non-inverting amplifier, buffer, inverting summer, comparator, and difference amplifier. To understand some of the uses of these circuits.
• To understand how a dependent source may be used to model the finite voltage gain and finite input resistance of a real operational amplifier.
• To understand that the operational amplifier voltage range is limited by the DC supply rails, and to appreciate that its gain is dependent upon the signal frequency.
• To understand the differences between ideal linear and real resistors.
• To understand from a components Volts-ampere characteristics whether or not the device can sink or source power, is linear or non-linear, is bilateral or non-bilateral.
• To be able to use Volts-ampere characteristics to find the voltage, current or power of a component connected to a Thevenin Equivalent Circuit.
• To understand the definition and units of capacitance. To know the physical nature of stray capacitance and of capacitors.
• To be able to solve CR charge/discharge transient analysis problems. To appreciate some applications of this type of analysis.
• To understand how a capacitor acts as an energy storage component.
• To have a basic understanding of a TRJ power supply, including ripple voltage calculations.
• Write truth tables, construct logic expressions, and minimize expressions using Boolean algebra or Karnaugh map.
• design and construct combinational logic circuits for simple applications.
• Write C++ program to solve simple problems that may include use of selection and repetition structures, create single dimensional arrays and store and manipulate data.
• Number Systems and Codes: Base conversions, representation of data in the binary and hexadecimal systems, binary arithmetic, signed and unsigned values.
Computer Programming: An overview of a typical computer system. The program creation process; editing, compiling and debugging. Data types, correct choice of type and their range. The use of variable, assignment, arithmetic and logical operations.
Flow control using loops; if, while and switch statements. An Introduction to arrays.
Digital Electronics: Types of gate, truth tables and Boolean algebra. Equation formation using universal gate sets.
• Required Reading Ives, R Introduction to Electrical and Electronic Engineering, Victoria University; Savitch, W. Problem Solving with C++, 4th edition, 2004, Addison-Wesley.
• Class Contact 60 hours of lectures/tutorials per semester.
• Assessment Class tests, 30% End of semester examination 70%.

VEF1004 ELECTRICAL FUNDAMENTALS 1B
Campus Footscray Park
Prerequisite(s) VEF1003 Electrical Fundamentals 1A or equivalent.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• To be able to apply the Principle of Superposition to circuit analysis, and be aware of those circuits where it is not applicable.
• To be able to convert data sheet characteristics of an IC amplifier into a network model. To be able to use the Principle of Superposition to examine the significance of these characteristics in linear applications of the amplifier.
• To be able to analyse linear AC circuits.
• To be able to calculate the RMS value of periodic waveforms.
• To have gained an introductory understanding of electromagnetism sufficient to underpin the solution of circuits containing self-inductors.
• To understand the definition of resonance. To understand the behaviour of AC circuits both at resonance, and at frequencies either side of the resonant frequency.
• To be able to convert freely between impedance and admittance, as required by given problems.
• To be able to calculate the attenuation vs frequency response of first order passive filters
• To be able to calculate the various measures of power associated with AC power circuits
• To understand how given limitations of real operational amplifiers may manifest themselves in AC circuit applications
• Design and construct sequential logic digital circuits using D and J-K flip-flops.
• Use state diagrams and state tables for design.
• Write C++ programs using user defined functions and pointers and user defined data structures. Write/read data to/from text files.

Content

Computer Programming: Functions and function parameters. Text files and text strings. An introduction to data structures and classes.


Required Reading
Ives, R Electrical and Electronic Engineering, Victoria University.

Recommended Reading

Class Contact
60 hours of lectures/tutorials per semester.

Assessment
Class tests 30%. End of semester examination 70%.

VEF2001 LINEAR SYSTEMS AND MATHEMATICS 2A

Campus: Footscray Park

Prerequisites
VEF1002 Enabling Sciences 1B and VEF1004 Electrical Fundamentals 1B

Co-requisites

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

• perform time-domain analysis of linear time-invariant systems using Laplace transforms,
• perform frequency-domain analysis of linear time-invariant systems using Fourier series and Fourier transforms,
• apply linear algebra to find trajectories of linear systems modelled as a system of first-order linear differential equations with constant coefficients,
• employ simple MatLab commands and Simulink to analyse linear time-invariant systems.

Content
Linear Systems: Analysis of linear time-invariant systems in time-domain.


Required Reading


Recommended Reading

Class Contact
Linear Systems component: Three hours of lecture and problem solving per week for twelve weeks, for one semester. Total 36 hours.

Mathematics component: Two hours of lectures and problem solving per week for twelve weeks, for one semester. Total 24 hours.

Assessment
This subject is designed to complement our Engineering Design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple “skills audits” to account for 30% and end of semester examinations accounting for 70% of the total marks.

The end of semester examinations include a three-hour Linear Systems Component Examination (accounting for 35% of the total marks) and a three-hour Mathematics Component Examination (accounting for 35% of the total marks).

VEF2002 SYSTEMS AND MATHEMATICS 2B

Campus: Footscray Park

Prerequisites
VEF 2001 Linear Systems and Mathematics 2A

Co-requisites

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

• state and differentiate the purposes and requirements of communication systems and control systems,
• perform elementary time-domain and frequency-domain analyses of simple communication systems and control systems,
• employ simple MatLab commands and Simulink to analyse simple communication systems and control systems.

Content


Required Reading


Recommended Reading

Class Contact
60 hours of lectures/tutorials per semester.

Assessment
This subject is designed to complement our Engineering Design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple “skills audits” to account for 30% and end of semester examinations accounting for 70% of the total marks.

The end of semester examinations include a three-hour Systems Component Examination (accounting for 40% of the total marks) and a three-hour Probability and Statistics Component Examination (accounting for 30% of the total marks).

VEF2003 SYSTEMS AND APPLICATIONS 2C

Campus: Footscray Park

Prerequisites
VEF 1003 Electrical Fundamentals 1A or equivalent

Co-requisites

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

• Design and implement combinational and sequential data processing elements using VHDL with PLDs and manufacturers components.

• Analyse an engineering problem that requires a computational solution; construct suitable “classes” and functions for an algorithmic solution. Code and test the solution.

• Create the hardware and software requirements for an engineering task requiring a small microprocessor based system. Design, build and test the system including the hardware and software components.

• Analyse and design simple real time based power supplies and small signal amplifiers.

• Create the hardware and software requirements for an engineering task requiring a small microprocessor based system. Design, build and test the system including the hardware and software components.

• Analyse and design simple real time based power supplies and small signal amplifiers.

Content
Digital Systems: Data path elements including encoders, decoders, comparators, multiplexers, demultiplexers, multi-mode synchronous counters registers, shift-registers, arithmetic circuits and ROMs. Applications of data path elements. Data path element function, description in VHDL and synthesis onto programmable logic devices.


Microprocessor Systems: The architectural structure of a simple 8-bit microprocessor/ microcontroller. Program and data organization, programmers model, register sets,
This unit of study covers analogue electronic circuits analysis and design techniques commonly used in engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The unit includes the theory and implementation of feedback techniques for circuit stability. Differential amplifiers with active loads and multistage amplifiers. The design requirements of biquadratic filters, output stage/power amplifiers of an electronic systems. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Topic 1: Review of circuit theory
- Analyse a range of circuit types and assess the circuit performance.
- Design circuits to meet performance criteria and select suitable components for circuit realization.
- Implement optimal state machines for a range of electronic engineering applications.
- Apply a system level approach to digital design using the algorithmic state-machine design paradigm.
- Be able to appreciate fundamentals of mechanical and electromagnetic energy conversion.
- Be able to analyse simple power systems containing DC machines and transformers.


Required Reading

Class Contact 60 hours of lectures/tutorials per semester.

Assessment This unit is designed to complement our Engineering Design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple “skills audits” to account for 30% and two 3 hour end of semester examinations accounting for 70% (35%+35%) of the total marks.

VEF3001 ANALOGUE ELECTRONICS A
Campus Footscray
Prerequisites VEF2003 Systems and Applications 2C
Co-requisites Nil.

Learning Outcomes The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to:
- To have experience in performing analysis of most common circuits used in electronic systems. To have experience in performing design calculation of discrete electronic circuits used in different electronic systems. To learn feedback techniques required to insure stabilise function of electronic circuits. To learn some techniques required for frequency compensation of electronic circuits. To be able to use Multisim/Pspice, to analyse the behaviour of any electronic circuits and system. To be able to perform rapid prototyping of a specified electronic circuit.

Content This unit of study covers analogue electronic circuits analysis and design techniques commonly used in engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The unit includes the theory and implementation of feedback techniques for circuit stability. Differential amplifiers with active loads and multistage amplifiers. The design requirements of biquadratic filters, output stage/power amplifiers of an electronic systems. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Topic 1: Review of circuit theory
- Analyse a range of circuit types and assess the circuit performance.
- Design circuits to meet performance criteria and select suitable components for circuit realization.
- Implement optimal state machines for a range of electronic engineering applications.
- Apply a system level approach to digital design using the algorithmic state-machine design paradigm.
- Be able to appreciate fundamentals of mechanical and electromagnetic energy conversion.
- Be able to analyse simple power systems containing DC machines and transformers.


Required Reading

Assessment This unit of study covers analogue electronic circuits analysis and design techniques commonly used in engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The unit includes the theory and implementation of feedback techniques for circuit stability. Differential amplifiers with active loads and multistage amplifiers. The design requirements of biquadratic filters, output stage/power amplifiers of an electronic systems. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Asessment This unit of study covers analogue electronic integrated circuits functions and applications in electrical engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The unit includes the theory and implementation of feedback techniques for circuit stability. Differential amplifiers with active loads and multistage amplifiers. The design requirements of biquadratic filters, output stage/power amplifiers of an electronic systems. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Assessment This unit of study covers analogue electronic integrated circuits functions and applications in electrical engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The unit includes the theory and implementation of feedback techniques for circuit stability. Differential amplifiers with active loads and multistage amplifiers. The design requirements of biquadratic filters, output stage/power amplifiers of an electronic systems. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading
Communication Oral 0 0 0 Communication Written 0 0 0 Professional - Autonomous 0 0 0 Professional - Collaborative 0 0 0 Social & Cultural Diversity 0 0 0

VEG4100 DIGITAL SIGNAL PROCESSING A
Campus Footscray Park
Prerequisite(s) VEG2001 Linear Systems and Mathematics 2A
Learning Outcomes On successful completion of this unit, students are expected to be able to:
- perform time and frequency domain analysis of discrete-time linear signal processing systems;
- design simple FIR and IIR filters;
- perform spectral analysis on sampled signals with DFT via FFT.
Class Contact 30 hours class contact comprising 24 hours of lectures/tutorial and 6 hours of laboratory.
Assessment Laboratory assessment 30%; End of semester examination 70%.

VEG4101 PROFESSIONAL PRACTICE 4A
Campus Footscray Park
Pre-requisite(s) VEB3002 PBL Design Problems 2 or VEB3200 Engineering Design and Practice 3B
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Explain the current commercial, legal and regulatory environment in which the professional engineer works;
2. Explain how to participate in the tendering process, and manage risk in tendering;
3. Discuss intellectual property issues, and methods of protecting intellectual property;
4. Explain the frequency system, the way financial institutions operate, and the requirements for successfully securing funding;
5. Explain how to use project management techniques as applied to an engineering undertaking;
6. Discuss the importance of workplace safety, and its regulatory and insurance aspects.
Required Reading There are no prescribed readings for this unit. Students will be guided by the unit co-ordinator to material relevant to the unit.
Class Contact Sixty (60) hours or equivalent for one semester comprising formal and informal class work.
Assessment A series of assignments (class exercises and projects), tests and examination (100%).
**VEH3002 DIGITAL SYSTEM DESIGN B**

**Campus** Footscray  
**Prerequisites** VEF2003 Systems and Applications 2C and VEF2004 Systems and Applications 3D  
**Co-requisites** Nil.  

**Learning Outcomes** The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Design simple and complex asynchronous state machines and implement them on PLDs. Apply a sound technical design approach, manage the design complexity in an efficient manner and implement the solution with modern software development tools and devices.  


**Class Contact** 30 hours of class contact. 2 hours per week - 2 hours lecture/tutorial and 0.5 hours laboratory work.  
**Assessment** End of semester examination 70%, a mid-semester test and assignments 20% and laboratory 10%.  

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**VEH3003 EMBEDDED COMPUTER SYSTEMS DESIGN**

**Campus** Footscray  
**Prerequisites** VEF2003  
**Co-requisites** Nil.  

**Learning Outcomes** The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Design and implement a single chip digital system containing multiple microprocessors and dedicated hardware operating multiple tasks in a real-time manner. Other outcomes will be in the management of design complexity for 1 million+ gate designs, economic and manufacturing considerations.  

**Content** This unit of study integrates the entire computer engineering (hardware and software) knowledge from earlier years of study. The aim of the unit is for the students to learn how to bring together one (or more) microprocessors, memory blocks (containing a C++ real time program), I/O blocks and the student’s designed special purpose devices onto a single VLSI device. Managing the design of complex systems, the manufacturing pathway to mass production and economic considerations are also included. The unit also provides support for students requiring knowledge of this area of digital systems in a concurrently studied Engineering Design unit. Consequently, the syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.  

**Class Contact** 30 hours of class contact. 2 hours per week - 2 hours lecture/tutorial and 0.5 hours laboratory work.  
**Assessment** End of semester examination 80% and a mid-semester test and laboratory 20%.  

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**VEH4001 COMPUTER SYSTEMS ON AN ASIC**

**Campus** Footscray  
**Prerequisites** VEH3004 Real time and Multitasking Computer Systems  
**Co-requisites** Nil.  

**Learning Outcomes** The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Design and implement a single chip digital system containing multiple microprocessors and dedicated hardware operating multiple tasks in a real-time manner. Other outcomes will be in the management of design complexity for 1 million+ gate designs, economic and manufacturing considerations.  

**Content** This unit of study integrates the entire computer engineering (hardware and software) knowledge from earlier years of study. The aim of the unit is for the students to learn how to bring together one (or more) microprocessors, memory blocks (containing a C++ real time program), I/O blocks and the student’s designed special purpose devices onto a single VLSI device. Managing the design of complex systems, the manufacturing pathway to mass production and economic considerations are also included. The unit also provides support for students requiring knowledge of this area of digital systems in a concurrently studied Engineering Design unit. Consequently, the syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.  

**Class Contact** 30 hours of class contact. 2 hours per week - 2 hours lecture/tutorial and 0.5 hours laboratory work.  
**Assessment** End of semester examination 80%, a mid-semester test and laboratory 20%.  

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**VEH6001 HDL AND HIGH LEVEL SYNTHESIS**

**Campus** ChipSkills Partner Universities  
**Prerequisite(s)** Completed Digital Systems at undergraduate level or equivalent.  

**Content** Hardware modelling and design flow. Features requirements of Hardware Languages (structural and behavioural). Abstract Models, Compilation and Optimisation Techniques, Hardware Description Language VHDL and/or Verilog. Architectural - Level Synthesis and Optimisation Modelling, the Fundamental architectural synthesis problems, Area and performance estimation, Data path and Control Unit Synthesis, Synthesis of Pipelined Circuits. Synthesis Techniques, Logic synthesis and optimisation, FPGAs synthesis, folding and partitioning, Multi-level
logicsynthesis;structuredlayoutstyles,localandglobaltransformations.
Statemachine synthesistechiques.Highlevellysis techniquestrategiesfor
highlevellysis,schedulingandallocationoperations.Highlevellysistantuations.
RequiredReadingChang,K.C.,1999,DigitalSystemsDesignwithVHDL
andSynthesis,IEE.Europe.IEEEJournalPapers.
RecommendedReadingDewey,K.M.,1996,AnalysisandDesignofDigitalSystems
SynthesisandComponentReusewithVHDL,Kluwer.
ClassContactFourhoursperweekforonesemestercomprisingtwohoursperekweek
lecturesandtwohoursperekweekoflaborexercisesandproject.
AssessmentAssignmentalandexercises,20%;project,50%;andfinal
examination,30%.

VEH6002ICDESIGN
CampusChipskillsPartnerUniversities
Prerequisite(s)CompletedDigitalSystemsatundergraduatelevelorequivalent.
ContentOverviewofMOSandsub-microntechnology,scalingandsignalintegrity,
ICdesigntechniques.CMOCcells:none-device-leveldesignconstraints,gatedesign,
pas transistor circuits, sequential circuits, mask level design. Layout considerations,
designrulesandmaskleveldesign.Circuitoptimisationtechniques.ASICandcustom
design,synchronoussystemdesign.TimingissuesinVLSIcircuitsdesign.
DesignofVLSIsystemsbelow-sub-systems:Arithmeticandlogicelementsofadders,substrants,
I/Os,buffers,datapathdesignandlayout,etc.Chipfloorplanning.Basisanalog
buildingblocks.Designdeals-off-cost,powerandperformance.Testabilityandyield.
RequiredReadingRaoboy,J.M.,1996,DigitalIntegratedcircuits-ADesign
RecommendedReadingExtraction,K.andonWeste,N.H.E.,1993,PrinciplesofCMOS
VLSIDesign-ASystemsperspective,AddisonWesley.
ClassContactFourhoursperekweekforonesemestercomprisingonehourperekweek
lecturesandthreehoursperekweekoflaborexercisesandproject.
AssessmentAssignmentalandexercises,30%;project,50%;andfinal
examination,20%.

VEH6003EDATOOLSANDDESIGNMETODOLOGY
CampusChipskillsPartnerUniversities
Prerequisite(s)CompletedDigitalSystemsatundergraduatelevelorequivalent.
ContentEDADesignflowenvironment.Toolintegration.Embeddeddevelopmenttools.
Back-endICdesignflowandtools.Front-endICdesignflowandtools.Hardware/
softwareco-designandco-verification.Functionaldesignandverification.Mixedsignal
RequiredReadingCurrentavailabletextbookstudestoibeadvised.
RecommendedReadingChang,H.,Cook,L.,Hunt,M.,Martin,G.,McKnelly,A.and
Todd,L.,1999,SurvivingtheSOCRevolution-AGuidetobPlatform-BasedDesign,
KluwerAcademic.
ClassContactFourhoursperekweekforonesemestercomprisingonehourperekweek
lecturesandthreehoursperekweekoflaborexercisesandproject.
AssessmentAssignmentalandexercises,60%;researchproject,40%.

VEH6004DIGITALSYSTEMDESIGN
CampusFootscrayPark
Prerequisite(s)VEH6001-HDLandHighLevelSynthesisorequivalent.
ContentReviewofcombiningandsequentialcircuitanalysisanddesignusing
PLDs,ALUs,FPGAsandROM.Functionaldecompositionandsymmetricfunctions.
Iterativecircuits.Algorithmicstatemachineapproach.RegisterTransfer
Language(RTL)designtechniques.ASynchronoussystems:micropipelines,
asynchronousmicroprocessor.RISCarchitecturesandtheinfluenceonVLSI
technology.Parallelprocessingstructures.VLSIprocessorarrays.Contentaddressable
andassociatememories.Systolicandwavefrontarrays.Applicationdriven
LearningOutcomesUponsuccessfulcompletionofthisunitofstudystudentsare
expectedtohave:
•Gainedanappreciationofandapplyindustrystandartsdigitalsystemdesign
methodologies
•GainedknowledgeofandappliedVHDLcodingstylesforsynthesis,datastate
andstatedecksonmachinesandadvancedtimingissuesinhighefficiencydigital
systems
•DevelopedskilledintheuseofEDAdesignfordigitalsystemdesign

RequiredReadingChang,K.C.,1999,DigitalSystemsDesignwithVHDLand
Synthesis.
RecommendedReadingNelson,et.al.,1998,DigitalLogicCircuitAnalysisand
ClassContactFourhoursperkeweekforonesemestercomprisingoflecturesand
laborexercises.
AssessmentAssignmentalandlaborexercises,30%;project,40%;andfinal
examination,30%.

VEH6006EMERGINGTOPICSOVICDESIGN
CampusChipskillsPartnerUniversities
Prerequisite(s)Nil.
ContentNewtechnologiessuchas:Siliconcarbidehigh-powerdevices,Quantum
baseddevices,quantumwellsandquantumdotsNonanometerMOSFETs,wide
bandgapmaterialsanddevices,Plasmainwaveelectronics,Ferroelectricdevices.
Overviewofnewprocesstechnologies.Deepsub-microntechnologyandnoise.Ultra-
high-speeddevices,includingmicrowaveandopticaldevices.NewSystems-Level
Architectures,suchas:Nonoarrays,Nemorphicarchitectures,Reconfigurable
architectures,Wi-fiscalesystems,Memorysystems.NewEADAtoolsandfuture
technologyprojections.EMC:regulations,measurementandtesting.
DesignissuesrelatedtoEMC.
RequiredReadingDimitrijev,S.,2000,UnderstandingSemiconductorDevices,Oxford
SubmicronElectronics,Kluwer.I.E.(Aust),1999,ElectromagneticCompatibility,
ClassContactFourhoursperekweekforonesemestercomprisingtwohoursperekweek
lecturesandtwohoursperkeweekofworkshopsandseminars.
AssessmentAssignments,30%;seminars,40%;andresearchproject,30%.

VEH6007ADVANCEDVLSIDESIGN
CampusChipskillsPartnerUniversities
Prerequisite(s)VEH6002orequivalent.
ContentOverviewofdesignflow,requirementspecification,configuration
managementissues.DesignandsimulationusingindustrystandardEDAtools.Use
full-customdesigntoolstogeneratcircuitlayout,designedesignandverification,
simulationandverification.Input/outputports.Layoutgenerators,parametrisated
blocks,PLAgenerator,Simulinkcompiler.Datapathcompiler,Placementandrouting.
Clockdistributiontechniques.Layoutanalysisincludingdesignedrules,DCR,circuit
extraction,equivalecencechecking.Simulation:logicsimulation,delaymodeling,
faultsimulation.Mixedanalog/digitalsystemspecification,integrationissues.VHDL
-ANS.System-levelspecification,validationandanalysis.Reusablesblocks.System-
on-a-chip(SOC)designedesignincludingsoftware,hardwareandIPblocks.
Design
verificationandsoctesting.Testbenchdesign.
RequiredReadingSilveira,L.M.,Devadas,S.andReis,R.,1999,VLSI:Systems-on-a
RecommendedReadingRaoboy,J.M.,1996,DigitalIntegratedcircuits-ADesign
VLSIDesign-ASystemsPerspective,AddisonWesley.
ClassContactFourhoursperekweekforonesemestercomprisingonehourperekweek
lecturesandthreehoursperekweekoflaborexercisesandproject.
AssessmentAssignmentalandlaborexercises,30%;project,50%;andfinal
examination,20%.

VEH6008VLSIDIGITAL SIGNAL PROCESSING SYSTEMS
CampusChipskillsPartnerUniversities
Prerequisite(s)CompletedDSPcourseatundergraduatelevel.
ContentOverviewofDSP:FFT,DFT,z-transformandsamplingtheory.FIRandIIR
filterdesignandimplementation.Interpolation,decimationandmultirateapplications.
Adaptivefilteringandanalyses.DSPsoftwarebuildingblocks,nonlinearityand
choiceofsamplingrate.DSPhardware:architecture,processingblocks(multiplexers,
alu,MAC,barelshifters).Pipeliningandparallelprocessing,powerconsumptionand
reduction.Foldingandunfoldingapplications:Samplingperiodreduction,designing
digitalsignalhardware,tiemultiplexedsynthesis.Systolicarraydesign.Algorithmic
strengthreduction.AdvancedDSPsoftwareandhardware.DSPsystemdesign.
andImplementation,JacarandaWiley.AppropriateIEEE/IEEJournals.
RecommendedReadingBayoumi,M.A.,1994,VLSIDesignMethodologyforDSP
Architectures, Kluwer.

Class Contact Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises and project.

Assessment Assignment and laboratory exercises, 30%; project, 40%; and final examination, 30%.

**VEH6009 RELIABILITY AND TESTABILITY IN IC DESIGN**
Campus Footscray Park
Prerequisite(s) VEH6001, EEE6002 and VEH6003 or equivalents.

Content

Learning Outcomes
Upon successful completion of this unit of study, students are expected to have:
- Developed an appreciation of reliability issues related to microelectronic devices and integrated circuits
- Developed an understanding of circuit testability issues and design for testability.
- Developed and applied knowledge in fault modelling and testing methodologies
- Developed an appreciation for system level testing
- Developed skills in the use of EDA design for test tools including automatic test pattern generation.

Required Reading

Recommended Reading

Class Contact
Four hours per week for one semester comprising lectures and laboratory exercises.

Assessment
Assignment and laboratory exercises, 60%; and final examination, 40%.

**VEH6010 INTRODUCTION TO MICROSYSTEM TECHNOLOGY**
Campus Chipskills Partner Universities
Prerequisite(s) Nil.

Content

Required Reading

Recommended Reading

Class Contact
Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises.

Assessment
Assignments, 20%; laboratory exercises, 30%; project, 30 and final examination, 20%.

**VEH6011 INTRODUCTION TO SEMICONDUCTOR DEVICE FABRICATION**
Campus Chipskills Partner Universities
Prerequisite(s) Nil.

Content
Fundamental principles of fabrication processes, physical and chemical models for crystal growth, oxidation, ion implantation, etching, deposition, lithography and metallisation. Emphasis is on practical aspects of silicon device fabrication, including wafer cleaning, photolithography, etching, oxidation, diffusion, ion implantation, chemical vapour deposition, physical sputtering and wafer testing. Imperfections in semiconductors, crystal growth, solid solubility, alloying and diffusion, ion implantation, oxide masking, and epitaxy. Practical and fundamental limits to the evolution of the technology of MOS and bipolar devices. How are integrated circuits fabricated and what future changes are likely? The implications for device performance caused by material properties and fabrication techniques. Fabrication techniques for bipolar and MOS-devices, and the electrical performance of devices based on these techniques. Comparison of fabrication techniques for silicon and gallium arsenide devices. Processes and fabrication equipment to be studied will include oxidation/diffusion, CVD reactors, photolithography, plasma etching, vacuum evaporator, ion implantation, etc. Introduction to computer modelling of processing steps such as etching, lithography, diffusion, implantation (eg SUPREME).

Required Reading

Recommended Reading

Class Contact
Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises.

Assessment
Assignments, 20%; laboratory exercises, 30%; and final examination, 50%.

**VEH6013 PROJECT MANAGEMENT AND ENTREPRENEURSHIP**
Campus Chipskills Partner Universities
Prerequisite(s) Nil.

Content

Case studies.

Required Reading
Current available text book - students to be advised. Appropriate journal papers.

Recommended Reading


**VEH6014 RF AND MIXED SIGNAL DESIGN**
Campus Chipskills Partner Universities
Prerequisite(s) Completed Analog Electronics at undergraduate level.

Content
Basic concepts of wireless communication systems design. Transceiver architectures. VLSI design issues and layout techniques in wireless transceiver design. Radio circuits, LNs, oscillators, mixers, limiters, phase detectors, frequency synthesizers, PLLs and power amplifiers. Low voltage low power design techniques and design flow for analog and mixed signal circuits and systems. OpAmps, comparators, A-to-D and D-to-A conversion circuits. Noise analysis and design tradeoffs - cost, power and performance. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.

Required Reading

Recommended Reading

Class Contact
Four hours per week for one semester. Assessment Assignments, 20%; seminar presentations, 10%; project, 30%; and final examination, 40%.

**VEH6016 VERILOG HDL**
Campus Footscray Park
Prerequisite(s) Completed Digital Systems at undergraduate level or equivalent.

Content
The role of HDL in design, Top-down introduction to Verilog, Verilog for description of logic circuits, Verilog language constructs, behavioural modelling, logic level modelling, concurrent process and switch level modelling. Timing analysis, synthesis and test benches.

Required Reading
VEH6017 DIGITAL SYSTEM DESIGN WITH VERILOG HDL

Campus: Footscray Park
Prerequisite(s): Completed EHE6016/EHE6001 or equivalent
Content: Introduction to Verilog and digital systems design for VLSI, combinational and sequential circuits, design verification, algorithmic state machine design, finite state machine specifications in Verilog, hierarchical modelling concepts, synchronous and asynchronous systems, pipelined architectures, processor architectures, clocks timing and clock distribution, synthesis and advanced concepts in brief.
Class Contact: Four hours per week for one semester, comprising of two hour lecture and two hours of tutorial/laboratory and project work.
Assessment: Assignments and laboratory exercises, 35%; project, 33%; final examination, 32%.

VEH6018 ANALOG & MIXED SIGNAL DESIGN

Campus: Footscray Park
Co-requisite(s): EHE6003 - EDA Tools & Design Methodology and studied Analog electronics at undergraduate level.
Content: The design of CMOS analog and mixed-signal integrated circuits is covered. Design concepts of high speed low power amplifiers, filters, sample and hold circuits, comparators, digital to analog and analog to digital converters are fully analysed. Noise and performance analysis and design tradeoffs - cost, power and performance. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.
Class Contact: Four hours per week for one semester, comprising of one hour lecture and three hours of laboratory and project work.
Assessment: Assignments and laboratory exercises, 20%; project, 50%; final examination, 30%.

VEH6020 MINOR PROJECT

Campus: Chipskills Partner Universities
Prerequisite(s): Completed EHE6001, EHE6002, EHE6003 or equivalent
Content: It is expected that the majority of industry-based students will undertake projects as part of their normal employment, where relevant opportunities exist and suitable resources and supervision can be guaranteed. A project can be structured to be the equivalent of two units of study. Projects would be expected to demonstrate mastery in chip design and implementation at a level considered no less than that of an experienced practitioner in the field. Students must demonstrate their ability to integrate and draw upon their coursework studies relevant to the project. A dissertation of no less than 15000 words must be submitted and will be examined by two examiners selected by the examining panel for this module. Commercial in-confidence programs can be undertaken, with appropriate restrictions on publication and choice of examiners. Intellectual property of projects initiated by a company and undertaken in that company will remain with the company. All other projects will be subject to the Intellectual Property policy of the relevant university partner.
Required Reading: Current available text - students to be advised. Appropriate IEEE/ IEE Journal materials.
Class Contact: Eight hours per week for one semester.
Assessment: Assessment will be based on project progress and demonstration, 20%; Final project demo 30%; final report, 40% and an oral poster presentation, 10%.

VEH6030 MAJOR PROJECT

Campus: Chipskills Partner Universities
Prerequisite(s): Completed EHE6001, EHE6002 and EHE6003 or equivalents.
Content: It is expected that the majority of industry-based students will undertake projects as part of their normal employment, where relevant opportunities exist and suitable resources and supervision can be guaranteed. Collaboration with international partners will also be encouraged. A project can be structured to be the equivalent of four units of study. Projects would be expected to demonstrate mastery in chip design and implementation at a level considered no less than that of an experienced practitioner in the field. Students must demonstrate their ability to integrate and draw upon their coursework studies relevant to the project. A dissertation of no less than 15000 words must be submitted and will be examined by two examiners selected by the examining panel for this module. Commercial in-confidence programs can be undertaken, with appropriate restrictions on publication and choice of examiners. Intellectual property of projects initiated by a company and undertaken in that company will remain with the company. All other projects will be subject to the Intellectual Property policy of the relevant university partner.
Required Reading: Current available text - students to be advised. Appropriate IEEE/ IEE Journal materials.
Class Contact: Eight hours per week for one semester, comprising one hour per week of lecture and three hours per week of tutorial/laboratory.
Assessment: Assignments, 20%; Research Project 80%.

VEH6102 CUSTOM IC DESIGN B

Campus: Footscray Park
Prerequisite(s): VEH6121 Basic IC Design or equivalent
Required Reading: Selected papers from IEEE/IEE Journal. To be advised by the lecturer.
Class Contact: Four hours per week for one semester comprising one hour per week of lecture and three hours per week of tutorial/laboratory.
Assessment: Assignments, 20%; Project, 80%.
VEH6111 DIGITAL CIRCUIT DESIGN
Campus Footscray Park
Prerequisite(s) Completed Digital Design at undergraduate level or equivalent.
Class Contact Four hours per week for one semester comprising two hours per week of lecture and two hours per week of tutorial/laboratory.
Assessment Assignments and laboratory exercises 30%, Project 40%; final examination 30%.

VEH6121 BASIC IC DESIGN/DEVICES
Campus Footscray Park
Prerequisite(s) Completed Digital Design at undergraduate level or equivalent.
Content Bipolar and CMOS structures. Logic design: Introduction to CMOS circuit design: Switch level analysis of NMOS and CMOS structures., CMOS logic gates using static and dynamic logic, Precharging techniques, latch up, pass transistor/ transmission gate logic. PLA logic: static and dynamic design. Memory. Design of subsystems using sequential logic.
Class Contact Four hours per week for one semester comprising two hours per week of lecture and two hours per week of tutorial/laboratory.
Assessment Test, assignments and laboratory exercises 40%, final examination 60%.

VEH6122 CUSTOM IC DESIGN A
Campus Footscray Park
Prerequisite(s) VEH6121 Basic IC Design/Devices or equivalent
Content CMOS cell design: device-level design constraints; Circuit optimisation techniques, gate matrix method. Review of tools for low-level cell design: Mentor Graphics circuit design and verification tools, HSPICE and PSPICE simulation tools. Basic analog building blocks. Timing issues in VLSI circuit design. Design of VLSI system sub-systems: Arithmetic and logic processing elements, adders, counters, etc., data path design and layout. Chip floorplanning.
Required Reading Gopalan, K., 1996, Introduction to Digital Microelectronic Circuits, IRWIN.
Class Contact Four hours per week for one semester comprising one hour per week of lecture and three hours per week of research project.
Assessment Assignments, 40%; project, 60%.

VEH6132 INTEGRATED CIRCUIT TESTABILITY
Campus Footscray Park
Prerequisite(s) VEH6001, VEH6002 and VEH6003 or equivalents.
Recommended Reading Pucknell, D.A. and Eshraghian, K., 1994, Basic VLSI Design System and Circuits, Prentice Hall.
Class Contact Four hours per week for one semester comprising two hours per week of lecture and two hours per week of tutorial/laboratory.
to improve desired generic skills and attributes. Gained knowledge of industry standard electronic design automation tools. Gained knowledge of electronic design automation tools for custom IC designs.

**Content**
The design of basic CMOS integrated circuits is covered, including overview of MOS technology, complex complementary CMOS design, combinational design techniques including dynamic and domino logic, CMOS Latchup and circuit protection. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools for custom design. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

**Required Reading**

**Recommended Reading**

**Class Contact**
2.5 hours per week consisting of lectures/tutorials and laboratory.

**Assessment**
Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based exercises 15%.

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**VEM3002 APPLICATION SPECIFIC IC DESIGN**

**Campus Footscray**

**Prerequisites**
VEF2004 Systems and Applications 2D

**Co-requisites**
Nil

**Learning Outcomes**
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to:

- Gained knowledge of Application Specific Integrated Circuits design. Gained knowledge of ASIC integrated circuit design flow and circuit design. Carried out significant tasks designed to improve desired generic skills and attributes.

**Content**
The design of Application Specific integrated circuits (ASIC) is covered, including introduction, ASIC VLSI design cycle, fundamental approach and design aspects, full and semi-custom design methodology, IBM ASIC design flow place and route, ESD failure, and ESD protection. Students will also develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools for ASIC design. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

**Required Reading**

**Recommended Reading**

**Class Contact**
2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

**Assessment**
Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based components of this unit 15%.

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**VEM4002 HETEROGENEOUS SYSTEMS**

**Campus Footscray**

**Pre-requisite(s)**
VEM3002 Application Specific IC Design

**Learning Outcomes**
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to:

- Gained knowledge of current trends in semiconductor technology. Gained knowledge of simulation and design of heterogeneous systems. Carried out significant tasks designed to improve desired generic skills and attributes.

**Content**
Overview of current trends in semiconductor technology, fundamental physical and economic constraints, technology roadmap for semiconductors, challenges and needs for nanoelectronics, organic and molecular microelectronics, system implementation issues, development of mixed signal and RF systems, MEMS, wireless sensor networks, ambient technology. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

**Required Reading**

**Recommended Reading**

**Class Contact**
2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

**Assessment**
Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based components of this unit 15%.

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**VEM4012 DESIGN FOR TESTABILITY**

**Campus Footscray**

**Pre-requisite(s)**
VEM3001

**Learning Outcomes**
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to:

- Gained an appreciation of reliability issues related to microelectronic devices and integrated circuits. Gained an understanding of circuit testability issues and design for testability. Gained knowledge in fault modelling and testing methodologies. Gained an appreciation for system level testing. Developed skills in the use of EDA design for test tools.
Content
Techniques to improve the testability of microelectronics circuits and systems are covered. Design for test concepts, ad-hoc and structured, which improve the circuit to allow efficient testing after manufacturing are fully analysed. This includes device reliability, memory reliability, test issues, controllability and observability, built in self test, scan chain synthesis, boundary scan, automatic test pattern generation, and system on chip test issues. Students will develop hands-on experience in design for test using industry standard EDA tools. The unit of study is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The specific aims of this unit of study are to help students develop competence in and comprehension of the principles of reliability and design for test of microelectronics circuits and systems, learn the fundamentals of various ad-hoc and structured design for test techniques for digital microelectronics circuits and to develop practical skills with industry standard tools, methods and techniques through practical application. The unit will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit of study will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Recommended Reading

Class Contact
2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Assessment
Students will be assessed in this unit of study on the basis of an end of semester examination 60%, satisfactory performance of laboratory based exercises and project work 40%.

VEP4100 ANALOG AND MIXED SIGNAL DESIGN
Campus Footscray Park
Prerequisite(s) VEF2004 Systems and Applications 2D and VEM3001 Custom IC Design and EDA Tools.

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to: have good understanding off most common integrated circuit design, and D/A and D/A converters. Hands-on experience using industry standard Software design tools.

Content
The design of CMOS analog and mixed-signal integrated circuits is covered. Design concepts of high speed low power amplifiers, filters, sample and hold circuits, comparators, digital to analog and analog to digital converters are fully analysed. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.

Required Reading

Recommended Reading

Class Contact
2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Assessment
Laboratory exercises: 20%; Project: 20%; Final Examination: 60%.

VEM3000 PHOTONICS A
Campus Footscray Park
Prerequisite(s) Completion of 2nd year of appropriate degree.

Content

Required Reading

Recommended Reading

Class Contact
60 hours per semester comprising 48 hours of lectures/tutorial and 12 hours of laboratory.

Assessment
Assignments conducted throughout the semester 20%; Laboratory performance 20%; End of semester examination 60%.

VEM3001 PHOTONICS
Campus Footscray Park
Prerequisite(s) VEF1002 Enabling Sciences 1B

Learning Outcomes
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises.

On successful completion of this unit, students are expected to be able to: To have a basic understanding of the properties of light and behaviour as light particles (photons). To understand the properties of lasers and optical amplification To understand the properties of semiconductor photonics.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact per semester. 2 hours of lecture/tutorial and 0.5 hours of laboratory exercises per week.

Assessment
End of semester examination 65%, two assignments 15% and requires satisfactory performance of laboratory based components of this subject 20%.

VEM3002 PHOTONICS 2
Campus Footscray Park
Prerequisite(s) VEF1001 and VEF1002.

Learning Outcomes
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises. Upon successful completion of this unit of study, the students are expected: To understand the wave nature of light and its interactions with optical materials. To understand the waveguiding properties of slab waveguides and optical fibres. To understand how photonics is used in sensing.

Content
In this unit students will be presented with a wave description of light starting with Maxwell’s equations Maxwell’s equations for waveguides, boundary conditions and eigenvalue equations, planar dielectric waveguides and their modes, step index optical fibres, graded index optical fibres. Optical fibre sensors: Introduction and basic concepts, materials interactions in optical fibre sensors, polarisation, Jones’ vectors and matrices, interferometers, fibre Bragg gratings. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact per semester. 2 hours of Lecture/Tutorial and 0.5 hours of laboratory exercises per week.

Assessment
Students will be assessed in this unit of study on the basis of an end of semester examination (65%), two assignments (15%) and satisfactory performance of laboratory based exercises (20%). Evaluation of CGA in unit (as %): Level 1 (1%) Level 2 (2%) Level 3 (%) Problem Solving 10 20 20 Using Information 10 20 20 Communication Oral 0 0 0 Communication Written 0 0 0 Professional - Autonomous 0 0 0 Professional - Collaborative 0 0 0 Social & Cultural Diversity 0 0 0

VEP4000 PHOTONICS B
Campus: Footscray Park
Prerequisite(s): VEP3001 Photonics 1, VEP3002 Photonics 2.

Content

Optical fibre waveguides and related devices: rigorous treatment of Maxwell’s Equations for waveguides, boundary conditions and eigenvalue equations, planar dielectric waveguides and their modes, cylindrical dielectric waveguides and their modes, LP mode description, Gaussian approximation, dispersion in multimode and single mode fibres, normal mode theory of single mode fibre couplers. Design and operation of communication systems including those using dense wavelength division multiplexing.

Optical Fibre Sensors: Introduction and basic concepts, materials interactions in optical fibre sensors, fibre optic components, special optical fibres for sensors, interferometric sensors, fibre-optic gyroscope, intensity and wavelength-based sensors, multiplexed and distributed sensors, applications of fibre sensors, e.g. smart structures.

Required Reading

Recommended Reading

Class Contact
60 hours per semester comprising 40 hours of lectures/tutorial and 12 hours of laboratory.

Assessment
Assignments conducted throughout the semester 20%; Laboratory performance 20%; End of semester examination 60%.

VER3101 MECHATRONICS
Campus: Footscray Park

Learning Outcomes
On successful completion of this unit of study students are expected to demonstrate knowledge and ability to: Analyse industrial automation problems. Design mechatronic solutions. Program PLC to solve given problems. Utilising sensors & actuators. Perform image processing tasks such as edge detection and blob recognition.

Content
This unit of study is designed to give engineering students an introduction to mechatronics. The specific aims of the unit are: To develop an analytical and practical understanding of Programmable Logic Controllers (PLCs), industrial robots, machine vision, sensors and image processing. To develop communication skills that will enable students to adequately describe project and laboratory tasks and or specifications to both related professionals and non technical personnel. To develop the ability to work as a team member in a small group to solve laboratory problem exercises. This unit will cover: Basic architecture of Programmable Logic Controllers (PLCs), PLC programming, PLC networking and applications Robotics & control methods Introduction to Supervisory Control And Data Acquisition (SCADA), Sensors and vision system design and instrumentation. Manufacturing process analysis and workspace design. Introduction to coordinate systems. Industrial robots and machine vision. The unit will focus on providing experience in analysing, programming and utilising the above mentioned equipment in applications relating to the automation of industrial plant.

Required Reading

Recommended Reading

Class Contact
30 hours of contact comprising 15hrs of lectures/tutorials and 15hrs of Laboratory.

Assessment
Written Examination (50%) Students are required to successfully complete a 3 hour written examination. Exams (10%) Students are required to successfully complete two 2 hour tests to be held during the semester teaching period. Main Core Graduate Attributes and Levels (% in brackets) for Written Examination & Tests: W1(5); P2(7), I2(7); P3(5), I3(5), A3(4). Laboratory Assignments (40%) Students are required to successfully complete five laboratory assignments (each 8% weighting). Main Core Graduate Attributes and Levels (% in brackets) for Laboratory Assignments: P2(8), I2(8), O2(5), W2(5), A2(5)(C2(10); P3(5), I3(5), O3(5), A3(6)C3(5).

VES2102 OPERATING SYSTEMS AND TOOLS
Campus: Footscray Park
Pre-requisite(s): VEF1004 Electrical Fundamentals 1B

Learning Outcomes
On successful completion of this unit, students are expected to be able to: 1. write shell scripts to automate routine system management task; 2. use PERL to perform more complex system routines; 3. describe clearly the components and functions of a modern day OS; 4. perform routine operating system management task.

Content

Required Reading

Recommended Reading

Class Contact
30 hours of contact comprising 20 hours of lectures/tutorial and 10 hours of laboratory sessions.

Assessment
Laboratory Assignments (30%); Tests (10%); Examination (60%).

VES3101 INTRODUCTION TO COMPUTER NETWORKS A
Campus: Footscray Park
Pre-requisite(s): VEF2003 Systems and Applications 2C.

Learning Outcomes
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Have a good understanding of the basic principles and techniques used in computer data communication. Have a good foundation for further learning in Computer Networking.

Content
This unit of study is designed to provide students with a good understanding of the
hardware and techniques that underpin a modern computer network. The unit will also provide support for Engineering Design unit that has a computer network focus. This unit will cover: Basic concepts of computer communication. Data and signals, Frequency Spectrum and bandwidth, Data encoding, Framing and synchronization. Modulation of data, Modems. Physical layer interfaces. Transmission of data, Transmission media, Multiplexing. Error detection and correction. Data link control, Data link protocols, Local area networks. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

**Required Reading**

**Recommended Reading**

**Class Contact**
30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

**Assessment**
Written Examination (40%): Class Tests (30%): (Two 1 hour tests to be held during the semester teaching period.) Laboratory Assignments (30%): (Five laboratory assignments, each 6%). Evaluation of GA in unit (as %): Level1 (%), Level2 (%), Level3 (%)

### VES3102 INTRODUCTION TO COMPUTER NETWORKS B

**Campus** Footscray Park

**Pre-requisite(s)** VEF2002 Systems and Mathematics 2B and VEF2004 Systems and Applications 2D

**Learning Outcomes**
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

To have a good understanding of principle and practice of computer networking protocols. To be able design and manage a computer network.

**Content**
This unit of study is designed to provide students with a good understanding of computer networking protocols and the management of computer networks. The unit will also provide support for Engineering Design unit that has a computer network focus. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. This unit will cover: Network Models: OSI, TCP/IP, Network Layer — IP addressing, subnetting, netmask, IP protocols, ARP, ICMP, IP routing; Transport Layer — TCP, UDP protocols, flow control, error control, BSD sockets; Application Layer: DNS, HTTP. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

**Required Reading**

**Recommended Reading**

**Class Contact**
30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

**Assessment**
Written Examination 40%, Class Tests 20%, Laboratory Assignments (Five laboratory assignments, each 8% weighting). 40%

### VES3104 NETWORK SOFTWARE AND INTERNET PROGRAMMING

**Campus** Footscray Park

**Pre-requisite(s)** VES2102 Operating Systems and Tools, VES3102 Introduction to Computer Networking.

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to:
1. describe the operations and functionalities of webserver, webproxy, firewall and remote access server;
2. install, configure and manage these network servers;
3. implement interactive web pages using Javascript.

**Content**

**Required Reading**

**Recommended Reading**

**Class Contact**
30 hours of contact comprising 15 hours of lectures/tutorials and 15 hours of laboratory sessions.

**Assessment**
Laboratory Assignments (30%); Tests (10%); Examination (60%).

### VES4101 COMPUTER SYSTEMS A

**Campus** Footscray Park

**Pre-requisite(s)** VEF2003 Systems and Applications 2C.

**Learning Outcomes**
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

On successful completion of this unit, students are expected to be able to:
1. have a basic understanding of the structure and operations of a modern computer system.
2. be able to access operating system facilities and resources by using a high level language such as C.
3. be able to develop multithreaded applications for a modern OS such as Unix To have a basic understanding of principle of GRID computing environment.

**Content**
This unit is designed to provide students with a good understanding of Operating Systems principles and the practical abilities to interact with modern OSs, both at the user’s and programmer’s levels. The unit will also provide support for Engineering Design unit that has a computer/OS focus. This unit will cover: Process: thread, process synchronisation, semaphore, thread library, consumer-producer problem, deadlock, resource allocation, scheduling. Files systems: directory structures, access control, implementation. Memory Management: memory allocation, protection, virtual memory. Grid: principles and applications. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

**Required Reading**

**Recommended Reading**

**Class Contact**
30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

**Assessment**
Written Examination 40%, Class Tests 20%, Laboratory Assignments (Five laboratory assignments, each 8% weighting) 40%.

### VES4102 COMPUTER SYSTEMS B

**Campus** Footscray Park

**Pre-requisite(s)** VEF2003 Systems and Applications 2C.

**Learning Outcomes**
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

On successful completion of this unit, students are expected to be able to:
1. have a good understanding of principle and application of object oriented paradigm to user interface design. To be able use window GUI class libraries to implement user interfaces in application programs.

**Content**
This unit of study is designed to provide students with a good understanding of graphical user interfaces design and implementation in application programming. The unit will also provide support for Engineering Design unit that has a programming user interface need. This unit will cover: Introduction to graphical user interfaces (GUI). Application of object oriented techniques to the production of windows-based programs. Window interfaces design, placement, and implementation. Development of class libraries. Platform independent window toolkit. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

**Required Reading**

Relevant Reading

Class Contact
30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of laboratory exercises per week.

Assessment
End of semester Examination 40%; Class Tests 20%; Laboratory Assignments (Five laboratory assignments, each 8% weighting): 40

VET4301 SOFTWARE ENGINEERING
Campus Footscray Park
Pre-requisite(s) VET2003 Systems and Applications 2C

Learning Outcomes
The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to apply best practice software engineering process to the specification, design, construction, delivery and maintenance of software.

Content
The unit’s aim is to introduce students to the principles, techniques and practice of the current software engineering process. The unit will also provide support for Engineering Design projects that involve software engineering. This subject will cover: An introduction to the engineering of quality software. The software development lifecycle model. System analysis, software requirements definition, specification, elicitation, analysis and modelling. Process specifications and data dictionary production. Software design process, principles and production. The testing process, planning and strategies. CASE tools and software engineering environments. Software project planning and estimating. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact per semester. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

Assessment
End of semester Examination: 40%; Class Tests: 20%; Laboratory Assignments (Five laboratory assignments, each 8%): 40

VET3100 ANALOG AND DIGITAL COMMUNICATIONS
Campus Footscray Park
Pre-requisite(s) VET2002 Systems and Mathematics 2B

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Explain signals and their characteristics as depicted in time and frequency domains;
2. Discuss the information bearing nature of signals and the bandwidth considerations;
3. Explain the principles behind frequency translation and its depiction as various types of modulation;
4. Explain the signal transition in linear and non-linear systems, and the recognition of such systems in terms of filters and other components;
5. Describe the types of noise present in telecommunication systems and the characterization of thermal noise;
6. Perform the statistical analysis of random signals and the characterization of such signals in terms of correlation and power spectral density functions;
7. Explain the concept of signal to noise ratio and its influence in faithful reception of analog and digital signals;
8. Outline the assessment of performance in digital communication systems in terms of bit error probability;
9. Explain the basis of line coding and application of line coding in baseband digital communication systems;
10. Discuss the baseband recovery of bandpass communication systems and the impact of the type of modulation in such systems.

The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Content
This unit of study provides an introduction to Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Assessment
Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET3200 DIGITAL MODULATION AND CODING
Campus Footscray Park
Pre-requisite(s) VET3002 Telecommunication Engineering B or VET3100 Analog and Digital Communications

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Explain the principles of digital communication systems and components;
2. Describe the optimum signal detection using matched filter receiver in additive white Gaussian noise;
3. Explain the baseband transmission techniques;
4. Discuss the effects of bandwidth limitation, intersymbol interference, Nyquist signalling and channel equalization;
5. Describe the bandpass transmission techniques;
6. Describe the BPSK, QPSK, and QAM modulation systems and coherent detection of these systems;
7. Explain the carrier and clock synchronization techniques;
8. Explain the channel coding including linear block codes, convolutional codes, Viterbi decoding;
9. Explain information theory, source coding, and data compression;
10. Explain coded modulation systems, trellis coding, and decoding;

The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Content
This unit of study provides continuation of the Communication Systems Engineering stream covering the remaining areas of the main stream Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.
VET401 Field and Waves in Telecommunications

Campus: Footscray Park
Pre-requisite(s): VET3100 Analog and Digital Communications

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Describe the space and material media that are capable of carrying signals used in Telecommunication systems;
2. Describe the physical composition of such media, their characteristics and modes of operation;
3. Discuss the limitations of such media with regard to frequency, bandwidth, and power;
4. Explain the phenomena of propagation of electromagnetic waves in space and material media including coaxial cables and waveguides;
5. Discuss the theoretical basis for electromagnetic wave propagation including the derivation and application of Maxwell's equations;
6. Explain the Smith chart and its application in the design of high frequency circuits and systems;
7. Explain free space propagation and practical propagation models.

The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Content
This unit of study provides an introduction to Field and Wave in Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Assessment
Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET4202 Data Communications

Campus: Footscray Park
Pre-requisite(s): VET3002 Telecommunication Engineering B or VET3100 Analog and Digital Communications

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Discuss the basic principles involved in data communication systems;
2. Explain the data network architecture, operation, and performance analysis;
3. Evaluate the protocols employed in data networks;
4. Explain the particular aspects of local area and wide area networks;
5. Discuss wireless networks, their operation, and interfacing with network backbone;
6. Explain the analytical techniques employed in data network performance estimation;
7. Explain the basic queuing theory and its application to data networks;
8. Describe data network switching and switching systems;
9. Discuss the principles involved in data network design and the heuristic algorithms employed;
10. Explain cost effective designs of local and wide area networks.

The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent PBL exercises.

Content
This unit of study provides continuation of the Communication Systems Engineering stream covering the remaining areas of the main stream Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Required Reading

Recommended Reading

Class Contact
30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Assessment
Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET4300 Digital Communications

Campus: Footscray Park
Pre-requisite(s): VET4001 Telecommunication Engineering C, VET3200 Digital Modulations and Coding.

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. design common digital modulators and receivers,
2. perform network analysis of digital communication systems in AWGN channels,
3. design simple equalizers and synchronizers.

Content

Required Reading

Recommended Reading
Kurzweil, J. An Introduction to Digital Communications, 2000, John Wiley.

Class Contact
36 hours per semester comprising 24 hours of lecture/tutorial and 12 hours of laboratory work.

Assessment
Assignments and class tests 30%; End of semester examination 70%.

VET4400 Digital Signal Processing in Telecommunications 2

Campus: Footscray Park
Pre-requisite(s): VET3200 Digital Signal Processing A

Learning Outcomes
Upon successful completion of this unit of study, students are expected to be able to:
1. apply multi-rate signal processing,
2. apply fast convolution,
3. apply parameter estimation algorithms in the form of subsystems in telecommunication.

Content

Recommended Reading

Class Contact
36 hours per semester comprising 24 hours of lecture/tutorial and 12
hours of laboratory work.

Assessment: Assignments and class test 30%; End of semester examination 70%.

VET4600 WIRELESS COMMUNICATIONS
Campus: Footscray Park
Prerequisite(s): VET3001 Telecommunication Engineering A or VET4101 Field and Waves in Telecommunications, VET4001 Telecommunication Engineering B or VET3200 Digital Modulation and Coding.

Learning Outcomes: Upon successful completion of this unit of study, students are expected to be able to:

- perform performance analysis of wireless communication systems with appropriate fading models,
- apply diversity techniques to overcome system impairment due to multi-path fading,
- understand the advantages and disadvantages of modern techniques like WCDMA and OFDM.


CDMA: Direct sequence modulation, Gold Codes, Walsh-Hadamard sequence, RAKE receiver, Near-far problem, Power control, WCDMA, OFDM.


VET6510 COMMUNICATION THEORY
Campus: Footscray Park
Prerequisite(s): Nil


Class Contact: Three hours per week, comprising lectures, tutorials and seminars.

Assessment: Class test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%.

VET6511 DATA NETWORK ANALYSIS AND DESIGN
Campus: Footscray Park
Prerequisite(s): Nil


Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6512 INTELLIGENT NETWORKS AND NETWORK MANAGEMENT
Campus: Footscray Park
Prerequisite(s): Nil


Required Reading: Thorner, J., 1995, Intelligent Networks, Artech House


Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.
**VET6520 DIGITAL COMMUNICATION PRINCIPLES**

**Campus** Footscray Park

**Prerequisite(s)** Nil


**Class Contact** Three hours per week, comprising lectures, tutorials and seminars.

**Assessment** Class test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%.

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**VET6521 DIGITAL SWITCHING AND SIGNALLING SYSTEMS**

**Campus** Footscray Park

**Prerequisite(s)** Nil


**Required Reading** To be advised by the lecturer.

**Recommended Reading** To be advised by the lecturer.

**Class Contact** Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

**Assessment** Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

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**VET6522 TELECOMMUNICATION TARIFF STRUCTURES AND TELETrafic ENGINEERING**

**Campus** Footscray Park

**Prerequisite(s)** Nil


**Required Reading** To be advised by the lecturer.

**Recommended Reading** Saito, H., 1995, Teletraffic Technologies, Artech House.

**Class Contact** Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

**Assessment** Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

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**VET6531 WIRELESS COMMUNICATION SUBSYSTEMS**

**Campus** Footscray Park

**Prerequisite(s)** Nil

**Content** This subject will provide a theoretical and practical understanding of wireless communication systems and the subsystems involved in them. It provides an overview of existing wireless systems with special reference to its hardware implementation. Subject content will include the following: Propagation modelling at UHF. Path loss, slow fading and fast fading. Okumura's model. Delay spread, coherence bandwidth, and level crossing rate. Multipath propagation. Interference cancellation. Antennas. Antenna gain, radiation resistance, and phased array antennas. Base station antennas for cellular mobile systems. Low profile portable antennas. Modulation and coding for the mobile channel. FM, CPM, QAM, and QPSK. Bit error rate and error flow. Channel equalization. The effect of space, time and frequency diversity. Spread spectrum. CDMA, TDMA and FDMA.

**Required Reading** To be advised by the lecturer.


**Class Contact** Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

**Assessment** Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

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**VET6532 MICROWAVE AND SATELLITE COMMUNICATION SYSTEMS**

**Campus** Footscray Park

**Prerequisite(s)** Nil


**Class Contact** Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

**Assessment** Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

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**VET6541 MULTIMEDIA AND INTERNET TECHNOLOGY**

**Campus** Footscray Park

**Prerequisite(s)** Nil

**Co-requisite Nil**


**Recommended Reading** Miccoli, D., 1995, Distributed Multimedia Through Broadband Communication Services, Artech House.

**Class Contact** Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

**Assessment** Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.
VET6542 MOBILE AND PERSONAL COMMUNICATION SYSTEMS
Campus Footscray Park
Prerequisite(s) Nil


Required Reading Fooks, E.H. and Zakerevicius, A., Microwave Engineering
Halsall, F., 1996, Data Communications, Computer Networks

Recommended Reading Gardiner, R., 1995, Principles of RF and Microwave Engineering.

Assessment Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6550 MINOR PROJECT
Campus Footscray Park
Prerequisite(s) VET6510, VET6520
Co-requisite Nil

Content Each student will undertake an individual research on a topic allocated to him or her under the supervision of an academic staff over the duration of a semester. Regular meetings will be held between the students and their supervisors in the form of seminars where students will report their progress in the form of formal presentations. In addition, informal meetings between students and their supervisors will take place as and when required. In the process, the student will be exposed to research related matters such as Research Methodology, Literature Reviews; Feasibility Studies, Experiment Design, Modelling and Simulation Techniques and Tools, Results Analysis and Validation, Report Documentation and Presentation.

Required Reading To be advised by the supervisor of the project.

Recommended Reading To be advised by the supervisor of the project.

Class Contact Six hours per week for one semester, comprising three hours per week group seminar, and three hours per week (on average) individual meetings, discussions, etc. with respective supervisors.

Assessment Regular seminar presentations (3 seminars, each of 20 min duration), 30%. Final report (Approximately 12,000 words) 50%. Final presentation (of 30 min. duration), 20%

VET6551 MICROWAVE ELECTRONIC CIRCUIT DESIGN
Campus Footscray Park
Prerequisite(s) Nil
Co-requisite Nil

Content This subject will provide an introduction to microwave electronic circuit design based around the ‘Microstrip’ transmission line structure. Students will be given small design projects to complete operating at the frequencies relevant to mobile communications (i.e. 0.9 to 3 GHz). Extensive use will be made of Agilent’s simulation and design package, ADS and other software packages in this course. Subject content: A review of basic transmission line theory. A review of microwave transmission line structures. A discussion of corrections for microstrip discontinuities. A review of the Smith Chart. Consideration of matching requirements for small signal amplifiers. A review of matching techniques. Bias circuit design and power amplifier design. Passive RF Components. Required Reading Gonzalez, G., 1984, Microwave Transistor Amplifiers - Analysis and Design, Prentice-Hall.


Class Contact Three hours per week for one semester comprising one hour lecture and two hour tutorial/laboratory.

Assessment Assignments: 60%; Examination/test: 40%. A pass in each component of assessment is required for a subject pass.

VET6552 COMPUTER NETWORKS AND NETWORKING SOFTWARE
Campus Footscray Park
Prerequisite(s) Nil
Co-requisite Nil


Recommended Reading Freer, J., Communications and Networks, 2nd edn, IEEE Press. Stevens, W.R., TCP/IP Illustrated; Vol 1,2 and 3, Addison Wesley.

Class Contact Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Assessment Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6561 LOCAL AREA AND BROADBAND NETWORKS
Campus Footscray Park
Prerequisite(s) Nil
Co-requisite Nil


Required Reading To be advised by the lecturer.


Class Contact Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Assessment Tests/Assignments: 30%; Examination: 70%. A pass in each component of assessment is required for a subject pass.

VET6562 DIGITAL SIGNAL PROCESSING
Campus Footscray Park
Prerequisite(s) Nil
Co-requisite Nil


Required Reading To be advised by lecturer.

Recommended Reading To be advised by lecturer.

Class Contact Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Assessment Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.
VPP6511 FIBRE OPTIC COMMUNICATION SYSTEMS
Campus Footscray Park
Prerequisite(s) Eligibility for admission to Master’s course.
Required Reading Palais, J.C. 2005, Fibre Optic Communications, 5th edn, Prentice-Hall, NJ.
Class Contact 36 hours lectures/tutorials/laboratories
Assessment Two assignments (each assignment report not exceeding 5000 words) 10% each; two laboratory reports (word length of each not exceeding 2500 words) 10% each; final examination (Two Hours) 60%.

VPP6512 ADVANCED FIBRE OPTICS
Campus Footscray Park
Prerequisite(s) VPP6511 Fibre Optic Communication Systems
Content Maxwell’s Equations for waveguides, boundary conditions and eigenvalue equations, planar dielectric waveguides and their modes, cylindrical dielectric waveguides and their modes, LP mode description, Gaussian approximation, dispersion in multimode and single mode fibres, normal mode theory of single mode fibre couplers. Role of optical amplifiers. Use of Bragg gratings for switching and dispersion compensation. Design and operation of current systems including those using dense wavelength division multiplexing.
Class Contact 36 hours lectures/tutorials.
Assessment Four assignments (each assignment report not exceeding 5000 words) 10% each. Final examination (Two Hours) 60%.

VPP6521 OPTICS AND LASERS
Campus Footscray Park
Prerequisite(s) Eligibility for admission to Master’s course.
Class Contact 36 hours lectures/tutorials/laboratories.
Assessment Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; final examination (Two Hours) 60%.

VPP6522 DIGITAL COMMUNICATIONS OVER OPTICAL NETWORKS
Campus Footscray Park
Prerequisite(s) Eligibility for admission to Master’s course.
Content General Properties. Propagation of E/M waves in dielectric media; models of VPP6531 QUANTUM OPTICS
Campus Footscray Park
Prerequisite(s) Eligibility for admission to Master’s course.
Class Contact 36 hours lectures/tutorials/laboratories.
Assessment Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; final examination (Two Hours) 60%.

VPP6532 OPTICAL FIBRE SENSORS
Campus Footscray Park
Prerequisite(s) VPP6511 Fibre Optic Communication Systems
Content Introduction and basic concepts, materials interactions in optical fibre sensors, fibre optic components, special optical fibres for sensors, interferometric sensors, fibre-optic gyroscope, intensity and wavelength-based sensors, multiplexed and distributed sensors. Fibre Bragg gratings for strain or temperature measurement. Applications of fibre sensors, e.g. smart structures.
Class Contact 36 hours lectures/tutorials/laboratories.
Assessment Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; final examination (Two Hours) 60%.

VPP6541 OPTICAL MATERIALS
Campus Footscray Park
Prerequisite(s) Eligibility for admission to Master’s course.
Content General Properties. Propagation of E/M waves in dielectric media; models of
of the refractive index; dispersion, absorption and the refractive index; frequency
dependence; scattering; cross-sections. Properties of Lens Materials Commonly used
materials in the ultra-violet, visible and infrared regions; transmittance, dispersion
and the refractive index; environmental properties; examples. Solid State Laser
Materials Host materials: crystalline materials, semiconductors, active ions; colour
centres. Non-linear Materials Electro-optic effect; magneto-optic effect. Thin Film
Materials Substrates. Optical damage mechanisms; self-focusing; damage thresholds;
specification of cosmetic surface quality of optical components.

Required Reading Pedrotti, F.L. and Pedrotti L.S. 1993. Introduction to Optics, 2nd
ddn, Prentice Hall, NJ

Recommended Reading Hecht, E.H. 2002, Optics, 4th edn, Addison-Wesley, USA.

Class Contact 36 hours lectures/tutorials.
Assessment Four assignments (each assignment report not exceeding 5000 words)
10% each.
Final examination (Two Hours) 60%.

VPP6542 DATA ACQUISITION

Campus Footscray Park

Prerequisite(s) Eligibility for admission to Master’s course.

Content In this subject, students will learn advanced features of modern data
acquisition and computer interfacing software, such as LabView. Students will be
assigned projects that will involve the automation of an experiment, both in terms of
the hardware and software requirements.

Recommended Reading Labview Manuals, National Instruments

Class Contact 36 hours including 24 hours of laboratory classes, 12 hours of lectures/
tutorials.

Assessment Two assignments (each assignment report not exceeding 5000 words)
10% each. Laboratory project (report not exceeding 10,000 words) 80%.
**SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES**

Below are details of courses offered by the School of Biomedical and Health Sciences in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

**NOTE:** Courses available to International students are marked with the (I) symbol.

**COURSES ASSOCIATE DEGREE IN DERMAL THERAPIES**

**Course Code:** HADT

**Course Objectives:** The objectives include: Providing a further pathway of study for graduates of the diploma of beauty therapy with at least one year of industry work experience. This 3 semester online course will build on the theoretical knowledge gained at diploma level and enhance it to give students a more scientific understanding of some of the newer technologies in the industry. Students will gain a limited amount of clinical and practical experience via a small amount of burst mode study in Melbourne. Units will include, anatomy and physiology, skin disorders, psychology, research and scientific methodology, laser / IPL theory, chemical peels, microdermabrasion and others. This online program will also be a pathway to the more advanced Bachelor of Health Science (Dermal Therapies).

**Course Duration:** Two years

**Admission Requirements:** Admission requirements for the Associate Degree in Dermal Therapies will be successful completion of the Diploma of Beauty Therapy (WRB50105) and demonstration of recent work in the industry for at least two years equivalent full-time, and current employment in the industry. It is important that all intending students have acquired explicit knowledge gained via specific units at the Diploma level prior to entry. These units include BSBMKG404A, Forecast Market and Business Needs (or equivalent), BSBBSM404A Undertake business planning (or equivalent), WRBBS514A Provide superficial lymph drainage massage (or equivalent) along with one of the following elective streams: WRBSS503B Provide permanent epilation or WRBBS510A Provide the spa program.

**Course Structure**

<table>
<thead>
<tr>
<th>First Year - Semester One</th>
<th>Credit Point</th>
<th>EFTSL</th>
<th>SC Band</th>
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<tr>
<td>HHD1101 INTRODUCTION TO DERMAL THERAPY STUDIES</td>
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<td>BSBFLM512A ENSURE TEAM EFFECTIVENESS</td>
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<td>VBN094 BUSINESS ETHICS AND CORPORATE GOVERNANCE</td>
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<td>BSBMKG408A CONDUCT MARKET RESEARCH</td>
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<td>BMO2300 CAREER PLANNING AND DEVELOPMENT</td>
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<th>First Year - Semester Two</th>
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<tr>
<td>HHD1201 DERMAL HEALTH SCIENCE 1</td>
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<tr>
<td>HHD1202 DERMAL HEALTH SCIENCE 2</td>
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<td>BSBFLM503A MANAGE EFFECTIVE WORKPLACE RELATIONSHIPS</td>
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<th>Second Year - Semester One</th>
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<td>BAOS100 THE ENTERPRISE PROJECT</td>
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<td>HLTN515A BUSINESS INTEGRATED LEARNING</td>
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<td>HLTN506A APPLY PRINCIPLES OF WOUND MANAGEMENT IN THE CLINICAL ENVIRONMENT</td>
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<table>
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<td>HHD2207 DERMAL LASER PRACTICE AND TECHNIQUES 3</td>
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<td>BMO4422 INNOVATION AND ENTREPRENEURSHIP</td>
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<td>BMO2181 OPERATIONS MANAGEMENT</td>
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<td>BMO2182 ENTREPRENEURIAL BUSINESS MANAGEMENT</td>
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<tr>
<td>TAA40104</td>
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</table>

12 core units, 2 electives.

**BACHELOR OF CHINESE MEDICINE (ACUPUNCTURE AND HERBS) (NO INTAKE FOR 2009)**

**Course Code:** HBAH

**Course Objectives:** The aims of the course are to:

- provide students with detailed training in Chinese medical theory and practice, including acupuncture and Chinese herbal medicine;
- provide students with comprehensive Chinese medical skills in both acupuncture and Chinese herbal medicine, incorporating adjunctive approaches such as meditation, health enhancement and CM dietary modalities;
- ensure that students practise from Chinese medical theory, whilst integrating western medical information as appropriate, to ensure that graduates are safe and competent in the practice of Chinese Medicine;
- provide students with quality clinical experiences in hospitals and complementary health clinics from Year One of the program;
- provide students with the option of undertaking a clinical internship placement in an appropriate hospital setting in China or other countries; and
- provide students with opportunities for research and higher degree in Chinese Medicine on the completion of their undergraduate degree.
Admission Requirements

To qualify for admission to the course applicants must have satisfactorily completed the Victorian Certificate of Education (VCE), or equivalent with a study score of at least 20 in Units 3 and 4 English. It is also desirable, but not essential, that applicants have completed VCE level studies in biology, chemistry, psychology, or Asian studies. Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, or work experience which would enable them to successfully undertake the course, will be considered for admission.

Course Duration

The course is offered on a full-time basis over four years or part-time equivalent.

Course Location

This course is offered at the St Albans campus.

Clinical Placement

Students will be required to undergo a Victorian Police Check before commencing placement subjects. Police checks need to be conducted annually throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation. Students will be required to show evidence of a current first aid in the workplace level 2 qualification whilst enrolled in the clinical practice unit.

Teaching clinics operate 50 weeks per year, and students will be required to attend clinical sessions on a rotation basis including outside of semester hours to maintain a public service and provide continuity of patient care.

Course Structure

All students will study both Acupuncture and Chinese Herbal Medicine throughout the four years of this integrated program.

Year Three

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<th>Semester One</th>
<th>Credit Point</th>
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<td>CHINESE MEDICAL MICRO-SYSTEMS</td>
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<td>HHT3103</td>
<td>CHINESE MEDICINE CLINICAL PRACTICE 3</td>
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<td>HHT3104</td>
<td>MAJOR CLASSICS - SHANG HAN LUN &amp; WENG BING 1</td>
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<td>HHT3106</td>
<td>INTERNAL MEDICINE 1</td>
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<td>CHINESE MEDICINE THERAPEUTIC APPLICATIONS 1</td>
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<td>RBM3921</td>
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Semester Two

| HHT3003      | COUNSELLING SKILLS FOR CHINESE MEDICAL PRACTICE | 8     | 0.0830  | 1       |
| HHT3105      | MAJOR CLASSICS-SHANG HAN LUN WENG BING 2 | 6     | 0.0630  | 2       |
| HHT3203      | CHINESE MEDICINE CLINICAL PRACTICE 4 | 16    | 0.1670  | 2       |
| HHT3207      | INTERNAL MEDICINE 2 | 6     | 0.0630  | 2       |
| HHT3111      | CHINESE MEDICINE THERAPEUTIC APPLICATIONS 2 | 6     | 0.0630  | 2       |
| RBM4922      | WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 2 | 6     | 0.0630  | 2       |

Year Four

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<th>Semester One</th>
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<td>HHT4108</td>
<td>CHINESE MEDICINE TRAUMATOLOGY</td>
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<td>HHT4100</td>
<td>CASE CONFERENCING AND CLINICAL ISSUES 1</td>
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Semester Two

| HHT4004      | PROFESSIONAL ISSUES-FOR CHINESE MEDICAL PRACTICE | 6     | 0.0630  | 2       |
| HHT4200      | CASE CONFERENCING AND CLINICAL ISSUES 2 | 6     | 0.0630  | 0       |
| HHT4201      | CHINESE MEDICINE PAEDIATRICS | 6     | 0.0630  | 2       |
| HHT4203      | CHINESE MEDICINE DERMATOLOGY | 6     | 0.0630  | 2       |
| HHT4204      | CHINESE MEDICINE CLINICAL INTERNSHIP TWO | 16    | 0.1670  | 2       |
| RBM4924      | WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 4 | 8     | 0.0830  | 2       |

Graduation Requirements

In order to be awarded a Bachelor of Chinese Medicine (Acupuncture and Herbs) degree, students must pass all components of assessment and satisfactorily complete all theoretical and clinical hurdle requirements to proficiency standards as specified in Ferrigno, P. (Compiler). (2005). School of Health Sciences Chinese Medicine Clinical Logbook [CD and manual]. Melbourne: Victoria University of Technology, School of Health Sciences, CM Unit; and Mathieson, L. (Producer). (2005). School of Health Sciences Chinese Medicine Clinical Practice demo CD [CD]. Melbourne: Victoria University of Technology, School of Health Sciences, CM Unit. Students should presume that the content in those references constitutes Required Reading throughout the entire Chinese Medicine degree.

Professional Recognition

It is expected that graduates will meet the requirements of the Chinese Medicine Registration Board of Victoria and be eligible for membership of the major professional associations.

BACHELOR OF SCIENCE - CLINICAL SCIENCES (I)

Course Code: HBOS

Course Objectives

The aims of the course are to:

- prepare graduates for entry into the Master of Health Science - Osteopathy. Upon completion of the Masters degree, a graduate will be eligible to apply for registration as an osteopath;
- provide an education which contributes to the individual’s personal, professional and intellectual growth;
- provide an education which contributes to the preparation of competent primary health care practitioners who, upon graduation from the Masters degree, are able to: apply osteopathic principles to formulate and prescribe suitable and safe management of patients; assess the health status of the patient, including physical, socio-economic and psychological factors and refer appropriately; communicate with the patient and interact with other health care providers and advisers for the benefit of the patient.

Admission Requirements
To qualify for admission to the course applicants must have completed the Victorian Certificate of Education (after not more than two attempts), or equivalent, Units 3 and 4 in Chemistry and one of Physics or Mathematics (any), with a study score of at least 20 in English. Applicants over the age of 21 who have not attempted an approved year 12 course in the three years prior to application may apply to enter the course but are still required to meet the prerequisite study hurdles.

### Course Structure

#### Year One

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*Total Semester Hours for Unit

Check subject details with course co-ordinator.

### Clinical Training

For registration as an Osteopath, students must have completed the minimum clinical subject attendance requirements over the combined Bachelor of Science - Clinical Sciences and Master of Health Science - Osteopathy courses. Completion of the Bachelor of Science - Clinical Sciences course alone does not make graduates eligible for registration as Osteopaths.

Teaching clinics operate 50 weeks per year, and students will be required to attend clinical sessions on a rotation basis including outside of semester hours to maintain a public service and provide continuity of patient care.

### Clinic Website

http://www.vu.edu.au/Faculties/Health_Engineering_and_Science/Schools/Health_Sciences/Osteopathy

### School Regulations

The following should be read in conjunction with the Faculty Regulations detailed earlier in this Handbook, and the University Statutes and Regulations.

### Disciplinary Failure

A student who has been awarded a fail in a subject on disciplinary grounds, e.g. for cheating, may not enrol in any further subjects in any major sequence of which the subject forms a part without the permission of the Faculty Progress Committee.
Graduation Requirements
In order to be awarded a Bachelor of Science - Clinical Sciences, students must complete the hurdle clinical requirements.

Career Opportunities
Students will obtain knowledge and skills to equip them for professional careers as osteopaths in today’s international market.

Professional Recognition
All graduates will be eligible for registration with the Osteopaths Registration Board of Victoria, and for registration as an osteopath in all other Australian states by mutual recognition with the Osteopaths Registration Board. Registered Osteopaths are also eligible for membership with other professional associations.

BACHELOR OF HEALTH SCIENCE - PARAMEDIC (ONE-YEAR CONVERSION)
Course Code: HBPX

Course Objectives
The aims of the course are to:
- provide a route to a degree qualification in paramedic practice for qualified paramedics who currently hold an Associate Diploma or equivalent;
- enhance the knowledge and skills of paramedics enabling them to function more effectively in their current practice;
- provide opportunities for paramedic practitioners to explore practice behaviours and attitudes in light of contemporary multicultural and multidisciplinary environments;
- stimulate paramedic practitioners to use problem solving skills when planning and implementing prehospital emergency care;
- produce graduate paramedics who can apply a research approach relevant to present practice;
- produce graduates who can examine current developments in paramedic practice and their implications for paramedics and paramedicine.

Admission Requirements
To qualify for admission to the course applicants must:
- have an Associate Diploma of Health Science (Ambulance Officer), Diploma of Health Science (Paramedic), or equivalent;
- be eligible for registration as a paramedic by the relevant body within the applicant’s state or country of residence; and
- have a minimum of one-year post-qualification experience.

Course Duration
The course is offered over one year on a full-time basis or part-time equivalent, as demand requires.

Course Structure
Pre-2007
Year One
Semester One

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| Semester Two

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| Elective x 12 credit points

General Electives
Student may choose an elective from any other higher education course offered by the University, subject to the approval of the Course Co-ordinator. Elective contact hours may be greater than three contact hours.

Year 2
Semester One

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Year 2
Semester Two

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Recognition of Prior Learning/Credits/Units of Study Exemptions
Students are required to complete eight subjects to satisfy course requirements. No recognition of prior learning is permissible.

Course Regulations
The following should be read in conjunction with the Faculty Regulations detailed earlier in this Handbook, and the University Statutes and Regulations.

Unsatisfactory Progress
Students may be asked to show cause why they should not be excluded from the course if they fail to complete the course within three calendar years full-time or six years part-time.

BACHELOR OF HEALTH SCIENCE (PARAMEDIC)
Course Code: HBPX

Course Objectives
HBPX Bachelor of Health Science (Paramedic) is a pre-service training degree. The overall goal of the degree is to produce paramedic science graduates who can provide competent, efficient and compassionate clinical care at a basic entry level in the paramedic profession.
The aims of this course are to produce graduates who can:

- identify, evaluate and manage the physical, psychological and social needs of patients and members of the community undergoing paramedic assessment, treatment and transport, and apply problem solving skills when planning and implementing out-of-hospital care;
- perform paramedic skills and techniques within paramedic protocols and apply paramedic knowledge necessary for safe, efficient and effective practice within paramedic environments;
- interpret the paramedic needs of patients and members of the community within a holistic framework and apply an integrated holistic approach in paramedic practice;
- perform effectively and safely as an independent person and as a member of a health care team in paramedic environments;
- be sensitive to contemporary issues within socially and culturally diverse communities and predict and respond effectively to such issues when providing paramedic practice;
- examine current research and developments in paramedic practice and evaluate their implications for paramedics and the profession.

Course Duration

The course is usually delivered via a three (3) year full-time on-campus mode. However in 2009 only, third year students will be able to complete the third year of their degree in on-campus and online modes.

Admission Requirements

To qualify for admission to the course applicants must normally have successfully completed the Victoria Certificate of Education (VCE), with Units 3 and 4 and a study score of at least 20 in English, or equivalent. Preference will be given to applicants who have successfully completed biology, physics or mathematics.

Students enrolled in the Bachelor of Health Science degree will be required to undergo a Victoria Police Check, a medical check and a physical capacity test before commencing placement units. Police checks need to be conducted annually throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation.

Course Structure

**Year 1**

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**BACHELOR OF HEALTH SCIENCE (DERMAL THERAPIES) (I)**

**Course Code: HBT10**

**Course Objectives:** The area of dermal therapies, although relatively new, is expanding at a considerable rate. Recent global and western trends indicate that the beauty and dermal therapies areas are second only to the areas of hospitality and foods. Not only is there an increasing demand for services, but an increasing demand by industry, including from recent VU graduates, to improve the quality and quantity of trained graduates in the field. In addition, the interdisciplinary links amongst dermal therapists and those in the established basic sciences and health disciplines are strengthening sufficiently that the number of research publications in refereed journals in dermal therapies is also increasing.

All these factors will ensure that dermal therapies will continue to grow as a professional field in its own right.

The course in existence was originally developed about nine years ago. Over the years, technological advances in equipment and chemical products have been extensive and consumer demand (from an increasingly articulate client base for both services and training) is on the increase.

The aims of this course are to produce graduates who can:

- identify, evaluate and manage the physical, psychological and social needs of patients and members of the community undergoing dermal therapies assessment, treatment and transport, and apply problem solving skills when planning and implementing dermal therapies care;
- perform dermal therapies skills and techniques within dermal therapies protocols and apply dermal therapies knowledge necessary for safe, efficient and effective practice within dermal therapies environments;
- interpret the dermal therapies needs of patients and members of the community within a holistic framework and apply an integrated holistic approach in dermal therapies practice;
- perform effectively and safely as an independent person and as a member of a health care team in dermal therapies environments;
- be sensitive to contemporary issues within socially and culturally diverse communities and predict and respond effectively to such issues when providing dermal therapies practice;
- examine current research and developments in dermal therapies practice and evaluate their implications for dermal therapies and the profession.

Course Duration

The course is usually delivered via a three (3) year full-time on-campus mode. However in 2009 only, third year students will be able to complete the third year of their degree in on-campus and online modes.

Admission Requirements

To qualify for admission to the course applicants must normally have successfully completed the Victoria Certificate of Education (VCE), with Units 3 and 4 and a study score of at least 20 in English, or equivalent. Preference will be given to applicants who have successfully completed biology, physics or mathematics.

Students enrolled in the Bachelor of Health Science degree will be required to undergo a Victoria Police Check, a medical check and a physical capacity test before commencing placement units. Police checks need to be conducted annually throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation.

Course Structure

**Year 2 Semester 2**

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### GRADUATE DIPLOMA IN DERMAL THERAPIES

**Course Code:** HGCD

**Course Objectives:**
- Advanced Treatments - the course will provide experience and a practice standard (practice standards are determined by the professional body the Australian Society of Dermal Clinicians) to dermal therapists who wish to seek employment performing more advanced dermal techniques such as clinical applications of machine based lymphatic treatments and other cosmetic injection based treatments such as dermal fillers. These advanced treatments are very popular, both as a service in industry and with past, current and future students wanting to perform them.
- A recent survey of past, current and prospective students found that approximately 94% want to complete this course to perform injectable treatments. All the advanced treatments listed in this course are non-permanent, therefore these treatments need to be provided on an ongoing basis. These forms of treatments are increasing in popularity and so is the need for people to perform them.
- Secondly, the course will provide a clear pathway into further postgraduate study for those wishing to undertake research degrees at Masters or PhD levels in the area.

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### GRADUATE DIPLOMA IN EMERGENCY MANAGEMENT

**Course Code:** HGMT

**Course Objectives:**
- The course introduces students to the challenging and diverse field of emergency management. The focus will be on eight key areas of disaster / emergency management and will be delivered via online distance and flexible learning.
- The aim of the course is to provide the student with knowledge of principles of emergency / disaster planning, preparedness, response and recovery. The course also aims to develop the graduate attributes of problem solving in the context of emergency management, interoperability and communication in the event of a disaster / emergency situation and working as a professional in the field of emergency management.

**Course Duration:** This course is offered over two years part time or one year full time by negotiation with the course coordinator. The Graduate Certificate in Emergency Management is an exit point from the Graduate Diploma in Emergency Management.

**Admission Requirements:** An appropriate undergraduate qualification or equivalent including experience in an Emergency Agency (e.g. Police, Fire, Ambulance, Health, Defence), Volunteer Organization (e.g. SES, Red Cross, St John Ambulance Service), Local / State / Commonwealth Government Department or Journalism.

**Course Structure:**
- Requirements for the Graduate Certificate in Emergency Management include the successful completion of any four of the following units:

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SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

Semester 2

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BACHELOR OF HEALTH SCIENCE (HONOURS)

Course Code: HHHO

Course Objectives: The honours year engages students in health research and places high importance upon understanding health and health care delivery within specific community and cultural parameters. Students in the program will be required to undertake research in an area of health related to their discipline, the health research interests of the School, University and Region. Academic staff managing the program will provide students with a range of specific research topics that place priority upon health in the Western region of Melbourne, rich in cultural and community diversity. Dialogue between the School of Health Sciences, Western Health and the Institute of Health and Diversity will ensure that student research is undertaken with a high level of cultural sensitivity.

Course Duration: One year full time or part time equivalent.

Admission Requirements: To qualify for admission to the Bachelor of Health Science (Honours) applicants must hold a degree in Health Science, or equivalent, with the average subject grade of 'distinction' or higher in their final year of undergraduate study. Applicants who do not meet the normal admission requirements may be admitted on the basis of exceptional experience, circumstances or achievements relevant to successfully undertaking the program. International students, and others required to demonstrate a basic level of English proficiency, are required to have an IELTS of at least 6.5, plus evidence that they have English proficiency in their respective health discipline. (These criteria have been deemed necessary in view of the coursework, research and thesis requirements of the honours year program)

Course Structure:

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MASTER OF HEALTH SCIENCE (BY MINOR THESIS)

Course Code: HMHMM

This course will appeal to health practitioners from a variety of disciplines who have a desire to further studies via a minor thesis in their particular area of practice. These areas may include:
- Ambulance Services;
- Biomechanics and Exercise Physiology;
- Biomedical Sciences;
- Clinical Education;
- Community Health;
- Cultural Issues in Health;
- Dermal Therapies;
- Ecology and Environmental Management;
- Emergency Management;
- Environmental Sciences;
- Health Sciences;
- Mental Health;
- Nutritional Therapies;
- Occupational Health & Safety;
- Osteopathic Medicine;
- Paramedic Sciences;
- Sociology of Health;
- Women's Health.

Course Objectives: The aims of the course are to:
- provide opportunities for students to extend their knowledge and enable ongoing critical analysis of primary health care;
- encourage students’ further investigation and reflection in a specific area of professional interest; and
- enhance students’ ability to apply research knowledge in a collegiate environment.

Admission Requirements: To qualify for admission to the course applicants must have successfully completed, at an average grade level of second class honours (H2), a Graduate Diploma in Health Sciences, or equivalent, as approved by the School of Biomedical and Health Sciences. International and other students required to demonstrate a basic level of English proficiency are required to have an IELTS of at least 6.5 overall. Some students may be required to undertake additional studies relevant to their field of study concurrent with their course.

Course Duration: The course is offered over one year on a full-time basis or part-time equivalent.

Course Structure:

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</tbody>
</table>
FACULTY OF HEALTH, ENGINEERING AND SCIENCE

Credit Point EFTSL SC Band
HFR0002 ADVANCED QUALITATIVE RESEARCH METHODS 16 0.1670 1
HHT1127 MINOR THESIS - FULLTIME 52 0.3330 2

Semester Two
HHT1137 MINOR THESIS - FULLTIME 48 0.5000 2
Part-time
HFR0001 ADVANCED QUALITATIVE RESEARCH METHODS 16 0.1670 1
or
HFR0002 ADVANCED QUALITATIVE RESEARCH METHODS 16 0.1670 1
and
HHT1147 MINOR THESIS - PART-TIME 8 0.0830 2
HHT1157 MINOR THESIS (PART-TIME) 24 0.2500 0
HHT1158 MINOR THESIS PART-TIME 24 0.2500 0
HHT1159 MINOR THESIS E PART-TIME 24 0.2500 0

MASTEr OF HEALTH SCIENCE - OSTEOPATHY (I)
Course Code: HMOS

Course Objectives
The aims of this course are to equip graduates with:
• the diagnostic skills required by a primary health care practitioner;
• the ability to assess the health status of the patient, including physical, socio-economic and psychological aspects and refer appropriately;
• the ability to formulate and prescribe a suitable and safe treatment program;
• skills in a full range of osteopathic techniques;
• an awareness of the application of osteopathic principles relevant to patient management;
• the ability to interact with other health care providers and advisers for the benefit of the patient, including an awareness of the need to gain informed consent;
• communication skills related to the patient and other persons, to maintain inter-professional co-operation and respect;
• an awareness of the cost effectiveness of osteopathic treatment;
• an awareness of the support systems that are available and an ability to take part in a multi-practitioner research program;
• an awareness of the need for continuing self education;
• clinical proficiency and an ability to manage all aspects of osteopathic patient care; and
• an awareness of their professional and personal responsibilities and an ability to effectively organise and manage their working environment.

Admission Requirements
To qualify for admission to the course applicants must have satisfactorily completed the HBOS Bachelor of Science - Clinical Sciences, or equivalent, and have successfully completed the selection interview.

Students will be required to undergo a Victoria Police check before commencing clinical placement units. Police checks need to be conducted annually throughout the programme.

Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation.

At the commencement of the course students must have completed the Level 2 First Aid Certificate update.

Course Duration
The course is offered over two years on a full-time basis.

Course Structure
Year One
Semester One
Credit Point EFTSL SC Band
HHD4185 CLINICAL DIAGNOSIS AND MANAGEMENT 5 12 0.1250 2
HHL4181 RESEARCH 1 12 0.1250 2
HHO4187 OSTEOPATHIC SCIENCE 7 8 0.0830 2
HHS4183 PSYCHOLOGY AND SOCIAL SCIENCES 3 8 0.0830 1
HHU4187 CLINICAL PRACTICUM 7 8 0.0830 2

Semester Two
HHD4286 CLINICAL DIAGNOSIS AND MANAGEMENT 6 12 0.1250 2
HHL4282 RESEARCH 2 12 0.1250 2
HHO4288 OSTEOPATHIC SCIENCE 8 8 0.0830 2
HHU4288 CLINICAL PRACTICUM 8 8 0.0830 2
HHY4285 PATHOLOGY 5 8 0.0830 2

Year Two
Semester One
HHD5187 CLINICAL DIAGNOSIS AND MANAGEMENT 7 12 0.1250 2
HHL5183 RESEARCH 3 12 0.1250 2
HHO5189 OSTEOPATHIC SCIENCE 9 12 0.1250 2
HHU5189 CLINICAL PRACTICUM 9 12 0.1250 2

Semester Two
HHD5288 CLINICAL DIAGNOSIS AND MANAGEMENT 8 12 0.1250 2
HHL5284 RESEARCH 4 12 0.1250 2
HHO5280 OSTEOPATHIC SCIENCE 10 12 0.1250 2
HHU5280 CLINICAL PRACTICUM 10 12 0.1250 2

Clinical Practicum
Clinical practicum is direct student/patient contact supervised by registered osteopaths and medical practitioners. In order to register as an osteopath, students must complete the minimum attendance requirements for clinical units over the full five years of the combined Bachelor of Science-Clinical Sciences and Master of Health Science-Osteopathy courses. This will be achieved cumulatively by an increasing commitment of time to clinically based learning as students progress through the course and their clinical skills increase.

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As the teaching clinics are required to operate 50 weeks per year, in order to maintain a public service and provide essential continuity of patient care, students will be expected to supplement any deficit in clinical practicum hours outside semester hours. The arrangement of clinical hours will be flexible and may vary from year to year dependent upon resources, patient availability and student development.

During the clinical practicum students will develop and enhance the following skills within the supervised clinical setting: interpersonal and communication skills; history taking; general observation; clinical methods; general medical and osteopathic examination; data analysis and interpretation; pathological diagnosis; radiological diagnosis; special investigations; osteopathic treatment and management; and professional behaviour and ethics.

School of Health Sciences/Osteopathy Website: http://www.vu.edu.au/Faculties/Health_Engineering_and_Science/Schools/Health_Sciences/Osteopathy

**Professional Recognition**

Registration and regulation of osteopaths is a function of State Registration Boards in a similar way to the regulation of other health professions such as medicine and dentistry. Graduates of this course will be eligible to apply to be registered as osteopaths in Victoria. The course also has the support of the Australian College of Physical Medicine.

---

**MASTER OF HEALTH SCIENCE (BY RESEARCH) (I)**

**Course Code:** HRNS

The School of Health Sciences offers the Master of Health Science (by Research). Staff are able to supervise research projects in a broad range of health and related areas, some of which are listed below. It is suggested that applicants explore their research interests with the Course Co-ordinator and contact with appropriate staff will be facilitated. A thesis on an approved topic will be required.

**Areas of Specialisation**

- Acupuncture;
- Ambulance Services;
- Chinese Herbal Medicine;
- Clinical Practice;
- Complementary Therapies;
- Cultural Issues and Health;
- Emergency Services;
- Health Administration;
- Health Counselling;
- Health Education;
- Natural Medicine;
- Osteopathic Medicine;
- Rehabilitation;
- Traditional Chinese Medicine;
- Western Herbal Medicine;
- Women's Health.

**Course Duration**

The course normally requires two years of full-time study or part-time equivalent.

**Admission Requirements**

To qualify for admission to the Master of Health Science (by Research) applicants must hold a degree in health science, or a related area, or equivalent, as approved by the School of Health Sciences.

**Degree Requirements**

The research thesis must be original work conducted under the supervision of the student advisor/s and with the approval of the Postgraduate Studies Committee of the University. The thesis of the candidate will be examined externally by examiners of high academic standing in the area of the candidate's thesis topic.

Coursework may be required of candidates to further enhance the knowledge of a specific topic relevant to the field of study. Such coursework would run concurrent to the research.

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**BACHELOR OF HEALTH SCIENCE - PARAMEDIC (THREE-YEAR PRE-SERVICE) (FOR CONTINUING STUDENTS ONLY)**

**Course Code:** HXPA

**Course Objectives**

The aims of this course are to produce graduates who can:

- identify, evaluate and manage the physical, psychological and social needs of patients and members of the community undergoing paramedic assessment, treatment and transport, and apply problem solving skills when planning and implementing out-of-hospital care;
- perform paramedic skills and techniques within paramedic protocols and apply paramedic knowledge necessary for safe, efficient and effective practice within paramedic environments;
- interpret the paramedic needs of patients and members of the community within a holistic framework and apply an integrated holistic approach in paramedic practice;
- perform effectively and safely as an independent person and as a member of a health care team in paramedic environments;
- be sensitive to contemporary issues within socially and culturally diverse communities and predict and respond effectively to such issues when providing paramedic practice;
- examine current research and developments in paramedic practice and evaluate their implications for paramedics and the profession.

**Admission Requirements**

To qualify for admission to the course applicants must normally have successfully completed the Victoria Certificate of Education (VCE), with Units 3 and 4 and a study score of at least 20 in English, or equivalent. Preference will be given to applicants who have successfully completed biology, physics or mathematics.

Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Students enrolled in the Bachelor of Health Science degree will be required to produce a current Victorian drivers’ licence, and undergo a Victorian Police Check, a medical check and a physical capacity test before commencing placement subjects. Police checks need to be conducted annually throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation.

**Course Duration**

The course is offered on a full-time basis or part time equivalent. Clinical placements will be facilitated to suit individual needs of international students.

**Course Structure**

Year Three
Semester One

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Points</th>
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<th>SC Band</th>
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<tbody>
<tr>
<td>HFB3111</td>
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<tr>
<td>HFB3301</td>
<td>ISSUES IN PREHOSPITAL HEALTH SERVICE DELIVERY</td>
<td>12</td>
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<tr>
<td>HFB3401</td>
<td>PREHOSPITAL ETHICAL AND LEGAL ISSUES</td>
<td>12</td>
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<tr>
<td>HFB3600</td>
<td>PARAMEDIC PROFESSIONAL WRITING</td>
<td>12</td>
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Semester Two

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<tr>
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<td>HFB3122</td>
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<td>HFB3211</td>
<td>INTEGRATION OF PARAMEDIC PRACTICE 1</td>
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<td>RESEARCH IN PARAMEDIC PRACTICE</td>
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<tr>
<td>HFB3700</td>
<td>PARAMEDIC INSTRUCTION AND MENTORING</td>
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</table>

General Electives

Students may choose electives from any other higher education courses offered by the University, subjects to the approval of the Course Co-ordinator. Elective contact hours may be greater than three contact hours.

Course Regulations

The following should be read in conjunction with the Faculty Regulations detailed earlier in this handbook, and the University Statutes and Regulations.

Course Objectives

The Bachelor of Science in Biomedical Sciences is designed to provide professional training in the application of science to human biology in the marketplace. The course aims to produce highly qualified graduates who will be adequately equipped to adapt to a changing environment. Four different streams are available for this degree in Biomedical Sciences including wellness management, science media and communications, marketing of biomedical products, and research/clinical sciences. Although, students are encouraged to follow one of these streams, they are able to choose from the entire range of subjects offered in the Biomedical Sciences degree. The overall objectives of the degree in Biomedical Sciences are to provide graduates with an in-depth knowledge of human physiological functions together with skills in critical analysis and highly developed communication skills. Complementary knowledge will be developed in a wide range of selected disciplines including psychology, human development, management, marketing, visual and audiovisual communications and a language.

Course Structure

The course will comprise of two 12 week semesters or 24 weeks per year for three years. The course outline together with the contact hours per week is contained in the following pages. First year subjects are currently running at the St Albans Campus.

Electives may be taken from the wide range of science and general subjects listed below. Other suitable electives (not listed below) may also be chosen subject to the approval of the course co-ordinator. If general electives are selected, students are encouraged to take a four-six semester sequence in one of the following areas including Human Resource Management, Marketing, Communications, Psychology, Professional Writing or a language other than English. Electives will be subject to adequate demand.

Students enrolled in the Biomedical Science course Degree must take a minimum of 60 per cent of their total credit points from subjects offered by the School of Biomedical Sciences. In addition, no more than 40 credit points from general elective subjects shall be at first year level, and at least one elective shall be commensurate with the year of the student’s course.

Year 1

Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>RBM1518</td>
<td>HUMAN PHYSIOLOGY 1</td>
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<td>RCS1110</td>
<td>CHEMISTRY FOR BIOLOGICAL SCIENCES A</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>RBM1502</td>
<td>FOUNDATIONS IN BIOMEDICAL SCIENCE B</td>
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<td>FUNCTIONAL ANATOMY OF THE LIMBS</td>
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<td>PSYCHOLOGY 1B</td>
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### Year 2

**Semester 1**

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<tr>
<td>RBM2560</td>
<td>DIET AND NUTRITION</td>
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<tr>
<td>RBM2530</td>
<td>PATHOPHYSIOLOGY 1</td>
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Two of the Following OR other Science, Psychology, Communications, Management and Marketing electives

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<tr>
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<tr>
<td>RBM2365</td>
<td>MEDICAL MICROBIOLOGY</td>
<td>12</td>
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<td>3</td>
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<tr>
<td>RBM2560</td>
<td>MEDICAL BIOCHEMISTRY</td>
<td>12</td>
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<tr>
<td>RBM2610</td>
<td>BIOMEDICAL SCIENCES AND SOCIETY</td>
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**Semester 2**

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<td>RBM2540</td>
<td>PATHOPHYSIOLOGY 2</td>
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<tr>
<td>RBM2380</td>
<td>CARDIORESPIRATORY AND RENAL PHYSIOLOGY</td>
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Two of the following OR other Science, Psychology, Communications, Management and Marketing electives

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<tr>
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<th>Credit Points</th>
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<tbody>
<tr>
<td>RBM2360</td>
<td>FUNCTIONAL ANATOMY OF THE HEAD AND BACK</td>
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<tr>
<td>RBM3610</td>
<td>BIOMEDICAL SCIENCE, ETHICS AND VALUES</td>
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<td>RBF2330</td>
<td>CELL BIOLOGY</td>
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<td>OR</td>
<td></td>
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<td></td>
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<tr>
<td>RBM2133</td>
<td>CELL AND MOLECULAR BIOLOGY</td>
<td>12</td>
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### Year 3

**Semester 1**

Choose at least three of following core Units of Study below per semester.

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<th>Credit Points</th>
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<tbody>
<tr>
<td>RBM3264</td>
<td>ADVANCED NERVE AND MUSCLE PHYSIOLOGY</td>
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<tr>
<td>RBM3550</td>
<td>GROWTH AND EARLY DEVELOPMENT</td>
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<tr>
<td>RBM3590</td>
<td>ADVANCED EXPERIMENTAL TECHNIQUES</td>
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<tr>
<td>RBM3720</td>
<td>IMMUNOLOGY</td>
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<tr>
<td>RBM3810</td>
<td>WELLNESS 1</td>
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**Semester 2**

<table>
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<tbody>
<tr>
<td>RBM3640</td>
<td>ADVANCED NEUROSCIENCES</td>
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<tr>
<td>RBM3560</td>
<td>GROWTH, DEVELOPMENT AND AGING</td>
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<tr>
<td>RBM3660</td>
<td>HUMAN DEVELOPMENTAL AND CLINICAL GENETICS</td>
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<tr>
<td>RBM3800</td>
<td>PHARMACOLOGY</td>
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<tr>
<td>RBM3820</td>
<td>WELLNESS 2</td>
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<tr>
<td>RBM3650</td>
<td>ADVANCED REPRODUCTION AND DEVELOPMENT</td>
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<tr>
<td>RBM3910</td>
<td>PROJECT</td>
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<tr>
<td>RBM3960</td>
<td>NUTRITIONAL FRONTIERS</td>
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Electives

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<tr>
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<tbody>
<tr>
<td>RBM2201</td>
<td>CONSERVATION GENETICS</td>
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<tr>
<td>RBM3101</td>
<td>GeOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION &amp; HEALTH</td>
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<td>NUTRITIONAL FRONTIERS</td>
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Other electives from semesters 1 or 2 with 12 credit points

### Bachelor of Science in Ecology and Sustainability

**Course Code:** SBES

**CRICOS No:** 047050B

**Course Objectives:**

This course provides the flexible combinations of professional education and technical training that are required to develop the practical solutions necessary to achieve sustainable management of the Australian environment. There is a strong emphasis on hands-on skills, including building links across scientific, social and business sectors environmental analysis, effective communication and project management.

The course structure is based on a limited number of core units that provide a solid foundation to understanding of the biology, ecology and sustainable management of the Australian landscape, supplemented by a wide range of electives drawn from the environmental engineering, business, tourism, community development and human bioscience disciplines.
Students can choose from electives according to the four major streams in the course: a) ecology and natural resource management (with specialisations in aquatic engineering and environmental engineering); b) ecology and community development; c) ecology and tourism/business; d) ecology and human bioscience/wellness. These are suggested streams only and students may select electives according to their desired academic and career pathway, subject to approval from the Course Co-ordinator.

Admission Requirements

The minimum entry requirement is the satisfactory completion of a Year 12 course of study approved by the Victorian Tertiary Admissions Centre (VTAC) or an equivalent program approved by Victoria University for entry.

Prerequisites are Units 3 and 4 - a study score of at least 20 in English (Any)

There is also provision for mature age entry and entry as a disadvantaged person. Mature age provisions apply to those persons aged 21 years and over at the commencement of the academic year of interest.

Course Duration

The Bachelor of Science in Ecology and Sustainability program requires the equivalent of three years full-time study. A fourth year may be taken in the Honours program.

Course Structure

Year 1

Semester 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credit Point</th>
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<td>RBF1310</td>
<td>BIOLOGY 1</td>
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<td>RBF1150</td>
<td>GLOBAL ENVIRONMENTAL ISSUES</td>
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<td>MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1</td>
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OR Elective

Semester 2

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AND/OR Elective

Year 2

Semester 1

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OR Elective

Semester 2

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AND/OR Elective

Prescribed and free electives 3, 2, 24

Year 3

Minimum of four from list below plus up to four electives

Semester 1

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Semester 2

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Electives 3

1. Students taking the Ecology and Human Bioscience/Wellness stream can take RBF1310 Biology 1 or RBF1510 Human Bioscience 1A
2. Students enrolled in the Natural Resource Management stream would be advised to take RCS1110 Chemistry for Biological Sciences A and RCS1120 Chemistry for Biological Sciences B, as these Units of Study are prerequisites for some level 2 and 3 core units in that stream. Students in other streams would not be so advised.
3. Students taking either of the Engineering specialisations within the Natural Resource Management stream should take RCS1110 Chemistry for Biological Sciences A and RCS1120 Chemistry for Biological Sciences B.
Chemistry for Biological Sciences B in their second year of study. All others within the stream should take these units in their first year.

Students enrolled in the Natural Resource Management stream would be required to take RMA1110 Mathematics for the Biological & Chemical Sciences 1 and RMA1120 Mathematics for the Biological & Chemical Sciences 2 if they lack VCE Mathematics, but could take an elective if they have VCE Mathematics. This is at the discretion of the Course Co-ordinator.

Students taking either of the Engineering specialisations within the Natural Resource Management stream should take RMA1110 Mathematics for the Biological & Chemical Sciences 1 and RMA1120 Mathematics for the Biological & Chemical Sciences 2 in the first year of study. All other students within the stream should take these units in their second year.

3. Prescribed and free electives are those listed below.

Electives

At least 6 electives are required to be taken over the course of the degree. Electives other than those listed below may be taken at the discretion of the Course Co-ordinator. The total credit points must be within the prescribed range and due consideration must be given for prerequisites.

Science electives may be chosen from any of the degree units offered by the Faculty of Health, Engineering and Science. Units from programs offered by other Faculties may also be selected as elective subjects, subject to the approval of the appropriate Faculty. Students should refer to the unit outlines listed within other Schools and Faculties for further information.

Students are advised to seek the assistance of academic staff when making their elective choice, as the judicious selection of electives can provide an opportunity to undertake a second major study alongside the primary degree specialization.

Prescribed Electives

Ecology and Natural Resource Management Stream

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Unit Title</th>
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</table>

These Units of Study are recommended.

Aquatic Engineering and Environmental Engineering Specializations

It is possible to undertake a number of units in Aquatic Engineering and Environmental Engineering Specializations. Please discuss with the Course Coordinator prior to selection.

Ecology and Community Development Stream

<table>
<thead>
<tr>
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Students taking this stream should choose two electives from the following:

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<td>ASA2023</td>
<td>WORKING WITH ORGANISATIONS: PROBLEMS AND POSSIBILITIES</td>
<td>12</td>
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<td>ASA2024</td>
<td>SOCIAL MOVEMENTS, SOCIAL ACTIONS</td>
<td>12</td>
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<td>CONFLICT RESOLUTION IN GROUPS AND COMMUNITIES</td>
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Ecology and Tourism/Business Stream

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Students taking this stream should choose two electives from the following:

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Ecology and Human Bioscience/Wellness Stream

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<td>RBM3810</td>
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Students taking this stream could include electives from the following:

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Suitable Free Electives

Some electives may be prescribed for certain streams.

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FACULTY OF HEALTH, ENGINEERING AND SCIENCE

Credit Point EFTSL SC Band
BHO2286 NATURE BASED TOURISM 12 0.1250 1
BHO3499 MANAGING SUSTAINABLE DESTINATIONS 12 0.1250 3
BHO3500 HOSPITALITY AND TOURISM INDUSTRY PROJECT 12 0.1250 3
RBM1514 FUNCTIONAL ANATOMY 1 12 0.1250 2
RBM1524 FUNCTIONAL ANATOMY 2 12 0.1250 2
RBM2201 CONSERVATION GENETICS 12 0.1250 2
RBM2260 DIET AND NUTRITION 12 0.1250 2
RBM2361 SAFETY PRACTICE 12 0.1250 2
RBM2530 PATHOPHYSIOLOGY 1 12 0.1250 2
RBM2540 PATHOPHYSIOLOGY 2 12 0.1250 2
RBM2660 MEDICAL BIOCHEMISTRY 12 0.1250 2
RBM3101 GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH 12 0.1250 2
RBM3810 WELLNESS 1 12 0.1250 2
RBM3820 WELLNESS 2 12 0.1250 2
RBF3530 ENVIRONMENTAL PHILOSOPHY 12 0.1250 2
RBF3540 LEADERSHIP AND THE ENVIRONMENT 12 0.1250 2

Other Course Specific Notes
Students are advised to seek assistance and advice of academic staff when making their elective selection. Engineering and Tourism/Business units are offered only on the Footscray Park Campus in the first instance. Timetable constraints make combinations of units offered on more than one Campus difficult and so must be selected with care.

Field trips
Students will be required to participate in field trips throughout the course. These will vary from one-day excursions to three-day field camps. Some field trips may be held over weekends. Participation in these activities forms part of the required assessment of the units, and provides essential experience in field techniques. Exemption from these activities is available only by prior application to the Course Co-ordinator where circumstances preclude participation.

Professional Recognition
Graduates of the course are eligible to join professional and learned societies such as the Ecological Society of Australia and the Australian Institute of Biologists.

BACHELOR OF SCIENCE IN NUTRITIONAL THERAPY (I)

Course Code: SBNT

Nutritional Therapy is founded in medical science and on peer-reviewed evidence-based research. Nutritional Therapists use manipulation of food and diet for therapeutic purposes. Often a patient’s condition can be improved by suitably matching food intake to their condition, together with nutriceutical prescription and appropriate lifestyle advice. The graduates from this course will not be Dieticians, but will be able to treat chronic non-life threatening conditions.

This course is modelled on the highly successful BSc Nutritional Therapy courses offered in Europe. At present this is the only similar course in Nutritional Therapy in Australia.

Course Objectives
The Bachelor of Science in Nutritional Therapy will provide an alternative education and training program for those wishing to apply their knowledge of Nutrition to the treatment of a range of clients by high-quality nutrition care and therapy. The objectives of the course are to produce Graduates able to function independently as Nutritional Therapists. At the end of the course, Graduates will be able to: evaluate and process requests for nutritional therapy; assess the client and formulate an appropriate course of nutritional therapy; educate the client in self-care therapy, and evaluate the client’s response to the course of treatment.

The Graduates of this course will be able to make a valuable contribution to society as Nutritional Therapists in private practice, as Nutrition Consultants to the healthcare and fitness industries, and as practitioners in integrated health centres.

Admission Requirements Completion of Year 12 VCE, Units 3 of English with a study score above 20. You may be required to attend a selection and/or interview session.

Course Duration Three years fulltime or part-time equivalent.

Course Structure

Year 1

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<td>RBM1518 HUMAN PHYSIOLOGY 1</td>
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<td>RBM1820 NUTRITION, SOCIETY, AND COMMUNICATION</td>
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Year 2

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<td>RBM2850 NUTRITIONAL THERAPEUTICS A</td>
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<td>RBM2222 PERFORMANCE NUTRITION</td>
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Year 3

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BACHELOR OF SCIENCE IN OCCUPATIONAL HEALTH AND SAFETY

Course Code: SBOH

Course Objectives
The aim of the course is to produce graduates with a combination of knowledge and skills of science and disciplines related to occupational health and safety while having a focus on the management of occupational health and safety.

At the end of the course graduates should be able to:
• utilise methods of scientific investigation in solving, occupational health and safety problems;
• thoroughly understand the scientific and technological bases of occupational health and safety;
• engender the professional confidence and respect of others;
• identify health hazards and safety problems and be able to make appropriate recommendations to management;
• understand and be able to effectively participate in decision-making processes in organisations in order to manage the promotion and implementation of occupational health and safety matters;
• act as an agent of change to improve OH&S at a workplace.

Admission Requirements
VCE entry: Units 3 and 4 - a study score of at least 20 in English (any) and in one of biology or chemistry. Middle band: Re-ranking is based on prerequisite studies and science (any).

TAFE entry: Normal entry requirements for articulation to the Bachelor of Science is the successful completion of an Advanced Diploma in Occupational Health and Safety. A significant number of such applicants are expected to be Occupational Health and Safety professionals seeking to upgrade their Advanced Diploma qualification to a degree in Occupational Health and Safety. Admission requirements may be determined by the Head of School for applicants who possess other appropriate TAFE or university qualifications related to occupational health and safety.

The course aims at maximising student access by providing flexibility and modulation in the delivery of units. Students in level 3 of the course can complete all units by distance education mode.

Course Duration
The course based on VCE entry will be equivalent to three years full-time study for students entering the course at Year 1 or part-time equivalent.

Course Structure
VCE entry: The course will comprise two 12 week semesters or 24 weeks per year for three years. Faculty of Health, Engineering and Science based units and some Faculty of Business and Law units will be delivered at the St Albans Campus. Other Faculty of Business and Law units will be delivered at the Footscray Park campus.

TAFE entry: Completion of appropriate TAFE courses such as the Advanced Diploma in OHS will enable students to enter the course with advanced standing. For details of credit arrangements go to: www.vu.edu.au/pathways.

Year 1
Semester 1

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Semester 2

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Year 2
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Other Course Specific Notes: In addition, RBM2061 Occupational Hygiene Science and RBM 2161 Ergonomic Science are required if course entry is the Advanced Diploma of Occupational Health and Safety from TAFE.

**BACHELOR OF SCIENCE (HONOURS)APPLIED BIOLOGY**

**Course Code:** SHAB

**Course Objectives**
An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level that builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

**Admission Requirements**
To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a 'credit' average, or equivalent, in the final year of the degree.

**Course Duration**
The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program in Ecology and Sustainability specialisation can be at either the beginning or the academic year (February) or at mid-year intake (July) to allow for field-based research with seasonal limitations.

**Course Structure**
The structure of these three honours courses is as follows:

**Semester 1**

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(48 credit points per semester)

**BACHELOR OF SCIENCE (HONOURS) IN BIOMEDICAL SCIENCES**

**Course Code:** SHBM

**Course Objectives**
RBM4001 and RBM4002 Science Honours 1 and 2 will comprise a research project including two oral presentations, a literature review and the project thesis. Honours Course Work

There will be two course work units comprising of Advanced Experimental Design and Statistics, and Research Conduct, Ethics and Training. In special cases undergraduate units of studies may be substituted for course work units when it is felt that a student would require further studies of a specialised nature. The lecture or reading programs that make up the course work units will be determined by student’s preferences and will vary from time to time. Course work units will be assessed by oral presentations, written assignments or a written examination.

**Semester 1**

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SUBJECTS

Below are subject details for courses offered by the School of Biomedical and Health Sciences in 2009.

IMPORTANT NOTE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

HFB1111 PROFESSIONAL PRACTICE 1
Campus: St Albans
Prerequisites: Nil
Co-requisites: Nil

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Describe the development of emergency medical services systems
2. Describe the roles and responsibilities of the paramedic
3. Discuss the principals of professionalism, licensure, certification and registration
4. Explain and discuss the roles and responsibilities of professional organisations in pre-hospital care.
5. Describe and demonstrate effective interpersonal communication, including:
   - Approaches to communication
   - First impressions
   - Components of effective communication
   - Techniques for effective communication
   - Interviewing and documentation techniques
   - Gender based differences in communication
   - Problems in communication
6. Describe the psychosocial aspects of:
   - Death and dying
   - Medical roles
   - Grief and mourning
   - Talking to survivors
   - Acute grief preparation
   - When you know the patient
   - Sudden death
   - Anticipated death
   - Behaviour around the dead
7. Understanding special populations
   - Cultural and religious differences
   - Children
   - The older population
   - Gangs
   - Caring for disabled people
   - Prejudice
   - Attention seeking behaviours
8. The human component in emergency medical services
   - Recognising and understanding emotions in yourself and others
   - Developing self awareness
   - The effects or crisis on people
   - Relatives and bystanders
   - Respect and dignity
   - Essential elements of compassion
   - Understanding co-workers
   - The impact of emergency medical services on the family
9. Service orientation and the nature of routine
   - Coping with waiting
   - Pride and professionalism
   - Service orientation
   - Customer service and pursuit of quality
   - Conflict resolution
10. Stress and wellness
    - Stress and its management
    - Cumulative stress
    - Critical incident stress
    - Signs, symptoms, susceptibility, and overcoming stress

Content: This unit will cover:
1. The human component in emergency medical services
2. Understanding emotions
3. Self-awareness
4. Understanding others
5. Effective interpersonal communication
6. Death and dying
7. Special populations and challenges
8. Service and orientation
9. Stress and wellness


Recommended Reading: Demarceur, K. B. (1996). Street sense communication, safety, and control (3rd ed.). Redmond, WA.

Class Contact: Forty-eight (48) hours over one 12-week semester comprising 3 hours of lectures and 1 hour of tutorials per week.

Assessment: This unit has three assessment items: two (2) written assignments (2000 words each) (each worth 30%, ie., 60% of the final mark) (P1, P2, I1, I2, W1, W2, A2, A3, C1, C2, D2); one 3-hour written end-of-semester examination (40%) (P1, P2, W2). To obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and an aggregate mark of 50% must be attained.

HFB1112 PARAMEDIC CLINICAL PRACTICE 1
Campus: Footscray Park
Prerequisites: Nil
Co-requisites: HFB1113 Pre-Hospital Ethical and Legal Issues, RBM1101 Bioscience 1; or equivalent.

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Apply principles of consent and confidentiality when obtaining and documenting a health history.
2. Demonstrate the process of history taking in order to obtain a comprehensive health history, using effective communication techniques.
3. Demonstrate the use of, and differentiate between, facilitation, reflection, clarification, empathetic responses, confrontation and interpretation.
4. Recognise scene hazards and potential hazards.
5. Describe methods of making a scene safe.
6. Relate the importance of accurate scene assessment and the importance of early and accurate communication.
7. Describe and demonstrate methods of assessing medical and trauma patients.
8. Describe and demonstrate methods of assessing the conscious and the apparently unconscious patient.
10. Describe and demonstrate the use of oxygen delivery systems and assisted ventilation to correct hypoxia in a hypoventilation or apnoic patient.
11. Safely demonstrate cardiopulmonary resuscitation.
12. Demonstrate the ability to apply with body substance isolation guidelines.
13. Perform the assessment of a patient expected, or identified as having, infectious or communicable disease.
14. Demonstrate the proper disposal of contaminated wastes and supplies.
15. Demonstrate disinfection of patient care equipment.
16. Demonstrate correct manual handling techniques and the use of appropriate equipment to assist in the lifting and movement of patients in a variety of pre-hospital care scenarios.
17. Explain biomechanical principles in the lifting and manual handling of patients and patient care equipment.
18. Identify strategies to minimise manual handling injuries in the work place.
19. Demonstrate effective and safe patient lifting techniques using the following lifting aids:
   - Stretcher
   - Carry chair
   - Spine board
   - Scope stretcher
   - Slide board
   - Kendrick extrication device (KED)
20. Identify signs and symptoms of a fracture, sprain, strain, musculoskeletal tear/rupture.
21. Demonstrate the correct methods of splinting pelvic and limbs fractures.
22. Demonstrate the pre-hospital management of severe musculoskeletal injury.
23. Deliver paramedic clinical skills in an appropriate clinical setting.

Content This unit will cover the following topics:
Injury prevention to the patient and the paramedic
Therapeutic communication
Biomechanics and kinetics
History taking
Techniques of physical examination

Patient Assessment
Clinical decision-making

Assessment based management
Communications, documentations
Management of musculoskeletal injuries
Basic life support
Cardiopulmonary resuscitation

Minimum of forty (40) hours placement in an appropriate clinical setting

Required Reading

Recommended Reading

Class Contact Eighty-eight (88) hours over one 12-week semester comprising of four (4) hour per week practical classes and self-directed learning utilising the paramedic interactive curriculum and forty (40) hours clinical placement.

Assessment This unit has three assessment items. Practical skills will be assessed using criterion referenced clinical skills assessment format. Students will be provided with clinical skills assessment (satisfactory/unsatisfactory) forms by the second week of semester (P1, P2, O1, O2, W1, A2, C1, C2, D1). Knowledge, skills and values developed in this unit will be assessed through group discussion and case based problem solving exercises (O1, O2, P1, P2). Students are required to satisfactorily complete a clinical logbook and reflective journal whilst on clinical placement (P1, P2, O1, O2, W1, A2, C1, C2, D1). To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed.

HFB1113 PRE-HOSPITAL ETHICAL AND LEGAL ISSUES
Campus St Albans
Prerequisites nil
Co-requisites nil

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Define and explain common terminology and abbreviations used in ethics and law;
2. Describe and locate commonly-used statutes used in ethics and law;
3. Discuss how ethical and legal practices and issues may influence paramedic practice;
4. Explain the relevance and impact of ethical and legal principles and processes within the healthcare systems.

Content This unit is designed for ambulance paramedic students to have a clear understanding of the ethical and legal issues and their implications for paramedics and in the use paramedic practice. This unit provides students with an introduction to ethical and legal issues relating to employment as a paramedic. The themes of client autonomy and self-determination, client rights and professional responsibility are examined within the context of the pre-hospital care setting.


Class Contact Forty-eight (48) hours over one 12-week semester comprising 2 hours of lectures per week and 2 hours of tutorials per week.

Assessment This unit has three assessment items: one annotated bibliography (500 words) (15%); one literature review (1500 words) (35%); one case-study essay (2000 words) (50%). In order to pass the unit a satisfactory grade in each component of the assessment must be achieved. To obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and passed.

HFB1201 HEALTH ORGANISATIONS
Campus St Albans
Prerequisites HFB1111 Professional Practice 1; or equivalent
Co-requisites nil

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Understand basic research methodology and terminology;
2. Describe the main differences between qualitative and quantitative research;
3. Discuss the advantages and disadvantages of the different methodologies;
4. Have a beginning level of understanding of research design, establishing the rigour of a research process, methods of data collection and analysis and reporting on research data;
5. Retrieve appropriate articles for a literature review;
6. Conduct an in-depth critical appraisal of research articles;
7. Recognise the significance of consent, confidentiality and other ethical considerations in relation to research.

Content Australian health care system
Health policy in the Australian context
Structure and management of health organizations
Division of labour/ scope of practice
Management theories
Health politics in the Australian context
Access to health care
Power and knowledge: impact on decision-making

Required Reading

Recommended Reading

Class Contact Forty-eight (48) hours over one 12-week semester comprising of four (4) hour per week practical classes and self-directed learning utilising the paramedic interactive curriculum and forty (40) hours clinical placement.

Assessment This unit has three assessment items: one annotated bibliography (500 words) (15%); one literature review (1500 words) (35%); one case-study essay (2000 words) (50%). In order to pass the unit a satisfactory grade in each component of the assessment must be achieved. To obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and passed.

HFB1212 PROFESSIONAL PRACTICE 2
Campus St Albans
Prerequisites HFB1111 Professional Practice 1; or equivalent
Co-requisites HFB1213 Paramedic Clinical Practice 2; or equivalent

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Understand the ways in which the sociological approach to health differs from the more traditional biomedical approaches
2. Describe and discuss the work of prominent social theorists, as they pertain to models of the sociology of health and medicine
3. Define and explain common terminology and abbreviations used in ethics and law;
4. Discuss how ethical and legal practices and issues may influence paramedic practice;
5. Discuss how a society’s view or model of health influences the structure of the health system, and the role of ‘culture’ in the provision of health care services.
6. Compare and contrast the biomedical models’ approach and treatment of various illnesses, to that of the sociological perspective
7. Discuss how the society’s view or model of health influences the structure of the health system, and the role of ‘culture’ in the provision of health care services.
8. Describe and discuss the various models of grief within the context of different socioeconomic, religious and cultural contexts
9. Discuss the prevalence and treatment of disabilities within the context of different socioeconomic, religious and cultural groups
10. Discuss the concept of sociological, religious and cultural construction and moulding of what are traditionally considered ‘biological’ traits, such as gender and age.
11. Discuss and describe the patterns of mental illness within society, in the context of a sociological model.
12. Describe and define multiculturalism as it relates to the Australian society.
13. Describe the health trends and epidemiology of disease in Australian society as they pertain to different socioeconomic and cultural groups.
14. Discuss the concept of cultural footprints relevant to current sociological expectations.
15. Discuss how social conditioning and cultural expectations can create inequality within society, within the context of health and specific disease (such as HIV, disabilities and mental illness).
16. Discuss how social conditioning influences attitude, perspective and practices in service delivery.
17. Describe the health concepts of the indigenous community in Australia.
18. Compare and contrast the health care needs and expectations of differing cultural and religious and minority groups.
19. Develop an understanding of the relationship between ethnicity and identity.

Content
This unit will contain:
1. Past and present sociological perspectives of health and illness.
2. Biomedical models of health.
3. The role of the ‘sick’ person.
4. The influence of society, religion and culture on health care systems.
5. Cultural, social diversity and multiculturalism in Australia.
6. The role of culture in the provision of health care services.
7. Social construction of biological traits.
8. Death, dying and grief.
9. Mental illness.
10. Disabilities in society.
12. Minority groups.
14. Inequality and bias in health and illness.
15. Ethnicity and identity.

Required Reading

Recommended Reading

Class Contact
Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week of lectures and tutorials.

Assessment
This unit has 3 assessment items: one written essay (1500-2000 words) (30%); reflective journal / case study of 1500 words based upon experiences gained during clinical placements (30%); one 2-hour written examination (40%). To obtain a pass or higher in this ungraded unit, all components of assessment must be passed.

HFB2100 PARAMEDIC PRACTICE 2
Campus St Albans, Off Campus
Prerequisite(s) HFB1203 Paramedic Practice 1; or equivalent.
Corequisite(s) HFB2101 Paramedic Clinical 2; or equivalent.

Content
This subject continues to develop the students’ understanding and practice of paramedic emergency management. A problem-oriented approach emphasizing application of knowledge guides students in trauma management and systems, environmental emergencies, introductory aeromedicine and major incident responses within specific medical specialities and out-of-hospital emergencies. Topics in clinical pharmacology will reinforce paramedic emergency management of patients at home and during emergency medical transport. To build individual and team skills and strengthen the awareness for individualized care, students will work with other students to provide supervised student mentoring. Topics in this subject may be interchanged with HFB2103 Paramedic Practice 1 and HFB2204 Paramedic Practice 4.

Required Reading
To be advised by Lecturer.
Website dingo.vu.edu.au/~paramedics

HFB2101 PARAMEDIC CLINICAL 2
Campus St Albans, Off Campus
Prerequisite(s) HFB1204 Paramedic Clinical 1; or equivalent.
Corequisite(s) HFB2102 Paramedic Practice 2; or equivalent.

Content
This subject is designed to facilitate the application of theory and skills presented in HFB2100 Paramedic Practice 2. Students will participate in the delivery of health care in selected clinical settings and classroom laboratory practices. The clinical focus is on developing paramedic Assessment, competency and management of patients in a variety of circumstances.

Required Reading
To be advised by Lecturer.
Website dingo.vu.edu.au/~paramedics

Subject Hours Six hours per week for one semester or off-Campus equivalent, comprising lectures, tutorials, practical sessions and self-directed learning activities.

Assessment
Proficiency multi-station practical and theory examination (pass/fail) (hurdle requirement); portfolio (50%); examination (50%). To obtain an Ungraded Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment items (multi-station examination and portfolio) may be re-attempted once only. Proficiency standards must be obtained on any re-attempted multi-station examination. Maximum possible marks to be obtained on resubmission of any portfolio will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%. This subject is a hurdle requirement.
required; reflective journal (maximum 1500 words); four case studies; clinical
log book; overall satisfactory appraisal from all placements (hurdle requirement). This
subject is a hurdle requirement.

**HFB2102 FUNDAMENTALS OF PARAMEDICINE 3**
CampusSt Albans, Off Campus, Online
Prerequisite(s) HFB1205 Fundamentals of Paramedicine 2; or equivalent.
Content This subject builds on the earlier Fundamentals of Paramedicine 1 and 2,
and includes the anatomy and physiology of the lymphatic, digestive, reproductive
and urinary systems to illustrate their relationships within a range of common and
important acute and chronic illnesses. An overview of human nutrition, metabolism
and temperature regulation is included. Topics may be interchanged with those in
HFB1101 Fundamentals of Paramedicine 1, HFB1205 Fundamentals of Paramedicine
2 and HFB2206 Fundamentals of Paramedicine 4 subjects. Topics will be related
directly to paramedic care of the emergency patient.

**Required Reading** To be advised by Lecturer.
Website dingo.vu.edu.au/~paramedics

Subject Hours Six hours per week for one semester or equivalent, comprising lectures,
tutorials, practical sessions and computer-based self-directed learning activities.
Assessment Online test in two parts (20%); essay (1500 words) (30%); written
examination (50%). To obtain at least a Pass in the subject, normally all components
of assessment must be attempted and passed. Failed examination items (online test
and essay) may be re-attempted and resubmitted once only. Maximum possible
marks to be obtained on any resubmission will be 50%. Where the final examination
is failed, a supplementary examination will be offered. The maximum possible mark
on the supplementary examination will be 50%.

**HFB2103 PARAMEDIC SCIENCES 3**
CampusSt Albans, Online
Prerequisite(s) HFB1206 Paramedic Sciences 2; or equivalent.
Content This subject introduces students to prescribed and over-the-counter drug
treatments for endocrine and immunological disorders. Diagnosis and treatment
of infections and inflammatory, neoplastic, and allergic conditions link the
pharmacological and microbiological components of this subject. Topics studied in
this subject may be interchangeable with those in HFB1102 Paramedic Sciences 1,
HFB1206 Paramedic Sciences 2 and HFB2207 Paramedic Sciences 4. Topics will be
related directly to paramedic care.

**Required Reading** To be advised by Lecturer.
Website dingo.vu.edu.au/~paramedics

Subject Hours Four hours per week for one semester or equivalent, comprising lectures,
tutorials, practical sessions and computer-based self-directed learning activities.
Assessment Weekly workbook or online activities including one online test
(Microbiology and Pharmacology combined) (30%); clinical review (1500 words)
(20%); final written examination (50%). To obtain a Pass in the subject, normally all components
of assessment must be attempted and passed. Failed assessment items (weekly activities and clinical review)
may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.

**HFB2114 PARAMEDIC SCIENCE 1**
Campus St Albans
Prerequisites HFB1213 Paramedic Clinical Practice 2, RBM1211 Bioscience 2; or
equivalents.
Co-requisites HFB2116 Paramedic Clinical Practice 3; or equivalent
Learning Outcomes On successful completion of this unit, it is expected that students
will be able to:
Trauma systems and kinetics:
1. Describe trauma systems in Australia.
2. Describe the scope of traumatic injuries and death.
3. Discuss the epidemiology of trauma.
4. Predict injury patterns based on laws of physics, motion, and transfer of force.
5. Describe injury patterns that should be suspected when injury occurs as a result of
specific types of trauma.
Haemorrhage and shock:
6. Describe signs and symptoms of internal or external injuries.
7. Define shock.
8. Describe the factors necessary to achieve adequate tissue perfusion and
oxygenation.
9. Describe the changes in the microcirculation during the progression of shock.
10. List and describe the causes and effects of hypovolemic, cardiogenic, neurogenic,
anaphylactic, and septic shock.
11. Describe the pathophysiology, signs and symptoms associated with the
progression through the stages of shock.
12. Outline the pre-hospital management of the patient in each type of shock based
on pathophysiological findings and discuss how to integrate the assessment and
management of the patient in shock.
13. Discuss and describe the past and current theories and the underlying
pathophysiological principles behind the fluid resuscitation practices for traumatically
injured patients.

**Soft tissue trauma:**
14. Describe the pathophysiological responses to soft tissue injury.
15. Describe the mechanism of injury and signs and symptoms of specific soft tissue
injuries.
16. Outline the management principles of pre-hospital care of soft tissue injuries.
17. Describe the pre-hospital management of selected soft tissue injuries.
18. Discuss the factors that increase the potential for wound injuries.

Burns:
19. Describe the incidence, patterns and sources of burn injury.
20. Describe the pathophysiological patterns to burn injury.
21. Classify burn injury according to depth, extent and severity based on established
standards.
22. Describe the pre-hospital management of the patient who has established a burn
injury.

Head and facial trauma
23. Describe the mechanism of injury, assessment and management of:

- Focia-maxillary injuries; ear, eye, and dental injuries; neck trauma; scalp, cranial, nerve injury

24. Distinguish between different types of brain injuries based on pathophysiology
and assessment findings.
26. Describe trauma scales used in the pre-hospital setting.

Spinal trauma
27. Describe the incidence, morbidity, mortality related to spinal injury.
29. Distinguish between certain types of spinal injury.
30. Describe pre-hospital assessment of spinal cord injury.
31. Identify pre-hospital management with the patient with traumatic and non-
traumatic spinal cord injuries.

Thoracic Trauma
32. Discuss the factors and mechanism of injury associated with thoracic trauma
33. Describe the mechanism of injury, signs and symptoms and management of
skeletal injuries to the chest.
34. Describe the mechanism of injury, signs and symptoms and pre-hospital
management of pulmonary trauma.
35. Describe the mechanism of injury, signs and symptoms, pre-hospital management
of injuries to the heart and great vessels; esophageal and tracheobronchial injury;
diaphragmatic rupture.

Abdominal trauma
36. Describe mechanisms of injury, signs and symptoms, and complications associated
with abdominal solid organ, hollow organ and pelvic organ injuries.
37. Describe the pre-hospital assessment priorities for a patient suspected of having
an abdominal injury.
38. Outline the pre-hospital care of a patient with abdominal injury.

Musculoskeletal Injury
39. Describe the features of each class of musculoskeletal injury.
40. Describe the pre-hospital management principles for selected upper and lower
extremity injuries.
41. Identify pre-hospital management priorities for open fractures, angular fractures
and dislocations.

**Content** This unit will cover the following topics:
1. Trauma systems and mechanism of injury
2. Haemorrhage and shock
3. Soft tissue trauma
4. Burns
5. Head and facial trauma
6. Spinal trauma
7. Thoracic trauma
8. Abdominal trauma
Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:

1. Describe what is meant by mental health.
2. Explain how the biopsychosocial model relates to mental health.
3. Elucidate how good mental health may be promoted.
4. Use ideas from behavioural and cognitive psychology to explain the behaviours of themselves and others. This will include health destructive and health promoting behaviours.
5. Reflect on their own mental health and on that of others.
6. Discuss and describe the most prevalent mental disorders in Australia (depression, anxiety, substance misuse, bipolar disorder) and dementia.
7. Describe how psychosocial and lifestyle factors influence mental health.
8. Explain how ambulance paramedics should approach and assess patients with a behavioural emergency.
9. Explore and explain options as to how ambulance paramedics might manage a patient in a behavioural emergency.
10. Identify and describe the National and State legislation and ambulance service policies and regulations that apply to patients with a behavioural emergency.
11. Integrate this knowledge to participate effectively in relevant role-plays and scenarios.

Required Reading

- Class Contact Forty-eight (48) hours over one 12-week semester comprising of four (4) hours per week of lectures. Self directed learning will be encouraged using the paramedic interactive curriculum and case study.

Assessment
This unit has three assessment items: one 1-hour mid semester theory examination (30%); one written assignment (2000 words) (30%); one 3-hour end of semester theory examination (40%). Knowledge, skills and values developed in this unit will be assessed through group discussion and case-based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.
HFB2204 PARAMEDIC PRACTICE 3
Campus St Albans, Off Campus
Prerequisite(s) HFB2100 Paramedic Practice 2; or equivalent.
Content This subject continues development of students understanding and practice of paramedic emergency management. This subject has been designed to continue the study of knowledge using a problem-oriented approach. The introduction of skill development and knowledge has been specifically integrated to ensure students have an underlying knowledge and then are able to apply skills to a particular situation.
The framework of the subject will be based around medical specialties and out of hospital emergencies and will be related to emergency care of the elderly, obstetrics and midwifery, neonatal care, paediatrics, abdominal and reproductive emergencies. Students will be introduced to the principles of applied clinical pharmacology in the form of paramedical guidelines, drug administration, and management of these patients in emergency situations, in the home and during emergency medical transport. Students will also be introduced to clinical instruction and mentoring.
To enhance student relationships, students will work with other students providing supervised student mentoring arrangements. The integration of this approach will further facilitate the need for individualised patient care. Topics in this subject may be interchanged with HFB2103 Paramedic Practice 3, HFB2204 Paramedic Practice 3.

Required Reading To be advised by lecturer.

Subject Hours Six hours per week for one semester or off Campus equivalent comprising lecturers, tutorials, practical sessions and discussion and/or workbooks.
Assessment Examination (50%), Portfolio (50%) and mastery exams (pass/fail).

Note: Normally to obtain a pass in the subject all components of assessment must be passed.

Website dingo.vu.edu.au/~paramedics

FACULTY OF HEALTH, ENGINEERING AND SCIENCE

HFB2205 PARAMEDIC INTERNSHIP
Campus St Albans, Off Campus
Prerequisite(s) HFB2101 Paramedic Clinical 2; or equivalent.
Corequisite(s) HFB2204 Paramedic Practice 3; or equivalent.
Content This subject is designed to build on past clinical subjects and to place the student into actual paramedic practice. The subject aims to make students aware of the expectations of them in pre-hospital environments and acute medical settings. To further develop paramedic skills and an awareness of professional and ethical behaviours, students will be expected to practise primarily in the ambulance environment within selected clinical settings or in supervised classroom laboratory settings.

Students will practise patient consultations and clinical practice under supervision. Clinical tutorials and case presentations will emphasize and expand upon clinically relevant material obtained during clinical placement.

Required Reading To be advised by Lecturer.

Website dingo.vu.edu.au/~paramedics

Subject Hours A minimum of ten (10) hours per week for one semester or equivalent, comprising at least sixty (60) hours clinical placement in the semester (hurdle requirement), lectures, tutorials, practical sessions and self-directed learning activities. Clinical placement needs to be flexible pending available clinical positions in hospitals, other medical facilities and ambulance services. Where possible, students will be notified at the beginning of the semester of their clinical arrangements.

Assessment To obtain an Ungraded Pass, students must successfully complete the proficiency multi-station practical and theory examination (pass/fail) (hurdle requirement), reflective journal (maximum 1500 words), four case studies, clinical log book, overall satisfactory appraisal from all placements (hurdle requirement). This subject is a hurdle requirement.

HFB2206 FUNDAMENTALS OF PARAMEDICINE 4
Campus St Albans, Off Campus, Online
Prerequisite(s) HFB2102 Fundamentals of Paramedicine 3; or equivalent.
Content This subject furthers the understanding of principles and diseases introduced in earlier paramedic subjects. Topics include the anatomy and physiology of the special senses; fluids, electrolytes and acid–base balance; and pregnancy and human development. The impacts of trauma and fluid and electrolyte imbalances on the body and the pathophysiological basis of pain and shock are presented. Fundamental differences between paediatric and adult care are highlighted. Students will study the acute paediatric onset of illnesses affecting the cerebral, respiratory, cardiovascular and other systems. Causes and prevention of paediatric trauma will be introduced and extended into its management in a prehospital setting. Emotional effects on parents, paramedics and bystanders will also be discussed. Topics may be interchanged with those in HFB1101 Fundamentals of Paramedicine 1, HFB1204 Fundamentals of Paramedicine 2 and HFB2102 Fundamentals of Paramedicine 3. Topics will be related directly to paramedic care of the emergency patient.

Required Reading To be advised by Lecturer.

Website dingo.vu.edu.au/~paramedics

Subject Hours Four hours per week for one semester or equivalent, comprising lectures, tutorials, practical sessions and computer-based self-directed learning activities.
Assessment Online test given in two parts (20%); essay (1500 words) (30%); written examination (50%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment items (online test and essay) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.

HFB2207 PARAMEDIC SCIENCES 4
Campus St Albans, Online
Prerequisite(s) HFB2103 Paramedic Sciences 3; or equivalent.
Content This subject develops the students’ knowledge on drugs used for CNS and psychiatric conditions and extends knowledge on fluid imbalances. Attitudes towards recreational and prescribed drugs are explored. Principles of microbiology with reference to sterilisation and disinfection, infection control and antibiotic treatment of microorganisms and nosocomial infections are linked to public health issues later in the course. Topics studied in this subject may be interchangeable with those in HFB1102 Paramedic Sciences 1, HFB1206 Paramedic Sciences 2 and HFB2103 Paramedic Sciences 3. Topics will be related directly to paramedic care of the emergency patient.

Required Reading To be advised by Lecturer.

Website dingo.vu.edu.au/~paramedics

Subject Hours Four hours per week for one semester or equivalent, comprising lectures, tutorials, practical sessions and self-directed learning activities.
Assessment Clinical review (1500 words) (20%); essay (1500 words) (30%); final written examination (50%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment items (clinical review and essay) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.

HFB2217 PARAMEDIC SCIENCE 2
Campus St Albans
Prerequisites HFB2114 Paramedic Science 1; or equivalent.
Co-requisites nil

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:

Cardiology:
1. Identify risk factors and prevention strategies associated with cardiovascular disease
2. Discuss electro physiology as it relates to the normal electrical and mechanical events in the cardiac cycle.
3. Outline the activity of each component of the electrical conductivity of the heart
4. Describe the pathophysiology, signs and symptoms and key assessment findings to distinguish selected cardiovascular disorders, including acute coronary syndromes.
5. Describe the pre-hospital management of patients with selected cardiovascular disorders, including acute coronary syndromes
6. Identify appropriate actions to take in the pre-hospital setting to terminate resuscitation
7. Explain the relationship of the electrocardiogram tracing to the electrical activity of the heart
8. Describe the causes, complications, signs and symptoms, and pre-hospital management of patients diagnosed with; obstructive airways disease, pneumonia, adult respiratory distress syndrome, pulmonary thrombus embolism, upper respiratory infection, spontaneous pneumothorax, hyperventilation syndrome and lung cancer
9. Neuralgic emergencies:
10. Outline pathophysiological changes in the nervous system that may alter cerebral blood flow, cerebral perfusion pressure and intracranial pressure.
11. Describe the assessment of a patient with a nervous system disorder
12. Describe the pathophysiology, signs and symptoms, as specific management techniques as each of the following neurological disorders: coma, stroke and intracranial haemorrhage, seizure disorders, headaches, brain neo-plasm and brain abscess and degenerative neurological diseases.
13. Discuss the pathophysiological bases for key signs and symptoms, patient assessment, and patient management for; diabetes and diabetic emergencies such as hypoglycaemia, diabetic ketoacidosis, and hyper-osmolar hyperglycaemic non-ketotic coma.
14. Discuss the pathophysiological bases for key signs and symptoms, patient assessment and patient management for disorders of the thyroid gland.
15. Discuss the pathophysiological bases for key signs and symptoms, patient assessment and patient management of Gushing syndrome and Addison disease.

Content This unit will cover the following topics:
1. Cardiology and acute coronary syndromes
2. Pulmonary emergencies
3. Neurological emergencies
4. Endocrine emergencies


Class Contact Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week of lectures. Self directed learning will be encouraged using the paramedic interactive curriculum and case study.

Assessment This unit has three assessment items: one 1-hour mid-semester theory examination (30%); one written assignment (2000 words) (30%); one 3-hour end-of-semester theory examination (40%). To obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and an aggregate mark of 50% must be attained.

HFB2219 SPECIAL POPULATIONS
Campus St Albans
Prerequisites HFB2114 Paramedic Science 1; or equivalent.
Co-requisites nil

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Urology and Urinary disorders
   1. Describe the pathophysiology, signs and symptoms, and pre-hospital management of the patient with urinary retention, urinary tract infections, pyelonephritis and urinary calculus;
   2. Distinguish between acute and chronic renal failure;
   3. Discuss general pre-hospital management for the patient with a urinary disorder;

Haematological disorders
4. Discuss the pathophysiology and signs and symptoms of haematological disorders including; anaemia, haemophilia, Hodgkin’s disease, Lymphoma, Polycythaemia, sickle cell disease;
5. Outline general assessment of patients with haematological disorders;

Gynaecological disorders
6. Describe the pathophysiology of selected non-traumatic causes of abdominal pain in females; pelvic inflammatory disease, ruptured ovarian cyst, cysts, dysmenorrhoea, endometriosis, ectopic pregnancy, and vaginal bleeding;
7. Describe the pathophysiology of selected traumatic causes of abdominal pain in females, vaginal bleeding and sexual assault;
8. Outline the pre-hospital assessment and management of the female with abdominal pain;
9. Outline specific management and treatment of the patient who has been sexually assaulted;
10. Describe specific pre-hospital measures to preserve evidence in sexual assault cases;

Obstetrics:
11. Describe the organisation and function of the specialised structures of pregnancy;
12. Outline embryonic and foetal development from ovulation to birth;
13. Explain normal maternal physiological changes that occur during pregnancy and how the influence pre-hospital patient care and transportation;
14. Describe appropriate information to be elicited during the obstetrical patient’s history;
15. Describe specific techniques for assessment of the pregnant patient;
16. Describe the assessment and management of the pregnant patient in the pre-hospital setting;
17. Discuss the implications of pre-hospital care in the specific obstetric emergencies including; trauma to the foetus and mother, pre-eclampsia, eclampsia, and vaginal bleeding in pregnancy;
18. Outline the physiological changes that occur during labour;

Geriatrics:
19. Explain the physiology of the aging process as it relates to major body systems and hemostasis;
20. Describe general principles specific to older adults;
21. Describe the pathophysiology, assessment and management of specific illnesses in geriatric patients;
22. Discuss pre-hospital assessment and management of depression and suicide in the older adult;
23. Discuss effects of drug toxicity in the older adult;
24. Describe the epidemiology, assessment and management of trauma, environmental emergencies and abuse in the geriatric patients;

Paediatrics
25. Describe general principles specific to paediatrics;
26. Describe the pathophysiology, assessment and management of specific illnesses in paediatric patients;
27. Describe the pathophysiology, assessment and management of traumatic injuries and shock in paediatric patients;
28. Discuss and describe the psychosocial and pathophysiological aspects of non-accidental trauma;
29. Discuss and describe the psychosocial and pathophysiological aspects of SIDS.

Content This unit will cover the following topics:
1. Urology and Urinary disorders
2. Haematological disorders
3. Gynaecological and gynaecological disorders
4. Obstetrics
5. Geriatrics
6. Paediatrics


Class Contact Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week of lectures. Self directed learning will be encouraged using the paramedic interactive curriculum and case study.

Assessment This unit has two assessment items: one written assignment (3000 words) (50%); one 3-hour end-of-semester theory examination (50%). Knowledge, skills and values developed in this unit will be assessed through group discussion and cases based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.

HFB2220 PARAMEDIC CLINICAL PRACTICE 4
Campus St Albans
Prerequisites HFB2114 Paramedic Science 1, HFB2116 Paramedic Clinical Practice 3; or equivalent.
Co-requisites HFB2217 Paramedic Science 2; or equivalent.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Describe and demonstrate the appropriate pre-hospital assessment and management of patients presenting with selected cardiovascular disorders, including the acute coronary syndromes;
2. Demonstrate the correct application and usage of a variety of cardiac monitoring devices;
3. Demonstrate the systematic analysis of a three lead ECG rhythm strip;
4. Describe and demonstrate the appropriate pre-hospital assessment and management of patients presenting with selected respiratory disorders;
5. Describe and demonstrate the appropriate pre-hospital assessment and management of patients with both acute and chronic neurological disorders;
6. Describe and demonstrate the appropriate pre-hospital assessment and management of patients with an endocrine emergency;
7. Describe, demonstrate and justify the administration of various pharmacological...
agents related to the management of cardiovascular, respiratory, neurological and endocrine disorders;
8. Describe and demonstrate the appropriate pre-hospital assessment and management of female patients with reproductive emergencies;
9. Demonstrate, in a simulated environment, the successful delivery of a child, in a variety of presentations;
10. Describe and demonstrate management of the neonate, including the correct application of the Apgar score post delivery;
11. Describe and demonstrate the appropriate pre-hospital assessment and management of paediatric emergencies;
12. Demonstrate the assessment and management of the pre and postpartum patient in both the emergency and non-emergency state;
13. Use reflective strategies to identify opportunities for improvement in clinical reasoning, patient management.

Content This unit will contain:
1. Cardiovascular emergencies, including the acute coronary syndromes
2. Respiratory emergencies
3. Neurological emergencies
4. Endocrine emergencies
5. Female reproductive system emergencies
6. Practical childbirth
7. Care of the neonate and paediatric
8. Management of the pre and postpartum patient


Class Contact Forty-eight (88) hours over one 12-week semester comprising four (4) hours per week of practical classes and self-directed learning utilising the Paramedic Interactive Curriculum, and forty (40) hours clinical placement in an appropriate clinical setting during the semester.

Assessment This unit has three assessment items. Practical skills will be assessed using criterion referenced clinical skills assessment format. Students will be provided clinical skills assessment forms by the end of the second week of semester. Knowledge and values developed in this unit will be assessed in final semester examinations, which will be conducted in a scenario-based format. Students are required to satisfactorily complete a clinical logbook and reflective journal whilst on clinical placement. To obtain a pass in this competency, all components of assessment must be attempted and passed.

HB3111 PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 1

CampusSt Albans, Off Campus, Online

Prerequisite(s) Successful completion of Years One and Two; or equivalents.

Content This subject challenges students to analyse their present practice by examining the principles of intervention for the acutely ill or injured person. An integral part of this subject will be the development of students’ health assessment and practice skills necessary for care for the acutely ill or injured person and the adoption of those skills to improve and extend current practice. Integration of material from basic and paramedic sciences, applied clinical sciences, paramedic clinical practice and professional issues will be incorporated throughout the subject.

Required Reading To be advised by Lecturer.

Recommended Reading To be advised by Lecturer.

Website webct.vu.edu.au/

Subject Hours Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Assessment Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HB3121 ADVANCED PARAMEDIC PRACTICE 1

CampusSt Albans, Internet

Prerequisites Successful completion of year 2 HBPX; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:

Cardiology
1. Correlate pathophysiological concepts and assessment findings when patients experience acute health emergencies relating to alterations in perfusion and oxygenation.
2. Select and use diagnostic tests that aim to support or validate hypotheses regarding the health emergency.
3. Outline the appropriate assessment of a patient who may be experiencing a cardiovascular disorder.
4. Describe ECG monitoring techniques that permit electrocardiogram interpretation.
5. Describe the sequence of steps in electrocardiogram interpretation.
6. When shown an electrocardiogram tracing, identify the rhythm, site of origin, possible causes, clinical significance, and pre-hospital management.
7. Identify dysrhythmias of the/originating in the sinus node, atria, atrioventricular junction, atrioventricular blocks, ventricular, bundle branch and fascicular blocks.
8. Describe the pre-hospital assessment and management of patients with selected cardiovascular disorders based on knowledge of the pathophysiology of the illness.
9. List indications, contraindications, and pre-hospital considerations when using selected cardiovascular interventions including; manual cardioversion, synchronised cardioversion, transcutaneous cardiac pacing, thrombolytic and reperfusion therapies, implanted defibrillation devices and cardiac marker assay.
10. Describe the method for taking 12-lead electrocardiogram tracings.
11. Analyse and interpret 12-lead electrocardiograms.
12. Integrate 12-lead electrocardiogram analysis and interpretation to determine appropriate pre-hospital assessment and management of the patient with a suspected acute myocardial infarction.
13. List indications, contraindications, dose, precautions, adverse effects, mechanism of action of pharmacological agents used to manage cardiovascular disorders.
14. Identify appropriate actions to take in the pre-hospital setting to terminate resuscitation.

Airway Management and Ventilation: 15. Discuss the assessment and management of medical or traumatic obstruction of the airway.
16. Describe the indications, contraindications, complications, pre-hospital precautions for advanced pre-hospital airway management and protection including; tracheal intubation, rapid sequence induction, needle cricothyroidotomy, cricoidotomy, lighted stylet intubation, nasogastric intubation, orogastric intubation, and mechanical transport ventilation.
17. Demonstrate the correct and appropriate use of advanced pre-hospital airway management and protection including; tracheal intubation, rapid sequence induction, needle cricothyroidotomy, cricoidotomy, lighted stylet intubation, nasogastric intubation, orogastric intubation, and mechanical transport ventilation.
18. Demonstrate the correct and appropriate use of advanced ventilation-perfusion diagnostic technology including pulse oximetry, end-tidal carbon monoxide detection, and peak flow testing.
19. Describe and demonstrate knowledge and skills for the administration of pharmacological agents of sedation and paralysis.

Allergies and Anaphylaxis:
20. Describe the antigen/ant body response
21. Differentiate between an allergic reaction and a normal immune response.
22. Describe signs and symptoms and management of local allergic reactions based on an understanding of the pathophysiology associated with this condition.
23. Identify allergens associated with anaphylaxis
24. Describe the pathophysiology, signs and symptoms, and management of anaphylaxis

Content This unit will cover the following topics:

1. Cardiology
2. Advanced airway management
3. Allergies and anaphylaxis


Class Contact Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week: 2 hours on-line lectures per week and 2 hours on-line tutorials per week.

Assessment This unit has three assessment items: one 1-hour mid-semester theory examination (30%); one written assignment (2000 words) (30%); one 3-hour end-of-semester theory examination (40%). Knowledge, skills and values developed in this unit will be assessed through group discussion and case-based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.
HFB3122 PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 2
Campus St. Albans, Off Campus, Online
Prerequisite(s) Successful completion of Years One and Two; or equivalents.
Content This subject challenges students to analyse their present practice by examining the principles of intervention for the acutely ill or injured person. An integral part of this subject is the development of students’ understanding of electrocardiology and pharmacology, and their ability to apply principles in electrocardiology and pharmacology to their present practice. Integration of material from basic and paramedic sciences, applied clinical sciences, paramedic clinical practice and professional issues will be incorporated throughout this subject.
Required Reading To be advised by Lecturer.
Recommended Reading To be advised by Lecturer.
Website webct.vu.edu.au/
Subject Hours Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.
Assessment Portfolio including contribution to online discussions (500-800 words each) (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3123 ADVANCED PHARMACOLOGY
Campus St. Albans, Internet
Prerequisites HFB1213 Paramedic Clinical Practice 2, HFB2217 Paramedic Science 2; or equivalents.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Describe the clinical indications for, adverse effects of adrenergic and cholinergic agonists and antagonists.
2. Describe the distribution and function of selected drug group receptors.
3. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of narcotic analgesics and non-narcotic analgesics.
4. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of axiolytic, hypnotic, and anti-psychiatric drugs.
5. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected cardiovascular drugs.
6. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected drugs that act on the respiratory system.
7. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected local anaesthetic drugs.
8. Understand the role of prostaglandins in the inflammatory response.
9. Contrast the actions of depolarising and non-depolarising neuromuscular blocking agents.
10. State the rationale for the use of neuromuscular blocking agents in anaesthesia.
11. Identify suitable agents for rapid sequence induction.
12. Describe the actions of selected drugs used to treat heart failure.
13. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of anti-convulsant agents.
14. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of antiepileptics, anti-inflammatory and analgesic drugs.
15. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of fluids and blood products in the treatment of cardiovascular instability.
16. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected anti-emetic agents.
17. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected anti-biotic, anti-viral and anti-microbial agents.
Content This unit will cover the following topics:
1. Adrenergic and cholinergic pharmacology
2. Histamine and antihistamine agents
3. Antipsychotic drugs
4. Anxiolytics, hypnotics, and antidepressant drugs
5. Anticonvulsants, and muscle relaxants
6. Narcotic analgesics and antagonists
7. Antiinflammatory, antipyretic, and analgesic drugs
8. Local anaesthesia
9. Antiarrhythmic and anginal drugs
10. Antihypertensive drugs
11. Anticoagulant, fibrinolytic and anti-platelet agents
12. Diuretic agents
13. Bronchodilators and respiratory agents
14. Antiemetic agents

HFB3124 PRACTITIONER HEALTH 3
Campus St. Albans, Internet
Prerequisites HFB2115 Mental Health and Illness, HFB2218 Practitioner Health 2; or equivalents.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Describe the biopsychosocial model of health.
2. Explain the concept of social capital and how it relates to the biopsychosocial model of health.
3. Describe the mental health profile of people working in the ambulance industry.
4. Compare the mental health profile of people working in the ambulance industry with that of the general Australian population.
5. Explain the effects of shiftwork on sleep.
6. Integrate concepts and techniques drawn from cognitive-behavioural psychology to improve sleep.
7. Identify the mental health disorders of concern to the ambulance industry (including depression, anxiety and substance misuse).
8. Integrate knowledge of the biopsychosocial model of health with ways of describing and dealing with mental health issues.
9. Discuss concerns about suicide.
10. Develop an understanding of the stress process and techniques or tactics for dealing with stress including those used by ambulance paramedics.
Content Biopsychosocial model of health. Concept of social capital and how it relates to the biopsychosocial model of health. How the biopsychosocial model of health can be utilized to discuss and understand mental health issues. Mental health profile of ambulance paramedics and the Australian population. Managing the effects of shiftwork on sleep. Mental health issues of concern to the ambulance industry. Suicide. Stress processes and how the stress process might be managed.
Required Reading There are no books published that deal specifically or exclusively with the issue of paramedic mental health.
Students will also be directed to relevant articles and publications.
Class Contact Forty-eight (48) hours over one 12-week semester comprising lectures, group discussions and small group work.
Assessment This unit has two assessment items: three written assignments (max 1000 words each) (20% each); one one-hour (time-locked online) MCQ test (40%) (A2, C3, I3, O2, P2, W2). To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and passed.
FACULTY OF HEALTH, ENGINEERING AND SCIENCE

HFB3125 RESEARCH IN PARAMEDIC PRACTICE
Campus St. Albans, Internet
Prerequisites HFB2220 Paramedic Clinical Practice 4; or equivalent.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Understand basic research methodology and terminology;
2. Describe the main differences between qualitative and quantitative research;
3. Discuss the advantages and disadvantages of the different methodologies;
4. Have a beginning level of understanding of research design, establishing the rigour of a research process, methods of data collection and analysis and reporting on research data;
5. Retrieve appropriate articles for a literature review;
6. Conduct an in-depth critical appraisal of research articles;
7. Recognise the significance of consent, confidentiality and other ethical considerations in relation to research.
Class Contact Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week: 2 hours on-line lectures per week and 2 hours on-line tutorials per week.
Assessment This unit has three assessment items: two critical appraisal exercise (1000 words each) (20% each; 40% in total); one research proposal (2500 words) (20%); one 2-hour online examination (40%). To obtain a pass or higher in this graded unit, all components of assessment must be passed.

HFB3211 INTEGRATION OF PARAMEDIC PRACTICE 1
Campus St. Albans, Off Campus, Online
Prerequisite(s) Successful completion of Years One and Two; or equivalents.
Content This subject will allow each student to extend and refine their particular area of professional paramedic practice. Students are expected to apply the principles developed in Professional Basis of Paramedic Practice 1 and 2 to their current paramedic practice and to concentrate on the professional development of their nominated area through observation, participation, discussion, and self-reflection.
Required Reading To be advised by Lecturer.
Recommended Reading To be advised by Lecturer.
Website webct.vu.edu.au/
Subject Hours Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or equivalents.
Assessment Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3222 INTEGRATION OF PARAMEDIC PRACTICE 2
Campus St. Albans, Off Campus, Online
Prerequisite(s) Restricted to students enrolled in the Bachelor of Health Science - Paramedic (1 yr Conversion) degree course.
Content This subject re-introduces and extends the fundamentals of paramedicine. A systems approach reinforces the anatomical, physiological, pathophysiological and pharmacological aspects of care from the perspectives of the paramedic. Applied considerations will be given to a range of adult and paediatric emergencies.
Required Reading To be advised by Lecturer.
Recommended Reading To be advised by Lecturer.
Website webct.vu.edu.au/
Subject Hours Four hours per week for one semester comprising lectures and self-directed learning activities or online equivalent.
Assessment Essay (1500 words) (25%); weekly online activities including contributions to online discussions (15%); final online examination of multiple-choice questions only (60%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment items (essay and weekly activities) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.

HFB3226 MAJOR INCIDENTS
Campus St. Albans, Internet
Prerequisites HFB3211 Advanced Paramedic Practice 1; or equivalent.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Define a major incident;
2. Describe traditional disaster threats including natural phenomena such as floods, cyclones, earth quakes tsunamis, fires, landslides, volcanic eruptions, and drought;
3. Describe new disaster threats including, wars, social violence, terrorism, civil unrest, epidemics and chemical and nuclear accidents or warfare;
4. Discuss the principals of risk assessment and major incident planning, preparation, and coordination;
5. Discuss the main elements of the national major incident and disaster policy;
6. Describe the emergency services response to a major incident including police, fire, ambulance, health, state emergency service and other support agencies;
7. Discuss the importance of a multi disciplinary response to a major incident;
8. Discuss medical service major incident planning, preparation, response and recovery;
9. Discuss and demonstrate principals of good communication at major incident;
10. Identify and describe reasons for poor communication at major incidents;
11. Demonstrate effective communications during a major incident simulation;
12. Discuss the role of the media at a major incident;
13. Discuss the principals of major incident management including principals of command and control and the Incident Command System (ICS);
14. Discuss major incident management and treatment;
15. Define triage;
16. Describe and discuss the evolution of modern triage principles, the aims of triage and triage priorities;
17. Demonstrate correct application of triage and treatment principals during a major incident simulation;
18. Describe the organisation and types of transportation used at a major incident;
19. Discuss and describe the major physiological and sociological effects following a major incident including survival, bereavement, and post traumatic stress.
Content This unit will cover:
1. The history of major incidents;
2. Principals of major incident planning, preparation, response and recovery;
3. The role and responsibilities of emergency services in the event of a major incident;
4. The roles and responsibilities of ambulance and medical services in the event of a major incident;
5. Communications;
6. Major incident medical management-command and control, the Incident Command System;
7. Major incident management, treatment, transport;
8. Sociological and psychological impacts of major incidents.
Class Contact Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week: 2 hours on-line lectures per week and 2 hours on-line tutorials per week.
Assessment This unit has four assessment items: one written assignment (3000 words) (40%); one 1-hour written examination (20%); one triage and radio communications practical assessment (20%); one written report on the emergency response.
On successful completion of this unit, it is expected that students will be able to:
1. Apply the skills and knowledge of evidenced based health care acquired in this unit to evaluate their work as a paramedic.
2. Critically examine current protocol systems and how they inhibit, support or constrain the clinical decision making process.
3. Apply knowledge, skills and values, which will enable them to reflect their opinion and practice at pre-hospital care.
4. Understand the decision making process as it applies to diagnostic reasoning in pre-hospital care.

Content This unit will cover:
1. Principles of evidence based practice
2. Hierarchies of evidence
3. Assessing the methodological quality of evidence
4. Clinical decision making
5. Models of reasoning
6. Logical fallacies
7. Critical incidents associated with the decision making process
8. Implementing evidence based findings
9. Evaluating the relevance of care plans to pre-hospital care.
10. The process of documentation associated with clinical decision making in pre-hospital care.
11. Critique of current protocol systems within the context of the clinical decision making process.


Additional hardcopy and audiovisual material developed and supplied by the Paramedic Science Unit, School of Biomedical and Health Sciences will support these texts.

Class Contact Forty-eight (48) hours over one 12-week semester comprising one (1) hour per week of practical classes and self-directed learning utilising the Paramedic Science Unit, School of Biomedical and Health Sciences will support these texts.

Assessment This unit will cover the following topics:
1. Review and revision of the pathophysiology and pre-hospital management of selected medical and trauma conditions including:
   - Cardiovascular emergencies
   - Pulmonary emergencies
   - Neurological emergencies
   - Brain trauma
   - Toxicological emergencies
   - Multi-trauma
   - Urinary emergencies
   - The immune compromised patient
   - Burns and electrical injuries
   - Chest and abdominal trauma
2. The role of diagnostic testing; x-ray, computed tomography (CT scan), magnetic resonance imaging (MRI), ultrasound, angiography, biochemistry, haematology and microbiology/pathology.
3. In-hospital interventions and management of patients with selected medical and trauma conditions.
4. Prognosis and long-term outcome of patients with selected medical and trauma conditions.

Sanders, M. J. (2005). Mosby’s paramedic textbook (3rd ed.). St Louis, MO: Mosby. Additional hardcopy and audiovisual material developed and supplied by the Paramedic Science Unit, School of Biomedical and Health Sciences will support these texts.

Class Contact Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week: 2 hours on-line lectures per week and 2 hours on-line tutorials per week.

Assessment This unit has two assessment items: one 1-hour mid-semester theory examination (30%); one written assignment (2000 words) (30%); one 2-hour end-of-semester theory examination (40%). Knowledge, skills and values developed in this unit will be assessed through group discussion and case-based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.

HFB3229 Paramedic Practicum
Campus St Albans, Internet
Prerequisites Satisfactory completion of semester 5 HBPX; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Describe and demonstrate the appropriate pre-hospital assessment and management of patients presenting with selected wound types;
2. Demonstrate the correct application and usage of a variety of wound management techniques including, suturing, wound debridement, escharotomy, fasciotomy and lancing;
3. Describe and demonstrate the correct application of a variety of physiotherapeutic techniques including, stripping, extended skin and strain care, therapeutic massage, therapeutic ultrasound, and dislocation reduction;
4. Demonstrate, through active participation in a variety of clinical settings, an understanding of the integration of health care practices in order to provide extended patient care for the sick and injured patient;
5. Use reflective strategies to identify opportunities for improvement in clinical reasoning, patient management.

Content This unit will contain:
1. Advanced wound care.
2. Physiotherapeutic management.
3. Integration of health practices and extended patient care.
4. Synergy in paramedicine.


Class Contact Eighty-eight (88) hours over one 12-week semester comprising two (2) hours per week of practical classes and self-directed learning utilising the Paramedic science unit.
Interactive Curriculum, and sixty-four (64) hours clinical placement in an appropriate clinical setting during the semester.

Assessment This unit has three assessment items. Practical skills will be assessed using criterion referenced clinical skills assessment format. Students will be provided clinical skills assessment forms by the end of the second week of semester. Knowledge skills and values developed in this unit will be assessed in final semester examinations, which will be conducted in a scenario-based format. Students are required to satisfactorily complete a clinical logbook and reflective journal whist on clinical placement. To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed.

**HFB3301 ISSUES IN PREHOSPITAL HEALTH SERVICE DELIVERY**
Campus St Albans, Off Campus, Online

**Pre-requisite(s)** Successful completion of Years One and Two; or equivalents.

**Content** This subject introduces students to a range of key concepts that influence health service delivery in out-of-hospital practice. Students will relate to their own perspectives and experiences in order to explore and analyse the many roles of the paramedic in health service delivery.

**Required Reading** To be advised by Lecturer.

**Recommended Reading** To be advised by Lecturer.

**Website** webct.vu.edu.au/

Subject Hours Three hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

**Assessment** Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

**HFB3401 PREHOSPITAL ETHICAL AND LEGAL ISSUES**
Campus St Albans, Off Campus, Online

**Pre-requisite(s)** Prerequisites apply. Please see Paramedic Science Course Co-ordinator for details.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:
1. Define the terminology and abbreviations used in ethics and law;
2. Locate and comment on statutes relevant to paramedic science;
3. Discuss how ethical and legal practices and issues may influence paramedic practice;
4. Describe various ethical and legal principles and processes within the health care system.

**Content** This unit enables students to explore ethical and legal issues and their implications for paramedics and paramedic science. Students’ experiences will be drawn upon to demonstrate and scrutinise their responses to common situations that occur in paramedic practice, which may cause ethical and legal dilemmas.


**Class Contact** Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

**Assessment** One portfolio (50%); One written final examination (50%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed. If the assessment item is failed, it may be resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

**HFB3501 RESEARCH IN PARAMEDIC PRACTICE**
Campus St Albans, Off Campus, Online

**Pre-requisite(s)** Prerequisites apply. Please see Paramedic Science Course Co-ordinator for details.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:
1. Describe basic research methodology and terminology;
2. Describe the main differences between qualitative and quantitative research;
3. Discuss the advantages and disadvantages of the different methodologies;
4. Explain at a beginning level of understanding, research design, the rigour of a research process, methods of data collection and analysis of and reporting on research data;
5. Retrieve appropriate articles for a literature review;
6. Conduct an in-depth critical appraisal of research articles;
7. Recognise the significance of consent, confidentiality and other ethical considerations in relation to research.

**Content** This unit investigates major research considerations and focuses on facilitating the students’ abilities to critically analyse research reports. Emphasis is placed on the application of research findings to paramedic practice and ways in which applications can be facilitated.


**Class Contact** Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

**Assessment** One 1-hour online quiz (10%); One written assignment (2000 words) (40%); One research proposal outline (1000 words) (20%); One 3-hour final examination (30%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed. If the assessment item is failed, it may be resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

**HFB3700 PARAMEDIC INSTRUCTION AND MENTORING**
Campus St Albans, Off Campus, Online

**Pre-requisite(s)** Prerequisites apply. Please see Paramedic Science Course Co-ordinator for details.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:
1. Discuss the role of the clinical educator;
2. Identify the needs of the learner;
3. Describe factors that influence learning;
4. Develop clinical instructor programs;
5. Deliver clinical instructor programs;
6. Explain concepts and theories of assessment and evaluation;
7. Evaluate a clinical instruction program.

**Content** The development and extension of clinic management skills, observation of treatments and supervised provision of limited client care. Contributions to and partial leading of case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.


**Class Contact** Three hours per week or equivalent for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

**Assessment** Negotiated written report or portfolio (100%). To obtain at least a pass or higher in this graded unit, normally the negotiated assessment task must be passed. If the assessment item is failed, it may be resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

**HFB3800 PARAMEDIC PROFESSIONAL WRITING**
Campus St Albans, Off Campus, Online

**Pre-requisite(s)** Successful completion of Years One and Two; or equivalents.

**Learning Outcomes**

**Content** This subject will introduce students to the practice of developing a paramedic body of knowledge through professional writing. Students will rely on their professional experience and the professional literature to produce a paper (or series...
of papers) suitable for submission to a refereed professional journal. Students will use publication guidelines and instructions to authors in paramedic or other suitable journals and will be assisted in the development of their journal paper(s). Emphasis will be on extending the students’ critical appraisal, synthesis and higher order cognitive skills when developing their professional writing skills.

Required Reading: To be advised by Lecturer.

Recommended Reading: To be advised by Lecturer. Website relevant journal sites.

Class Contact: Three hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Assessment: Participation in on-line discussion as specified at the beginning of the semester (hurdle requirement); one written task (2000 words) (40%); one written task (2500 words) (60%).

HFB3900 EMERGENCY MEDICAL SERVICES MANAGEMENT (ELECTIVE)

Campus: St Albans, Off Campus, Online

Prerequisite(s): Successful completion of Years One and Two; or equivalents.

Content: This subject examines two organizational areas (practices and functioning of organisations, and theories and models of organisational structure, policy and decision making) and how they relate to emergency medical services (EMS). Emphasis is on individuals within EMS organisational settings and the critical value of structure, policy and decision making to the organisation. Topics covered in the first area include personality, social perception, group dynamics, motivation and specific personal behaviour management issues such as stress management, conflict resolution and career management strategies. Topics in the second area include the nature of strategic planning, analysis of the environment, planning directions, strategy formulation and implementation, and global strategic management and future directions.

Required Reading: To be advised by Lecturer.

Recommended Reading: To be advised by Lecturer. Website webct.vu.edu.au /

Subject Hours: Three hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Assessment: Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFR0001 ADVANCED QUANTITATIVE RESEARCH METHODS

Campus: St Albans, Footscray, City Flinders (as per student enrolment).

Prerequisite(s): At least one HE unit of study in research methods; or equivalent.

Content: This unit provides a detailed examination of advanced quantitative methods with particular emphasis on research design, decision-making and statistical procedures appropriate to health sciences. Key statistical concepts (data distributions, sampling, variables, hypotheses, errors, effect size and power, parametric and non-parametric) are revised prior to covering more advanced topics, such as: the general linear model, multiple regression, univariate and multivariate analysis of variance and covariance, factor analysis, principal component analysis, and time course studies. Students also receive practical experience in data analysis using the SPSS computer package.

Learning Outcomes: On successful completion of the unit, students are expected to be able to:
1. Differentiate amongst different types of advanced quantitative statistical methods;
2. Select research methods appropriate to different types of research questions;
3. Plan quantitative research studies, selecting the most appropriate design methodology;
4. Interpret output from quantitative statistical analyses.


Contact Hours: Three (3) hours per week or equivalent for one semester comprising seminars and tutorials.

Assessment: One seminar presentation and one written research proposal of intended project (satisfactory or unsatisfactory). To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed. Any failed assessment items will need to be discussed in the first instance with the Unit Co-ordinator. Failed continuous assessment items may be re-attempted or resubmitted once only.

HFR0002 ADVANCED QUALITATIVE RESEARCH METHODS

Campus: St Albans, Footscray, City Flinders (as per student enrolment)

Prerequisite(s): At least one HE unit of study in research methods; or equivalent.

Content: This unit provides students with advanced knowledge and skills in qualitative research methodologies and procedures. Topics include: major paradigms and theoretical perspectives of qualitative research; major qualitative research methodologies, e.g., ethnography, grounded theory, phenomenology, poststructural / critical research, action research and case studies. Advanced skills in data collection include participant and non-participant observational strategies, individual and group interviewing techniques, and unobtrusive strategies such as document analysis. Computer-assisted techniques in qualitative data analysis. Reliability-validity issues, ethical issues, reflexivity and writing up qualitative research will be discussed.

Learning Outcomes: On successful completion of the unit, students are expected to be able to:
1. Differentiate amongst different types of advanced qualitative statistical methods;
2. Select research methods appropriate to different types of research questions;
3. Plan qualitative research studies, selecting the most appropriate methodologies and procedures;
4. Interpret output from qualitative analyses.


Contact Hours: Three (3) hours per week or equivalent for one semester comprising seminars and tutorials.

Assessment: One seminar presentation on research design and one written report on the process of data collection and analysis of proposed project (satisfactory or unsatisfactory). To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed. Any failed assessment items will need to be discussed in the first instance with the Unit Co-ordinator. Failed continuous assessment items may be re-attempted or resubmitted once only.

HHA1171 ANATOMY 1

Campus: City Flinders

Prerequisite(s): Nil

Co-requisite(s): HHO1171 Osteopathic Science 1; or equivalent.

Student Learning Outcomes: On successful completion of this unit, students are expected to be able to:
1. Use anatomical language correctly to describe anatomical structures and planes and motions of the musculoskeletal system of the upper body;
2. Describe the bones, muscles, joints, vessels and nerves of the upper limb, spine, back, thorax, abdominal wall, and external head and neck;
3. Identify the key anatomical structures and spaces of the upper limb, spine, back, thorax, abdomen, and pelvis on models and cadaveric specimens;
4. Describe and define the somatic and autonomic nervous systems, and anatomical spaces of the upper limb, spine, back, thorax, abdominal wall and external head and neck;
5. Describe and demonstrate using cadaveric specimens the anatomical spaces and pathways of vessels and nerves of the upper limb, spine, back, thorax, abdominal wall and external head and neck;
6. Briefly comment on the clinical relevance of the key anatomical features of the upper body;

Content: Topics include definitions of anatomical terms; arthrology, osteology, angiology and myology; the somatic nervous system; autonomic nervous system; anatomy of the back, abdomen and thorax; respiratory muscles; the neck; the upper limb; and clinical applications of musculoskeletal anatomy.


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HHA1272 ANATOMY 2

Campus City Flinders

Prerequisites HHA1171 Anatomy 1; or equivalent.

Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Use anatomical language correctly to describe anatomical structures and planes and motions of the musculoskeletal system of the lower body;
2. Identify, name, and describe, the bones, muscles, ligaments, connective tissue structures, vessels, and nerves of the lower limb, thorax, abdomen, inguinal region and pelvis;
3. Identify the key anatomical structures and spaces of the lower body, thorax, abdomen, inguinal region and pelvis on models and cadaveric specimens;
4. Describe and define the somatic and autonomic nervous systems, and anatomical spaces of the lower limb, thorax, abdomen, inguinal region and pelvis;
5. Describe and demonstrate using cadaveric specimens the anatomical spaces and pathways of vessels and nerves of the lower limb, thorax, abdomen, inguinal region and pelvis;
6. Briefly comment on the clinical relevance of the key anatomical features of the lower body;

Content
Topics include definitions of anatomical terms; arthrology, osteology, anatomy, histology and myology; the somatic nervous system; autonomic nervous system; the somatic nervous system; the gastrointestinal, reproductive, urogenital systems; and clinical applications of musculoskeletal anatomy.


Class Contact Four (4) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory practicals. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two practical viva voce examinations (one at 10%; the other at 45%); one 2-hour final written examination (45%).

HHA2173 ANATOMY 3

Campus City Flinders

Prerequisites HHA2172 Anatomy 2; or equivalent.

Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Identify, name and describe anatomical structures within the head, neck, thorax and pelvis, including the nervous, vascular and lymphatic systems from regional perspectives;
2. Describe the developmental processes and histology of all the major systems in the head, neck, thorax and pelvis, including the nervous, cardiovascular, lymphatic, urinary and respiratory systems;
3. Communicate knowledge of the anatomy of the head, neck, thorax and pelvis (including bones, vessels and spaces) to colleagues and to lay people in ways that each group can understand;
4. Explain the relationships amongst structure, function and dysfunction pertinent to regions of the head, neck, thorax and pelvis;
5. Relate the relevant anatomical structures within the head, neck, thorax and pelvis to osteopathic practice.

Content
Visceral anatomy of the head, neck, thorax and pelvis, including the histology of visceral tissues. Embryological development of the major systems, including the musculoskeletal system.


Class Contact Four (4) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory practicals. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); practical viva voce examinations (one at 10%; the other at 45%); one 2-hour final written examination (45%).

HHA2274 ANATOMY 4

Campus St Albans, City Flinders, Off Campus

Prerequisites HHA2173 Anatomy 3; or equivalent those structures to lay and professional audiences.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Identify, name and describe anatomical structures within the abdomen and pelvis, including the fascia and nervous, vascular and lymphatic systems, from regional perspectives;
2. Describe the developmental processes and histology of all the major systems in the abdomen and pelvis, including the gastrointestinal, reproductive, urogenital systems; and
3. Communicate knowledge of the anatomy of the abdomen and pelvis (including bones, vessels, fascia and spaces) to colleagues and to lay people in ways that each group can understand;
4. Explain the relationships amongst structure, function and dysfunction pertinent to regions of the abdomen and pelvis;
5. Relate the relevant anatomical structures within the abdomen and pelvis to osteopathic practice.

Content
Visceral anatomy of the abdomen and pelvis, including the histology of visceral tissues. Embryological development of the major systems, including the musculoskeletal system.


**Class Contact** Four (4) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory practicals. Practical sessions have a hurdle requirement of at least 90% attendance.

**Assessment** Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one practical viva voce examination (50%); one 3-hour final written examination (50%).

**HHA3275 ANATOMY 5**

**Campus** City Flinders

**Prerequisites** HHA2274 Anatomy 4; or equivalent.

**Co-requisites** Nil.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Identify, name and describe human anatomical structures from a regional perspective;
2. Describe the developmental processes and histology of all the major systems;
3. Prosect cleanly and accurately a nominated musculo-skeletal region of the human body;
4. Communicate knowledge of anatomy to colleagues and to lay people in ways that each group can understand, and using proscribed material or anatomical models as appropriate;
5. Explain the relationships amongst structure, function and dysfunction;
6. Relate the relevant anatomical structures to osteopathic and medical practice;
7. Explain the clinical significance of various disease conditions typically presenting to an osteopathic clinic.

**Content** General and radiographic anatomy, histology and embryology of the human body. Various visceral and musculo-skeletal diseases and conditions and associated clinical significances. Progressive progression and specimen review of human material in a supervised ‘lab’ environment.


**OR**


**Class Contact** Seven (7) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory practicals. Practical sessions have a hurdle requirement of at least 90% attendance.

**Assessment** Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one written progression proposal (hurdle requirement); one oral presentation (30%); one practical and oral presentation of cadaveric progression (30%); one OSCE examination (40%).

**HHA4175 ACUPUNCTURE AND MOXIBUSTION: CLINICAL INTERNSHIP 2**

**Campus** VU/Gold Coast Institute of TAFE (GCIT)

**Prerequisites** As arranged and negotiated by GCIT and VUT.

**Co-requisites**

**Learning Outcomes** On successful completion of this unit, students will be able to:

1. Use advanced acupuncture and Chinese medicine therapy;
2. Demonstrate professional skills, attitude and presentation as modelled by clinical educators;
3. Monitor the consultation process;
4. Give supervisors a CM diagnosis of the client they are treating;
5. Locate and needle accurately acupuncture points appropriate to client needs;
6. Use, and know when to use, mox, cupping, Gua Sha, point injection therapy, dermal hammer, laser, electric stimulator and Chinese medicine;
7. Demonstrate skilful use of relevant diagnostic equipment;
8. Maintain detailed record and case notes;
9. Conduct examination procedures in a way to minimize patient distress, embarrassment and risk of injury;
10. Explain clinical significances of both negative and positive findings in plain English;
11. Assess the client’s needs for ongoing treatment;
12. Communicate the course of treatment to the client in plain English;
13. Liaise and work effectively with clinical educators;
14. Mentor students in the clinic;
15. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content** During the first week of semester, students will attend two 2-hour seminars to orient them to the final level of the clinical program; to review expectations of them in the clinic; to review student ethics and professional behaviour; Students undertake their final year clinical placement as the Intern Practitioner in approved settings. Internship Practitioner: The student practitioner is expected to conduct themselves in the professional manner as demonstrated by Practitioner Clinicians, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the intern practitioner: document case-notes, define diagnosis, treatment principles and where appropriate apply acupuncture. The intern practitioner works independently and assumes full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is accessed as required.


**Recommended Reading** To be advised by Lecturer.

**Class Contact** A required minimum of the equivalent of one hundred and fifty-four (154) hours in an approved clinical setting per semester. (hurdle requirement).

**Assessment** Overall satisfactory report(s) from clinical placement(s) (50%) (hurdle requirement Combined practical and oral examination (50%) (proficiency standard hurdle requirement). Supervised placement comprising successful completion of the required equivalent of 154 clinical hours (pass/fail) (hurdle requirement) To obtain at least a Pass in the unit, normally all components of assessment must be attempted and passed. Failed assessment item (practical and oral examination) may be re-attempted once only. Proficiency standard must be obtained on any re-attempted examination. Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement for graduation. All assessment items address the CAO levels as indicated in the Learning Outcomes
8. Maintain detailed record of case notes.
9. Conduct examination procedures in a way to minimize patient distress, embarrassment and risk of injury;
10. Explain clinical significances of both negative and positive findings in plain English;
11. Assess the client’s needs for ongoing treatment;
12. Communicate the course of treatment to the client in plain English;
13. Liaise and work effectively with clinical educators;
14. Mentor students in the clinic;
15. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content During the first week of semester, students will attend two 2-hour seminars to orient them to the final level of the clinical program; to review expectations of them in the clinic; to review student ethics and professional behaviour; Students undertake their final year clinical placement as the Intern Practitioner in approved settings. Internship Practitioner: The student practitioner is expected to conduct themselves in the professional manner as demonstrated by Practitioner Clinicians, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the intern practitioner: document case-notes, define diagnosis, treatment principles and where appropriate apply acupuncture. The intern practitioner works independently and assumes full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is accessed as required.


Recommended Reading To be advised by Lecturer.

Class Contact A required minimum of the equivalent of one hundred and fifty-four (154) hours in an approved clinical setting per semester. (hurdle requirement). Assessment Overall satisfactory report(s) from clinical placement(s) (50%) (hurdle requirement Combined practical and oral examination (50%) (proficiency standard hurdle requirement). Supervised placement comprising successful completion of the required equivalent of 154 clinical hours (pass/fail) (hurdle requirement To obtain at least a Pass in the unit, normally all components of assessment must be attempted and passed. Failed assessment item (practical and oral examination) may be re-attempted once only. Proficiency standard must be obtained on any re-attempted examination. Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement for graduation. All assessment items address the CGA levels as indicated in the Learning Outcomes

HHC2171 BIOMECHANICS 1
Campus St Albans, City Flinders, Off Campus.
Prerequisite(s) HHA2172 Anatomy 2; HHH1171 Physiology 1; or equivalents.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Apply biomechanical principles and knowledge of anatomy to common activities;
2. Apply biomechanical principles to the analysis of daily and other specified activities;
3. Apply appropriate laboratory-based methods to analyse those activities;
4. Orally present individual biomechanics research findings in a seminar setting.


HHC2272 BIOMECHANICS 2
Campus City Flinders
Prerequisite(s) HHA2173 Anatomy 3; HHBC171 Biomechanics 1; or equivalents.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Discuss in detail the biomechanics of major joints;
2. Describe joint injury mechanics peculiar to each joint;
3. Predict common causes of injury to each joint;
4. Demonstrate laboratory analysis techniques in a biomechanics laboratory;
5. Critically assess published research papers on mechanics of the body and its joints.

Content Biomechanical analysis of specific joints in the human thorax and spine, hip, shoulder, knee and ankle. Analysis of joint components, muscles and passive structures peculiar to each joint, and an overview of injury-related issues peculiar to each joint. Students will research one specific topic area


HHC3173 BIOMECHANICS 3
Campus City Flinders
Prerequisite(s) HHHC2272 Biomechanics 2; or equivalent.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Apply biomechanical principles and knowledge of anatomy to common activities;
2. Apply biomechanical principles to the analysis of daily and other specified activities;
3. Apply appropriate laboratory-based methods to analyse those activities;
4. Orally present individual biomechanics research findings in a seminar setting.

Content Application of biomechanics to daily living and common activities. Gait, posture, ergonomics, lifting. Walking and running injuries; shoulder - throwing and injuries; sport biomechanics.
On successful completion of this unit, it is expected that students will be able to:
1. Integrate different knowledge aspects of biomechanics;
2. Replicate a research study in biomechanics, applying knowledge and skills acquired in earlier semesters;
3. Present orally individual or group research to colleagues and to lay people in ways that each group can understand;
4. Produce written reports of individual or group research in a conventional scientific format.

Content
The research process in biomechanics. Replication of a published study in the biomechanics literature. Reliability and validity of test data. Written and oral presentations of the student’s biomechanics research project.

Required Reading
There are no set texts for this unit. Reading will be influenced by the nature the research project undertaken by the student. American Psychological Association. (2001). Publication manual of the American Psychological Association (5th ed.). Washington, DC: Author.


Recommended Reading

Class Contact
Three (3) hours per week or equivalent for one semester comprising laboratory classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment
Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one oral research presentation (40%), one written research report (60%).

HHD1201 DERMAL HEALTH SCIENCE 1
Campus City King - Internet
Prerequisites Nil.
Co-requisites Nil.

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Describe the basic floorplan of a human cell, including the organelles and cellular membrane;
2. Explain cellular functions in terms of cellular structures;
3. Describe the structures (anatomy and basic histology) of the circulatory, lymphatic, musculoskeletal, nervous, endocrine and integumentary systems with special reference to dermal therapy;
4. Explain the functions (physiology) of the circulatory, lymphatic, musculoskeletal, nervous, endocrine and integumentary systems with special reference to dermal therapy;
5. Discuss how hormones affect the integumentary system in normal and pathological conditions;
6. Outline key microbiological concepts and principles relevant to dermal therapy;
7. Comment on infection control and sterile procedures in dermal therapy.

Content
The unit introduces students to theoretical aspects of anatomy, physiology and microbiology relevant to the practice of Dermal Therapy. The unit provides knowledge on cells, tissues and systems that students will require in their theoretical and practical applications throughout the associate degree program. Topics include: the cell, membrane and organelles; the circulatory, lymphatic, musculoskeletal, nervous (including the brain), endocrine and integumentary systems; and identification and biochemistry of micro-organisms. Fundamental microbiological principles that underpin infection control and sterile procedures in clinical practice units are emphasised. This unit extends the knowledge of anatomy and physiology gained in the Diploma of Beauty Therapy.

Required Reading

Recommended Reading

Class Contact
Four hours per week

Assessment
This unit has three (3) assessment items: A one (1) hour online MCQ Examination 35% (I2, W1, A1); Three (3) reading exercises (Composed of a series of short answer questions relating to selected journal articles) 30% (P1, I2, W1, A1); One (1) assignment, 1000 words, 35% (P1, I2, W1, A1, D1) The student will be required to investigate a cosmetic procedure and discuss this procedure in light of the knowledge gained in body systems.

HHD1202 DERMAL HEALTH SCIENCE 2
Campus City King - Internet
Co-requisites HHD1101 Dermal Health Science 1.

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Explain the function of the skin in terms of its structure;
2. Discuss, with specific details, the biochemistry of the skin;
3. Explain the principles of the inflammatory process and the process of wound healing;
4. Describe the embryology of the integumentary system;
5. Outline the clinical manifestations pathophysiology oenology and embryology for common neoplasias;
6. Compare and contrast benign and malignant neoplasias.

Content
The unit extends students theoretical knowledge of aspects of anatomy, physiology, patho-physiology, immunology, cellular damage, allergy, infection, inflammation, wound repair, neoplasia, and tissue responses to stress relevant to the practice of Dermal Therapy. The unit provides underpinning knowledge that students will require in their theoretical and practical applications throughout the associate degree program. Specific topics include: wound rehabilitation, skin and deeper tissue physiology, inflammatory response and associated damage, allergic responses, embryology of the skin, and structure and biochemistry of the skin. This unit extends the knowledge of anatomy and physiology gained in the Diploma of Beauty Therapy.

Required Reading

Recommended Reading
HHD1203 DERMAL WORKPLACE PRACTICES

Campus City King - Internet
Prerequisites Students will require access to or be employed by an appropriate salon or dermal clinic in order to complete assessment tasks associated with this unit.
Co-requisites Nil
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Discuss workplace issues that impact on individuals (self, the client) and groups (employers) working in dermal therapy and other allied practices;
2. Give psychological explanations for group and individual responses (thoughts, actions and feelings) typically found in dermal therapy and other allied practices;
3. Reflect on their tertiary education and workplace experiences in a constructive manner;
4. Document their use of reflective practice to maintain or improve cohesion in the workplace;
5. Document examples from their workplace in which psychological theories and reflective practice have been applied to issues arising with clients;
6. Describe client responses (thoughts, actions and feelings) that warrant consideration for referral to external agencies;
7. Give written and spoken examples of referrals to external agencies.
Content This unit explores psychological issues in the dermal therapy workplace. Individual (student practitioner, the client, the employee) and group (employee-employee) issues are examined, and psychological explanations for individual and group responses typically found in dermal therapy and other allied practices are discussed. Psychological conditions typical of some clients are explained further and appropriate communications strategies are provided. Client responses warranting referral are covered in conjunction with referral procedures to external agencies. Required Reading Kolt, G. S., & Anderson, M. B. (Eds.). (2004). Psychology in the workplace. McGraw Hill. Recommended Reading Northbourne, P., & Northbourne, L. (1992). Health communication: Strategies for health professionals. Connecticut: Appleton and Lange.
Class Contact 3 hours per week.
Assessment Reflective journals (1500 words Students are to present a reflective journal encompassing their opinions and related arguments or agreements to each lecture) 45% (P2, I1, W1, A1, D2) Protocol workbook (1500 words - students are to select five issues covered in the lectures and prepare a standard protocol on how to address these issues in the workplace setting) 55% (P2, I1, W1, A1, C1, D2)

HHD1271 CLINICAL DIAGNOSIS & MANAGEMENT 1

Campus St Albans, City Flinders, Off Campus
Prerequisite(s) HHH1171 Osteopathic Science 1; HHH1171 Anatomy 1; HHH1171 Physiology 1; or equivalents.
Co-requisites HHH11271 Pathology 1; or equivalent.
Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Correctly and accurately use the vocabulary of the clinical examination;
2. Name the basic skin lesions and explain at a basic level their aetiology;
3. Conduct a competent examination of the following structures: head, eyes, ears, nose, mouth, neck, nervous system, including the cranial nerves and reflexes, muscles and joints; thorax including lungs, heart and great vessels, peripheral vascular system, and abdomen;
4. Describe the basic abnormal signs and symptoms that may be encountered when the named structures and systems are affected by pathology;
5. Integrate and apply knowledge of anatomy and physiology (including from other units) to the living body;
6. Explain the purpose and demonstrate at least limited use of the basic tools of clinical medicine, such as the stethoscope, otoscope, ophthalmoscope, reflex hammer, tuning fork and sphygmomanometer.
Content Content will include an introduction to the examination and assessment of: the skin, head and neck, eye and ear, respiratory system, heart, peripheral vascular system, cranial nerves, abdomen and peripheral nervous system. Students will be trained in the use of equipment commonly employed in clinical examinations, including the stethoscope, otoscope, ophthalmoscope, reflex hammer, tuning fork, and sphygmomanometer.
Class Contact Hours Two (2) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.
Assessment Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); mock viva voce practical examination (pass/fail formative assessment) (hurdle requirement); final viva voce practical examination (100%) (hurdle requirement).

HHD2101 DERMAL HEALTH SCIENCE 3

Campus City King, Internet
Prerequisites HHD2101 Dermal Health Science 1 and HHD2102 Dermal Health Science 2. Students will require access to or be employed by an appropriate salon or dermal clinic in order to complete assessment tasks associated with this unit.
Co-requisites Nil
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Contrast the chemical formulas, properties and actions and adverse reactions of a range of chemical peels and cosmeceuticals commonly used on the skin in the aesthetic industry;
2. Discuss issues of toxicity as they relate to the use of chemicals on the skin;
3. Outline the clinical manifestations, differential diagnoses, pathophysiology, pathology, treatment and management and epidemiology for a range of dermatological conditions;
4. Discuss the role of the dermal clinician in the management of various dermatological conditions.
Content This unit builds on the knowledge presented in Health Science 1 by further researching advanced skin structure and cosmetic dermatology, specifically in the area of dermatological conditions. This unit also covers the clinical features, pathophysiology including histological features, pathophysiology, diagnosis, treatment and management, and epidemiology of a range of non-infectious dermatological conditions. Conditions include dermatitis, eczema, psoriasis, benign and pre-malignant skin lesions and skin cancers. Other skin disorders requiring the introduction and development of pharmacology and toxicology are also discussed. Principles of pharmacology and toxicology are reinforced with research studies on the effects of various drugs and chemicals on the skin. Students are expected to investigate the effects on the skin of various cosmetic ingredients especially those in chemical peels and cosmeceutical preparations. Client responses warranting referral to a medical practitioner are covered and students will be expected to become familiar with the Therapeutic Goods Act and other legislation relevant to practical work in dermal therapy.
Class Contact 4 hours per week.
Assessment This unit has three (3) assessment items: This unit has three (3) assessment items: A two (2) hour online examination 35% (P3, I3, W3, A3);
One (1) ten minute presentation (online) 30% (P3, I3, O3, W3, C3, D3) One (1) assignment 2000 words, 35% (P3, I3, W3, C3, D3) One (1) assignment 2000 words, 35% (P3, I3, W3, C3, D3) The student will be required to investigate, discuss and present a dermalological problem, how it would have been treated in the past and how they would revise treatment with new knowledge gained in Health Science 1, 2 and 3.

**HHD2172 CLINICAL DIAGNOSIS & MANAGEMENT 2**

**Campus** Albury, City Flinders, Off Campus.

Prerequisites HHD1217 Clinical Diagnosis & Management 1; HHY1271 Pathology 1; or equivalents.

Co-requisites HHD2172 Pathology 2; or equivalent.

**Learning Outcomes**

On successful completion of this unit, it is expected that students will be able to:

1. Describe common and serious clinical scenarios in the haematological, cardiovascular, renal and urogenital systems;
2. Demonstrate appropriate examination skills relevant to the cardiovascular, renal and urogenital systems;
3. Recognise symptoms or signs that warrant referral to another practitioner including those that require immediate referral; and
4. Describe and use the communication skills involved in the consultative process;
5. Discuss models of clinical judgment used by a practising General Practitioner in relation to their own clinical experience;
6. Explain the appropriate applications of and typical pathological findings from widely employed laboratory, radiological and other special investigations of the haematological, cardiovascular, renal and urogenital systems.

**Content**

Clinical presentations of common and life-threatening diseases affecting the haematological, cardiovascular, renal and urogenital systems will be discussed. The unit features common clinical scenarios with clinical examination of these scenarios, and the common laboratory and radiological tests used in the investigations of these systems. Particular emphasis will be given to conditions that are of special interest to osteopaths.

**Required Reading**


**Recommended Reading**


**Class Contact**

Four (4) hours per week or equivalent for one semester comprising lectures and tutorials.

**Assessment**

One 15-minute practical examination (35%); one 2-hour written examination (65%).

**HHD2204 DERMAL ANATOMY AND PHYSIOLOGY**

**Campus** City Flinders, City Queen, City King

Prerequisites Satisfactory completion of all Diploma of Beauty Therapy TAFE units, or equivalents.

**Learning Outcomes**

On successful completion of this unit the student will be able to:

1. Discuss the structure and function of the nervous system and brain;
2. Describe and discuss the properties of laser light;
3. Describe and discuss the appropriate applications of and typical pathological findings from widely employed laboratory, radiological and other special investigations of the haematological, cardiovascular, renal and urogenital systems;
4. Explain the mechanisms underlying the effectiveness of certain laser and light-based therapies;
5. Describe and discuss issues of laser safety relevant to the use of laser devices for aesthetic purposes;
6. Explain in plain English (as if to a client), general safety issues that apply to health care settings in which lasers are used;
7. Discuss legislative issues in relation to the use of non-ionising radiation sources for aesthetic purposes.

**Content**

This unit covers aspects of laser light physics and laser safety. Topics include laser optics, laser properties, laser tissue interactions, light-based dermal treatments, introduction to mechanisms underlying certain laser and light-based therapies; and safety issues involved with the use of cosmetic laser devices in a health care setting. Principles of laser safety are according to Australian Standards and related government regulations. Successful completion of this unit requires that students attend and successfully complete the intensive practical study block (on campus) associated with the unit.

**Required Reading**


**Recommended Reading**


**Class Contact**

Three (3) hours per week.

**Assessment**

This unit has three (3) assessment items: This unit has three (3) assessment items: A two (2) hour online examination 40% (P2, I2, W2, A2, D2); one (1) identification of laser and light safety issues exam 20% (P2, I2, W2, A2, D2); one (1) assignment, 2000 words, 40% (P2, I2, W2, A2, D2) The student will be required to investigate laser or light based therapy procedure and discuss this procedure in light of the knowledge gained in laser safety and laser physics.

understand some of the concepts of infection control and sterile procedures covered in the clinical practice units. The student will gain the underpinning knowledge of cell and tissue structure and function required to more confidently apply the dermal techniques and to assist in understanding the concepts of pathology and dermatology covered in Dermal Science and Dermatology.

**Content**

The unit will introduce students to theoretical aspects of anatomy, physiology, and microbiology relevant to the practice of dermal therapy. The unit will provide important underpinning knowledge that students will require in their practical applications throughout the degree program. Knowledge to be developed will include cell and cell membrane structure and function, osteopathology and anatomy, muscular systems, circulatory systems, lymphatics, tissues types, brain and nerves, endocrine system and identification and biochemistry of micro-organisms.

**Required Reading**

On successful completion of this unit, it is expected that students will be able to:

1. Describe and discuss the range of conditions treated with Class 3b lasers;
2. Explain the mechanisms underpinning the effectiveness of Class 3b laser and photodynamic therapies;
3. Perform a range of laser and light based treatments, safely, effectively and efficiently, according to client needs and procedure protocols;
4. Describe and discuss the range of treatment modalities in photodynamic therapy and perform these modalities to the appropriate skin conditions;
5. Explain the use of class 4 laser devices for tattoo removal;
6. Explain the use of radio frequency devices in dermal therapy;
7. Comment on the range of new technologies and recent laser and light based therapy devices;
8. Assess client needs and suitability for a range of light based treatments;
9. Communicate appropriately with clients (in plain English) and fellow clinicians (in plain and technical language) about conditions, treatment options and treatment plans.

Content
- This unit covers aspects of theory and application of laser and light based procedures. The unit includes topics such as laser tissue interactions in relation to Class 3b lasers, radio frequency devices, class 4 lasers for tattoo removal and resurfacing, and photodynamic therapy. Knowledge and skills in a range of laser and light-based therapy devices are developed further, and students will apply laser safety protocols associated with the use of cosmetic laser devices in a health care setting. Professional skills, attitude and presentation appropriate for a clinician dealing with laser and light-based therapy devices are further refined.

Assessment
- This unit has three (3) assessment items: A two (2) hour MCQ examination (35% (P3, I3, W3, A3, D3)); Three (3) online discussion exercises (30% (P3, I3, W3, A3, D3)); Practical assessments (30% (P3, I3, W3, A3, D3)). Practical assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards), 35% (P3, I3, O3, A3, C3, D3)

HHD2206 DERMAL LASER PRACTICE AND TECHNIQUES 2
Campus City King, Internet
Prerequisites HHD2101 Dermal Health Science 3. Students will require access to or be employed by an appropriate salon or dermal clinic in order to complete assessment tasks associated with this unit.
Co-requisites HHD2205 Dermal Laser Practice and Techniques 1 and HHD2207 Dermal Laser Practice and Techniques 3.

Learning Outcomes
- On successful completion of this unit, it is expected that students will be able to:
1. Describe and discuss the range of conditions treated with Class 3b lasers;
2. Explain the mechanisms underpinning the effectiveness of Class 3b laser and photodynamic therapies;
3. Perform a range of laser and light based treatments, safely, effectively and efficiently, according to client needs and procedure protocols;
4. Describe and discuss the range of treatment modalities in photodynamic therapy and perform these modalities to the appropriate skin conditions;
5. Explain the use of class 4 laser devices for tattoo removal;
6. Explain the use of radio frequency devices in dermal therapy;
7. Comment on the range of new technologies and recent laser and light based therapy devices;
8. Assess client needs and suitability for a range of light based treatments;
9. Communicate appropriately with clients (in plain English) and fellow clinicians (in plain and technical language) about conditions, treatment options and treatment plans.

Class Contact
3 hours per week

Required Reading
AS/NZS 4173:2004 Guide to the safe use of lasers in health care

HHD2207 DERMAL LASER PRACTICE AND TECHNIQUES 3
Campus City King
Prerequisites HHD2101 Dermal Health Science 3. Students will require access to or be employed by an appropriate salon or dermal clinic in order to complete assessment tasks associated with this unit.
Co-requisites HHD2205 Dermal Laser Practice and Techniques 1 and HHD2206 Dermal Laser Practice and Techniques 2.

Learning Outcomes
- On successful completion of this unit, it is expected that students will be able to:
1. Explain how knowledge of laser and light physics is used in the application and management of class 3b and class 4 lasers and pulsed light treatments;
2. Discuss laser tissue interactions in relation to Class 3b and class 4 lasers and pulsed light technologies;
3. Explain the mechanisms underpinning certain class 4 laser and pulsed light therapies;
4. Compare and contrast a range of aesthetic laser and light modalities for treating various skin conditions;
5. Document the assessment of client needs and suitability for a range of light based treatments;
6. Perform a range of advanced laser and light based treatments, safely, effectively and efficiently, according to client needs and procedure protocols;
7. Communicate appropriately (in plain English) with clients with special needs and fellow clinicians (in plain and technical language) about straightforward and complex conditions, advantages and disadvantages of the treatment options, and the recommended treatment plan(s);
8. Demonstrate professional skills, attitude and presentation (including appropriate communication skills, and social and cultural awareness and responsiveness with clients and colleagues) consistent with dermal clinicians dealing with laser and light-based therapy devices.

Content
- This unit covers aspects of theory and application of laser and light based procedures. The unit includes topics such as laser physics, laser tissue interactions in relation to class 3b and class 4 lasers and pulsed light technologies. Knowledge and skills in a range of advanced lasers and light-based dermal treatments are developed further, and students will apply laser safety protocols associated with the use of cosmetic laser devices in a health care setting. Professional skills, attitude and presentation appropriate for a clinician dealing with laser and light-based therapy devices are expected.

Required Reading
AS/NZS 4173:2004 Guide to the safe use of lasers in health care

Recommended Reading

Class Contact
3 hours per week

Assessment
- This unit has three (3) assessment items: A two (2) hour MCQ examination (35% (P3, I3, W3, A3, D3)); One (1) Written assignment on laser documentation (pre procedure instructions, consent form, and post procedure directions). 30% (P3, I3, W3, A3, D3); Practical assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards). 35% (P3, I3, O3, A3, C3, D3)

HHD2208 MEDICAL PROCEDURES RELATED TO DERMAL THERAPY
Campus City King, Internet
Prerequisites HHD2101 Dermal Health Science 3. Students will require access to or be employed by an appropriate salon or dermal clinic in order to complete assessment tasks associated with this unit.
Co-requisites Nil.

Learning Outcomes
- On successful completion of this unit, it is expected that students will be able to:
1. Describe appropriate record keeping requirements for a medical setting;
2. Correctly use medical terminology pertinent to dermal therapy;
3. Explain in plain English, casenotes relevant to dermal therapy from patients who have undergone routine plastic, reconstructive or cosmetic procedures;
4. Describe and discuss at a basic level, the principles and techniques typically used in routine cosmetic, plastic and reconstructive procedures;
5. Discuss appropriate pre- and post-operative management and adjunctive therapies used by dermal clinicians for patients who have undergone cosmetic, plastic and reconstructive procedures;
6. Describe and document complications and adverse outcomes typically seen in dermal therapy;
7. Describe and document procedures and management plans for complications and adverse outcomes typically seen in dermal therapy;
8. Explain the process of aging skin;
9. Discuss the management and issues related to the management of aging skin and other fragile skin conditions;
10. Evaluate the role of the dermal therapist in relation to cosmetic, plastic and reconstructive medical procedures.

Content
- In this unit, students are introduced to theoretical aspects of specific medical procedures that relate to dermal therapy. Medical and aesthetic reasons for a range of approaches will be outlined using terminology typically used in medical and health care settings. Basic clinic management procedures will include appropriate record keeping and case note recording. Students will observe, via various media, a representative range of face and body procedures include plastic, reconstructive and cosmetic. Pre- and post-operative management and adjunctive therapies used by dermal clinicians are included. Other topics are: aging skin; management of aged skin and other fragile skin issues; management and documentation of complications and...
adverse outcomes; and the role of the dermal therapist and medical procedures.


**Recommended Reading** To be determined by the student according to their assignment focus.

**Class Contact** Independent research together with regular online and telephone contact with the project coordinator and other students of the Clinical Practice unit of study as advised by the project coordinator.

**Assessment** This unit has three (3) assessment items: This unit has three (3) assessment items: One (1) Case Study (2000 words) 40% (P2, I2, W2, A2, D2)

Students will be required to investigate and discuss the issues involved with the care of a patient who has undergone a plastic, reconstructive or cosmetic procedure. Two (2) Online discussion exercises (Composed of a series of short answer questions relating to selected journal articles) 20% (P2, I2, W2, A2, C2, D2) One (1) two and a half hour (2.5 hour) written examination 40% (P2, I2, W2, A2, D2)

**HHD2214 HEALTH RESEARCH STUDY PERSPECTIVES**

**Campus** City King, City Flinders, Queen St

**Prerequisites** Satisfactory completion of all the Diploma TAFE units (or equivalent)

**Learning Outcomes** On successful completion of this unit the student will be able to:

- understand how to read research papers (assessed via article critique / essay), and how to determine quality of design, by having a greater understanding of the statistics (assessed via exam) contained within, and by being able to make a clear distinction between strong and weak research findings (assessed via article critique / essay).
- The students will be able to make the distinction between TAFE and higher level University standards with regard to level of assessment and academic writing (assessed via essay). They will be able to reference in APA format and be able to write an essay at University standard (assessed via essay).

**Content** This subject provides an introductory research focus for health care professionals with an emphasis on basic quantitative paradigms. A primary aim of this introductory research subject will be to facilitate the students’ ability to critically analyse and evaluate selected research literature relating to health sciences with particular reference to the safe practice of applied dermal therapies. Preparatory academic skills required for the rest of the course will also be covered; these include APA referencing, writing academic essays, and sourcing appropriate information.


- Class Contact 3 hours per week or equivalent

**Assessment** This unit has three (3) assessment items:

- One (1) Article Critique (students are to critique a selected article 1000 words) 20%

- One (1) assignment 2000 words, 50%

**HHD2224 INDUSTRY PRACTICUM 1**

**Campus** City King, City Flinders, Queen St

**Prerequisites** Satisfactory completion of all the Diploma TAFE units (or equivalent)

**Learning Outcomes** Upon successful completion of this unit, it is expected that students will become more confident in the application of their skills obtained at the diploma level (assessed via situation analysis report). Students will be exposed to a wide range of clients and procedures so that they feel more confident in dealing with future clients (assessed via student portfolio).

**Content** In this subject students will explore the workplace context by examining the organisational structure and identifying and defining their role as an active and accountable employees within industry. They will gain a better understanding as to what techniques are best suited for particular conditions. They will also apply experiential learning. Students will also be able to reflect on the integration of academic and workplace learning.

**Required Reading** Unit manual to be developed

**Recommended Reading** None

**Class Contact** 12 hours per week within an approved clinical setting.

**Assessment** Hurdle requirement - students are required to undertake workplace-based activities to the equivalent of 450 hours.

**HHD2273 CLINICAL DIAGNOSIS & MANAGEMENT 3**

**Campus** City King, City Flinders, Off Campus.

**Prerequisites** HHD2172 Clinical Diagnosis & Management 2; or equivalent.

**Learning Outcomes** On successful completion of this unit, it is expected that students will be able to:

- 1. Describe common and serious clinical scenarios in the respiratory, gastrointestinal and endocrine systems;

- 2. Demonstrate appropriate examination skills relevant to the respiratory, gastrointestinal and endocrine systems;

- 3. Recognise symptoms or signs that warrant referral to another practitioner including those that require immediate referral;

- 4. Describe and use the communication skills involved in the consultative process;

- 5. Discuss models of clinical judgment used by a practising General Practitioner in relation to their own clinical experience;

- 6. Explain the appropriate applications of and typical pathological findings from widely employed laboratory, radiological and other special investigations of the respiratory, gastrointestinal and endocrine systems.

**Content** Clinical presentations of common and life-threatening diseases affecting the respiratory, gastrointestinal and endocrine systems will be discussed. The unit features common clinical scenarios with clinical examination of those scenarios, and the common laboratory and radiological tests used in the investigations of those systems. Particular emphasis will be given to conditions that are of special interest to osteopaths.


- Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.


- Student portfolio – (the student is to develop a portfolio of reports, case studies and reflective journal entries documenting the range of procedures they have been performing 3000 words. Students are also required to assess their skill development against the core graduate attributes and identify areas for further development) 70% (P2, I2, D2, W2, A2, C2, D2)

**Assessment** Situation analysis report – students are required to report on the workplace context in which these learning is occurring, and examine its place within industry sector (1000 words) 30% (P2, I2, W2, A2, D2)

**HHD2304 COOPERATIVE PLACEMENT**

**Campus** City King, City Flinders, Queen St

**Prerequisites** Industry Placement 1, or equivalent.

**Learning Outcomes** Students will acquire a greater understanding of the limitations of their own professional practice and the relationships with other members of the healthcare team. Students will begin to incorporate the knowledge they have learnt in the previous semester into their workplace practice.

**Content** Students will acquire a greater understanding of their future career and study plans and will significantly enhance the prospects of achieving successful graduate employment outcomes (assessed via situation analysis report). The student will be able to begin to critically evaluate their own technical and generic skills and compare them with what extra knowledge and skill is required as a dermal therapist (assessed via student portfolio). Students will be able to identify the benefits of developing networks and professional contacts within the industry (assessed via student portfolio).
**Required Reading**

- School Manual to be developed

**Recommended Reading**

**HHD3220 Dermal Techniques 2; or equivalent.**

**Nil**

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**HHD3110 Dermal Techniques 1; or equivalent.**

**HHD3000 Health Science 1; or equivalent.**


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**Recommended Reading**


**Recommended Reading**


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**Subject Hours**

- Six hours per week for one semester comprising lectures, tutorials and laboratory sessions.

**Assessment Reading exercises (20%); research assignment (1500 words) (20%); final examination (60%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment item (research assignment) may be re-attempted once only. Maximum possible marks to be obtained on any re-attempt and resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.**

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**HHD3000 HEALTH SCIENCE 1**

**Campus:** St Albans, City King

**Prerequisite(s):** Nil

**Corequisite(s):** HHD3110 Dermal Techniques 1; or equivalent.

**Content**

- This subject will introduce students to theoretical aspects of anatomy, physiology, pathophysiology, microbiology, immunology, chemistry, cosmetic dermatology, cellular damage, immunity, allergy, inflammation, wound repair, neoplasia and tissue responses to stress relevant to the practice of Dermal Therapy.

**Required Reading**


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**HDD3002 HEALTH SCIENCE 2**

**Campus:** St Albans, City King

**Prerequisite(s):** HHD3000 Health Science 1; or equivalent.

**Corequisite(s):** HHD3220 Dermal Techniques 2; or equivalent.

**Content**

- This subject will build on the knowledge base covered in Health Science 1 by further researching advanced skin structure and cosmetic dermatology, specifically in the area of dermatological conditions that develop as a result of cosmetic substances put on the skin. This subject will also cover the management of non-infectious dermatological conditions such as dermatitis, eczema, psoriasis, benign and premalignant skin lesions and skin cancers. A large range of vascular skin disorders and nail diseases will also be considered. This will lead into related pharmacology and toxicology areas and will include studies of the effects of various drugs and chemicals, both topical and oral, on the skin. Students will also be expected to investigate the effects on the skin of various cosmetic ingredients especially those in chemical peels and herbal preparations. In addition to this, students will be expected to become familiar with the Therapeutic Goods Act and other legislation relevant to their practical work.

**Required Reading**


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**HHD3100 CLINICAL PRACTICE 1**

**Campus:** St Albans, City King

**Prerequisite(s):** HHD3000 Health Science 1; HHD3110 Dermal Techniques 1; or equivalents.

**Content**

- This subject will introduce students to theoretical aspects of specific medical and therapeutic procedures. Medical and aesthetic reasons for a range of approaches will be outlined. Students will observe a representative range of face and body procedures related to the lectures. In addition, students will develop theatre and sterile techniques including dressings, personal preparation for theatre and setting up for minor cosmetic or aesthetic procedures. Topics include, medical terminology, wound management, infection, infection control, asepsis, sterilization, complications of wound healing, wound redressing, compression bandages and equipment, eye toiletries, complications from bandaging and eye toilets, a review of first aid procedures, glowing and gawling, latex allergy. proper documentation and a review of common procedures in cosmetic surgery.

**Required Reading**


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**Subject Hours**

- Four hours per week for one semester comprising lectures, tutorials and laboratory sessions.

**Assessment Class exercises (20%); case study assignment (2000 words) (30%); final examination (50%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment item (case study assignment) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any re-attempt and resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%. This subject is a hurdle requirement.**

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**HHD3102 RESEARCH PERSPECTIVES AND PRACTICES**

**Campus:** City King, St Albans

**Prerequisite(s):** Nil

**Corequisite(s):** HHD3002 Health Science 2; HHD3220 Dermal Techniques 2; or equivalents.

**Content**

- This subject provides an introductory research focus for health care professionals with an emphasis on quantitative and qualitative paradigms. A primary aim of this introductory research subject will be to facilitate the students’ ability to critically analyse and evaluate selected research literature relating to health sciences with particular reference to the safe practice of applied dermat therapies. An introduction to the experimental method, basic quantitative and qualitative analytical techniques, case study reports, report writing and ethics in research will also be covered.

**Required Reading**


**Recommended Reading**

Students must have satisfactorily completed the first two semesters of coursework for the degree Bachelor of Health Science - Applied Dermal Therapies; or equivalent.

Content The aim of this subject is to build upon student’s knowledge of nutrition as presented in the Diploma program and consolidated through ‘work experience’. In this subject students will further their understanding of the role of various vitamins/minerals, food groups and nutritional supplements in healing and well-being. Students will also study the beneficial and deleterious effects of various diets on skin health and the relationship of nutrition and eating patterns to conditions such as anorexia, bulimia and obesity. Attention will be given to factors which promote nutritional well-being, conditions in which it is appropriate to provide nutritional advice to clients and the identification of situations in which it is necessary to refer clients to specialist health practitioners. Topics include carbohydrates, lipids, proteins, energy balance, water soluble vitamins, fat soluble vitamins, minerals, dieting, how to recognize the relationships between dieting disorders and skin conditions, referrals, nutritional status of skin, discussions on popular diets advantages & disadvantages, client management of specific dieting needs in respect of vitamins and minerals, the effects of excessive amounts of vitamins and minerals.


Assessment One written assignment (1500 words) (40%); one 2-hour examination (60%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment item (assignment) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any re-attempt and resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.

HHD3103 NUTRITION FOR HEALTH AND WELL-BEING

Campus: City King, St. Albans

Prerequisite(s) Students must have satisfactorily completed the first two semesters of coursework for the degree Bachelor of Health Science - Applied Dermal Therapies; or equivalent.

Content The subject will enhance the student’s knowledge and practice of advanced manual and machine dermal therapies. This will consist of micro-dermabrasion and clinical lymphatic drainage. The basis of these therapies will be investigated and recommended regimes established. Skills will be developed in the application of advanced massages and electrical equipment techniques appropriate to the needs of the client/patient. In addition, this subject will introduce the concepts of treatment sequencing, planning and reassessments with special emphasis on peri-operative services.


Assessment Micro-dermabrasion exam (50%); practical lymphatic exam (50%). Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%. This subject is a hurdle requirement.

HHD3104 GRADUATING SEMINAR

Campus: City King, St. Albans

Prerequisite(s) Students must have satisfactorily completed the first two semesters of coursework for the degree Bachelor of Health Science - Clinical Dermal Therapies; or equivalent.

Content Graduating Seminar is an integrating subject for the course and has been designed to provide students with a framework to link the main elements of the course. The subject enables students to enhance their critical thinking and integration of knowledge. Particular emphasis will be given to 1) ethical and legal issues and dilemmas confronting dermal therapies and 2) networking with medical practitioners and other health professionals including referrals and approaches to establishing effective and safe working relationships. 3) Presenting research findings and clinical results.


Assessment Public presentation (50%); research article (2500 words) (40%); ethics examination 10%. To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment items (research article and examination) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any re-attempt and resubmission will be 50%.

HHD3110 DERMAL TECHNIQUES 1

Campus: St Albans, City King

Prerequisite(s) Nil

Content Students will be able to work more cohesively in their respective workplace with a greater understanding of themselves and others. Students will be better able to cope with issues arising with clients, due to a greater understanding of a clients cognitive processes, along with how to refer that client to others, or arranging emergency help.

Learning Outcomes Students will be able to work more cohesively in their respective workplace with a greater understanding of themselves and others. Students will be better able to cope with issues arising with clients, due to a greater understanding of a clients cognitive processes, along with how to refer that client to others, or arranging emergency help.


Assessment Research report (50%); practical exam (50%). Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%. This subject is a hurdle requirement.
HHD3124 INDUSTRY PRACTICUM 2
Campus City King, City Flinders, Queen St
Prerequisites Satisfactory completion of all the Diploma TAFE units (or equivalent); Industrial Practice 1. Co-operative placement.

Learning Outcomes Students will feel greater confidence in the application of their skills obtained after completion of Industrial Practice 1 (as assessed via situation analysis report). Students will be further exposed to a wide range of clients and procedures so that they feel more confident in dealing with future clients (assessed via student portfolio).

Content In this subject students will explore the workplace context by examining the organisational structure and identifying and defining their role as active and accountable employees within industry. Students will develop an understanding of the key issues relating to the transition to the professional workplace, including workplace culture, professional etiquette and communications. They will gain a better understanding as to what techniques they can apply and experiential learning in how to apply them. Students will also be able to reflect on the integration of the academic and workplace learning.

Required Reading School developed manual

Recommended Reading None.

Class Contact 12 hours per week within an approved clinical setting

Assessment Hurdle requirement - students are required to undertake workplace-based activities to the equivalent of 450 hours.

This unit has two (2) assessment modalities:

Student portfolio — (the student is to develop a portfolio of reports, case studies and reflective journal entries documenting the range of procedures they have been performing 3000 words. Students are also required to assess their skill development against the core graduate attributes and identify areas for further development) 70% (P2, I2, D2, W2, A2, C2, D2)

Situation analysis report — students are required to report on the workplace context in which this learning is occurring, and examine its place within industry sector (1000 words) 30% (P2, I2, W2, A2, D2)

HHD3134 DERMAL SCIENCE
Campus City King, City Flinders, Queen St
Prerequisites HHD2024 Dermal Anatomy and Physiology

Learning Outcomes On successful completion of this unit the student will be able to:

Discuss the embryological development of the skin and its appendages The student will understand the key issues relating to the transition to the professional workplace, including workplace culture, professional etiquette and communications. They will gain a better understanding as to what techniques they can apply and experiential learning in how to apply them. Students will also be able to reflect on the integration of the academic and workplace learning.

Required Reading School developed manual


Assessment Hurdle requirement - students are required to undertake workplace-based activities to the equivalent of 450 hours.

This unit has two (2) assessment modalities:

Student portfolio — (the student is to develop a portfolio of reports, case studies and reflective journal entries documenting the range of procedures they have been performing 3000 words. Students are also required to assess their skill development against the core graduate attributes and identify areas for further development) 70% (P2, I2, D2, W2, A2, C2, D2)

Situation analysis report — students are required to report on the workplace context in which this learning is occurring, and examine its place within industry sector (1000 words) 30% (P2, I2, W2, A2, D2)

HHD3174 CLINICAL DIAGNOSIS & MANAGEMENT 4
Campus City Flinders, Off Campus
Prerequisites HHD2273 Clinical Diagnosis & Management 3; or equivalent.
Co-requisites HHY3174 Pathology 4; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:

1. Use at proficiency level the vocabulary of the musculoskeletal examination;
2. Discuss the fundamentals of history as they pertain to musculoskeletal disease;
3. Explain key diagnostic procedures, tests and investigations employed in rheumatology;
4. Conduct a competent examination of the following joints and their associated musculature and accessory structures such as bursae, menisci and ligaments: shoulder, elbow, wrist, hand, hip, knee, ankle and foot;
5. Use a diagnostic algorithm to arrive at a differential diagnosis;
6. Recognise the main classes of bone tumours and their specific clinical manifestations;
7. Integrate knowledge previously presented in anatomy and physiology and apply this integrated knowledge to the living body;
8. Demonstrate competent usage of the basic tools associated with clinical examinations of the shoulder, elbow, wrist, hand, hip, knee, ankle and foot.

Content The clinical examination of the musculoskeletal system of the human body is an important part of the musculoskeletal system. Students will be specifically trained in the advanced examination of the joints and the associated muscles at the shoulder, elbow, wrist, hand, hip, knee, ankle and foot. Key diagnostic procedures, tests and investigations used to diagnose pathology of the joints, bones and connective tissues will be discussed. Students will be trained in the use of a detailed diagnostic algorithm for the diagnosis of musculoskeletal conditions. These skills will be contextualised in terms of the main diseases affecting the musculoskeletal system. Skills required for advanced usage of typical equipment employed in the musculoskeletal examination will be refined.


Class Contact Three (3) hours per week or equivalent for one semester comprising lecturers and practical tutorials. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment One practical examination (40%); one 2-hour written examination (60%).

HHD3200 CLINICAL PRACTICE 2
Campus City King, St Albans
Prerequisite(s) HHD3100 Clinical Practice 1; or equivalent.

Content In this subject students will begin to focus on a specific range of medical and therapeutic procedures with a view to specialisation of peri-operative support using clinical dermal therapy techniques. Students will be expected to work in a case management context under the supervision of a selected practitioner through a mentoring arrangement. Topics include: further procedures in cosmetic surgery; complications of cosmetic procedures; using ultrasound and micro currents; diathermy, pressotherapy for post liposuction; radiotherapy with cosmetic surgeons; galvano therapy and other therapies that can enhance surgical outcomes.


Class Contact 4 hours per week or equivalent

Assessment 30% Reading exercises (Composed on a series of short answer questions relating to selected journal articles) 35% Assignment (Essay 2000 words) 35% Written Examination (2.5 hours duration)

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The student will feel more confident in the understanding of certain low level laser based treatments work and where it is appropriate, how to perform them. Knowledge of Australian standards in laser safety will enable the student to perform laser treatments and manage laser operational settings with a greater degree of safety and confidence. The student will gain experience in the use and build their knowledge of class 3 lasers and photodynamic therapy.

**Content**
This subject covers Australian standards in laser safety and where applicable relevant government laws relating to the use of cosmetic lasers. Students will also be given an introduction on how lasers work, leading to practical applications of treating various skin conditions using low level lasers. Other newer light based treatments such as phototherapy and intra-red based therapy will also be discussed with regard to safety, efficacy and dermal applications.

**Required Readings**
- AS/NZS 4173:2004 Guide to the safe use of lasers in health care

**Recommended Reading**

**HHD3204 LASER SAFETY AND LIGHT BASED TREATMENTS**
Campus
- City King, City Flinders, Queen St
Prerequisites
- HHD3134 Dermal Science

**Learning Outcomes**
The student will feel more confident in the understanding of certain low level laser based treatments work and where it is appropriate, how to perform them. Knowledge of Australian standards in laser safety will enable the student to perform laser treatments and manage laser operational settings with a greater degree of safety and confidence. The student will gain experience in the use and build their knowledge of class 3 lasers and photodynamic therapy.

**Content**
This subject covers Australian standards in laser safety and where applicable relevant government laws relating to the use of cosmetic lasers. Students will also be given an introduction on how lasers work, leading to practical applications of treating various skin conditions using low level lasers. Other newer light based treatments such as phototherapy and intra-red based therapy will also be discussed with regard to safety, efficacy and dermal applications.

**Required Readings**
- AS/NZS 4173:2004 Guide to the safe use of lasers in health care

**Recommended Reading**

**HHD3214 ELECTRICALLY BASED DERMAL TREATMENTS**
Campus
- City King, City Flinders, Queen St
Prerequisites
- HHD2204 Dermal Anatomy and Physiology and HHD3134 Dermal Science, or equivalents.

**Learning Outcomes**
The student will feel more confident in the understanding of certain electrically based dermal techniques work and where appropriate, how to perform them. Knowledge of electrical theory, as it applies to electrotherapy procedures used in dermal therapies, will enable the student to perform and manage these modalities with greater safety and confidence.

**Content**
This unit will enable on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used this includes a variety of electrotherapies. This unit will also build upon the underpinning knowledge of the nervous system, fluid electrolyte and acid base balance and electrical theory required to safely and effectively perform electrophysiology procedures.

**Required Reading**
- Recommended Reading

**Class Contact**
3 hours per week or equivalent
Assessment
- 30% Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards)
- 40% Written Examination (2.5 hours duration)
- 30% Reading exercises (Composed on a series of short answer questions relating to selected journal articles)

**HHD3220 DERMAL TECHNIQUES 2**
Campus
- City King, City Flinders, Queen St
Prerequisite(s)
- HHD3110 Dermal Techniques 1; or equivalent

**Content**
This subject will build on the knowledge and techniques covered in Dermal Techniques 1. Students will undertake study in the basics of low and high level laser together with practical applications. This will include an introduction to laser and light physics, laser & light tissue interaction, laser safety, introduction to intense pulsed light, resurfacing lasers, light based treatment of hair, practical aspects of light based hair removal, light based treatment of vascular & pigmented lesions and tattoos, photo rejuvenation, practical aspects of photo rejuvenation and light based treatment of acne. A number of case studies based on treatment planning, skin analysis, acne management, scar management and ageing skin management will also be presented. They will apply a range of techniques and treatment regimes to affect successful outcomes for the client. Students will also be expected to consider the psychological and physiological needs of the client.

**Required Reading**

**Recommended Reading**

**Subject Hours**
Three hours per week comprising lectures, tutorials and laboratory sessions.

**Assessment**
- Practical assessment (50%); assignment (2000 words) (30%); final examination (20%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment item (essay) may be re-attempted and resubmitted once only. Maximum possible marks to be attained on any re-attempt and resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%. This subject is a hurdle requirement.

**HHD3224 DERMATOLOGY**
Campus
- King Street campus, Queen St campus, Flinders Lane campus
Prerequisites
- HHD3134 Dermal Science, or equivalent

**Learning Outcomes**
The student will feel more confident in the understanding of certain electrically based dermal techniques work and where appropriate, how to perform them. Knowledge of Australian standards in laser safety will enable the student to perform laser treatments and manage laser operational settings with a greater degree of safety and confidence.

**Content**
This subject will build on the knowledge base covered in Dermal Anatomy and Physiology and Dermal Science by further researching cosmetic dermalology, specifically in the area of dermatological conditions that develop as a result of cosmetic substances put on the skin. This subject will also cover the management of non-infectious dermatological conditions such as dermatitis, eczema, psoriasis, benign and pre-malignant skin lesions and skin cancers. A range of vascular and connective tissue disorders will also be considered. This will lead into related pharmacology and toxicology areas and will include studies of the effects of various drugs and chemicals, both topical and oral, on the skin. Students will also be expected to investigate the effects on the skin of various cosmetic ingredients especially those in chemical peels and herbal preparations. In addition to this, students will be expected to become familiar with the Therapeutic Goods Act and other legislation relevant to their practical work.

**Required Reading**
- Recommended Reading

**Class Contact**
3 hours per week or equivalent
Assessment
- 30% Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards) 30% Assignment (Essay 2000 words) 40% Written Examination (2.5 hours duration)
HHD3234 PEELS PROCEDURE
Campus City King, City Flinders, Queen St
Prerequisites HHD2204 Dermal Anatomy and Physiology and HHD3134 Dermal Science, or equivalent
Learning Outcomes The student will feel confident in the understanding of how peels and microdermabrasion techniques work and where appropriate how to perform them. Knowledge of chemistry, pharmacology and toxicology as it is applied to chemical preparations used in dermal therapies will enable the student to use these preparations with greater confidence.
Content This subject expands on the dermal techniques covered in Electrically Based Dermal Treatments and sequencing as part of case management. This will occur through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used. This includes chemical peels and microdermabrasion. This unit will also cover the underpinning knowledge of chemistry, pharmacology and toxicology required to safely and effectively perform procedures using chemical preparations.
Class Contact 3 hours per week or equivalent Assessment 40% Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards) 40% Written Examination (2.5 hours duration) 20% Reading exercises (Compiled on a series of short answer questions relating to selected journal articles)

HHD3270 PROFESSIONAL ETHICS
Campus City Flinders
Prerequisites HHO3175 Osteopathic Science 5; or equivalent.
Co-requisites
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Discuss the legal framework in Australia in which osteopathy operates;
2. Evaluate the place of osteopathy within the Australian and other healthcare systems;
3. Debate the ethical requirements of practice in a multicultural society;
4. Evaluate various Boards’ and Associations’ codes of conduct;
5. Discuss the requirements for research and business ethics.

HHD4104 DERMAL CLINICAL PRACTICE 1
Campus City King, City Flinders, Queen St
Prerequisites Health Science 3; Dermal Clinical Practice 1, or equivalents.
Learning Outcomes The student will feel confident in the understanding of why infection control is important and is able to apply proper infection control methods related to medical procedures. The student will also have a greater understanding of what occurs during more common medical procedures.
Content Students will develop sterile techniques including dressings, and setting up for minor cosmetic or aesthetic procedures. Topics include wound management, infection, infection control, asepsis, sterilization, complications of wound healing, wound redressing, compression bandages and equipment, eye toileting, complications from bandaging and eye toileting.
Class Contact 3 hours per week or equivalent
Assessment 30% Practical Assessments: Students are to perform selected procedures taught within the unit to professional dermal therapist standards 35% Assignment (Essay 2000 words) 35% Written Examination (2.5 hours duration)

HHD4114 ADVANCED HEALTH RESEARCH PERSPECTIVES
Campus City King, City Flinders, Queen St
Prerequisites HHD2214 Health Research Study Perspectives; or equivalent
Learning Outcomes Students will have a fuller understanding of research methodology by examining different forms of research design. Students will be able to make decisions on the best format to collect and analyse data for a particular experiment. Students will have greater knowledge of the positives and negatives of using quantitative methods versus qualitative methods versus case studies.
Content This subject extends the knowledge gained in Health Research and Study Perspectives and introduces new concepts in qualitative research and case reports. Various forms of qualitative methods will be considered, as well as the steps involved in managing, analyzing and reporting a case study. Comparisons between the different types of research (quantitative, qualitative and case studies) will also be considered so that best practices can be identified.


Class Contact 3 hours per week or equivalent
Assessment 60% Research design assignment (students are to collect background research and design an experiment 3000 words) 40% Article Critique (students are to critique two selected article 2000 words).

HHD4124 LYMPHATIC PROCEDURES
Campus City King, City Flinders, Queen St
Prerequisites HHD3224 Dermatology; HHD3234 Peels Procedures.

Learning Outcomes The student will feel confident in the understanding of how certain techniques work and where appropriate how to perform them. Knowledge of the principles of manual lymph drainage and machine based lymph drainage will enable the student to perform these procedures with greater safety and confidence. By performing a range of lymph drainage and machine based treatments the student will be more effective in dealing with clients and achieving desired outcomes.

Content This subject builds on dermal techniques covered in Electrically Based Dermal Treatments and sequencing as part of case management. This will occur through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used; this includes manual lymphatic drainage and machine based lymphatic drainage treatments.


Recommended Reading None

Class Contact 3 hours per week or equivalent
Assessment 50% Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards) 30% Written Examination (2.5 hours duration) 20% Reading exercises (Composed on a series of short answer questions relating to selected journal articles)

HHD4134 LASER AND LIGHT PROCEDURES
Campus City King, City Flinders, Queen St
Prerequisites HHD3204 Laser Safety and Light Based Treatments, HHD3224 Dermatology, or equivalents.

Learning Outcomes The student will feel confident in the understanding of how certain laser and light based techniques work and where appropriate how to perform them. Greater knowledge of laser physics will enable the student to perform laser treatments with a greater degree of safety and confidence. The student will gain experience in the use of class 3B and class 4 lasers and IPL for a variety of dermal treatments.

Content This subject builds on techniques covered in the Laser Safety and Light Based Treatments and sequencing as part of case management. This will occur through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used; this includes class 3B, class 4 lasers and IPL. This unit will also cover the underlying knowledge of laser physics required to safely and effectively perform and manage laser and IPL procedures.


Recommended Reading None

Class Contact 3 hours per week or equivalent
Assessment 30% Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards) 40% Written Examination (2.5 hours duration) 30% Reading exercises (Composed on a series of short answer questions relating to selected journal articles)

HHD4144 INDEPENDENT RESEARCH 1
Campus City King, City Flinders, Queen St
Prerequisites Research Perspectives 1, or equivalent.

Learning Outcomes Students will gain experience in how to prepare and plan for a research project, by going through the process of developing a research proposal and making an application for ethics approval so that they are better prepared for future postgraduate study or for planning their own future research. (assessed via proposal and ethics).

Content Students will be guided through the processes of developing a research project with specific emphasis on appropriate research design, seeking ethics approval and development of proposals. Aspects of methodology such as subject selection, use of appropriate tools and record keeping will also be discussed.


Recommended Reading: Nil.

Class Contact 1 hour lecture and 2 hours of tutorial per week
Assessment This unit has two (2) assessment items:
Research Proposal (Students are to prepare a research proposal. 2000 words) 50% (P3, I3, W3, A3, C3, D3)
Ethics document (students are to prepare and submit an ethics document

HHD4185 CLINICAL DIAGNOSIS AND MANAGEMENT 5
Campus City Flinders
Prerequisites HBOS Bachelor of Science - Clinical Sciences; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Explain the gross and developmental anatomy of the nervous system (module 1); 2. Explain the functioning of the nervous system at gross and neural levels (module 1);
3. Apply knowledge in clinical neurology to clinical cases commonly seen in osteopathic practice (module 1);
4. Identify normal and pathological anatomy on diagnostic images (module 2);
5. Competently read radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of congenital anomalies and normal variants, traumatic injuries, scoliosis and infections (module 2);
6. Recognise particular disease states from the identification of abnormalities on scans (module 2).

Content This unit comprises two modules: Module 1: Clinical Neurology; and Module 2: Diagnostic Imaging. The aims of this unit are to develop in students an integrated understanding of the nervous system, neuroanatomy and neurophysiology, neural function and the ability to apply this knowledge to clinical cases; and to instruct students in the reading of radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of congenital anomalies and normal variants, traumatic injuries, scoliosis and infections.


Class Contact Ninety-six (94) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 80% attendance.

Assessment One mid-semester MCQ examination (Clinical Neurology 5%) One 1-hour laboratory examination (Clinical Neurology, 15%, hurdle requirement); one 15-minute oral examination (Diagnostic Imaging, 25%, hurdle requirement); one 1-hour written slide examination (Diagnostic Imaging, 25%, hurdle requirement); one 3-hour final written examination (Clinical Neurology, 30%, hurdle requirement).

HHD4204 DERMAL CLINICAL PRACTICE 2
Campus City King, City Flinders, Queen St
Prerequisites HHD4104 Dermal Clinical Practice 1, or equivalent.

Learning Outcomes The student will also have a greater understanding of what occurs during more common medical procedures and what First Aid to apply if complications...
arise while that person is under their care. The student will gain knowledge and
techniques for managing latex allergy within a clinical setting. Developing and
understanding of sterile gloving and gowning procedures will allow the student to
operate more confidently in a medical setting. The student will be able to perform the
basic record keeping requirements of a medical setting.

Content
In this subject students will further their understanding of the role of various
vitamins and minerals food groups and nutritional supplements in promoting well-
being. Students will also study the beneficial and deleterious effects of various diets
on skin health and the relationship of nutritional eating patterns to conditions such as
anaemia and bulimia. Topics include carbohydrates, lipids, proteins, energy balance,
water soluble, vitamins, fat soluble vitamins, minerals, dieting, how to recognise
the relationship between dieting disorders and skin conditions, referrals, nutritional
status of the skin, discussions on popular diets, advantages and disadvantages, client
management of specific dieting needs in respect of vitamins and minerals the effects
of excessive amounts of vitamins and minerals.

Required Reading
Malhqvist, M. L. (Ed.). (2002). Food and nutrition (2nd ed.).
Sydney, Australia: Allen and Unwin.

Recommended Reading
current readings from popular press.

Class Contact
3 hours per week or equivalent for one semester comprising lectures
and workshops. Students should reasonably expect to devote additional private
contact hours of at least 2 times more than the stipulated class contact hours.
Assessment
40% Assignment (Essay 2000 words) 60% Written Examination (2.5 hours duration)

HHD4224 DERMAL CLINICAL PRACTICE 3

Campus City King, City Flinders, Queen St
Prerequisites HHD4104 Dermal Clinical Practice 1, or equivalent.

Learning Outcomes
Students will be able to apply dermal therapies theory and
clinical practice to cases typically presenting at a clinic. Students will also be able to
communicate case material in a professional style sufficient to facilitate effective
discussion in the setting. The unit reinforces aspects of aseptic procedures, history taking, principles
of diagnosis, treatment protocols, the range of treatment skills covered in the course
thus far, legal issues and interpersonal and professional communication skills.

Required Reading
Caring for Patients from Different Cultures by Gei-Ann Galanti
(2004)

Recommended Reading
Rambo’s Nursing Skills for Clinical Practice (2005) Susan
deWit Saunders

Class Contact
3 hours per week or equivalent

Assessment
50% Practical Assessments (Students are to perform selected procedures
taught within the unit to professional dermal therapist standards) 50% Assignment
(Protocol handbook selected treatments covered in the course 3000 words)

HHD4234 PROFESSIONALISM IN DERMAL PRACTICE

Campus City King, City Flinders, Queen St
Prerequisites HHD3114 Workplace Issues in Dermal Practice

Learning Outcomes
The student will feel more confident in the understanding of what
the course has given them, and how to apply that knowledge. Students will be better
able to communicate and present ideas gained from the course not only to colleagues
but also to health professionals and the general public. Legal and professional ethical
issues related to the industry will also be considered.

Content
This unit is an integrating subject for the course and has been designed
to provide students with a framework to link the main elements of the course.
The subject enables students to enhance their critical thinking and integration of
knowledge. Particular emphases will be given to 1) ethical and legal issues and
dilemmas confronting dermal therapies and 2) networking with medical practitioners
and other health professionals including referrals and approaches to establishing
effective and safe working relationships. 3) Presenting research findings and clinical
results.

Required Reading

Recommended Reading
Oxford University Press. Covey, S., Merrill, A., & Merrill, R. (1997). First things
introduction to health sociology. Sydney: Oxford University Press. Johnstone, M.
care. Buckingham, UK: Open University Press. Waston, R., Martin, T., & Anderson,

Class Contact
3 hours per week or equivalent

Assessment
30% Assignment (Problem solving exercises - set by the lecturer 2000 words)
30% Written Examination (2.5 hours duration) 40% Class presentation (A 20
minute presentation to the class on a set topic)

HHD4244 INDEPENDENT RESEARCH 2

Campus City King, City Flinders, Queen St
Prerequisites HHD4144 Independent Research Project 1, or equivalent.

Learning Outcomes
Students will have gained greater experience in how to undertake
a research project so that they are better prepared for future postgraduate study,
specifically relating to data collection and report writing. Students will also have a
much deeper understanding of their chosen topic.

Content
Students will be guided through the processes of developing a research project
with specific emphasis on data collection, the use of appropriate statistical analyses
and report writing.

Required Reading
How to Write Health Science Papers, Dissertations, and Theses by

Recommended Reading
None

Class Contact
3 hours per week or equivalent

Assessment
100% - Research project report (Students will write a report as if it were
to be submitted to a Journal. 5000 words)

HHD4286 CLINICAL DIAGNOSIS AND MANAGEMENT 6

Campus City Flinders
Prerequisites HHD4185 Clinical Diagnosis & Management 5; or equivalent.
Co-requisite HHT4285 Pathology 5; or equivalent.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Competently use the vocabulary of the neurological examination (module 1);
2. Explain the fundamentals of the clinical history as it pertains to neurological
disease (module 1);
3. Explain the key diagnostic procedures, tests and investigations employed in
neurology (module 1);
4. Competently use standard diagnostic equipment (e.g., stethoscope, otoscope,
ophthalmoscope, reflex hammer, tuning fork) to conduct a rapid screening test of the
nervous system (module 1);
5. Competently use standard diagnostic equipment to carry out the detailed examination of the key components of the nervous system (sensory, motor, cranial nerves, cerebral cortex, basal ganglia, cerebellum, upper and lower motor neurons, skeletal muscles, nerve damage in the upper and lower limb) (module 1);
6. Use a basic diagnostic algorithm to arrive at a differential diagnosis (module 1);
7. Predict basic abnormal signs and symptoms that may be encountered when named structures are affected by pathology (module 1);
8. Recognise the main classes of headache and their specific clinical manifestations (module 1);
9. Distinguish normal from pathological anatomy on diagnostic images (module 2);
10. Incorporate knowledge in anatomy and physiology when reading scans (module 2);
11. Competently read radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of arthropathies, primary and secondary tumours, tumour-like disorders, metabolic, vascular, and endocrine diseases (module 2);
12. Discuss the development, testing, approval and subsidy processes for drugs used and sold in Australia (module 3);
13. Explain the basic methods of drug action and of pharmacological concepts such as pharmacokinetics and dynamics (module 3);
14. Explain the main classes, and practical uses, of drugs relevant to osteopathic practice (module 3).

Content This unit comprises three modules: Module 1: Neurological Assessment; Module 2: Diagnostic Imaging 2; and Module 3: Pharmacology 1. Module 1: Neurological Assessment concentrates on a detailed clinical examination of the nervous system. Students will be trained in the advanced examination of the following neurological systems, structures and conditions: sensory, motor, cranial nerves, cerebral cortex, basal ganglia, cerebellum, upper and lower motor neurons, skeletal muscles, nerve damage in the upper and lower limb. The study of the key diagnostic procedures, tests and investigations used to diagnose pathology of the nervous system. The performance of a rapid, clinical, neurological screening test. The basic algorithm employed in the diagnosis of neurological disease. Advanced training in the use of equipment employed in the neurological clinical examination. Module 2: Diagnostic Imaging 2 extends the reading of radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of arthropathies, primary and secondary tumours, tumour-like disorders, metabolic, vascular, and endocrine diseases. Information on diagnostic images will include normal and pathological anatomy, and pathological features associated with particular disease states. Module 3: Pharmacology 1 introduces the development and testing process for drugs. Trends in drug research. The approval process and the Pharmaceutical Benefits Scheme. Generic drugs versus brands. Reasons for differences in prescribing habits. Pharmacokinetics, pharmacodynamics and other pharmacological terms and concepts. Toxicology issues. Overview of major common drugs seen in practice, with emphasis on the implications for the osteopath; drugs used for the control of pain, inflammation, and for treatment of arthritic conditions, including opioid and non-opioid analgesics, NSAIDs, corticosteroids and DMARDs. Oral contraceptives and derivatives such as HRT. Drugs used in infection control; antibiotics, antivirals and antifungals.


Class Contact Eighty four (84) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment Module 1 (Neurology); One 15-minute final practical examination (20%, hurdle requirement); One 2-hour final written examination (20%, hurdle requirement); Module 2 (Diagnostic Imaging 2); One 15-minute final oral examination (20%, hurdle requirement); One 1-hour final written examination (20%, hurdle requirement); Module 3 (Pharmacology 1); One 1.5-hour written (MCQ format) examination (20%, hurdle requirement).

HHD5135 SPECIALISED DERMAL ANATOMY AND PHYSIOLOGY

Campus King Street campus, Queen St campus, Flinders Lane campus
Prerequisites Nil
Co-requisites Nil
Learning Outcomes On successful completion of this unit the student will be able to:
Discuss the various anatomical features that may influence the use and positioning of injectable substances. Discuss the micro-structure of skin and sub-cutaneous structures as they relate to the use and application of injectables, scar revision and lymphoedema techniques. Identify possible causes of infection and pathological processes related to the use of injectables, scar revision and lymphoedema techniques.

Module 3: Pharmacology 1: One 1-hour final written examination (20%, hurdle requirement).

Class Contact Eighty four (84) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment Module 1 (Neurology); One 15-minute final practical examination (20%, hurdle requirement); One 2-hour final written examination (20%, hurdle requirement); Module 2 (Diagnostic Imaging 2); One 15-minute final oral examination (20%, hurdle requirement); One 1-hour final written examination (20%, hurdle requirement); Module 3 (Pharmacology 1); One 1.5-hour written (MCQ format) examination (20%, hurdle requirement).

Content This subject will act as the basis for underpinning specific anatomy and physiology needed throughout the rest of the program. More specifically there will be an emphasis on understanding the nervous system, muscles and connective tissue structure both generally and to a greater depth in the cranial facial region. Pathology of both acute and chronic conditions will be covered together with an advanced level of microanatomy with specific emphasis on infection control and pathogens. The emphasis of all this information will be in relation to the techniques covered in this course.

Class Contact 6 hours per week or equivalent
Assessment 60% Written Examination (3 hours duration) 40% Reading exercises (Composed on a series of short answer questions relating to selected journal articles)
On successful completion of this unit the student will be able to:

- Discuss the theoretical consideration of performing injections. Explain and demonstrate the basic technique of injecting into the cutaneous and subcutaneous regions. Discuss the theoretical considerations of advanced machine based Endermation —therapy treatments. Discuss the health and hygiene requirements for performing injections. Discuss the hazards of performing advanced machine based Endermation —therapy treatments and injections.

Content

- In this subject students will learn the theoretical dimensions of certain advanced dermal techniques. Knowledge to be developed in this unit includes the theory needed to perform injections relating to both dermal fillers, restorative and corrective treatments. Also covered is the theory behind the assessment for and application of advanced machine based Endermation —therapy based treatments for scar revision and burns therapy.

Required Reading


Recommended Reading


Class Contact

6 hours per week or equivalent

Assessment

50% Practical Assessments (Students are to perform procedures taught within the unit to dermal therapist standards) 30% Assignment (Essay on a topic set by the lecturer 2000 words) 20% Written Examination (Combination of MCQ and SA)

HHD5145 ADVANCED DERMAL APPLICATIONS 1

Campus: King Street campus, Queen Street campus, Flinders Lane campus

Prerequisites: Nil

Co-requisites:

Learning Outcomes

On successful completion of this unit the student will be able to:

- Discuss the theoretical consideration of performing injections. Explain and demonstrate the basic technique of injecting into the cutaneous and subcutaneous regions. Discuss the theoretical considerations of advanced machine based Endermation —therapy treatments. Discuss the health and hygiene requirements for performing injections. Discuss the hazards of performing advanced machine based Endermation —therapy treatments and injections.

Content

- In this subject students will learn the theoretical dimensions of certain advanced dermal techniques. Knowledge to be developed in this unit includes the theory needed to perform injections relating to both dermal fillers, restorative and corrective treatments. Also covered is the theory behind the assessment for and application of advanced machine based Endermation —therapy based treatments for scar revision and burns therapy.

Required Reading


Recommended Reading


Class Contact

6 hours per week or equivalent

Assessment

50% Practical Assessments (Students are to perform procedures taught within the unit to dermal therapist standards) 30% Assignment (Essay on a topic set by the lecturer 2000 words) 20% Written Examination (Combination of MCQ and SA)

HHD5155 PROFESSIONAL DERMAL ISSUES 1

Campus: King Street campus, St Albans campus, Flinders Lane campus

Prerequisites: Nil

Co-requisites:

Learning Outcomes

The student will be able to identify the main factors that determine beauty in humans and why these factors are relevant, they will then be able to make better judgements on what is aesthetically pleasing and apply those concepts to their treatments. Students will also have a much fuller understanding of health laws and what their limitations are to these new treatments that they will be providing.

Content

- This subject will consider the idea of what is generally considered aesthetic pleasing in society. Cultural differences, biological implications, psychological influences and mathematical and proportional concepts impacting on the idea of beauty will be covered. Discussions on decisions to recommend treatment and when to refuse treatment and how to approach these difficult areas will also be considered. Ethics in averse of aesthetic treatments will also be considered. Legal issues regarding these new forms of treatment and record keeping, will also be covered so that the student will know what legal parameters they can work in and how to keep up to date with any changes in law.

Required Reading


Recommended Reading

To be advised by the lecturer.

Class Contact

3 hours per week or equivalent + online discussions

Assessment

30% Assignment (Essay on a topic set by the lecturer 2000 words) 40% Written Examination (Combination of MCQ and SA) 30% Class presentation (A 10 minute presentation to the class on a set topic)

HHD5165 ADVANCED CLINICAL PRACTICE 1

Campus: King Street campus, Queen Street campus, Flinders Lane campus

Prerequisites: Nil

Co-requisites:

Learning Outcomes

The student will feel confident in applying the techniques covered, in a clinical setting. Students will be able to apply their knowledge of infection control, record keeping and other clinically related matters.

Content

- In this unit students will undertake a series of lectures in the beginning of the semester to prepare them for later work in the teaching clinic. Record keeping, infection control and clinical work practices will be covered. Students will then be able to provide services to the public to apply the techniques that they have been taught within the program. Students will begin the process of monitoring a case so that they can write up a case report in the following unit.

Required Reading


Recommended Reading

To be advised by the lecturer.

Class Contact

3 hours per week or equivalent + practice

Assessment

50% Practical Assessment (Students are to perform procedures taught within the unit to dermal therapist standards) 50% Assignment (Record keeping information, 2000 words)

HHD5187 CLINICAL DIAGNOSIS AND MANAGEMENT 7

Campus: City Flinders

Prerequisites: HHD4286 Clinical Diagnosis & Management 6, or equivalent.

Learning Outcomes

On successful completion of this unit, students are expected to be able to:

1. Distinguish amongst normal changes and typical and atypical pathological changes on diagnostic images (module 1);
2. Determine when diagnostic images are clinically indicated (module 1);
3. Interpret typical and atypical diagnostic images in a clinical setting (module 1);
4. Integrate typical and atypical diagnostic images with other clinical information to guide clinical decision making (module 1);
5. Describe the public and private health system costs associated with diagnostic images (module 1);
6. Interpret clinical signs and symptoms pertinent to conditions typically seen in paediatrics, obstetrics, otolaryngology, psychiatry, and to serious and specific disorders in obstetrics, paediatrics and psychiatry (module 2);
7. Interpret clinical tests and special investigations commonly used in the diagnosis of conditions typically seen in obstetrics, paediatrics and psychiatry (module 2);
8. Explain the conventional medical management of paediatric, obstetric, ENI and psychiatric conditions typically presenting in osteopathic practice (module 2);
9. Explain serious and common disorders in obstetrics, paediatrics and psychiatry may impact on osteopathic practice (module 2);
10. Discuss potential problems in osteopathy for the professional and the profession, and explore different ways of effectively responding to those problems (module 2);
11. Evaluate the role of nutrients in health and disease (module 3);
12. Recognize and respond appropriately to patients with nutritional deficiencies and eating disorders (module 3);
13. Explain the impact of nutritional status in specific clinical conditions relevant to the practising osteopath (module 3);
14. Relate the methods used for assessing food safety and the principles of food hygiene (module 3);
15. Discuss the actions, interactions and adverse effects of the major drugs commonly seen in osteopathic practice (module 4);
16. Explain referrals procedures and discuss ethical issues in cases where medications may becausing health problems (module 4);
17. Discuss the actions, interactions and adverse effects of the drugs for the management of cardiovascular, gastrointestinal, respiratory, skin and psychiatric disorders (module 4).

Content

Module 1: Diagnostic Imaging 3 reviews pathologies by region using all imaging modalities; skull, cervical spine, thoracic spine, chest, lumbar spine; abdomen including foetal screening; pelvis and hip; upper and lower limb.

Module 1: Diagnostic Imaging 3 reviews pathologies by region using all imaging modalities; skull, cervical spine, thoracic spine, chest, lumbar spine; abdomen including foetal screening; pelvis and hip; upper and lower limb.

Module 2: Diagnosis and Management — PBL 1 concentrates on relevant issues and clinical presentations of conditions typically seen in paediatrics, obstetrics, otolaryngology, psychiatry; clinical tests and conventional medical management of those conditions; more serious disorders in obstetrics, paediatrics and psychiatry; specific areas that impact on osteopathic diagnosis and management.

Module 3: Nutrition and Diet 1 considers carbohydrates, fats, proteins, vitamins, minerals; the healthy diet; diet and disease; nutraceuticals; the role of various nutrients and nutritional status in both health and disease; the concept of food as medicine; nutritional deficiencies and eating disorders; current recommendations for nutritional management of some common disease states; methods used for assessing food safety; principles of food hygiene. The role of macronutrients and micronutrients in the body is considered and an optimal diet for Australians is described. The role of food in lifestyle diseases, and the nutritional management of these diseases, what constitutes a balanced diet and important nutritional issues for Australians will be discussed.

Module 4: Pharmacology 2 includes drugs used in the treatment of skin conditions.
Students should have access to a copy of the most recent MIMS or the Australian medicines handbook available from Australian Medicines Handbook Web site, http://www.amh.org.au

For information on updates on PBS listings, visit the Department of Health Web site, http://www.health.gov.au/pbs
For information on most drugs as provided by MIMS, visit the CNPMedica, Australia Web site, http://www.mydr.com.au
For information on consumer medicine information and product information, visit the Royal Australasian College of General Practitioners (RACGP), Web site, http://www.racgp.org.au/library/medicines
For information on drug recalls and safety, visit the Therapeutic Goods Administration (TGA) Web site, http://www.tga.gov.au

Class Contact One hundred and twenty (120) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and self-directed learning.
Assessment One 15-minute final oral examination (Diagnostic Imaging, 10%; hurdle requirement; Four (4) group-written cases (Diagnosis and Management, 20%; hurdle requirement); One (1) written assignment (1500 words) (10%); One 1.5hr written exam (Nutrition and Diet, 15%); One 2-hour final written open-book examination (Diagnosis and Management, 10%; hurdle requirement); One 2-hour final written examination (Pharmacology, 25%).

HHD5235 DERMAL PHARMACOLOGY
Campus King Street campus, Queen Street campus, Flinders Lane campus
Prerequisites Nil
Co-requisites
Learning Outcomes On successful completion of this unit the student will be able to:
Discuss in detail skin and its underlying structures biochemistry and issues of chemical interaction of substances introduced to the skin and sub-cutaneous structures. Discuss issues of toxicity related to the use of substances, such as injectables in advanced dermal therapies. To explain the process and issues relating to percutaneous absorption. To discuss and differentiate between the chemical composition of substances used in advanced dermal therapies.
Content This subject will give the students a much greater understanding of the chemistry and pharmacology from that introduced at the undergraduate level. Various forms of chemicals and drugs will be used on patients or that patients may already be taking will be considered with regard to the advanced dermal therapies they will be applying. Knowledge to be developed will be chemistry of substances used in advanced dermal therapies, skin and underlying biochemistry, percutaneous absorption, toxicology and chemical interactions.

Class Contact 6 hours per week or equivalent
Assessment 60% Written Examination (3 hours duration) 40% Reading exercises (Composed on a series of short answer questions relating to selected journal articles)

HHD5245 ADVANCED DERMAL APPLICATIONS 2
Campus King Street campus, Queen Street campus, Flinders Lane campus
Prerequisites Nil
Co-requisites
Learning Outcomes On successful completion of this unit the student will be able to:
Discuss issues involved with the use of injectables in dermal techniques. Discuss the effects of using injectable substances for aesthetic purposes. Discuss the affects of advanced machine based Endermo—therapy treatments. Demonstrate an understanding of the application of advanced machine based Endermo—therapy treatments for lymphedema, post surgery applications and other related modalities
Content This subject will build on and extend the knowledge gained in advanced dermal therapies 1. Knowledge to be developed will include practical application of advanced machine based Endermo—therapy treatments and injectables for cosmetic, restorative and corrective purposes. Knowledge of the hazards and contraindications associated with the use of injectables in advanced dermal techniques will be covered. Treatment protocols will be developed for the use of these advanced dermal techniques.
Class Contact 6 hours per week or equivalent
Assessment 50% Practical Assessments (Students are to perform procedures taught within the unit to dermal therapist standards) 30% Assignment (Essay on a topic set by the lecturer 2000 words) 20% Written Examination (Combination of MCQ and SA)

HHD5255 PROFESSIONAL DERMAL ISSUES 2
Campus King Street campus, Queen Street campus, Flinders Lane campus
Prerequisites Nil
Co-requisites
Learning Outcomes The student will be better able to communicate with clients that may have suffered a severe trauma and understand the psychological impact such an event would have on them. Students will be further able to discuss cases in a professional forum and have a greater understanding of what are professional standards of sharing information. Students will be able to write case reports at a medico-legal standard.
Content In this unit students will consider the psychological impact a severe trauma has on peoples cognition when that trauma greatly affects their appearance. Other related psychological conditions will also be considered. Better communication and empathy will be addressed to help deal with these situations. Discussions of specific cases and various professional approaches will also be discussed, highlighting a best practice model. Students will also go through the process of writing a case report based on these new treatments for a private health insurance company or medical practitioner.
Recommended Reading To be advised by the lecturer.
Class Contact 3 hours per week or equivalent + online discussions
Assessment 30% Assignment (Essay on a topic set by the lecturer 2000 words) 40% Case Report (Medico Legal case report 2000 words) 30% Case Critique (students are to critique a selected case 1000 words)

HHD5265 ADVANCED CLINICAL PRACTICE 2
Campus King Street campus, Queen Street campus, Flinders Lane campus
Prerequisites Nil
The student will feel even more confident in applying a wider range of techniques, in a clinical setting. Students will be able to further their knowledge of infection control, record keeping and other clinically related matters.

Content: In this unit, students will undertake a series of lectures in the beginning of the semester to prepare for their written case study, (case being obtained from the teaching clinic). Students will continue to deepen their knowledge and record keeping, infection control and clinical work practices. Students will then provide a wider range of services to the public to apply the techniques that they have been taught within the program. Students will continue the process of monitoring a case so that they can write up a case report.


Recommended Reading: Nil

Class Contact: 3 hours per week or equivalent + practice

Assessment: 50% Practical Assessments (Students are to perform procedures taught within the unit to dermal therapist standards) 50% Assignment (Case study, 3000 words)

HHD5288 CLINICAL DIAGNOSIS AND MANAGEMENT 8

Campus: City Flinders

Prerequisites: HHD5187 Clinical Diagnosis & Management 7; or equivalent

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Elicit and interpret clinical signs and symptoms pertinent to conditions typically seen in gerontology, and to more serious and specific disorders in and musculoskeletal medicine (module 1);
2. Interpret clinical tests and special investigations commonly used in the diagnosis of conditions typically seen in gerontology, and musculoskeletal medicine (module 1);
3. Generate a primary diagnosis and a list of differential diagnoses consistent with typical presentations common in gerontology, and musculoskeletal medicine (module 1);
4. Explain the medical management of various conditions typically presenting in osteopathic practice (module 1);
5. Discuss how the serious and common disorders and the specialized areas of medical practice (gerontology, and musculoskeletal medicine) may impact on osteopathic practice (module 1);
6. Apply knowledge, appropriate communications skills and critical reasoning skills consistent with professional osteopathic standards expected during patient consultations (module 1);
7. Discuss potential professional problems and explore different ways of effectively responding to them (module 1);
8. Function as practitioners within a multi-disciplinary health care team (module 1);
9. Function as practitioners who can work independently within the scope of osteopathic practice (module 1);
10. Evaluate the role of nutrients in health and disease (module 2);
11. Explain the impact of nutritional status in specific clinical conditions relevant to the practising osteopath (module 2);
12. State current recommendations for the nutritional management of some common and serious disease states (module 2);
13. Discuss nutritional issues relevant to children, pregnant women and elderly adults (module 2).

Content: This unit comprises two modules: Module 1: Diagnosis and Management — Problem Based Learning 2; and Module 2: Nutrition and Diet. Module 1: Diagnosis and Management — Problem Based Learning 2 discusses relevant issues and clinical presentations of conditions typically seen in gerontology: clinical tests and conventional medical management of those conditions; specific areas in musculoskeletal medicine and gerontology that impact on osteopathic diagnosis and management. Module 2: Nutrition and Diet considers nutrition in pregnancy, paediatric nutrition, fat diabetes, traditional cuisines, sports nutrition, giving dietary advice, nutrition and cancer, nutrition and arthritis, food low and labelling, food allergy and intolerances, nutrition issues for women, nutrition and the elderly.


Class Contact: Seventy-two (72) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and self-directed learning.

Assessment: One written assignment (1500 words) (Nutrition and Diet, 20%); One written assignment (2000 words) (Nutrition and Diet, 30%); Four (4) group-written cases (Diagnosis and Management, 25%, hurdle requirement); One 2-hour final written open-book examination (Diagnosis and Management, 25%, hurdle requirement).

HHH4101 RESEARCH METHODS

Campus: St Albans

Prerequisite(s): Nil

Content: Evaluation of the health care professionals role in the research process and the significance of research to health care. Discussion of the different trends and issues within health care research. Exploration of legal and ethical considerations in research. Examination of qualitative and quantitative research methods. Consideration of how research ideas/questions can be generated and which research methodology may be appropriate. Data analysis and Computation.


Subject Hours: A minimum of twenty-four (24) hours for one semester comprising lectures, seminars and self-managed learning activities.

Assessment: Seminar presentation with staff and peer assessment (50%); written assignment (50%). To obtain a Pass in the subject, a pass must be gained for each component of assessment. Failed assessment item (written assignment) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission may be 50%.

HHH4111 RESEARCH METHODS IN HEALTH SCIENCE

Campus: St Albans

Prerequisites: Nil

Learning Outcomes: On the completion of this subject, students will be able to:

- understand in depth a range of health research methodologies;
- formulate research questions and identify methodologies appropriate to exploring these;
- apply commonly used health research methodologies;
- critically evaluate health research papers;
- identify ethical issues associated with conducting research;
- demonstrate competence in the use of statistical analysis software.

Content: This subject focuses on qualitative and quantitative methods in health research with specific emphasis upon those methodologies that students are likely to employ in their research projects. The subject will also include sessions on research design, locating and evaluating research papers; identifying and managing ethical issues that pertain to research. Students will also learn how to enter and analyse data using SPSS software.


SPSS for Windows: www.spss.com


Class Contact Three hours per week

Assessment One two-hour formal examination 40%; One one-hour practical examination on the use of SPSS 30% and one written assignment (1,500 words) 30%.

HHH4121 PLANNING THE HEALTH HONOURS RESEARCH PROJECT

Campus St Albans

Prerequisites Nil

Co-requisites

Learning Outcomes On the completion of this subject, students will be able to:

- demonstrate an understanding of national, state and regional health priorities;
- demonstrate an understanding of the social and cultural factors that impact upon health, particularly with respect to the student’s proposed research undertaking;
- construct a research proposal which details the student’s proposed research;
- identify and propose ways of managing any ethical issues pertaining to the student’s research;
- demonstrate competence the use of Endnote referencing / data management software.

Content This subject focuses on research planning, with particular emphasis upon situating research within national, state and regional health priorities. The subject assists students in detailing and constructing their research proposals and identifying ethical issues that pertain to their proposed research. The subject includes library workshop sessions on locating and retrieving relevant data, computer lab sessions on the use of Endnote data management/referencing software. Students will be provided instruction on academic writing, the appropriate use of information when writing and correct referencing protocols. This subject will include class sessions on plagiarism and students will be provided copies of the university’s plagiarism policy. This subject will also assist students in re framing their ‘student portfolios’ towards ones which emphasise health research abilities.

Required Reading Department of Human Services 2002, Western Metropolitan Region Health and Social Wellbeing Profile (Second Edition), Department of Human Services, Melbourne.


Department of Human Services website: www.hnph.dhs.vic.gov.au


Endnote v8 for windows: www.endnote.com


National Center for Cultural Competence - Georgetown University Child Development Center, Center for Child Health and Mental Health Policy - University Affiliated Program (UAP).


Western Health:

Class Contact Three hours per week.

Assessment One assignment (target student portfolio - 800 words) 20% to be submitted in week 5 of the semester as a means of providing students with ‘early feedback’; One one-hour practical exam in the use of endnote software 30%; One research proposal that details the student’s proposed study (minimum 4,000 words) 50%.

HHH4131 HEALTH HONOURS THESIS 1

Campus St Albans

Prerequisites HHH4111 Research Methods in Health Science; HHH4121 Planning the Health Honours Research Project.

Learning Outcomes On the completion of this subject, students will have:

- gained skills in research planning and implementation;
- enhanced their skills in academic writing, information retrieval and referencing;
- constructed and submitted an ethics application based on their proposed research;
- completed the initial phases of their research undertaking;
- made significant progress in drafting the ‘introductory’ and ‘literature review’ sections of their written thesis.

Content This subject focuses upon assisting students in the initial phases their supervised research study. Particular emphasis is given to the formulation and submission of an ethics application and writing the first draft of the ‘introductory’ and ‘literature review’ sections of the written thesis.

Required Reading Reading will vary in accord with each student’s specific research topic, aims and method.


Class Contact Six hours per week.

Assessment An ethics submission that details and addresses the ethical aspects of the student’s research, for submission to the Faculty Ethics Committee (graded as ‘satisfactory’ or ‘unsatisfactory’).

The satisfactory completion of the initial stage of the student’s research project in accord with her/his research project plan and timelines. (graded as ‘satisfactory’ or ‘unsatisfactory’).

HHH4241 HEALTH HONOURS THESIS 2

Campus

Prerequisites HHH4131 Health Honours Thesis 1

Learning Outcomes On the completion of this subject, students will have:

- enhanced their research skills;
- undertaken the data collection phase of their research;
- commenced the data analysis phase of their research;
hh4251 health honours thesis 3

Campus St Albans

Prerequisite(s) HH4241 Health Honours Thesis 2

Co-requisites

Learning Outcomes On the completion of this subject, students will have:
- enhanced their skills in research and academic writing;
- completed and submitted their written research thesis.

Content This subject focuses upon assisting students in the final phases of their supervised research study. Particular emphasis is given to exploring the implications of their research findings and the compilation of a written honours thesis. Group discussion and collective work-shopping of specific issues experienced by students in their research will also be a major focus in this subject.

Required Reading Reading will vary in accord with each student’s specific research topic, aims and method.


Class Contact Six hours per week

Assessment The satisfactory completion of defined stages of the student’s research project in accord with the student’s research project plan and timelines. This subject is graded as ‘satisfactory’ or ‘unsatisfactory’ on the basis of the student progress report.

hh4010 chinese medicine clinical internship 1 - herb major

For continuing students only

Campus St Albans

Prerequisite(s) HHI3020 Chinese Medicine Clinical Practice - Herb Major 4; HHT3001 Internal Medicine; or equivalents.

Content During the first week of semester, students will attend two 2-hour seminars to orientate them to the final level of the clinical program; to review expectations of them in the clinic; to review student ethics and professional behaviour; to review standard operating procedures of the clinical dispensary and system in place for public consultations, in preparation for continuation of the clinical program. Students undertake their final year clinical placement as the Intern Practitioner in approved settings. Much of the placement will be undertaken in the on-campus student clinic. This subject must be completed before off shore clinical placements can be approved. Internship Practitioner: The student practitioner is expected to conduct themselves in a professional manner, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the intern practitioner: take all case notes, define diagnosis, herbs and main formulas that the prescription could be based upon, define treatment principles and where appropriate apply acupuncture. The intern practitioners work independently and assume full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is assessed as required. Prescriptions must be approved by the supervising practitioner as suitable and safe to dispense for each client consulted, before being processed in the dispensary.

Required Reading Reading will vary in accord with each student’s specific research topic, aims and method.


Class Contact Six hours per week

Assessment The completion and submission of the honours thesis (20,000 to 25,000 words) that will be examined in accord with the thesis assessment procedures of the School of Health Sciences and graded in accord with the honours grading system of Victoria University.

hh4020 chinese medicine clinical internship 2 - herb major

Campus St Albans

Prerequisite(s) HH4010 Chinese Medicine Clinical Internship 1 - Herb Major; or equivalent.

Content During the first week of semester, students will attend a two-hour seminar to orientate them to the final level of the clinical program; to review expectations of them in the clinic; to review student ethics and professional behaviour; to review standard operating procedures of the clinical dispensary and system in place for public consultations, in preparation for continuation of the clinical program. Students undertake their final year clinical placement as the Intern Practitioner in approved settings. Much of the placement will be undertaken in the on-campus student clinic. This subject must be completed before off shore clinical placements can be approved. Internship Practitioner: The student practitioner is expected to conduct themselves in a professional manner, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the intern practitioner: take all case notes, define diagnosis, herbs and main formulas that the prescription could be based upon, define treatment principles and where appropriate apply acupuncture. The intern practitioners work independently and assume full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is assessed as required. Prescriptions must be approved by the supervising practitioner as suitable and safe to dispense for each client consulted, before being processed in the dispensary.

Required Reading Reading will vary in accord with each student’s specific research topic, aims and method.


Class Contact Six hours per week

Assessment The completion and submission of the honours thesis (20,000 to 25,000 words) that will be examined in accord with the thesis assessment procedures of the School of Health Sciences and graded in accord with the honours grading system of Victoria University.

required reading

On successful completion of this unit, it is expected that students will be able to:
1. Evaluate different types of statistical designs;
2. Explain research methods relevant to research in osteopathy and related health fields;
3. Identify ethical requirements in the conduct of research;
4. Critically appraise literature in the field of health science;
5. Independently write a research proposal;
6. Present a research proposal in an oral format to peer review.

Content Review of scientific methods; quantitative and qualitative research paradigms; data sampling and collection; questionnaire design; outcome measures used in manual therapy research; qualitative methods: case study; grounded theory; ethnography; focus group; ethical issues and evaluation of research papers; data analysis: descriptive and inferential statistics, correlations, and hypothesis testing.


Class Contact Sixty (60) hours or equivalent normally spread over one semester comprising lectures, tutorials and workshops.

Assessment Selection of topic and supervisor form (hurdle requirement); written research proposal (3000-5000 words) (50%) (hurdle requirement); oral PowerPoint presentation of proposal (20%); one 2-hour written examination (30%) (hurdle requirement).

HHL4282 RESEARCH 2

Campus St Albans, City Flinders
Prerequisites HHL4181 Research 1; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Explain data analysis methods relevant to research in osteopathy and related health fields;
2. Describe detailed methods of qualitative and quantitative statistical analysis;
3. Use a statistical computer package for data analysis;
4. Complete a written ethics application for a research proposal.

Content Extension and consolidation of data analysis methods. Quantitative data analysis: revision of descriptive and inferential statistics, correlations and hypothesis testing, general linear model, power and effect, analysis of variance and covariance multivariate designs, nonparametric data analysis and selection of nonparametric tests, practical use of the SPSS statistical computer package. Qualitative data analysis: major qualitative methodologies, techniques in data collection and analysis.


HHL5183 RESEARCH 3

Campus St Albans, City Flinders
Prerequisites HHL4282 Research 2; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Independently progress the data collection and analysis phases of research;
2. Produce a working draft of a thesis.

Content Following receipt of ethics committee approval, students will complete data collection and analysis appropriate to their individual research projects and write a draft of the thesis, which in its final form will be a 12,000-20,000 word thesis of a standard consistent with publication in a peer reviewed journal.

Required Reading There are no set texts for this unit. Reading will be influenced by the nature of the research project undertaken by the student.


Class Contact Sixty (60) hours or equivalent normally spread over one semester comprising independent research, meetings with supervisors, and tutorials and workshops as required.

Assessment Two satisfactory progress reports from supervisor(s) (week 5, end-of-semester) (hurdle requirement).

HHL5284 RESEARCH 4

Campus St Albans, City Flinders
Prerequisites HHL5183 Research 3; or equivalent.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Independently produce a scholarly piece of original writing (thesis of 12,000-20,000 words) relevant to the discipline of health science;
2. Engage in further research activities and research training.
Content Students having undertaken an individual research project in earlier HHL4181, HHL4282 & HHL5183 Research units will use this unit to complete the (12000-20000 word) minor thesis component of the degree. The thesis will provide evidence of independent academically rigorous research, which demonstrates the ability to define a problem, undertake a detailed literature review, develop a research design appropriate to the topic and collect and analyse, interpret and present data. The thesis should demonstrate a high standard of written communication skills consistent with publication in a peer reviewed journal. Presentation of the thesis should be in a conventional scientific format. An oral PowerPoint presentation is also required.

Required Reading There are no set texts for this unit. Reading will be influenced by the nature of the research project undertaken by the student


OR


Sixty (60) hours or equivalent normally spread over one semester

Nil

Eligibility for entry to a Masters by Research or Doctor of Philosophy Grof, S. with Bennett, H.Z. (1990). The Holotropic Mind.

of a project carried out by students on an individual basis. The project is expected to
an area of study utilising knowledge and skills gained in previous studies, consists
from an appropriate area of expertise.

Assessment

The thesis will normally be assessed by at least two expert examiners from an appropriate area of expertise.

HHN0021 COUNSELLING SKILLS FOR NATURAL MEDICINE PRACTITIONERS

Campus St Albans.

Prerequisite(s) Nil

Content An introduction to the role of the counsellor and relationship between the client and practitioner. The following theories will be covered: Psychoanalytic, Aldenian, Existential, Person Centred, Gestalt, Reality, Behavioral, Cognitive, Family systems, Ego State Therapies, as well as meditation, relaxation therapy. Ethical and legal issues of counselling.


Subject Hours The equivalent of 39 hours per semester delivered in burst mode over two weeks or over one semester of 13 weeks.

Assessment Seminar presentation (15%); class participation (25%); written theory assignment (1500 words) (40%); reflective journal (20%). A pass must be gained for each component of the assessment.

HHO1171 OSTEOPATHIC SCIENCE 1

Campus City Flinders.

Prerequisite(s) Nil

Co-requisite(s) HHA1171 Anatomy 1; HHP1171 Physiology 1; HHU1171 Clinical Practicum 1; or equivalents.

Student Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Discuss osteopathic principles at a basic level; 2. Identify and palpate major anatomical structures and landmarks; 3. Demonstrate soft tissue and articulatory techniques for most areas of the musculoskeletal system of the shoulder girdle, upper limb, head, neck and upper thorax.

Content This unit comprises three modules: Module 1: Technique; Module 2: Palpation; and Module 3: History and Principles. Module 1: Consideration of somatic dysfunction and the functioning of the individual as a whole. An introduction to osteopathic diagnosis. Basic soft tissue techniques applicable to the tissues of the musculoskeletal system. The use of leverage to induce motion within these tissues including an appreciation of barrier principles. Contraindications to osteopathic care both absolute and relative. Module 2: Development of palpatory skills and awareness of normal and abnormal tissue characteristics. Research and presentation skills relating to the published literature on palpation. Emphasis is placed on palpatory skills, osteopathic soft tissue and articulatory techniques, surface anatomy and tissue awareness. The palpation component will augment and reinforce anatomy presented in the unit Anatomy 1. Module 3: Development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy.


HHM6800 RESEARCH THESIS (FULL-TIME)

Campus Footscray Park

Prerequisite(s) Eligibility for entry to a Masters by Research or Doctor of Philosophy program.

Content This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably

HHM6801 RESEARCH THESIS (PART-TIME)

Campus Footscray Park

Prerequisite(s) Eligibility for entry to a Masters by Research or Doctor of Philosophy program.

Content This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably

**Recommended Reading**

**Class Contact**
Hours Seven (7) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

**Assessment**
Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one combined practical and oral mock examination (OSCE format) (Technique) (pass/fail formative assessment); three quizzes (History and Principles) (pass/fail) (hurdle requirement); one peer-graded written assignment (History and Principles) (pass/fail) (hurdle requirement); one 40-minute combined practical and oral examination (OSCE format) (20 minutes Technique; 20 minutes Palpation) (pass/fail) (hurdle requirement).

**HHO2173 OSTEOPATHIC SCIENCE 3**

**Campus** St Albans, City Flinders.
Prerequisites Satisfactory completion of Year 1 of the HBOS degree; or equivalent.
Co-requisites

**Learning Outcomes**
On successful completion of this unit, it is expected that students will be able to:
1. Explain the biomechanical principles underlying the use of HVLA thrust techniques to the spine;
2. Demonstrate with commentary and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort;
3. Explain the principles of regional peripheral examination;
4. Demonstrate with commentary and perform examinations of the peripheral regions;
5. Discuss presentations of common osteopathic conditions and their diagnosis;
6. Explain the major contraindications to osteopathic treatment in relation to the various techniques taught;
7. Discuss the requirements and considerations for patient and operator safety and comfort;
8. Contrast principles and practices of osteopathic medicine from allopathic and other forms of complementary medicine.

**Content**
This unit comprises three modules: Module 1: High Velocity Low Amplitude Thrust Technique; Module 2: Peripheral Joint Technique; and Module 3: Osteopathic Science Theory. The content includes: further development of osteopathic manual soft tissue skills and the uses of leverage in treatment regimes. Further development of these principles and practice of osteopathic medicine as distinct from allopathic and other complementary therapies. The evidence base underpinning osteopathic principles and somatic dysfunction. Common conditions seen in osteopathic diagnosis and the diagnosis of these conditions.

**Required Reading**
Recommended Reading

**Class Contact**
Six (6) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

**Assessment**
Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one 20-minute practical examination (HVLA) (pass/fail) (hurdle requirement); one 15-minute practical examination (Peripheral Assessment (pass/fail) (hurdle requirement); one 3-hour written examination (Osteopathic Science Theory) (pass/fail) (hurdle requirement).

**HHO2274 OSTEOPATHIC SCIENCE 4**

**Campus** St Albans, City Flinders.
Prerequisites HHO2173 Osteopathic Science 3; or equivalent.

**Learning Outcomes**
On successful completion of this unit, it is expected that students will be able to:
1. Apply the biomechanical principles underlying the use of HVLA thrust techniques to the spine;
2. Demonstrate with commentary and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort;
3. Justify the principles of regional peripheral examination;
4. Demonstrate with commentary and perform examinations of the peripheral regions;
5. Explain the possible and probable therapeutic mechanisms of common osteopathic techniques;
6. Develop osteopathic case-note taking skills;
7. Discuss the traditional osteopathic principles and philosophy;
8. Evaluate traditional osteopathic concepts and theories in terms of currently-available scientific evidence;
9. Explain current scientific concepts and theories relevant to the manual therapies in general;
10. Discuss the extent of the evidence-based approach to medicine and the limited support currently available to the manual therapies;
11. Evaluate scientific and magazine articles on osteopathic principles, philosophy and practice.

Content
This unit comprises four modules: Module 1: High Velocity Low Amplitude Thrust Technique; Module 2: Peripheral Joint Technique; Module 3: Osteopathic Science Theory; and Module 4: History and Principles. The content will include: further development of osteopathic manual soft tissue skills and the uses of leverage in treatment regimes. Continued refinement of treatment approaches to effect reflex and structural changes in muscle. Introduction to the use of high velocity thrust techniques applicable to the spine and periphery. Stress is placed upon observation prior to palpation and the need to recognise the anatomical relationships on one region of the body to others. Treatment techniques of the peripheral regions and refinement of peripheral examination techniques. Osteopathic principles and application of forces to all soft tissues and joints of the body to normalise mechanics. Contraindications to the use of osteopathic techniques. Application and interpretation of tests and protocols relating to patient safety. Further exploration of the principles and practice of osteopathic medicine as distinct from allopathic and other complementary therapies. The evidence base underpinning osteopathic principles and somatic dysfunction. Introduction to the osteopathic case history, examination and tissue diagnosis. Development of the knowledge framework of osteopathy and an understanding of osteopathic history and philosophy. Current scientific and popular issues in osteopathy, including issues relevant to Australia.

Required Reading

Recommended Reading

Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); four 30-minutes quizzes (History and Principles) (pass/fail) (hurdle requirement); one 15-minute practical examination (Peripheral Assessment (pass/fail) (hurdle requirement); one 20-minute practical examination (HVLA) (pass/fail) (hurdle requirement); one 15-minute practical examination (Peripheral Assessment (pass/fail) (hurdle requirement); one 5-hour written examination (Osteopathic Science Theory) (pass/fail) (hurdle requirement); four 30-minutes quizzes (History and Principles) (pass/fail) (hurdle requirement).

HHO3175 OSTEOPATHIC SCIENCE 5
Campus City Flinders
Prerequisites HHO2274 Osteopathic Science 4; or equivalent
Co-requisites Nil.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Discuss the skills and knowledge required to perform Muscle Energy Technique (MET);
2. Discuss the therapeutic principles of MET;
3. Explain the limitations of the MET paradigm in light of current evidence;
4. Competently assess all regions of the musculoskeletal system for somatic dysfunction;
5. Evaluate conditions commonly presenting in osteopathic practice for their suitability for MET;
6. Competently and safely apply MET to any region of the musculoskeletal system;
7. Explain the various models of osteopathic diagnosis, treatment and prognosis.

Content

Required Reading

Recommended Reading

HHO3276 OSTEOPATHIC SCIENCE 6
Campus City Flinders
Prerequisites HHO3175 Osteopathic Science 5; or equivalent

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Competently assess all regions of the musculoskeletal system for somatic dysfunction;
2. Explain the major contraindications to osteopathic treatment in relation to the various techniques taught;
3. Competently apply MET to any region of the musculoskeletal system;
4. Competently demonstrate with commentary and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort;
5. Explain HVLA of transitional regions;
6. Justify various models of osteopathic diagnosis, treatment and prognosis.

Content
This unit comprises three modules: Module 1: Advanced High Velocity Low Amplitude Technique (HVLA); Module 2: Muscle Energy Technique (MET); and Module 3: Osteopathic Science Theory — common conditions. Module 1: Advanced techniques, reviewing from Osteopathic Science 3 & 4, study of the principles of HVLA thrust techniques for transitional areas and application of these techniques. Study of contraindications and safety issues in HVLA thrust techniques. Module 2: Study of the components and development of diagnosis, and estimation of prognosis in osteopathic practice. Module 3: Clinical presentations in osteopathic practice, including peripheral joint injuries and common orthopaedic complaints.
Required Reading

Recommended Reading

Class Contact
Five (5) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment
Participation in practical sessions will at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); Assignment (common conditions) (pass/fail) (hurdle requirement); Combined practical and oral OSCE examination (pass/fail) (hurdle requirement): 3 stations (MET, common conditions, HVLA).

Required Reading

Recommended Reading

Class Contact
Five (5) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment
Participation in practical sessions will at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); Assignment (common conditions) (pass/fail) (hurdle requirement); Combined practical and oral OSCE examination (pass/fail) (hurdle requirement): 3 stations (MET, common conditions, HVLA).

Required Reading

Recommended Reading

Class Contact
Sixty (60) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment
Two (2) written assignments (2000 words each) (each 25%, total 50%); one 20-minute practical skills test (50%) (hurdle requirement).

HHO5189 OSTEOPATHIC SCIENCE 9
Campus St Albans, City Flinders.
Prerequisites HHO4288 Osteopathic Science 8; or equivalent.
Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Demonstrate an expanded range of technical skills, including the ability to manage common visceral conditions amenable to osteopathic treatment;
2. Demonstrate a broad range of technical skills, including the ability to manage common sports injuries affecting the limbs;
3. Discuss common modes of osteopathic practice, and the basic business skills required to run a practice.

Content
Visceral osteopathy and osteopathic management of conditions with visceral involvement. Introduction to principles and concepts of rehabilitation for specific injuries encountered in osteopathic practice. Assessment, treatment and rehabilitation of common injuries involving the ankle, calf, foot and knee. Acute and chronic injuries and principles of taping. Practice management : business skills and information required for day-to-day osteopathic practice.

Required Reading

Recommended Reading

Class Contact
Sixty (60) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment
Two (2) written assignments (2000 words each) (each 25%, total 50%); one 20-minute practical skills assignment (50%) (hurdle requirement).

HHO5280 OSTEOPATHIC SCIENCE 10
Campus St Albans, City Flinders.
Prerequisites HHO5189 Osteopathic Science 9; or equivalent.
Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Demonstrate an expanded range of technical skills, including the ability to assess and treat cranio-sacral conditions amenable to osteopathic treatment;
2. Demonstrate a broad range of technical skills, including the ability to manage common sports injuries affecting the spine and pelvis;
3. Discuss sufficient business skills required to run a practice, including appropriate aspects of tax law and third party payer requirements.

Content
Introduction to the cranio-sacral osteopathy. Series of masterclasses by guest lecturers covering various aspects of technique and practice issues. Practice Management : Business skills and information required for day-to-day osteopathic practice.

Required Reading

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

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Recommended Reading Department of Veterans Affairs. (2004). HIP05 Information


Class Contact Eight-hour (84 hours) or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment One written assignment (2000 words) (50%); one 20-minute practical skills examination (50%) (hurdle requirement).

HHP1171 PHYSIOLOGY 1
Campus St Albans, City Flinders.

Prerequisite(s) Nil

Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Discuss the principles and concepts of basic physiological methodology;
2. Explain the major concepts involved in cardiovascular physiology, the body’s natural defences, blood cell development, establishment and alteration of the cell membrane potential, transmission of nervous impulses, and muscle physiology;
3. Link theoretical physiology knowledge and laboratory skills;
4. Apply scientific questioning to basic theoretical knowledge in physiology;
5. Critically assess research papers and physiology research papers in particular;
6. Produce laboratory reports and written critiques in a conventional scientific format.

Content
An introduction to the basic principles and concepts of human physiology. Concepts include homeostasis, cellular physiology, blood and the body’s natural defences, introduction to the nervous system, membrane and action potentials, transmission of nervous impulses, and muscle and skeletal physiology. Theoretical physiological knowledge is integrated with laboratory skills through the use of research questions and laboratory reports. Research skills development, including critical thinking and scientific writing, is incorporated throughout the unit.


Class Contact Three (3) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); five (5) laboratory reports (total 15%); one written assignment (1500 words) (15%); one 3-hour final written examination (50%).

HHP2273 PHYSIOLOGY 3
Campus St Albans, City Flinders.

Prerequisites HHP2172 Physiology 2; or equivalent.

Co-requisite(s) HHP2273 Pathology 3; or equivalent.

Learning Outcomes
1. Discuss the key principles and concepts of human physiology in relation to respiratory and gastrointestinal physiology;
2. Explain the major concepts involved in respiratory and gastrointestinal physiology;
3. Integrate theoretical knowledge on respiratory and gastrointestinal physiology with clinical cases;
4. Apply scientific questioning to basic theoretical knowledge of respiratory and gastrointestinal physiology;
5. Critically assess research and clinical report papers, and respiratory and gastrointestinal physiology papers in particular;
6. Produce clinical case reports and written critiques on topics in respiratory and gastrointestinal physiology in a conventional scientific format.

Content
This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of cardiac, circulatory and renal physiology. Development of critical thinking and research writing skills is continued. Unit content is specifically related to clinically relevant presentations in osteopathic practice.


Class Contact Three (3) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Assessment Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); five (5) laboratory reports (total 15%); one written assignment (1500 words) (15%); two (2) multiple choice question (MCQ) tests (10% each, total 20%); one 3-hour final written examination (50%).

HHP3174 PHYSIOLOGY 4
Campus City Flinders.

Prerequisites HHP2273 Physiology 3; or equivalent.

Co-requisites HHP3174 Pathology 4; or equivalent.

Learning Outcomes
On successful completion of this unit, students are expected to
be able to:
1. Discuss the key principles and concepts of human physiology in relation to metabolism and endocrinology;
2. Explain the major concepts involved in metabolism and endocrinology;
3. Use theoretical knowledge on metabolism and endocrinology to explain clinical case presentations;
4. Apply scientific questioning to basic theoretical knowledge of metabolism and endocrinology;
5. Critically assess research and clinical report papers; and
6. Produce clinical case reports and written critiques on topics in metabolism and endocrinology in a conventional scientific format.

Content This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of metabolism and endocrinology physiology. Critical thinking in human physiology is extended through the use of clinical case studies and the clinical case report. Material is specifically related to clinically relevant presentations in osteopathic practice.

Required Reading
Recommended Reading
Class Contact Three (3) hours per week or equivalent for one semester comprising lectures and tutorials. Tutorial sessions have a hurdle requirement of at least 90% attendance.

Assessment Participation in tutorial sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one oral presentation of a case study (15%); written assignment (2000 words) (15%); two 1-hour multiple choice question (MCQ) written tests (10% each, total 20%); one 3-hour written examination (50%).

HHP3275 PHYSIOLOGY 5
Campus City Flinders
Prerequisite HHP3174 or equivalent.

Learning Outcomes
Upon successful completion of this subject, students will:
1. Discuss the key principles and concepts of human physiology in relation to metabolism and endocrinology;
2. Explain the major concepts involved in metabolism and endocrinology;
3. Use theoretical knowledge on metabolism and endocrinology to explain clinical case presentations;
4. Apply scientific questioning to basic theoretical knowledge of metabolism and endocrinology;
5. Critically assess research and clinical report papers; and
6. Produce clinical case reports and written critiques on topics in metabolism and endocrinology in a conventional scientific format.

Content This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of metabolism and endocrinology physiology. Critical thinking in human physiology is extended through the use of clinical case studies and the clinical case report. Material is specifically related to clinically relevant presentations in osteopathic practice.

Required Reading
Recommended Reading
Class Contact Three (3) hours per week or equivalent for one semester comprising lectures and tutorials. Tutorial sessions have a hurdle requirement of at least 90% attendance.

Assessment Participation in tutorial sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one oral presentation of a case study (15%); written assignment (2000 words) (15%); two 1-hour multiple choice question (MCQ) written tests (10% each, total 20%); one 3-hour written examination (50%).
assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved. Assessment will reflect the following Core Graduate Attributes. Students will:

- Identify and solve complex problems related to emergency management (P3).
- Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3).
- Communicate with peers via on-line medium in formal and informal settings (O2).
- Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3).
- Manage time without guidance (A3).
- Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2).
- Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (D2).

**HHP5102 DISASTER PLANNING AND PREVENTION**
Campus Internet Australia
Prerequisites Appropriate Undergraduate qualification or equivalent

**Learning Outcomes** Upon successful completion of this subject the student will:

   - Discuss the application of risk management in the context of Emergency Planning and Preparedness.
   - Discuss risk management in the context of Emergency Management Planning and Prevention.
   - Discuss disaster mitigation strategies and their application to Emergency Planning and Preparedness.

2. Models of planning and prevention in the national and international context.
   - Define and describe national and international models of Emergency Management Planning and Prevention.
   - Discuss the application of Emergency Management Planning and Prevention models in the context of the local environment.
   - Discuss the critical considerations in counter disaster planning including disaster plans, crisis pressure and information management.

3. Federal, State/Territory and Local Government disaster policy and plans.
   - Describe the global approach to Emergency Management Planning and Prevention.
   - Discuss the application of policy and planning within the context of the student’s local environment.
   - Evaluate the management of selected major incidents in relation to disaster plan activation and implementation.
   - Explore the criteria for review of Emergency Management Plans, with reference to legislation that establishes the legal basis for planning.

4. Roles and responsibilities of Government and Non-government agencies in disaster planning and prevention, in particular coordination, capability, capacity and interoperability.
   - Describe and discuss the roles and responsibilities of Federal, State/Territory Government agencies in the disaster planning and prevention process, including Defence, health, ambulance, fire, police, State Emergency Service and essential service organisations.
   -  Describe and discuss the roles and responsibilities in the disaster planning and prevention process of non-government agencies.

**Content** This subject will contain:

1. Risk assessment, mitigation and management models.
2. Models of planning and prevention in the national and international context.
3. Federal, State/Territory and Local Government disaster policy and plans.
4. Roles and responsibilities of Government and Non-government agencies in disaster planning and prevention, in particular coordination, capability, capacity and interoperability.


**Class Contact** 3 hours of on-line lecture and 1 hour of on-line tutorial. Further contact with students will be via on-line chat rooms/discussions and via e-mail and telephone.

**Assessment** Assessment will include two (2) three thousand (3000) word assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved. Assessment will reflect the following Core Graduate Attributes. Students will:

- Identify and solve complex problems related to emergency management (P3).
- Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3).
- Communicate with peers via on-line medium in formal and informal settings (O2).
- Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3).
- Manage time without guidance (A3).
- Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2).
- Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (D2).

**HHP5103 DISASTER PREPAREDNESS**
Campus Internet Australia
Prerequisites Appropriate Undergraduate qualification or equivalent

**Learning Outcomes** Upon completion of this subject the student will:

1. Counter Disaster Training and Education.
   - Describe Education and Training strategies to ensure effective management of all elements of disaster coordination.
   - Discuss the application of Education and Training principles in disaster preparedness.

2. Community and other stakeholder engagement.
   - Discuss the role of the community and other stakeholders in disaster preparedness.
   - Discuss strategies for engagement of community and stakeholder’s in disaster preparedness.

3. Assessment of preparedness.
   - Discuss the roles and responsibilities of federal, state/territory, local government and individual agencies in disaster preparedness.
   - Discuss principles of assessment of disaster preparedness and the application of these principles in their local environment.
   - Discuss the principles of coordination and implementation of disaster exercises to test multi-agency disaster preparedness.

4. Interagency liaison.
   - Identify forums for communication between agencies to discuss disaster preparation.
   - Discuss the process of engagement of other agencies in disaster preparation.

5. International assistance liaison.
   - Discuss the roles, responsibilities and obligations of federal, state/territory, local government and all agencies.

   - Identify government / agency specific responsibilities for resource management in the context of disaster preparation.

**Content** This subject will contain: 1. Counter Disaster Training and Education.

2. Community and other stakeholder engagement.
3. Assessment of preparedness.
4. Interagency liaison.
5. International assistance liaison.


**Class Contact** 3 hours of on-line lecture and 1 hour of on-line tutorial. Further contact with students will be via on-line chat rooms/discussions and via e-mail and telephone.

**Assessment** Assessment will include two (2) three thousand (3000) word assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved. Assessment will reflect the following Core Graduate Attributes. Students will:

- Identify and solve complex problems related to emergency management (P3).
- Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3).
- Communicate with peers via on-line medium in formal and informal settings (O2).
- Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3).
- Manage time without guidance (A3).
- Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2).
- Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (D2).
assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved. Assessment will reflect the following Core Graduate Attributes. Students will: - Identify and solve complex problems related to emergency management (P3). - Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3). - Communicate with peers via on-line medium in formal and informal settings (O2). - Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3). - Manage time without guidance (A3). - Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2). - Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (D2).

HHP5104 DISASTER RESPONSE
Campus Internet Australia
Prerequisites Appropriate Undergraduate qualification or equivalent
Learning Outcomes Upon completion of this subject the student will:
- Identify important characteristics of the disaster response
- Discuss common problems associated with disaster response
- Describe the attributes and requirements essential for effective response
- Discuss response operations
- Discuss human factors involved in crisis situations including decision making and problem solving
- Discuss resources relevant to an all hazards approach to disaster response
- Discuss strategies for communicating with the media and the community
- Discuss the importance of interagency communication and liaison
- Demonstrate effective communication strategies
- Describe various command systems and discuss the relevance of command systems to disaster response
- Describe the roles and responsibilities of selected emergency services agencies to the disaster response
- Outline the major considerations in disaster command and control
- Identify essential resources applicable to the disaster response
- Discuss the management of resources in a disaster situation
- Identify characteristics of effective leadership in a crisis situation
- Identify common problems encountered during the disaster response and discuss strategies to mitigate such problems
- Describe risk management principles and strategies associated with the disaster response
- Describe the roles and responsibilities of federal, state / territory and local governments in responding to a disaster
- Describe the principles of safety, communications and Assessment

Content This subject will contain:
- Important characteristics of response
- Incident command systems
- Interagency communication
- Communication with the public and media
- Resource management
- Leadership in the disaster environment
- Common problems in disaster response
- Requirements for effective response
- Human factors – decision making and problem solving
- Principles and aspects of response

Required Reading

Assessment Assessment will include two (2) three thousand (3000) word assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved. Assessment will reflect the following Core Graduate Attributes. Students will: - Identify and solve complex problems related to emergency management (P3). - Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3). - Communicate with peers via on-line medium in formal and informal settings (O2). - Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3). - Manage time without guidance (A3). - Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2). - Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (D2).
Upon successful completion of this subject the student will be able to:

- Identify and describe salient points from previous disasters and relate these points to the recovery phase.
- Describe the key considerations when transferring from the response to the recovery phase.
- Describe principles of recovery action.
- Discuss common issues and problems encountered in the recovery phase.
- Describe elements required for an effective recovery.
- Identify and discuss the human factor to be considered in the recovery phase.
- Identify and describe resources essential for an effective recovery.
- Describe the requirements for the analysis of the recovery phase and describe key elements for projection for the disaster actions and the phases of emergency management.

Content

This subject will contain:

- Significant issues from disaster analysis.
- The transfer from response to recovery.
- The basis for recovery action.
- Common issues and problems in the recovery process.
- Elements for an effective recovery.
- Human factors in recovery.
- Resources relevant to the recovery process.
- Analysis and projection of the recovery process.
- Describe psychosocial considerations in the recovery phase, including counselling and personal and community support.

Required Reading


Recommended Reading

Class Contact
Three (3) hours of on-line lecture and 1 hour of on-line tutorial. Further contact with students will be via on-line chat rooms/discussions and via e-mail and telephone.

Assessment

Assessment will include two (2) three thousand (3000) word assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved.

Assessment will reflect the following Core Graduate Attributes. Students will:

- Identify and solve complex problems related to emergency management (P3).
- Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3).
- Communicate with peers via on-line medium in formal and informal settings (O2).
- Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3).
- Manage time without guidance (A3).
- Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2).
- Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (O2).

HHP5207 LOGISTICS & SECURITY

Campus Internet Australia
Prerequisites Appropriate Undergraduate qualification or equivalent
Co-requisites

Learning Outcomes

Upon successful completion of this subject the student will:

- Describe the general principles of logistics.
- Discuss the importance and place of logistics in disaster management.
- Describe the major considerations of logistics in the disaster cycle, planning, preparedness, response and recovery.
- Describe the management, administration and financial considerations of logistics in the context of a disaster.
- Describe the major considerations in National security.
- Identify threats to National security.
- Discuss the disaster cycle of planning, preparedness, response and recovery in the context of a terrorist attack.
- Discuss the decision making process when the Nation or the scene is at risk.
- Discuss the essential components of disaster management in the event of a breach in National or scene security.
- Discuss the roles and responsibilities of the major emergency services organisations in the event of a terrorist attack including, Federal Police, State Police, Defence and other security agencies.
- Discuss the principles of command and control in the context of a terrorist attack or major crime.
- Discuss the principles of command and control in the context of warfare.

Content

This subject will contain:

- Aspects of logistics.
- The importance and place of logistics in disaster management.
- Logistics in disaster planning, preparedness, response and recovery.
- Logistics management, administration and finance in the context of a disaster.
- Threats to National security.
- The preservation of National security.
- Emergency service organisations and National security.
- Command and control when the Nation’s security is at risk.
- Terrorism and its impact on society.
- Identification and management of a crime scene.
- Warfare and disaster planning, preparedness, response and recovery.
- Criminal and legal considerations in war.

Required Reading


Recommended Reading


Class Contact
Three (3) hours of on-line lecture and 1 hour of on-line tutorial. Further contact with students will be via on-line chat rooms/discussions and via e-mail and telephone.

Assessment

Assessment will include two (2) three thousand (3000) word assignments with each worth 50% of the total mark (P3, I3, O2, W3, A3, C2, D2). To successfully complete this subject an aggregate mark of 50% must be achieved.

Assessment will reflect the following Core Graduate Attributes. Students will:

- Identify and solve complex problems related to emergency management (P3).
- Locate, evaluate, manage and use information gained from a variety of sources and relate this information to emergency and disaster management (I3).
- Communicate with peers via on-line medium in formal and informal settings (O2).
- Synthesise complex material in the area of emergency and disaster management and communicate ideas at a professional level (W3).
- Manage time without guidance (A3).
- Undertake on-line group tasks and reflect upon issues in emergency and disaster management (C2).
- Apply and evaluate strategies relating to issues of social and cultural diversity in the emergency management context (O2).

HHP5208 DISASTER RESEARCH

Campus Internet Australia
Prerequisites Appropriate Undergraduate qualification or equivalent
Co-requisites

Learning Outcomes

Upon successful completion of this subject the student will:

- Discuss the value of research to Emergency Management
- Demonstrate an ability to evaluate published research reports
- Demonstrate the ability to prepare a literature review
One semester comprising 179 hours of lectures and 179 hours of self-guided study.

- **HHR4114 A & M Clinical Medicine 3**
  - **Campus** St Albans
  - **Prerequisite(s)** HHR3244 A & M Therapeutic Applications; HHR4114 A & M Clinical Medicine 1; HHR4124 A & M Clinical Medicine 2; HHP3434 Counselling Skills for TCM Practitioners; HHS254 Clinical Practice (A&M); 4; or equivalent.
  - **Content** Using a wide range of case studies, students will undertake TCM differential diagnosis, establish the treatment principal, develop a treatment and management plan and where appropriate carry out treatment under supervision for clients experiencing the following: jing luo disharmonies; zang fu disharmonies; fundamental substance disharmonies; 8 extra meridian disharmonies; four radical disharmonies; mixed disharmonies; continuing development of communication skills; exploring the many facets of the client/practitioner relationship.

**HHS3171 PSYCHOLOGY & SOCIAL SCIENCES 1**

- **Campus** Flinders
- **Prerequisites** Nil.
- **Co-requisites** Nil.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:
1. Discuss psychological and sociological issues relevant to healthcare practice;
2. Explain the psychological and social needs of patients from different communities;
3. Describe models and provide definitions commonly used in discussions on disability and cultural diversity;
4. Discuss the relevance of gender, ethnicity and socio-economics in healthcare practice;
5. Predict the needs of individuals with a terminal illness;
6. Discuss the needs of carers;
7. Explain the potential role of the osteopath for clients with diverse backgrounds, and especially those with a terminal illness.

**Content** Introduction to psychological and sociological aspects of healthcare practice. Human diversity from theoretical and practical perspectives. Models used to describe and discuss disability and cultural diversity. Relevance of gender, age, ethnicity and socio-economics in healthcare practice. The needs of patients in the community. The needs of carers and individuals with a terminal illness, and the potential role of the Osteopath. The clinical interview.


**Assessment** One clinical interview analysis (50%); one video report (50%).
On successful completion of this unit, it is expected that students will be able to:
1. Discuss psychological and sociological issues relevant to healthcare practice;
2. Explain the needs of patients from different communities; 3. Use effective communication and interviewing skills relevant to osteopathic practice;
4. Predict the effects of stress on patients;
5. Propose strategies to minimize the effects of stress on patients;
6. Discuss the issues associated with suicide and euthanasia;
7. Explain the effects of and interventions for health-compromising behaviours;
8. Justify and promote health-enhancing behaviours for the individual and the group.

Content Psychological and sociological aspects of healthcare practice. The needs of patients in the community. Relevance of gender, age, ethnicity and socio-economics status in healthcare practice. Communications skills required in healthcare practice. Health enhancing and health compromising behaviours. Challenging situations, such as stress, suicide and euthanasia, in healthcare practice.

Required Reading

Recommended Reading
1. HHS3171 Psychology & Social Sciences 1; or equivalent.

Assessment
1. Workshop presentation (20%) (hurdle requirement); one exercise program (30%); one 2-hour end-of-semester written examination (40%).
2. Two written examinations (40% each) and one oral examination (20%).
HHT1002 FUNDAMENTALS OF CHINESE MEDICINE

Campus St Albans

Prerequisite(s) Nil

Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:

1. Understand, apply and explain fundamental Chinese medical theories and their historical development including: Yin Yang Theory, Five Phase Theory, Zang-Fu Theory, Eight Guiding Principles (Ba Gong); concepts of essence, qi, blood and body fluids; condition of disharmonies; relationship between disease, syndromes and symptoms; treatment principles (ben and biao, reinforcement, reduction) and therapeutic methods; illness prevention; the psyche in Chinese medicine.

2. Explain basic herbal properties and functions according to CM herbal theories including the four qi (si qi), five tastes (wu wei) and four directions; concepts of toxicity, compatibility and incompatibility, caution and contraindications of herbs; basic classification of herbs and quality of herbs.

3. Discuss the importance of the relationships between the Eight Guiding Principles, diagnosis and treatment in Chinese medicine.

4. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content

The clinical gaze of Chinese medicine; overview of historical and philosophical context; function and dysfunction according to Chinese Medicine; introductory illness states - Yin Yang, Wu Xing, Qi, Xue, Jin Ye, Ba Gang; psyche according to Chinese medicine; causes and occurrences of disease; Zang Fu organ system; Curious Fu; introduction to diagnostic methods; Zang Fu/jing-luo interrelationships; mechanisms of disease development; basic herbal properties, functions and theories: Si Qi, Wu Wei, four directions, counter herbs, classification, compatibility, cautions, contraindications, quality, harvesting.

Required Reading


Recommended Reading


Recommended Reading


HHT1005 CHINESE MEDICAL DIAGNOSIS AND PATHOGENESIS 1

Campus St Albans

Prerequisite(s) Nil

Learning Outcomes

1. Analyze the presentation of symptoms using bian zheng lun zhi according to main Chinese medicine theories including Yin Yang Theory, Five Phase (Wu Xing) Theory, Zang-Fu Theory, Theory of Qi, Blood and Body Fluids (fundamental substances) and Meridian Theory (Jing Luo);

2. Recognize symptom patterns of disharmony as understood according to main theories of Chinese medicine (including; Yin Yang Theory, Five Phase (Wu Xing) Theory, Zang-Fu Theory, Theory of Qi, Blood and Body Fluids (fundamental substances), Meridian Theory (Jing Luo); Theory of Six Channels, Theory of Four Levels and Theory of San Jiao) and understand the relationship between disease, syndrome and symptom;

3. Describe the aetiology (external, internal and non-internal non-external factors) and pathogenesis of symptom presentation (as they relate to changes in zang-fu, fundamental substances (essence, qi, blood, body fluids), meridians and collaterals (jing-luo), the six meridians, four levels and san jiao);

4. Utilize the ‘four examinations’;

5. Differentiate between pathogenic attacks on organs, meridians, fluids and qi and suggest appropriate treatment principles for each;

6. Outline clear, logical and accurate therapeutic objectives;

7. Discuss the type and level of treatment according to the Eight Guiding Principles and bian zheng lun zhi and concepts of ben and biao, reinforcement and reduction;

8. Link the pathogenesis of symptom manifestation to treatment principles and appropriate acupuncture point and individual herb selection;

9. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness;

Content

The ‘four examinations’; the eight principles of diagnosis; additional Oriental diagnostic methods e.g., hara diagnosis; the aetiology and manifestation of the energetic patterns of disharmony as they pertain to the jing luo, xu xing, zang fu and fundamental substances; etiology and pathomechanisms of symptom presentations; methods of differential diagnostic; overview of febrile disease differentiation - six channels, four levels, San Jiao syndromes; case histories and individual symptom differentiation; Materia Medica and Jing-luo system consolidated in relation to diagnostic treatment design.

Required Reading


Recommended Reading


Class Contact Hours Eleven (11) hours per week or equivalent for one semester comprising lectures, tutorials and workshops. Students should reasonably expect to devote additional private contact hours of at least 2-3 times more than the stipulated class contact hours.

Assessment One assignment (1200 words) (30%); one combined practical and oral examination (10%) (hurdle requirement); two (2) final theory examinations (30% each part, total 60%).

Additional Statements Workshops have a hurdle requirement of at least 80% attendance.
1. Explain at a basic level the principles and methods of health preservation and enhancement in Chinese medicine.

2. Explain the seven (7) effects of herbs and the four (4) directions theory in Chinese medicine.

3. State the traditional nineteen (19) antagonisms and eighteen (18) incompatible substances (and explain the concept of toxicity in Chinese medicine and the regulatory restrictions in Australia that restrict access to and use of potentially toxic Chinese herbs and endangered species and their ethical implications).

4. Utilize channel tropism theory and name the traditional categories.

5. Explain the naming protocols used in Chinese medicine.

6. Recognize the names of herbs using pinyin transliteration, common name or Latin binomial.

7. Recognize selected processed herbs on sight.

8. Classify herbs and foods according to traditional categories.

9. Describe in detail major examples of herbs for each category, including botanical description, harvesting, preparation, detail, nature, taste, dosage, indications, functions, cautions and contraindications and toxicity.

10. Select herbs of similar properties for different clinical situations.

11. Relate the functions of herbs to basic herbal medicine theories.

12. Demonstrate development and consolidation of attributes in effective problem solving skills and clinical reasoning, information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
The historical development of Chinese herbal medicine; the properties of Chinese medicine: Materia Medica; major herb theories, precautions, contra-indications, dosage, naming of herbs: regions, colours, plant parts, names and alternatives; the categories of the Materia Medica, the most commonly used herbs and foods and their classification according to herb theories. The herbs of the Materia Medica: release exterior, clear heat, drain downward, drain dampness, expel wind-damp, transform phlegm and stop cough, aromatically transform dampness, relieve food stagnation, regulate qi, regulate xue, warm interior and expel cold, tonifying, (Qi, Yang, Yin, Xue) retrain essence, (stabilise and bend) Shen calming, orifice opening, extinguish wind and stop tremors.

Required Reading


Recommended Reading


Class Contact
Hours: Six hours per week or equivalent for one semester comprising lectures, tutorials and self-managed learning activities.

Assessment
One combined practical and oral exam (30%) (hurdle requirement); one assignment (1200 words) (40%); one 2-hour theory examination (30%). This unit is a hurdle requirement.

The UG generic Core Graduate Attributes assessed in this unit are: P2, P3, O2, W2, A2, D2, C2, D2.
3. Describe the key features required for a balanced lifestyle from the Chinese medical perspective.
4. Explain the benefits of tai ji quan and qi gong exercises sufficient for a lay person to understand.
5. Explain the importance of a balanced diet and lifestyle in the preservation of health.
6. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Introduction to the idea of Qi, Qi gong Practices, tai ji quan and Qi in the environment. Introduction to Chinese medicine health enhancement principles and modalities.

Required Reading

Recommended Reading

Class Contact
Two (2) hours per week or equivalent for one semester comprising lectures, tutorials and workshops. Students should reasonably expect to devote additional private contact hours of at least 2-3 times more than the stipulated class contact hours.

Assessment
One combined practical and oral examination (100%) (proficiency standard hurdle requirement). All assessment items address the Learning Outcomes.

HHT1101 ACUPUNCTURE POINT LOCATION 1
Campus: St Albans
Prerequisite(s): Nil

Student Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:

1. Accurately locate the acupuncture points utilizing proportional measurements and surface landmarks;
2. Outline the composition and function of the Jing Luo system and the distribution and connection of each of the various components of the system;
3. Describe the surface anatomy associated with locating and needling acupuncture points;
4. Describe the depths of needling of acupuncture points;
5. State the contraindications of specific acupuncture points;
6. State the general features and functions of the acupuncture points, the categories of acupuncture points and their significance, and the naming and numbering of the acupuncture points;
7. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Introduction to Jing Luo theory and an overview of acupuncture point function and dynamics; proportional measurements; gross surface anatomy as it pertains to the location and depth of acupuncture points; location of acupuncture points on the 12 primary meridians, Ren Mai and Du Mai, and the major extra-ordinary channels; contraindications of specific acupuncture points; depths of needling of acupuncture points. Naming and numbering of the acupuncture points.

Required Reading

Recommended Reading


HHT1157 MINOR THESIS (PART-TIME)

Campus: St Albans
Prerequisite(s): Nil

Content: The minor thesis provides students with an opportunity to extend their knowledge and ability to critically analyse issues specific to primary health care and to engage in independent inquiry in an area of professional interest. The thesis will be a research paper and will provide evidence of independent research which demonstrates the ability to define a problem, undertake a detailed literature review, develop a research design appropriate to the topic and collect and analyse, interpret and present data. The thesis should demonstrate a high standard of written communication skills. A supervisor will be appointed to support and oversee the student’s research according to guidelines established by the Department of Health Sciences.

Required Reading: To be advised by supervisor.

Subject Hours: HHT1127 Minor Thesis (full-time), nine hours per week in semester one; HHT1137 Minor Thesis (full-time), twelve hours per week in semester two; HHT1147 Minor Thesis (part-time), three hours per week in semester one; HHT1157 Minor Thesis (part-time), six hours per week in semesters two, three and four.

Assessment: One 15,000-20,000 word paper.

HHT1158 MINOR THESIS PART-TIME

Campus: St Albans
Prerequisite(s): Nil

Content: The minor thesis provides students with an opportunity to extend their knowledge and ability to critically analyse issues specific to primary health care and to engage in independent inquiry in an area of professional interest. The thesis will be a research paper and will provide evidence of independent research which demonstrates the ability to define a problem, undertake a detailed literature review, develop a research design appropriate to the topic and collect and analyse, interpret and present data. The thesis should demonstrate a high standard of written communication skills. A supervisor will be appointed to support and oversee the student’s research according to guidelines established by the Department of Health Sciences. Required Reading: To be advised by supervisor.

Subject Hours: HHT1127 Minor Thesis (full-time), nine hours per week in semester one; HHT1137 Minor Thesis (full-time), twelve hours per week in semester two; HHT1147 Minor Thesis (part-time), three hours per week in semester one; HHT1157 Minor Thesis (part-time), six hours per week in semesters two, three and four.

Assessment: One 15,000-20,000 word paper.

HHT1159 MINOR THESIS E PART-TIME

Campus: St Albans
Prerequisite(s): Nil

Content: The minor thesis provides students with an opportunity to extend their knowledge and ability to critically analyse issues specific to primary health care and to engage in independent inquiry in an area of professional interest. The thesis will be a research paper and will provide evidence of independent research which demonstrates the ability to define a problem, undertake a detailed literature review, develop a research design appropriate to the topic and collect and analyse, interpret and present data. The thesis should demonstrate a high standard of written communication skills. A supervisor will be appointed to support and oversee the student’s research according to guidelines established by the Department of Health Sciences. Required Reading: To be advised by supervisor.

Subject Hours: HHT1127 Minor Thesis (full-time), nine hours per week in semester one; HHT1137 Minor Thesis (full-time), twelve hours per week in semester two; HHT1147 Minor Thesis (part-time), three hours per week in semester one; HHT1157 Minor Thesis (part-time), six hours per week in semesters two, three and four.

Assessment: One 15,000-20,000 word paper.

HHT1201 ACUPUNCTURE POINT LOCATION 2

Campus: St Albans
Prerequisites: HHT1101 Acupuncture Point Location 1; or equivalent.

Co-requisites: Nil

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Accurately locate the 400 acupuncture points (including extra points) utilizing proportional measurements and surface landmarks;
2. Outline the composition and function of the Jing Luo system and the distribution and connection of each of the various components of the system;
3. Describe the surface anatomy associated with locating and needling acupuncture points;
4. Describe the depths of needling of acupuncture points;
5. Discuss the contraindications of specific acupuncture points;
6. Explain the general features and functions of the acupuncture points, the categories of acupuncture points and their significance, and the naming and numbering of the acupuncture points;
7. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content: Extension and integration of Jing-ling theory and acupuncture point function and dynamics; proportional measurements; gross surface anatomy as it pertains to the location and depth of acupuncture points; location of acupuncture points on the 12 primary meridians, Ren Mai and Du Mai, and the major extra-ordinary channels; contraindications of specific acupuncture points; depths of needling of acupuncture points. Naming and numbering of the acupuncture points.


Class Contact: Five (5) hours per week or equivalent for one semester comprising lectures and workshops. Students should reasonably expect to devote additional private contact hours of at least 2-3 times more than the stipulated class contact hours.

Assessment: One practical examination (50%) (proficiency standard hurdle requirement); one written examination (50%) (hurdle requirement). This is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 2-3 times more than the stipulated class contact hours. Workshops have a hurdle requirement of at least 80% attendance.

HHT2000 HEALTH ENHANCEMENT (YANG SHENG)

Campus: St Albans
Prerequisite(s): Nil

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Explain the principles and methods of health preservation and enhancement in Chinese medicine;
2. Outline the features of a balanced lifestyle from the Chinese medical perspective;
3. Discuss the principles and methods of health preservation and enhancement in Chinese medicine;
4. Evaluate the principles of TCM dietary regulation and explain the use of diet in the maintenance of health;
5. Demonstrate the preparation and explain the functions of specific health food dishes;
6. Evaluate the use of Chinese medical dietary therapy in the treatment of common diseases;
7. Explain the principles of TCM health preservation and enhancement through physical and breathing exercises;
8. Demonstrate specific physical and breathing exercises;
9. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content The medicinal use of foods, the use of foods to prevent disease and maintain health; Chinese dietary theory and practice, the role of lifestyle activities, the meaning of mental culture, breathing and physical exercises (introduction to Tai Qi or Qi Gong).


Campus Contact Hours Three hours per week or equivalent for one semester comprising lectures, laboratories, demonstrations and workshops. Students should reasonably expect to devote additional private contact hours of at least 2-3 times more than the stipulated class contact hours.

Assessment One combined practical and oral assessment (50%); one theory examination (50%). All assessment items address the Cga levels as indicated in the Learning Outcomes.

HHT2003 CHINESE MEDICAL DIAGNOSIS AND PATHOGENESIS 2

Campus St Albans

Prerequisite(s) HHT1005 Chinese Medical Diagnosis and Pathogenesis 1; HHT1006 Acupuncture Point Location; HHT1007 Chinese Pharmacopeia; or equivalents.

Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Demonstrate correct use of the four data collection methods (inquiry, inspection, auscultation/olfaction, and palpation); 2. Interpret the significance of signs and symptoms, including tongue and pulse; 3. Record cases histories indicating various signs and symptoms, with notes on their significance; 4. Explain the guiding principles of Chinese medicine diagnosis (including the concepts of and interrelationships amongst symptom, syndrome and disease); 5. Analyse presentations of signs and symptoms using pattern differentiation systems including the Eight Guiding Principles, Zang Fu Theory (with an emphasis on combined patterns of disharmony), Theory of Qi Xue Jing Ye, and Theory of Jing Luo (Meridians and Collaterals), and explain the aetiology and pathogenesis of such signs, symptoms and syndromes, and the treatment principles; 6. Describe the relationship between Liu Jing (Six Stages) identification and Zang-fu Theory identification; 7. Describe and contrast the pattern differentiation systems of the Liu Jing (six stages), the Wei Qi Ying Xue (four divisions) and the San Jiao (including main syndromes, aetiology and pathogenesis, and treatments classification); 8. Provide a rationale for the relevant Chinese herbal medicine and acupuncture treatments; 9. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content Further development of four the ‘four examinations’, including palpation of channels, points and Hara diagnosis; detail of the differential diagnostic process; disease aetiology illness, Jing lu syndromes, Zang-fu mixed syndromes, febrile disease differentiation - six channels complicated patterns; Wen Bing detail combining Zang Fu, San Jiao and Latent diseases; examination of tongue, skin, and teeth; diagnosis and case histories; individual symptom differentiation; application of Materia Medica and Jing-luo theory in relation to diagnostic outcomes.


Class Contact Hours The equivalent of 72 hours for one semester comprising lectures, seminars, workshops.

Assessment One assignment (1200 words) (30%); one combined practical and oral assessment (30%) (hurdle requirement); one final examination (40%). This unit is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Workshop sessions have a hurdle requirement of at least 80% attendance.

Class Contact: The equivalent of 72 hours for one semester comprising lectures, tutorials and laboratories.

Assessment: One written assignment (1200 words) (20%); one combined practical and oral examination (40%) (proficiency standard hurdle requirement); one 2-hour written theory examination (40%). This unit is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Laboratory sessions have a hurdle requirement of at least 80% attendance.

HHT2011 CHINESE MEDICINE CLINICAL PRACTICE 1

Campus: St Albans
Prerequisite(s): Satisfactory completion of Year 1 of the HBBAH degree; or equivalent

Student Learning Objectives: On successful completion of this unit (in addition to learning outcomes stipulated in the previous clinical unit HHT1009 Introduction to Chinese Medicine Clinical Practice) it is expected that students will be able to:

1. Participate in the day-to-day management and running of a Chinese medicine clinic by working as an assistant and as a member of the clinic team;
2. Perform routineclient-based clerical and receptionist skills (handling telephone enquiries, appointments, greeting, seating, directing clients, maintaining privacy of clients, client file management, payment management);
3. Assist in the clinic room (including demonstrating procedures involved in management of a treatment room, preparation of acupuncture equipment for rooms, changing of linen, cleaning, removal of used equipment; compliance with principles and procedures of personal hygiene; procedures involved with preparing patients for treatment including maintaining client modesty);
4. Develop their Chinese medical diagnostic skills from the perspective of Si zhen
5. Display limited herb dispensing skills and knowledge and work as part of a dispensary team (including being able to read and interpret a prescription, demonstrate methods of herb preparation, dispense a prescription)
6. Demonstrate the correct storage and handling of herbs;

Content: Topics include: preparation of necessary acupuncture equipment for each clinic room; introduction to client record keeping, retrieval, updating, and preserving the confidentiality of client files; arranging appointments; general client care and comfort; basic methods of Pao Zhi including grinding, dry frying, char frying and honey frying; practical skills include the monitoring consultation processes; herbal identification, use of scales, accurate and safe dispensing of herbs; explanation of herbal preparation to clients; storage and handling of herbs, Materia Medica substitutions; development of CN diagnostic skills, e.g., pulse taking, in conjunction with a CM practitioner; the role of the assistant in the clinical setting; privacy and confidentiality issues.


Recommended Reading To be advised by Lecturer.

Class Contact: A minimum of seventy-two (72) hours in an approved clinical setting normally spread across one entire semester (hurdle requirement).

Assessment: Supervised placement comprising successful completion of required 72 clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); combined practical and oral examination (proficiency standard hurdle requirement). Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement.

Additional Statements: Clinical sessions have a hurdle requirement of at least 100% attendance.

HHT2100 FORMULAE AND STRATEGIES 1

Campus: St Albans
Prerequisite(s): HHT1005 Chinese Medical Diagnosis and Pathogenesis 1; HHT1007 Chinese Pharmacopoeia; or equivalents.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Place in context the history and development of Chinese medicine formula
2. Use the hierarchy of ingredients theory to combine herbs into formulae (be able to explain the principles for combining substances in formulae, analyse the composition and explain the principal actions of major formula in particular formula categories and explain the relationship between formula categories and treatment strategies);
3. Use composition and change theories
4. Explain the eight (8) treatment methods
5. Discuss types and usages of formulae in the following categories: release exterior, downward draining, harmonizing, heat clearing, internal warming, treating dryness (be able to compare and contrast the compositions, actions and indications of principle formulae that belong to the same formula category, distinguish the most appropriate formulae to achieve a particular therapeutic effect; and describe the differences between classical design/formulations and commercial productions of medicines)
6. Discuss the compositions, functions (therapeutic applications), indications, contraindications, applications, methods of preparation and administration and dosages of traditional formulae in the following categories: release exterior, downward draining, harmonizing, heat clearing, internal warming, treating dryness (including how to advise patients on preparation, administration, cautions/contraindications and actions to take in event of unexpected adverse reaction)
7. Suggest modifications to formulae according to clinical presentations (including those necessary due to restrictions on access to and use of potentially toxic herbs and endangered species under Australian regulations)
8. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.


Class Contact: Hours Six hours per week or equivalent for one semester comprising lectures and tutorials. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Assessment: One written examination (end-of-semester) (100%). This unit is a hurdle requirement.

HHT2104 ACUPUNCTURE NEEDLING: THEORY AND PRACTICE 1

Campus: St Albans
Prerequisite(s): HHT1201 Acupuncture Point Location 2; RBH1910 Microbiology for Chinese Medicine Practitioners; or equivalents.
Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Describe the surface anatomy associated with locating and needling acupuncture points;
2. Describe the depths of needling of acupuncture points;
3. Locate and correctly needle acupuncture points and obtain the de Qi sensation;
4. ‘Read’ the needle palpation; and
5. Comply with aseptic techniques and procedures when penetrating the skin;
6. Demonstrate and ascertain the appropriateness of other techniques such as cupping, moxibustion or gua sha;
7. Discuss Jing-luo theory and its application to clinical practice;
8. Explain acupuncture point dynamics and function;
9. Describe the pathways and functions of the sinew (tendino muscle) meridians, divergent channels, luo mai and other adjunctive meridian systems;
10. Explain the roles of the Chinese Medicine practitioner in infection control and the management of needle accidents;
11. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content: Surface anatomy relevant to locating and needling of acupuncture points; anatomy relevant to the depths of needling acupuncture points; locating and correctly needling acupuncture points; the notion of intent as it applies in CM practice, needle insertion; obtaining the de Qi sensation; basic needle manipulation skills; moxibustion; management of needle accidents; contraindications for needling. Cupping in the context of needle techniques. The relationship between acupuncture point selection and ‘reading’ the radial pulse before and after needling. Jing-luo theory including the muscle-tendino meridians, luo mai, divergent meridians, internal pathways and the inter-relationships between the various elements and meridians; the functions and dynamics of the major categories of acupuncture points.


HINT2200 FORMULATION AND STRATEGIES 2

Campus: St Albans
Prerequisite(s): HINT2100 Formulation and Strategies 1; or equivalent

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Place in context the history and development of Chinese medicine formulae;
2. Use the hierarchy of ingredients theory to combine herbs into formulae (be able to explain the principles for combining substances in formulae, analyse the composition and explain the principal actions of major formulae in particular formula categories and explain the relationship between formula categories and treatment strategies);
3. Use composition and change theories;
4. Explain the eight (8) treatment methods (and relate these to the formulae categories of expel dampness, treat phlegm, regulate qi, tonify qi, tonify Yin, tonify Yang, tonify blood, invigorate blood, stop bleeding, stabilise and bind, calm shen and others);
5. Discuss types and usages of formulae in the following categories: expel dampness, treat phlegm, regulate qi, tonify qi, tonify Yin, tonify Yang, tonify blood, invigorate blood, stop bleeding, stabilise and bind, calm shen and others (be able to compare and contrast the compositions, actions and indications of principle formulae that belong to the same formula category, distinguish the most appropriate formulae to achieve a particular therapeutic effect, and describe the differences between classical design/formulations and commercial productions of medicines);
6. Discuss the relationships amongst traditional pharmacopoeia and formula construction;
7. Discuss the compositions, functions, indications, contra-indications, applications, methods of preparation and administration and dosages of the traditional and some advanced formulae with a focus on the following formula categories: expel dampness, treat phlegm, regulate qi, tonify qi, tonify Yin, tonify Yang, tonify blood, invigorate blood, stop bleeding, stabilise and bind, calm shen and others (including how to advise patients on preparation, administration, cautions/contraindications and actions to take in event of unexpected adverse reaction);
8. Suggest modifications to formulae according to clinical presentations (including those necessary due to restrictions on access to and use of potentially toxic herbs and/or endangered species under Australian regulations);
9. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.


Recommended Reading


Class Contact
Six hours per week or equivalent for one comprising lectures and tutorials semester. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Assessment
One essay (1000 words) (30%); one written examination (end-of-semester) (70%).

HHT2202 ACUPUNCTURE THEORY SYSTEMS AND METHODS

Campus St Albans

Prerequisites Nil

Learning Outcomes
On successful completion of this unit, students will be able to:
1. Explain the various acupuncture-related CM theories;
2. Elaborate on how CM theories are applied to acupuncture diagnosis and treatment;
3. Evaluate the appropriateness of CM theories to specific clinical cases;
4. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
The theoretical underpinning, relevance and application of eight extra meridians, the five transporting points, special point groupings (e.g., 12 ghost points, the seven internal/external devil points, Zi lu liu zhu, eight influential points, entry and exit points, sea points and the ten rules of point selection to the practice of acupuncture.

Required Reading

Recommended Reading


Recommended Reading


Student Learning Outcomes: On successful completion of this unit, students will be able to:
1. Perform routine client-based clerical and receptionist skills (including explaining general procedures involved in recording of patient details in client files and maintaining client records); assist in the clinic room (demonstrate the procedures involved in the management of a treatment room including the management of treatment equipment, hygiene handling of equipment and the proper preparation and storage of materials for acupuncture, moxibustion and cupping, changing of linen, cleaning of treatment surfaces prior to and after acupuncture treatment, cleaning of the treatment room and the removal of used equipment following a patient);
2. Develop their Chinese medical diagnostic skills from the perspective of Si zhen (including refining abilities in tongue and pulse diagnosis);
3. Display developing herb dispersing skills and knowledge such as correct storage and handling of herbs and work as part of a dispensary team (including demonstrating the processing of herbs, packaging of a herbal prescription, and observing hygienic procedures when preparing herbs);
4. Commence practicing moxibustion and other Chinese medicine therapeutic skills in the clinic including demonstrating the hygienic handling, removal and disposal of needles and other waste following acupuncture treatment;
5. Use the checklist of criteria as a guide for on-going learning in the clinical setting;
6. Contribute to case history discussions and be able to respond at a basic level to patient’s enquiries about Chinese medicine (including herbal medicine and acupuncture);
7. Exhibit developing interpersonal skills with supervisors, fellow students and clients;
8. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Topics include: preparation of necessary acupuncture equipment for each clinic room; maintenance of client records; general procedures involved in managing files including: retrieving and storing of client files, updating files, and preserving the confidentiality of client files; arriving at diagnosis and treatment principle; practitioner diagnosis and treatment details; general client care and comfort; pulse taking; arranging appointments; review of procedures in dispensing herbs (herbal identification, use of scales, accurate dispensing, safe dispensing); an introduction to the more complex methods of processing of herbs. Pao Zhi, Shi lian, moxibustion and acupuncture skills; the role of the assistant in the clinical setting; privacy and confidentiality issues.

Recommended Reading

FACULTY OF HEALTH, ENGINEERING AND SCIENCE


HHT2023 CHINESE MEDICINE CLINICAL PRACTICE 2

Campus St Albans, Flinders Lane.

Prerequisite(s) HHT2003 Chinese Medical Diagnosis and Pathogenesis; HHT2011 Chinese Medicine Clinical Practice 1; or equivalents.

Student Learning Outcomes: On successful completion of this unit, in addition to learning outcomes stipulated in previous clinical units (HHT11009 Introduction to Chinese Medicine Clinical Practice and HHT2011 Chinese Medicine Clinical Practice 1), students will be able to:
1. Participate in the day-to-day management and running of a Chinese medicine clinic by working as an assistant and as a member of the clinic team;
2. Perform routine client-based clerical and receptionist skills (including explaining general procedures involved in recording of patient details in client files and maintaining client records) and assist in the clinic room (demonstrate the procedures involved in the management of a treatment room including the management of treatment equipment, hygiene handling of equipment and the proper preparation and storage of materials for acupuncture, moxibustion and cupping, changing of linen, cleaning of treatment surfaces prior to and after acupuncture treatment, cleaning of the treatment room and the removal of used equipment following a patient);
3. Develop their Chinese medical diagnostic skills from the perspective of Si zhen (including refining abilities in tongue and pulse diagnosis);
4. Display developing herb dispersing skills and knowledge such as correct storage and handling of herbs and work as part of a dispensary team (including demonstrating the processing of herbs, packaging of a herbal prescription, and observing hygienic procedures when preparing herbs);
5. Commence practicing moxibustion and other Chinese medicine therapeutic skills in the clinic including demonstrating the hygienic handling, removal and disposal of needles and other waste following acupuncture treatment;
6. Use the checklist of criteria as a guide for on-going learning in the clinical setting;
7. Contribute to case history discussions and be able to respond at a basic level to patient’s enquiries about Chinese medicine (including herbal medicine and acupuncture);
8. Exhibit developing interpersonal skills with supervisors, fellow students and clients;
9. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Topics include: preparation of necessary acupuncture equipment for each clinic room; maintenance of client records; general procedures involved in managing files including: retrieving and storing of client files, updating files, and preserving the confidentiality of client files; arriving at diagnosis and treatment principle; practitioner diagnosis and treatment details; general client care and comfort; pulse taking; arranging appointments; review of procedures in dispensing herbs (herbal identification, use of scales, accurate dispensing, safe dispensing); an introduction to the more complex methods of processing of herbs. Pao Zhi, Shi lian, moxibustion and acupuncture skills; the role of the assistant in the clinical setting; privacy and confidentiality issues.

Recommended Reading

FACULTY OF HEALTH, ENGINEERING AND SCIENCE

HHT2205 ACUPUNCTURE NEEDLING: THEORY AND PRACTICE 2
Campus St Albans
Prerequisite(s) HHT2104 Acupuncture Needling: theory and Practice 1; RBM1910 Microbiology for Chinese Medicine Practitioners; or equivalents.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Describe the surface anatomy associated with locating and needleling acupuncture points;
2. Describe the depths of needleling of acupuncture points;
3. Locate and correctly needle acupuncture points and obtain the de Qi sensation for a range of acupuncture points including difficult-to-needle points;
4. Demonstrate more advanced needle manipulation skills;
5. ‘Read’ the radial pulse;
6. Comply with aseptic techniques and procedures when penetrating the skin;
7. Demonstrate a more advanced level and ascertain the appropriateness of other techniques such as cupping, moxibustion or gua sha;
8. Demonstrate plum blossom needleling and three edged needle bleeding techniques;
9. Discuss Jing-luo Theory and its application to clinical practice;
10. Explain acupuncture point dynamics and function;
11. Describe the pathways and functions of the sinew (tendino muscle) meridians, divergent channels, Luo Mai and other adjunctive meridian systems;
12. Explain the roles of the Chinese Medicine practitioner in infection control and the management of needle accidents
13. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Surface anatomy relevant to locating and needleling of acupuncture points; anatomy relevant to the depths of needleling of acupuncture points; locating and correctly needleling acupuncture points; the notion of intent as it applies in CM practice, more advanced needle manipulation skills; obtaining the de Qi sensation; moving Qi; advanced moxibustion and cupping skills; management of needle accidents; contraindications for needleling. Review of cupping in the context of needle techniques. The relationship between acupuncture point selection and ‘reading’ the radial pulse before and after needleling. Introduction to gua sha, plum blossom needleling and three-edge needleling techniques. Jing-luo theory including the muscle-tendino meridians, Luo Mai, divergent meridians, internal pathways and the inter-relationships between the various elements and meridians; the functions and dynamics of the major categories of acupuncture points. Safety issues; review of aseptic procedures, infection control and risk management strategies.

Required Reading

Recommended Reading

Assessment
Class participation (50%) (proficiency standard hurdle requirement); one written examination (50%) (proficiency standard hurdle requirement); one written examination (50%).

Additional Materials
Workshops have a hurdle requirement of at least 80% attendance.

HHT3003 COUNSELLING SKILLS FOR CHINESE MEDICAL PRACTICE
Campus St Albans
Prerequisite(s) HHT2020 Chinese Medicine Clinical Practice - Herb Major 2; or HKH2020 Chinese Medicine Clinical Practice - Acupuncture Major 2; or equivalent.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Describe the commonly used counselling skills that facilitate effective communication;
2. Analyse the importance of effective communication within a clinical setting;
3. Discuss from both a modern psychotherapy and a CM perspective the different facets of person and personality;
4. Demonstrate basic counselling and interpersonal skills in relation to both classroom and clinical settings;
5. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit explores and reflects upon the evolution of current popular counselling techniques. The unit allows the student to experience how they may adapt counselling techniques to the CM framework of clinical practice. This unit explores many facets of the client/practitioner relationship, ethical issues, professionalism and confidentiality. In preparation for the student’s future role as a primary health care CM practitioner, the unit will also cover such topics as death and dying; trauma; sexual, emotional and physical abuse; the elderly; and cross-cultural counselling. This unit also explores the theoretical bases of counsellor training and counselling and psychotherapy (7th ed.). California: Brooks/Cole Publishers.

Assessment
Class participation (80%) in tutorials, workshops and laboratory activities (pass/fail) (hurdle requirement); one practical and oral examination (50%) (proficiency standard hurdle requirement); one written examination (50%).

Additional Materials
Workshops have a hurdle requirement of at least 80% attendance.

Recommended Reading

**Class Contact**

Four hours per week or equivalent for one semester comprising lectures, seminars and workshops.

**Assessment**

Two case studies (25% each); one assignment (1500 words) (50%); reflective journal (hurdle requirement). All assessment items address the CGA levels as indicated in the Learning Outcomes.

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**HHT3100 CHINESE MEDICAL MICRO-SYSTEMS**

**Campus St Albans**

**Prerequisite(s)**

RBM1910 Microbiology for Chinese Medicine Practitioners; HHT2205 Acupuncture Needling: Theory and Practice 2; or equivalents.

**Student Learning Outcomes**

On successful completion of this unit, it is expected that students will be able to:

1. Discuss the principles underpinning the application of micro-system treatment including ear acupuncture and scalp acupuncture;
2. Explain the history and theoretical basis of the ear and scalp acupuncture micro-systems;
3. Explain the rationale for selection of a micro-system approach;
4. Justify micro-system point selection in the clinical situation;
5. Devise a clinical protocol and management plan utilizing a micro-system in conjunction with other aspects of acupuncture theory (e.g., differential diagnosis);
6. Identify functions and precautions (cautions and contraindications) relevant to points used in micro-system acupuncture;
7. Correctly locate points relevant to micro-system acupuncture in general and to ear and scalp acupuncture in particular when performing specific needling procedures;
8. Discuss the theory and practice of electro-acupuncture, laser acupuncture, TENS and other therapeutic technologies;
9. Use electronic devices for point location and diagnosis in micro-systems;
10. Explain the importance of infection control in needling procedures (including management of accidents resulting from needling);
11. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content**

Ear and scalp acupuncture history, theory and practice; ankyle-capular acupuncture and skin sections theory and practice; scar therapy; the use of electronic devices including electro-acupuncture, laser and TENS in micro-system point location; diagnosis and therapy; further application of chrono-acupuncture; magneto-therapy theory and practice; combined micro-system and body acupuncture point treatment principles and protocols; discrimination in the selection and application of the various techniques of micro-systems treatments.

**Recommended Reading**

Chen, K. & Cui, Y.-G. (1997). Handbook to Chinese auricular point diagnosis and therapy; further application of chrono-acupuncture; magneto-therapy theory and practice; combined micro-system and body acupuncture point treatment principles and protocols; discrimination in the selection and application of the various techniques of micro-systems treatments.

**Required Reading**


**Recommended Reading**


Bloomington: Indiana: AuthorHouse.


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**HHT3103 CHINESE MEDICINE CLINICAL PRACTICE 3**

**Campus St Albans**

**Prerequisite(s)**

Satisfactory completion of year 2 of the HBAH degree; or equivalent.

Co-requisite(s)

HHT3108 Chinese Medicine Therapeutic Applications; or equivalent

**Learning Outcomes**

On successful completion of this unit, students will be able to:

1. Demonstrate skills consistent with working successfully as an assistant practitioner and as part of a team within a Chinese medicine clinic;
2. Mentor junior students in the clinic;
3. Further develop their Chinese medical diagnostic skills from the perspective of Si Zhen;
4. Practice moxibustion, cupping, gua sha, shi liao and acupuncture in the clinical setting (including appropriate management of materials and equipment);
5. Consolidate their ability to select acupuncture points, practice safe needle insertion and manipulation (and explain how this can achieve specific therapeutic outcomes);
6. Work closely with final year students and supervisors discussing client management: diagnosis (including physical examinations as appropriate), treatment protocols, acupuncture point prescriptions and the suitability of herbal prescriptions, case history documentation (client records);
7. Correctly identify raw herbs, scrutinize a herbal prescription (for errors, omissions, correct dosage) and fill a herbal prescription (preparation, dispensing);
8. Explain treatment protocols and different preparation methods and uses of herbs to clients (including actions to be taken after finishing the prescription);
9. Use the checklist of criteria on placement expectations for ongoing learning in the clinical setting;
10. Explain the management and daily operation of the Chinese medicine clinic;
11. Exhibit developing interpersonal skills with supervisors, fellow students and clients;
12. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; Independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content**

Topics include: assisting the practitioner during treatment; applying moxibustion, needle manipulation as required; assisting with cupping, moxibustion, Shi liao and herbs; engage in discussion about developing a tentative diagnosis and treatment principle; carrying out therapeutic procedures as requested by the CM practitioner; review of standard operating procedures in dispensing herbs (herbal identification, use of scales, accurate, safe dispensing, ordering herbs, accounting procedures). Introduction to more complex methods of processing of herbs in preparation for continuation of the clinical program. Methods of Poo Zhi, moxibustion and acupuncture skills. The mechanisms of pathogenesis and relationship to herbal prescriptions. Materia Medica substitutions, advanced herbal recognition.

**Required Reading**


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**Recommended Reading**

To be advised by Lecturer.

**Class Contact**

Four hours per week or equivalent for one semester comprising lectures and workshops.

Assessment

One combined practical and oral exam (50%) (proficiency standard hurdle requirement); one written examination (50%). All assessment items address the CGA levels as indicated in the Learning Outcomes.
HHT3104 MAJOR CLASSICS - SHANG HAN LUN & WEN BING 1
Campus St Albans
Prerequisite(s) HHT2003 Chinese Medical Diagnosis and Pathogenesis 2; HHT2200 Formulae and Strategies 2; or equivalent.
Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Place in context the history and development of medical ideas encountered in the shang han and wen bing (and the ling gui yao lue, and reflect on the role of Six Meridian Theory and Theory of Wei, Qi, Ying and Xue historically and in modern practice and evidence-based research);
2. Apply methods of pattern identification from a shang han and wen bing perspective;
3. Discuss the specific diagnostic techniques used in wen bing;
4. Explain the relationship between liu jing bian zheng and wei qi ying xue bian zheng (including describing the key concepts of the Six Meridian Theory and Theory of Wei, Qi, Ying and Xue as systems of differentiation of syndromes, and comparing these theories with Zhang Fu Theory and the Theory of Triple Jiao);
5. Discuss and apply principles of treatment and appropriate formulae according to Shang Han and Wen Bing (for each of the syndromes, describe the sign-syndrome complexes, key formulae and their component herbs, common modifications, any special preparation, indications, cautions and contraindications and comparisons with other formulae);
6. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Shang Han Lun and Wen Bing as part of history of ideas in Chinese medicine. Underlying theories associated with these two texts. Comparison of the Shang Han and Wen Bing treatment strategies. Onset and transmission of disease according to Shang Han and Wen Bing. The concept of Pattern Identities by the Six Channels. The application of the Eight Guiding Principles. The concept of externally contracted diseases caused by pathogenic cold and wind. Onset and transmission of wen bing diseases. Correlation of the Four Aspects with the Triple Jiao, and Six Channels, diagnosis of Wen Bing (fever, tongue, ban, zhen, allinaria alba), fu xue (latent disease), Wen Bing treatment strategies. Character writing of terminology.

Required Reading
Study Guide compiled and translated by Greta Young on eReserve.

Recommended Reading

Assessment
One written assignment (1500-2000 words) (30%); one written examination (70%). This unit is a hurdle requirement.
potential drug-herb interactions) and when referral to western medical practitioners is necessary;
8. Explain the relationships between the pathomechanics of disorders and the components of the treatment intervention (using herbal prescription or acupuncture);
9. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit examines in detail traditional Chinese internal medicine (Nei Ke) based on the fifty-two disorders as specified in the classic the Jin Gui Yao Lue and additional disorders of clinical significance. The diagnosis of these disorders and their differentiation into patterns (Zheng) according to the system of bian zheng lun zhi receives detailed attention. The origin of each disorder and the pathomechanisms by which its symptoms manifest and develop are discussed. The design of treatment interventions using herbal prescriptions, acupuncture, moxibustion and dietary therapy (shi liao) according to the differentiation of the disorder is examined. This unit will focus on internal medicine disorders as they relate to the following systems: respiratory, cardiovascular, endocrine and musculoskeletal. This unit will also include chronic disturbances and ‘modern diseases’ amenable to Chinese medicine treatment.

Required Reading

Recommended Reading

Class Contact
Hours Six hours per week or equivalent for one semester comprising lectures and tutorials. Students should reasonably expect to devote additional private contact hours at least three times more than the stipulated class contact hours.

Assessment
One final written cases examination (50%); one final written theory examination (50%). This unit is a hurdle requirement.

HHT3108 CHINESE MEDICINE THERAPEUTIC APPLICATIONS 1
Campus St Albans
Prerequisite(s) HHT2200 Formuolee and Strategies 2; or equivalent

Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Critically assess and reflect on the means by which a diagnosis is reached;
2. Demonstrate clinical skills in Chinese medicine diagnosis for Nei Ke conditions;
3. Classify Nei Ke disorders according to broad Chinese medicine disease categories;
4. Differentiate Nei Ke disorders according to broad Chinese medicine disease categories;
5. Propose management strategies including practitioner advice, counselling and client self help tasks (including health preservation and enhancement advice, referral to other health practitioners);
6. Select and prescribe appropriate acupuncture point combinations (and moxibustion treatment), herbal formulae or both given the practitioner’s and student’s understanding(s) of the client’s condition(s) (and identify any cautions and contraindications for treatment and necessary actions in the event of an adverse reaction);
7. Apply specific clinical techniques to a range of particular conditions (including acupuncture, moxibustion);
8. Explain in professional terms and in plain English, proposed treatment strategies with respect to the client’s condition(s);
9. Explain the relationship between pulse-taking during the needling process, particularly in relation to the notion of moving Qi by needling;
10. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit is to prepare students for their internship year. Attention is given to diagnosis, treatment and management strategies (acupuncture and herbs), an in-depth exploration of contemporary treatment techniques and approaches, and the notion of yi (intent) as it applies to Chinese medicine. Critical analysis of case studies, approaches to accupuncture selection, discrimination between points and herbal prescription.

Required Reading

Recommended Reading
Class Contact
Hours Five hours per week or equivalent for one semester comprising seminars and workshops. Students should reasonably expect to devote additional private contact hours at least three times more than the stipulated class contact hours.
Assessment
Class participation (80%): attendance and appropriate participation as outlined in the unit outline (hurdle requirement); one assignment (1500 words) (40%); one practical examination (60%). To obtain at least a Pass in the unit, normally all components of assessment must be attempted and passed. Failed assessment items (assignment and practical examination) may be resubmitted or re-attempted once only. Maximum possible marks to be obtained on any resubmission or re-attempt will be 50%. Proficiency standard must be obtained on any re-attempted practical examination. This unit is a hurdle requirement. Additional Seminars and Workshops have a hurdle requirement of at least 80% attendance.

HHT3111 CHINESE MEDICINE THERAPEUTIC APPLICATIONS 2
Campus St Albans
Prerequisite(s) HHT3106 Internal Medicine 1;
HHT3108 Chinese Medicine Therapeutic Applications 1; or equivalents.

Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to achieve the following learning objectives at a more advanced level than achieved in HHT3108:
1. Critically assess and reflect on the means by which a diagnosis is reached;
2. Demonstrate clinical skills in Chinese medicine diagnosis for Nei Ke conditions;
3. Classify Nei Ke disorders according to broad Chinese medicine disease categories;
4. Differentiate Nei Ke disorders according to broad Chinese medicine disease categories;
5. Propose and defend management strategies including practitioner advice,
counselling and client self-help tasks (including health preservation and enhancement advice, referral to other health practitioners); 6. Select, justify and prescribe appropriate point combinations, herbal formulae or both given the practitioner’s and student’s understanding(s) of the client’s condition(s) (and identify any cautions and contraindications for treatment and necessary actions in the event of an adverse reaction); 7. Apply specific clinical techniques (including acupuncture, moxibustion) to a range of particular conditions; 8. Evaluate in professional terms and in plain English, proposed treatment strategies with respect to the client’s condition(s); 9. Explain the relationship between pulse-taking during the needling process, particularly in relation to the notion of moving Qi by needling; 10. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit further prepares students for their internship year. Attention is given to diagnosis, treatment and management strategies (acupuncture and herbs), an in-depth exploration of contemporary treatment techniques and approaches, and the notion of yi (intent) as it applies to Chinese medicine. Critical analysis of case studies, approaches to acupuncture selection, discrimination between points and herbal prescription.

Required Reading
Recommended Reading

Class Contact
Class Contact Hours Five hours per week or equivalent for one semester comprising seminars and workshops. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Assessment
Class participation (80% attendance requirement and appropriate participation as outlined in the unit outline) (hurdle requirement); one final combined practical and oral examination (40%); one 3-hour final examination (60%). This unit is a hurdle requirement.

Additional Statements: Workshops have a hurdle requirement of at least 80% attendance.

HHT3203 CHINESE MEDICINE CLINICAL PRACTICE 4
Campus St Albans, Flinders Lane, Off Campus
Prerequisite(s) HHT3103 Chinese Medicine Clinical Practice 3; or equivalent
Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Assume an increasing range of responsibilities in the management of clients in clinical settings;
2. Perform safely, competently and efficiently as assistants and as members of a team in Chinese medicine clinics;
3. Assist junior students to correctly identify raw herbs, correctly fill and scrutinise valid herbal prescriptions;
4. Mentor junior students in clinics;
5. Work closely with the final year Chinese medicine students and supervisors discussing cases, diagnoses (including physical examinations as appropriate), treatment protocols and acupuncture choices, needling strategies and herbal formulae prescriptions; case history documentation;
6. Explain and justify the formulation of a diagnosis and treatment plan including an acupuncture and/or herbal prescription and explain how this achieves therapeutic aims;
7. Consolidate their ability to practice moxibustion, shi liao, and acupuncture, ear acupuncture, laser acupuncture and electro-acupuncture in the clinical setting (including selection and justification of acupoints and needling techniques, appropriate management of materials and equipment);
8. Explain treatment protocols and different preparation methods and uses of herbs to clients (including actions to be taken after finishing the prescription and in the event of an unexpected adverse reaction);
9. Use the checklist of criteria as a guide for on-going learning in the clinical setting;
10. Explain the management and daily operation of the Chinese medicine clinic;
11. Exhibit developing interpersonal skills with supervisors and colleagues;
12. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Topics include: moxibustion, cupping, gua sha, needle manipulation techniques; the appropriateness of applying other therapeutic methods such as electro-acupuncture, laser therapy, muscle energy testing approaches, shi liao and other micro-systems approaches. Herbal formula prescriptions. Advanced dispensary work - ordering stock in consultation with a supervisor, cost appreciation and prescription accounting. Assisting practitioner as required; providing preliminary diagnostic reports to the practitioner; carrying out therapeutic procedures as required by the practitioner.

Required Reading

Assessment
Supervised placement comprising successful completion of required 108 clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); combined practical and oral examination (proficiency standard hurdle requirement). Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement.

Additional Statements: Clinical sessions have a hurdle requirement of at least 100% attendance.

HHT3207 INTERNAL MEDICINE 2
Campus St Albans
Prerequisite(s) HHT3106 Internal Medicine 2; or equivalent
Student Learning Outcomes On successful completion of this unit, it is expected that students, for the range of disorders outlined in the unit content, will be able to:
1. Classify disorders according to the ClN framework;
2. Apply bian zheng lun approach to the differentiation of disharmonies;
3. Devise treatment strategies that address the patterns of disharmony present in Nei Ke disorders;
4. Formulate interventions using herbal formulas or acupuncture prescriptions;
5. Formulate Chinese Medicine dietary therapy according to the differentiation of disorders;
6. Propose lifestyle modifications according to CM principles;
7. Determine the appropriateness of differing interventions (prescription of herbal preparations, acupuncture-moxibustion treatment, use of shi liao) according to the presentation including any cautions and contraindications and when referral to other health professionals is necessary;
8. Explain the relationships between the pathomechanisms of disorders and the components of the treatment intervention (using herbal prescription or acupuncture);
9. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit examines in detail traditional Chinese internal medicine (Nei Ke) based on the fifty-two disorders as specified in the classic the Jin Gui Yao Lue and additional disorders of clinical significance. The diagnosis of these disorders and their differentiation into patterns (zheng) according to the system of bian zheng lun zhi theory of CM, the principles by which its symptoms manifest and develop are discussed. The design of treatment interventions using herbal prescriptions, acupuncture, moxibustion and dietary therapy (shi liao) according to the differentiation of the disorder is examined. This unit will focus on gastrointestinal disorders, urological disorders, bleeding disorders, musculoskeletal disorders, disorders of the five sense organs and shen disturbances. This unit will also include musculoskeletal disorders, phlegm and ‘modern diseases’ amenable to Chinese medicine treatment.

Required Reading
Recommended Reading

Required Reading
Recommended Reading

Required Reading

Recommended Reading

HHT4002 RESEARCH METHODS FOR CHINESE MEDICINE
Campus St Albans
Prerequisite(s) Nil.
Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Justify research in the field of Chinese medicine;
2. Identify research question in the field of Chinese medicine;
3. Describe various methods of research in quantitative and qualitative research;
4. Critique and evaluate research studies and articles, including those in Chinese medicine;
5. Identify ethical issues associated with conducting research, including CM research;
6. Discuss the requirements, limitations and applications of research in Chinese medicine clinical practice;
7. Discuss issues in the research process as they relate to evaluation of health care practice, programs and policy development;
8. Explain the roles of databases in research;
9. Explain, in professional and lay terms, research studies from the Chinese medicine literature;
10. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Introduction to CM research design and methodology; paradigms of research; ways of obtaining CM knowledge; quantitative and qualitative research methods; research ethics; the application of the scientific method to CM research; non-experimental research designs; the evaluation of research; the computer as a research tool; scientific writing and the communication of research.

Required Reading
Recommended Reading
The equivalent of 36 hours per week for one semester comprising lectures and tutorials.

Assessment
Two research assignments (1500 words each) (50% each). This unit is a hurdle requirement for graduation.

HHT4004 PROFESSIONAL ISSUES FOR CHINESE MEDICAL PRACTICE FOR CONTINUING STUDENTS ONLY

Campus St Albans
Prerequisite(s) Nil.

Student Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Explain professional issues that impact on CM practice and the CM profession to the general public, peers and health practitioners (including the roles of continuing education and professional development in maintaining a practice);
2. Incorporate the practical aspects of practice management into their own working situations, (including how to research a clinic location, calculate the costs involved with setting up a new business, describe the government regulations, permits and guidelines for establishing a small business, establish clinic design, layout, clinical management and staffing policies);
3. Develop a vision of their own future practice;
4. Evaluate the facilities, services and other modalities, including sources of finance, available to practitioners establishing a practice;
5. Describe and identify the professional, legal and ethical requirements associated with a Chinese medicine practice (including the government regulations for skin penetration, infection control, drugs and poisons legislation, and the regulatory requirements that impact on herbal medicine practice and dispensing);
6. Prepare short-term and mid-to-long term business plans for their own anticipated practices;
7. Provide solutions, including a range of marketing strategies, for typical and atypical dilemmas associated with establishing and maintaining a practice;
8. Discuss the features of selected alternative health care modalities and multi-disciplinary clinics;
9. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
Business management and planning. Market research, planning, advertising and promotion of a practice. Practice management: employer responsibilities, record keeping, taxation, workers compensation, legal and civil requirements. Department of Health regulations: local council regulations, licensing of premises, public risk, practitioner responsibilities; registration with the Chinese Medicine Registration Board of Victoria. Bioethical requirements of the profession as they relate to research and to professional practice. Community health: child support services, rehabilitation services, fertility clinics. Chinese medicine organizations: professional associations and accreditation, health funds and indemnity insurance, peer group associations both Australian and international, the current status of Chinese medicine in Australia and overseas; Chinese medicine and health education and promotion within the community. Exposure to alternative perspectives on health care, eg. osteopathy, chiropractic, physiotherapy, Alexander technique, naturopathy, European medical herbalism and homeopathy; psychology; working in various clinical settings.

Required Reading

Recommended Reading

Class Contact
Hours
The equivalent of 48 hours for one semester comprising seminars of workshops, and directed research and other learning activities.

Assessment
Class presentation (30%); public presentation report (800 words) (20%); written assignment (1500 words) (50%); subject participation (80% attendance requirement and appropriate participation) (hurdle requirement).

Additional Statements
Workshops have a hurdle requirement of at least 80% attendance.

HHT4100 CASE CONFERENCEING AND CLINICAL ISSUES 1 FOR CONTINUING STUDENTS ONLY

Campus St Albans
Prerequisite(s) Satisfactory completion of year 3 of the HBAAH degree; or equivalent.
Co-requisite(s) HHT4103 Chinese Medicine Clinical Internship 1, HHT4108 Chinese Medicine Traumatology; or equivalents.

Student Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Apply advanced CM Theory and clinical practice theory to cases typically presenting at clinic;
2. Retrieve and evaluate scientific articles and other electronic material applicable to specific and common case presentations in a range of CM clinical specialties;
3. Explain the rationale of diagnoses and treatment selections including point and herb functions in terms of Chinese medicine theory and pathophysiology;
4. Discuss the protocol of the Bian Zhang Lun Zhi method of prescribing treatments;
5. Design and present holistic treatment strategies and plans, incorporating the principles of health preservation, with particular emphasis to an Australian patient base;
6. Communicate case material in a professional style sufficient to facilitate effective handover;
7. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit integrates Chinese medicine theory and practice via interrogation of student case presentations. Case presentations will be determined by the experiences of students when treating clients. The focus will be on commonly seen cases in the Chinese medicine clinical specialties. The unit reinforces aspects of aseptic procedures; history taking; principles of diagnosis; treatment protocols; herb and point functions; dosages; a range of treatment skills; legal issues; and interpersonal and professional communication skills.

Required Reading

Recommended Reading

Recommended Reading

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

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HHT4101 CHINESE MEDICINE OBSTetrics AND GYNAECOlOGY

Campus St Albans
Prerequisite(s) HHT3207 Internal Medicine 2; or equivalent.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Place in context the history and development of CM gynaecology and obstetrics;
2. Discuss the concept of Yue Jing (period) according to Chinese medicine;
3. Discuss the relationship between the Bao Gong (uterus) and the Jing-Lou;
4. Classify gynaecological disorders according to broad Chinese medicine disease categories;
5. Differentiate gynaecological disorders according to the Bian Zheng Lun Zhi method of CM (including descriptions and discussions of the main symptoms and principal syndromes, and the aetiology and pathogenesis of female urgenital, gynaecological and obstetric disorders and the relationship between symptom pattern and disease mechanism);
6. Evaluate gynaecological conditions for their suitability for treatment with Chinese medicine (including identifying any cautions and contraindications and potential disease complications which need to be considered in the treatment of the main gynaecological and obstetric disorders); and possible needs to refer to outside health professionals including western medical;
7. Apply Chinese medical perspectives and treatment methods for conception, maintaining the health of the mother and fetus during pregnancy and apply various Chinese medical techniques (especially acupuncture) during labour;
8. Evaluate the general treatment principles applied in CM gynaecology and obstetrics;
9. Identify selected Materia Medica, including main formulae and modifications, relevant to Chinese medicine gynaecology and obstetrics;
10. Predict potential drug-herb interactions and explain the actions necessary in the event of an adverse reaction;
11. Evaluate roles for the treatment modalities, including herbal medicine, acupuncture and moxibustion, used in gynaecological conditions;
12. Evaluate roles for hygiene and diet in the prevention and treatment of gynaecological conditions;
13. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content: This unit examines the Chinese medicine clinical specialty of gynaecology with particular reference to treating gynaecological disorders with Chinese herbal formulae and acupuncture. Emphasis is on selected Materia Medica. The specialised role of acupuncture in obstetrics, including labour, and the role of Chinese medicine in relation to fertility and IVF are also examined. Professional issues in the patient-CM practitioner relationship and ethical issues in gynaecology and obstetrics in the Australian context are raised throughout.


Class Contact: Hours 6 hours/week or equivalent for one semester comprising lectures and tutorials.

Assessment: One assignment (1500 words) (50%); one 3-hour examination (50%). This unit is a hurdle requirement for graduation.

HHT4103 CHINESE MEDICINE CLINICAL INTERNSHIP 1

Campus St Albans Campus
Prerequisite(s) Satisfactory completion of year 3 of the HBAH degree; or equivalent Co-requisite(s) HHT4100 Case Conferencing & Clinical Issues 1; or equivalent.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:
1. Use advanced acupuncture and Chinese medicine theory;
2. Demonstrate professional skills, attitude and presentation;
3. Reflect on their experience of the consultation process (including diagnosis, treatment approaches and communication skills);
4. Conduct a comprehensive Chinese medical assessment including procedures to minimise patient distress, embarrassment or risk of injury, propose a diagnosis and treatment strategy;
5. Demonstrate understanding of the indications for and skillful use of relevant clinical diagnostic equipment and interpretation of commonly used western diagnostic tests (and describe how results of western diagnostic tests may influence CM diagnosis and treatment strategies);
6. Obtain feedback from clients and explain to the client the clinical significance of both negative and positive findings in plain English;
7. Locate and needle accurately and safely acupuncture points appropriate to client needs;
8. Demonstrate proficiency in use of and understand the indications for use of therapeutic techniques including: moxa, cupping, gua sha, point injection therapy, dermal hammer, laser, ear acupuncture, electric stimulator and Chinese herbal medicine;
9. Demonstrate proficiency in dispensing of a herbal medicine prescription including advice and instructions to clients in preparation and administration of herbal prescriptions (including what to do in the event of an adverse reaction)
10. Demonstrate understanding of the necessity of requirements of and proficiency in maintenance of a herbal dispensary (including understanding requirements for labelling and storage, inventory and contamination control).
11. Record case notes in a professional manner (legal (legible, accurate, orderly) that would satisfy professional guidelines and would withstand legal scrutiny);
12. Assess the client’s needs for ongoing treatment or referral, plan a treatment strategy accordingly and communicate the course of treatment and any dietary and lifestyle recommendations to the client in plain English;
13. Liaise and work effectively with clinical educators;
14. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; Independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content: Students undertake their final year clinical placement as the Intern Practitioner in approved settings. Students are required to spend time in the School of Health Sciences’ Teaching Clinics and other approved clinical settings to gain broad clinical experience in both acupuncture and herbs and be guided by a variety of clinical educators. This unit must be completed before off-shore clinical placements can be approved. Internship Practitioner: The student practitioner is expected to conduct themselves in the professional manner as demonstrated by Practitioner Clinicians, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the supervised intern practitioner: take case histories, define diagnoses and treatment principles, identify appropriate herbal formulae that could become the basis for the final prescription; formulate acupuncture prescriptions; perform acupuncture and moxibustion as appropriate. The intern practitioner works independently and assumes full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is accessed as required. The supervising practitioner must approve prescriptions as suitable and safe to dispense for each client consulted, before the prescription is processed in the dispensary. Internship Mentor: Final year students are to work closely with junior students to assist them in the development of clinical skills. Dispensary supervision: Final year students will spend part of their time as supervisor in the dispensary. The internship practitioner will have opportunities to provide mentorship for junior students and assume responsibility for the running of the practice dispensary.

While the supervising practitioner has overall authority, the internship practitioner must liaise with the supervising practitioner for all financial decisions and must report discipline issues. During the mentorship process, the Intern practitioner has the responsibility to ensure School of Health Sciences Teaching Clinics policies and procedures are followed.


**FOR CONTINUING STUDENTS ONLY**

**Campus St Albans**

Prerequisites RBM1525 Anatomy and Physiology; HHT2003 Chinese Medical Diagnosis and Pathogenesis 2; HHT3207 Internal Medicine 2; or equivalents.

**Co-requisites Nil**

Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:

1. Incorporate musculo-skeletal and neurological systems into history taking and physical examinations;
2. Describe external and internal causes of injury and wounds, the reactions of the body to injury and the processes of healing;
3. Describe the orthopedic, pathogenesis, main symptomatology, diagnosis and differential diagnosis (CM syndromes) of common neurological disorders and musculoskeletal conditions, including soft tissue injuries, dislocations and fractures;
4. Describe the ranges of movements for particular joints and muscle groups from a regional anatomy perspective;
5. Perform traditional and contemporary musculo-skeletal assessment and muscle energy release techniques, e.g., MET, Otsen, Satoi;
6. Relate various muscle energy release techniques to the jing luo system;
7. Evaluate musculo-skeletal and neurological conditions for their suitability for treatment with CM and possible needs to refer to outside health professionals including western medical;
8. Predict and identify potential cautions, contraindications and adverse reactions of particular CM therapies and discuss actions necessary in the event of an adverse event;
9. Evaluate roles for acupuncture, point injection therapy, laser therapy, herbal preparations (external and internal), tui na, cupping, moxibustion, gua sha exercise and nutritional therapies in the treatment of musculo-skeletal and neurological disorders;
10. Devise Chinese medicine treatment protocols and management plans consistent with the diagnosed musculo-skeletal and neurological conditions and demonstrate skills in appropriate therapies (including manual reduction and rehabilitation exercises);
11. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content** This unit consolidates theory and practice from previous units and applies the information to the assessment and management of specific musculo-skeletal and neurological disorders including an in-depth exploration of pain, including its explanation in Chinese medical terms. Emphasis is given to history taking and physical examination of the musculotendinous system. Various traditional and contemporary musculo-skeletal assessment techniques, the relationship between musculo-skeletal dysfunction and the jing luo system, and the application and monitoring of acupuncture and herbal treatment of patients with musculo-skeletal dysfunction are explored. Material will include in-depth analysis of treatment and management of pain, Bi syndrome and Wei syndrome, regional disorders, spinal disorders, limbs, musculoskeletal rehabilitation, recreational and sports injuries, Chinese medical diagnosis of specific musculo-skeletal and neurological disorders; the application of internal and external herbal treatments; the significance of drug-herb interactions as applicable to musculo-skeletal and neurological disorders; useful web addresses specific to particular musculo-skeletal and neurological disorders; the protocols and application of acupuncture, point injection therapy, laser therapy, tui na, cupping, maxibustion, gua sha exercise and nutritional therapy as applicable to musculo-skeletal and neurological disorders as well as the treatment and management of sporting injuries.


Recommended Reading To be advised by the lecturer.

**Class Contact** The equivalent of 48 hours for one semester comprising lectures and workshops.

**Assessment** One combined practical and oral musculo-skeletal examination (50%); one assignment (2000 words) (50%). This unit is a hurdle requirement for graduation.

Additional Statements Workshops have a hurdle requirement of at least 80% attendance.

**HHT4200 CASE CONFERENCING AND CLINICAL ISSUES 2**

**FOR CONTINUING STUDENTS ONLY**

**Campus St Albans**

Prerequisites HHT4103 Chinese Medicine Clinical Internship 1; or equivalent

**Co-requisites HHT4204 Chinese Medicine Clinical Internship 2; or equivalent**

**Learning Outcomes** On successful completion of this unit, it is expected that students will be able to demonstrate the following learning objectives at a more advanced level than in HHT4100 Case Conferencing and Clinical Issues 1:

1. Apply advanced CM theory and clinical practice theory to cases typically presenting at clinic;
2. Retrieve and evaluate scientific articles and other electronic material applicable to specific and common case presentations in a range of CM clinical specialties;
3. Explain the rationale of diagnoses and treatment selections including point and herb functions in terms of Chinese medicine theory and pathophysiology;
4. Discuss the protocols of the Bian Zhang Lun Zhi method of prescribing treatments;
5. Design and present holistic treatment strategies and plans, incorporating the principles of health preservation, with particular emphasis to an Australian patient base;
6. Communicate case material in a professional style sufficient to facilitate effective handover;
7. Demonstrate advanced practical skills in acupuncture, maxibustion, cupping and ancillary treatment methods;
8. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content** This unit integrates Chinese medicine theory and practice via interrogation of student case presentations. Case presentations will be determined by the experiences of students when treating clients. The focus will be on commonly seen cases in the Chinese medicine clinical specialties. The unit reinforces aspects of aseptic procedures; history taking; principles of diagnosis; treatment protocols; herb and point functions; dosages; a range of treatment skills; legal issues; and interpersonal and professional communication skills.


This unit covers the theory and practice of Chinese medicine dermatology. Material includes the traditional and modern classification systems of dermatological disorders; and the general features of physiology, pathology and diagnosis as applied to Chinese medicine dermatology. The anatomy, diagnosis, differentiation and treatment will be examined through detailed studies of common dermatological conditions; whilst treatment methods (s) for a particular disease may include: appropriate prescription(s); acupuncture and moxibustion; the selection of appropriate and/or herbal medicine; and the management of adverse reactions associated with treatment and what to do in the event of an adverse reaction. 

- Apply and evaluate treatment principles and strategies in CM dermatology.
- Evaluate roles for acupuncture, moxibustion, Chinese herbal medicine and other CM approaches in the treatment of dermatological conditions (and identify the most appropriate treatment method(s) for a particular disease).
- Explain, in professional and lay communication styles, therapeutic approaches to the management of dermatological conditions; and appropriate social and cultural awareness and responsiveness.

Content
This unit aims to explore the clinical specialty of dermatology within Chinese medicine. Topics include the anatomy and physiology of childhood development, including growth, pathology of various paediatric disorders and care needs associated with childhood development and disease. Particular emphasis is given to the use of Chinese herbs, acupuncture, moxibustion, tui na, dietary management and nursing care for children with disorders. Specific case studies, selected Materia Medica and ethical issues in the child-practitioner relationship are emphasized.

Recommended Reading

HHT4201 CHINESE MEDICINE PEDIATRICS

Campus St Albans

Prerequisites HHT3207 Internal Medicine 2; or equivalent.

Student Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:

1. Place in context the history and development of CM paediatrics;
2. Discuss how child development (physical, social and emotional) impacts on paediatric care needs;
3. Explain the pathology of various childhood disorders (including methods of diagnosis, symptomatology and aetiology of main paediatric disorders);
4. Differentiate paediatric disorders including principal symptoms and main syndromes according to Bian Zheng Lun Zhi method in CM;
5. Evaluate paediatric conditions for their suitability for treatment with CM and possible needs to refer to outside health professionals including western medical;
6. Apply and evaluate the general treatments principles in CM paediatrics (explain the relationship between disease mechanism(s) and treatment principle(s) and explain measures for prevention, amelioration and care of paediatric disorders);
7. Identify selected Materia Medica and formulate including modifications relevant to CM paediatrics;
8. Evaluate the roles for different treatment regimes including acupuncture, moxibustion, tui na in CM paediatrics and when referral to other health practitioners including western medicine is necessary;
9. Explain cautions and contraindications associated with treatments used in childhood (including complications that could occur in a particular disease, possible adverse reactions to herbal formulae, drug-herb interactions, and cautions and potential adverse reactions associated with acupuncture and moxibustion); and
10. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit presents the theory and practice of the CM clinical specialty of paediatrics. Topics include the anatomy and physiology of childhood development, including growth, pathology of various paediatric disorders and care needs associated with childhood development and disease. Particular emphasis is given to the use of Chinese herbs, acupuncture, moxibustion, tui na, dietary management and nursing care for children with disorders. Specific case studies, selected Materia Medica and ethical issues in the child-practitioner relationship are emphasized.

Required Reading

Assessment
One assignment (1500-2000 words) (30%); one 3-hour examination (70%). This unit is a hurdle requirement for graduation.

HHT4203 CHINESE MEDICINE DERMATOLOGY

Campus St Albans

Prerequisites HHT3207 Internal Medicine 2; or equivalent.

Student Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:

1. Place in context the history and development of CM dermatology;
2. Discuss the aetiology, pathogenesis, main symptomatology and CM pathophysiology of identified dermatological conditions;
3. Classify dermatological disorders according to broad CM disease categories (syndromes) and describe typical signs and symptoms associated, treatment principle(s) and appropriate treatment with herbal medicine (including main formulation and modifications, purpose of particular herbs), acupuncture and moxibustion;
4. Evaluate dermatological conditions for their suitability for treatment with CM and possible needs to refer to outside health professionals including western medical;
5. Justify with explanations the links between disease and syndrome diagnoses, pathogenesis, treatment principle(s), treatment strategies and appropriate prescriptions (acupuncture and/or herbal medicine);
6. Explain the cautions and contraindications of treatments for the main dermatological conditions (including potential drug-herb interactions, potential adverse reactions associated with treatment and what to do in the event of an adverse reaction);
7. Apply and evaluate treatment principles and strategies in CM dermatology;
8. Evaluate roles for acupuncture, moxibustion, Chinese herbal medicine and other CM approaches in the treatment of dermatological conditions (and identify the most appropriate treatment method(s) for a particular disease);
9. Explain, in professional and lay communication styles, lifestyle (including diet, personal hygiene) and infection control issues that impact on the management of dermatological conditions;
10. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content
This unit covers the theory and practice of Chinese medicine dermatology. Material includes the traditional and modern classification systems of dermatological disorders; and the general features of physiology, pathology and diagnosis as applied to Chinese medicine dermatology. The anatomy, diagnosis, differentiation and treatment will be examined through detailed studies of common dermatological conditions; whilst treatment methods(s) for a particular disease may include: appropriate prescription(s); acupuncture and moxibustion; the selection of appropriate and/or herbal medicine; and the management of adverse reactions associated with treatment and what to do in the event of an adverse reaction. 

- Apply and evaluate treatment principles and strategies in CM dermatology.
- Evaluate roles for acupuncture, moxibustion, Chinese herbal medicine and other CM approaches in the treatment of dermatological conditions (and identify the most appropriate treatment method(s) for a particular disease).
- Explain, in professional and lay communication styles, lifestyle (including diet, personal hygiene) and infection control issues that impact on the management of dermatological conditions; and appropriate social and cultural awareness and responsiveness.

Assessment
One assignment (1500-2000 words) (30%); one 3-hour examination (70%). This unit is a hurdle requirement for graduation.

Class Contact
The equivalent of 60 hours per semester comprising lectures, tutorials and student directed learning.

Recommended Reading

Class Contact
The equivalent of 60 hours per semester comprising lectures, tutorials and student directed learning.

Assessment
One assignment (1500-2000 words) (30%); one 3-hour examination (70%). This unit is a hurdle requirement for graduation.

Additional Statements
Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.
Additional Statements Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

**HHT4204 CHINESE MEDICINE CLINICAL INTERNSHIP TWO**  
Campus St Albans
Prerequisites HHT4103 Chinese Medicine Clinical Internship 1; or equivalent. Co-requisites HHT4200 Case Conferencing & Clinical Issues 2; or equivalent. Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to demonstrate the following learning outcomes at a professional practitioner level:
1. Demonstrate independence and advanced skills in complete patient management and care;
2. Use advanced acupuncture and Chinese medicine theory;
3. Demonstrate professional skills, attitude and presentation; 4. Reflect on their experience of the consultation process (including diagnosis, treatment approaches and communication skills)
5. Conduct a comprehensive Chinese medical assessment including procedures to minimise patient distress, embarrassment or risk of injury, propose a diagnosis and treatment strategy
6. Demonstrate understanding of the indications for and skilful use of relevant clinical diagnostic equipment and interpretation of commonly used western diagnostic tests (and describe how results of western diagnostic tests may influence CM diagnosis and treatment strategies);
7. Obtain feedback from clients and explain to the client the clinical significance of both negative and positive findings in plain English;
8. Locate and needle accurately and safely acupuncture points and demonstrate on advanced level of needling techniques appropriate to client needs;
9. Demonstrate a professional level of proficiency in use of and understand the indications for a range of therapeutic techniques including moxa, cupping, gua sha, point injection therapy, dermal hammer, laser, ear acupuncture, electric stimulator and Chinese herbal medicine;
10. Demonstrate proficiency in dispensing of a herbal medicine prescription including advice and instructions on preparation and administration of herbal prescriptions and what to do in the event of an adverse reaction;
11. Explain and demonstrate the procedures involved in the management of a herbal dispensary including storage, labelling, inventory control and contamination control;
12. Record casenotes in a professional manner (legible, accurate, orderly) that would satisfy professional guidelines and would withstand legal scrutiny;
13. Assess the patient’s needs for ongoing treatment or referral, plan a treatment strategy accordingly and communicate the course of treatment and any dietary and lifestyle recommendations to the patient in plain English;
14. Liaise and work effectively with clinical educators;
15. Mentor students in the clinic;
16. Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content** This unit consolidates students in their clinical practice as the Intern Practitioner in approved settings. Students are required to spend time in the School of Health Sciences’ Teaching Clinics and other approved clinical settings to gain broad clinical experience in both acupuncture and herbs and be guided by a variety of clinical educators. This unit may be completed by external off-shore clinical placements and will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement for graduation.

**HUU1171 CLINICAL PRACTICUM 1**  
Campus St Albans, City Finders.
Prerequisites nil.
Co-requisites HUU1171 Osteopathic Science 1; or equivalent.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Perform, in a polite and friendly manner, client-based clerical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, and ensuring various clinic supplies are available;
2. Perform techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic palpation or physical examination techniques, under supervision in relevant clinical settings;
3. Commence preliminary examination procedures in a way that minimizes patient distress, embarrassment and risk of injury;
4. Participate at a rudimentary level in the decision-making associated with patient cases;
5. Discuss accurately and professionally, and reflect on limited aspects of the case (including observations such as patient posture, external markings, as well as the interactions amongst the patient and the treating student and supervisor) during case discussions;
6. Commence recording case information in a legal (legible, accurate, orderly) manner.

**Content** An introduction to the clinical experience. Observation and initial development of clinic management skills. Observation of treatments and limited client care. Contributions to case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.


Class Contact Two (2) hours per week or equivalent for one semester comprising twelve (12) hours of clinical placement in at least one direct patient care setting and lectures, tutorials and workshops. Clinical placement has a hurdle requirement of at least 90% attendance.

Assessment Supervised placement comprising successful completion of required twelve (12) hours of clinical placements in the relevance of at least one direct patient care setting and lectures, tutorials and workshops. Clinical placement has a hurdle requirement of at least 90% observation.

On successful completion of this unit, students are expected to:

1. Conduct preliminary examination procedures in a way that minimizes patient distress, embarrassment and risk of injury;
2. Participate at a rudimentary level in the decision-making associated with patient cases;
3. Discuss accurately and professionally, and reflect on limited aspects of the case (including observations such as patient posture, external markings, as well as the interactions amongst the patient and the treating student and supervisor) during case discussions;
4. Comence recording case information in a legal (legible, accurate, orderly) manner.
5. Be able to administer basic taping and first aid procedures on a sporting field.

Content The development and extension of clinic management skills, observation of treatments and limited client care. Contributions to case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics.


Class Contact A minimum of seventy-seven (77) hours or as negotiated with the appropriate Co-ordinator in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

Assessment Supervised placement comprising successful completion of required twelve (12) clinical hours (pass/fail) (hurdle requirement); One 30-minute (MCQ format) test (graded); One final written examination (pass/fail) (hurdle requirement).

HHU2173 CLINICAL PRACTICUM 3

Campus City Flinders

Prerequisites Satisfactory completion of year 1 of the HBOS degree; or equivalent.


Class Contact A minimum of seventy-seven (77) hours or as negotiated with the appropriate Co-ordinator in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

Assessment Supervised placement comprising successful completion of required seventy (77) hours with at least 90% attendance (hurdle requirement). Clinical manual or folio report containing clinician’s report and observations recorded in the manner outlined in the clinic manual. Reflective piece (hurdle requirement).

HHU2274 CLINICAL PRACTICUM 4

Campus St Albans, City Flinders

Prerequisites HHU2173 Clinical Practicum 3; or equivalent.

Co-requisites HHU2273 Clinical Diagnosis & Management 3; HHU2274 Osteopathic Science 4; or equivalent.

Learning Outcomes On successful completion of this unit, students are expected to:

1. Perform, in a professional, efficient and competent manner, client-based clinical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, and ensuring various clinic supplies are available;
2. Perform techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic palpation or physical examination techniques, under supervision in relevant clinical settings;
3. Conduct preliminary examination procedures in a way that minimizes patient distress, embarrassment and risk of injury;
4. Participate at a rudimentary level in the decision-making associated with patient cases;
5. Discuss accurately and professionally, and reflect on limited aspects of the case (including observations such as patient posture, external markings, as well as the interactions amongst the patient and the treating student and supervisor) during case discussions;
6. Record case information, including complex case notes under supervision, in a legal (legible, accurate, orderly) manner.

Content The development and extension of clinic management skills, observation of treatments and supervised provision of limited client care. Contributions to case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.


Recommended Reading Health Sciences, Osteopathy Unit.

Clinical Sciences clinical manual. Melbourne, Australia: Victoria University.

Clinical Placement Requirements in the manual should be signed by a supervising clinician under supervision in relevant clinical settings;

Class Contact A minimum of seventy-seven (77) hours or as negotiated with the appropriate Co-ordinator in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

Assessment Supervised placement comprising successful completion of required seventy (77) hours with at least 90% attendance (hurdle requirement). Clinical manual or folio reporting completion of negotiated hours, observations and clinical activities (hurdle requirement). Requirements in the manual should be signed by a supervising clinician and recorded in the manner outlined in the clinic manual. Reflective piece (hurdle requirement).
3. Conduct examination procedures in a way that minimizes patient distress, embarrassment and risk of injury;  
5. Observe accurately all aspects of the case and take a leading role in case discussions where appropriate, making professional reference to observations such as patient posture, external markings, and the interactions between the patient and the treating student and supervisor;  
6. Participate in an active yet professional manner in the decision-making associated with patient cases;  
7. Record case information, including complex case notes under supervision, in a legal (legible, accurate, orderly) manner.  

Content The development and extension of clinic management skills, observation of treatments and supervised examination and provision of limited client care. Contributions to and partial leading of case discussions. Assistance to more senior students and administrative staff by providing clinical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.


Class Contact A minimum of one hundred and thirty-three (133) hours or as negotiated with the appropriate Co-ordinator in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.  

Assessment Supervised placement comprising successful completion of required 133 hours with at least 90% attendance (hurdle requirement); Clinic manual or folio reporting completion of negotiated hours, observations and clinical activities (hurdle requirement). Requirements in the manual should be signed by a supervision clinician and recorded in the manner outlined in the clinical manual. Reflective piece (hurdle requirement).

HHU3276 CLINICAL PRACTICUM 6  
Campus Suburban, City Flinders.  
Prerequisites HHU3174 CLINICAL DIAGNOSIS & MANAGEMENT 4; HHU3175 OSTEOPATHIC SCIENCE 5; HHU3174 Pathology 4; HHU3175 Clinical Practicum 5; or equivalents.

Co-requisites HHU3275 Anatomy 5; HHU3276 Osteopathic Science 6; or equivalents.

Learning Outcomes On successful completion of this unit, it is expected that students will be able to:  
1. Manage a patient consultation in co-operation with the clinical supervisor, identifying the presenting problem, developing a basic working diagnosis and selecting a treatment regime that considers the presenting problem with some consideration for ethical, practical and pragmatic concerns;  
2. Develop a management plan and considering a prognosis that reflects on the patient’s problem generally including some lifestyle factors;  
3. Undertake a supervised treatment that utilises the skills developed thus far within a reasonable time and includes the principles of practitionership and utilises the input of supervisors;  
4. Include junior students in the information collection, recording and delivery of the treatment;  
5. Reflect on the personal and professional limitations seeking advice from supervisors, lecturers, peers, the internet and other sources to assist with the management of a case. This may include discussing co-treatment protocols or specialist referral if appropriate with the supervising clinician;  
6. Maintain legal patient histories, write basic referral letters and recognize the need for further referral in conference with Clinical Supervisor and peers;  
7. Discuss, showing a high level of understanding, common exercise prescriptions and their use in a case;  
8. Discuss, showing a high level of understanding, the sequelae of treatment and advise the patient of this.  

Content Attendance at University clinics, external clinics and field clinics to treat patients, discuss and reflect on patient case management under supervision by registered osteopaths.  


Class Contact A minimum of one hundred and thirty-three (133) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.  

Assessment Supervised placement comprising successful completion of required 133 hours with at least 90% attendance (hurdle requirement); Clinic manual or folio reporting completion of negotiated hours, observations and clinical activities (hurdle requirement). Requirements in the manual should be signed by a supervision clinician and recorded in the manner outlined in the clinical manual. Reflective piece (hurdle requirement).
On successful completion of this unit, it is expected that students will be able to:

1. Manage a patient consultation in co-operation with the clinical supervisor, identifying the presenting problem, developing a basic working diagnosis and selecting a treatment regime that considers the presenting problem with some consideration for ethical, practical and pragmatic concerns;
2. Develop a management plan, generally including some lifestyle factors, in co-operation with the Clinical Supervisor and consider a prognosis that reflects on the patient's problem;
3. Undertake a supervised treatment that uses the skills developed thus far within a reasonable time, includes the principles of practitionership, and utilises the supervisors' input;
4. Include junior students in the information collection, recording and delivery of the treatment;
5. Reflect on their personal and professional limitations, seeking advice from supervisors, lecturers, peers, the internet, and other sources to assist with the management of a case. This may include discussing co-treatment protocols or specialist referral if appropriate with the supervising clinician;
6. Maintain legal (accurate, clear and legible) patient histories, write basic referral letters and recognize the need for further referral in conference with Clinical Supervisor and peers;
7. Discuss:
   a) common prescription uses and their clinical use, and
   b) the sequelae of treatment and how to advise different sorts of patients of such.

Learning Outcomes

On successful completion of this unit, it is expected that students will be able to:

1. Manage a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirety with consideration for ethical, practical and pragmatic concerns;
2. Develop a management plan and prognosis which sets short, medium and long term goals, and takes into account all aspects of the patient's problem including lifestyle factors;
3. Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice;
4. Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment;
5. Acknowledge their personal and professional limitations seeking advice from supervisors, lecturers, the internet and other sources to assist with the management of a case. This may include co-treatment protocols or special referral if appropriate;
6. Maintain legal (accurate, clear and legible) patient histories; write complete referral letters, requests for special examinations and basic medico-legal reports;
7. Incorporate evidence in clinical practice including evidence-based clinical practice guidelines and the use of evidence in clinical decision-making;
8. Discuss rehabilitative exercise programs for the most common conditions, including stopping and taping techniques for sports injuries, and common orthopaedic surgical procedures and likely after-effects.

Content

Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing. Field visits to health care facilities as required. This unit is presented in conjunction with HHU4187 Osteopathic Science 7.

Required Reading


Recommended Reading


Class Contact A minimum of two hundred and ten (210) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

Assessment Supervised placement comprising successful completion of required (210) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion including documentation of fifty (50) clinical consultations recorded in the manner outlined in the Clinical manual (pass/fail) (hurdle requirement); reflective learning tasks as outlined in the Clinical manual (hurdle requirement); one practical clinical examination (pass/fail) (hurdle requirement); one 2-hour written examination (pass/fail) (hurdle requirement).

HUU4187 CLINICAL PRACTICUM 9

Campus St Albans, City Flinders.

Prerequisites HHU4187 Clinical Practicum 8; or equivalent.

Learning Outcomes

On successful completion of this unit, it is expected that students will be able to:

1. Manage a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirety with consideration for ethical, practical and pragmatic concerns;
2. Develop a management plan and prognosis which sets short, medium and long term goals, and takes into account all aspects of the patient’s problem including lifestyle factors;
3. Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice;
4. Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment;
5. Acknowledge their personal and professional limitations seeking advice from supervisors, lecturers, the internet and other sources to assist with the management of a case. This may include co-treatment protocols or special referral if appropriate;
6. Maintain legal (accurate, clear and legible) patient histories; write complete referral letters, requests for special examinations and basic medico-legal reports;
7. Incorporate evidence in clinical practice including evidence-based clinical practice guidelines and the use of evidence in clinical decision-making;
8. Discuss rehabilitative exercise programs for the most common conditions, including stopping and taping techniques for sports injuries, and common orthopaedic surgical procedures and likely after-effects.

Content

Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing. Field visits to health care facilities as required. This unit is presented in conjunction with HHU4288 Osteopathic Science 8.

Required Reading


Recommended Reading

goals, and takes into account all aspects of the patient’s problem including lifestyle factors;
3. Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice; 4. Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment;
5. Reflect on the personal and professional limitations seeking advice from supervisors, lecturers, the internet, and other sources to assist with the management of a case. This may include co-treatment protocols or specialist referral if appropriate;
6. Maintain legal (accurate, clear, legible) patient histories, write clear and accurate referral letters, requests for special examinations and basic medico-legal reports;
7. Evaluate and use evidence in clinical practice including evidence-based practice, evidence to support clinical decision making and justify the use of evidence in contemporary practice;
8. Apply exercise programs for most common conditions,strapping and taping techniques for sports injuries, common orthopaedic surgical procedures and likely after-effects.

**Content:** Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing with written and oral presentations to peers. Advanced skills in dealing with difficult and problematic cases, and advanced investigative skills (radiological, medical) are also included. Field visits to health care facilities as required.


School of Health Sciences. (2006). Master of Health Science - Osteopathy clinical manual. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit. Electronic media

For information on the conditions for osteopath and other health professionals who provide treatment to veterans and charge the Department of Veterans Affairs (DVA), visit the DVA Web site, http://www.dva.gov.au

For information on the rules and guidelines for registration as an osteopath within Australia, visit the Osteopaths Registration Board of Victoria Web site, http://www.osteoboard.vic.gov.au

For information on resources for providers of health services to patients covered by Transport Accident Corporation (TCA), visit the TAC Web site, http://www.tac.vic.gov.au

**Recommended Reading:**


**Class Contact** A minimum of two hundred and nineteen (219) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

**Assessment:** Supervised placement comprising successful completion of required (219) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion including documentation of eighty-five (85) clinical consultations recorded in the manner outlined in the Clinical manual (pass/fail) (hurdle requirement); reflective learning tasks as outlined in the Clinical manual (hurdle requirement).

**HHU5280 CLINICAL PRACTICUM 10**

**Campus:** St Albans, City Flinders.

**Prerequisite(s):** HHU5189 Clinical Practicum 9; or equivalent.

**Learning Outcomes:** On successful completion of this unit, it is expected that students will be able to:

1. Competently demonstrate a full range of osteopathic techniques;
2. Competently demonstrate a wide range of clinical and patient management skills;
3. Take primary responsibility for patient care from the earliest stage of their practice careers;
4. Devise integrated case management plans for patients, incorporating preventive care strategies;
5. Communicate effectively with other health and legal professionals, both verbally and in writing;
6. Explain the business skills required to run an osteopathic practice. In particular, students should display the following skills:

1. Manage a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirety with consideration for ethical, practical and pragmatic concerns;
2. Develop a management plan and prognosis that sets short, medium and long term goals, and takes into account all aspects of the patient’s problem including lifestyle factors;
3. Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice;
4. Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment;
5. Evaluate the personal and professional limitations when seeking advice from supervisors, lecturers, the internet, and other sources to assist with the management of a case. This may include co-treatment protocols or specialist referral if appropriate;
6. Maintain legal (accurate, clear and legible) patient histories, write clear and accurate referral letters, requests for special examinations and basic medico-legal reports;
7. Evaluate and use evidence in clinical practice including evidence-based practice, evidence to support clinical decision making and justify the use of evidence in contemporary practice;
8. Apply exercise programs for most common conditions, strapping and taping techniques for sports injuries, common orthopaedic surgical procedures and likely after-effects.

**Content:** Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies. Further advancement of skills in medical and osteopathic diagnosis, ethics and business practice, advanced technique skills, and total case management. Revisited and integrated clinical thought from a holistic perspective via case conferencing to discuss cases and prepare for the final clinical practicum exam; written and oral presentations to peers; tutorials on advanced skills in dealing with difficult and problematic cases; and in advanced investigative skills (radiological, medical). Field visits to health care facilities and external agencies.


School of Health Sciences. (2006). Master of Health Science - Osteopathy clinical manual. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit. Electronic media

For information on the conditions for osteopath and other health professionals who provide treatment to veterans and charge the Department of Veterans Affairs (DVA), visit the DVA Web site, http://www.dva.gov.au

For information on the rules and guidelines for registration as an osteopath within Australia, visit the Osteopaths Registration Board of Victoria Web site, http://www.osteoboard.vic.gov.au

For information on resources for providers of health services to patients covered by Transport Accident Corporation (TCA), visit the TAC Web site, http://www.tac.vic.gov.au

**Recommended Reading:**


**Class Contact** A minimum of two hundred and nineteen (219) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

**Assessment:** Supervised placement comprising successful completion of required (219) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion including documentation of eighty-five (85) clinical consultations recorded in the manner outlined in the Clinical manual (pass/fail) (hurdle requirement); reflective learning tasks as outlined in the Clinical manual (hurdle requirement).

**HHY1271 PATHOLOGY 1**

**Campus:** City Flinders.

**Prerequisite(s):** HHA1171 Anatomy 1; HHP1171 Physiology 1, RBF1170 Cell Structure and Function; or equivalents.

**Co-requisite(s):** HHD1271 Clinical Diagnosis & Management 1; or equivalent.
Student Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Accurately use the vocabulary of basic pathology;
2. Describe how cells respond to stress;
3. Explain the macroscopic manifestations of acute and chronic inflammation in terms of the microscopic events occurring in the tissues including cellular, vascular, and biochemical events;
4. Describe the long-term effects of chronic inflammation on affected tissues;
5. Describe the basic cellular events occurring during the repair of skin trauma;
6. Explain the pathogenesis and describe the key features of the basic types of hypersensitivity;
7. Recognise the pathological processes that can cause ischaemia and thrombosis, and discuss the complications of ischaemia and thrombosis;
8. Describe the pathophysiological mechanisms of circulatory failure, including shock;
9. Describe the factors involved in the development of infectious disease both from the perspectives of the pathogen and from the host;
10. Describe the defining features of malignant and benign neoplasia, both macroscopic and microscopic levels;
11. Describe the types of oedema and discuss the pathophysiological mechanisms underpinning each type.

Content
Content will include an introduction to cell injury; acute and chronic inflammation; mechanisms of tissue repair; immunology; abnormalities of blood supply including ischaemia, thrombosis, DIC, circulatory failure and athero-sclerosis; infection; neoplasia and oedema.

Required Reading
Kiatos, J. (2008). HYH2172 Pathology 1 unit manual. Melbourne, Australia: Victoria University, School of Biomedical and Health Sciences, Osteopathy Unit.
Recommended Reading
Class Contact
Hours Two (2) hours per week or equivalent for one semester comprising lectures and tutorials.
Assessment
One 45-minute written test (20%); one 2-hour final written examination (80%).

HYH2172 PATHOLOGY 2
Campus
City Flinders.
Prerequisites
HYH2172 Pathology 1; or equivalent.
Co-requisites
HYH2273 Clinical Diagnosis & Management 2

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Explain the pathological processes and describe their manifestations in the haematological, cardiovascular, renal and urogenital systems;
2. Discuss the development of the pathological process through dysfunction to disease in the haematological, cardiovascular, renal and urogenital systems;
3. Discuss the causes or risk factors associated with common and serious haematological, cardiovascular, renal and urogenital diseases, and describe how those causes or risk factors are determined;
4. Describe the clinical presentations of common and serious haematological, cardiovascular, renal and urogenital diseases, including those diseases notable in Australia;
5. Explain the allopathic medical approach to diagnosis, prognosis and principles of management, and the evidential basis for this approach;
6. Distinguish amongst common life-threatening haematological, cardiovascular, renal and urogenital conditions, including recognising problems that require referral to other health care practitioners;
7. Offer preventative health advice about common and serious haematological, cardiovascular, renal and urogenital diseases.

Content
Common and life-threatening diseases affecting the haematological, cardiovascular, renal and urogenital systems will be discussed. Particular emphasis will be given to conditions that are of special interest to osteopaths, in Australia.

Required Reading
Lecture notes provided by the lecturer.
Recommended Reading

Class Contact
Three (3) hours per week or equivalent for one semester comprising lectures and tutorials.
Assessment
Weekly tutorial questions (total 20%); one 2-hour final written examination (80%).

HYH2273 PATHOLOGY 3
Campus
City Flinders.
Prerequisites
HYH2172 Clinical Diagnosis & Management 2; HYH2172 Pathology 2; or equivalents.
Co-requisites
HYH2273 Clinical Diagnosis & Management 3; HHP2273 Physiology 3; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Explain with confidence the manifestations and causes of common and serious respiratory, gastrointestinal and endocrine diseases;
2. Discuss the development of the pathological process through dysfunction to disease in the respiratory, gastrointestinal and endocrine systems;
3. Discuss the causes or risk factors associated with common and serious respiratory, gastrointestinal and endocrine diseases, and describe how those causes or risk factors are determined;
4. Describe the clinical presentations of common and serious respiratory, gastrointestinal and endocrine diseases, including those diseases notable in Australia;
5. Distinguish amongst common life-threatening respiratory, gastrointestinal and endocrine conditions, including recognising problems that require referral to other health care practitioners;
6. Offer preventative health advice about common and serious respiratory, gastrointestinal and endocrine diseases;
7. Evaluate the allopathic medical model;
8. Explain the concepts of evidence-based medicine.

Content
Common and life-threatening diseases affecting the respiratory, gastrointestinal and endocrine systems will be discussed. Particular emphasis will be given to conditions that are of special interest to osteopaths, and osteopaths in Australia.

Required Reading
Recommended Reading

Class Contact
Three (3) hours per week or equivalent for one semester comprising lectures and tutorials.
Assessment
Tutorial questions (total 20%); one 2-hour final written examination (80%).

HYH3174 PATHOLOGY 4
Campus
St Albans, City Finders.
Prerequisites
HYH2273 Pathology 3; or equivalent.
Co-requisites
HYH3174 Clinical Diagnosis & Management 4; HHP3174 Physiology 4; or equivalents.

Learning Outcomes
On successful completion of this unit, it is expected that students will be able to:
1. Explain with confidence the manifestations and causes of common and serious diseases of the joints and connective tissues of the human body;
2. Discuss the development of the pathological process through dysfunction to disease evident in joints and connective tissues;
3. Discuss the causes or risk factors associated with common and serious joint diseases, and describe how those causes or risk factors are determined;
4. Describe the clinical presentations of common and serious diseases affecting joints and connective tissues, including the diseases of note in Australia;
5. Discuss the complications, diagnoses and basic treatments of conditions affecting joints and connective tissues;
6. Distinguish amongst common life-threatening orthopaedic and rheumatology conditions, including recognising problems that require referral to other health care practitioners.

Content
Common and life-threatening orthopaedic and rheumatology conditions will be discussed. Particular emphasis will be given to conditions that are of special interest to osteopaths, and osteopaths in Australia.
Osteogenesis imperfecta; osteoarthritis; hypertrophic osteoarthropathy; degenerative disease of the intervertebral disc; acute I/V disc herniation; rheumatoid disease; ankylosing spondylitis; Reiter’s disease; proctitis ulcerosa; enteropathic arthritis; gout; CPPD deposition disease; systemic lupus erythematosus; progressive systemic sclerosis; polymyositis; dermatomyositis polymyositis rheumatica; mixed connective tissue disease. Common and life-threatening diseases will be highlighted. Particular emphasis will be given to conditions that are of special interest to osteopaths in Australia.

Required Reading


Recommended Reading

On successful completion of this unit, students are expected to:
1. Explain the interconnectedness amongst ‘things’ and ‘actions’;
2. Define terms commonly used in global environmental issues;
3. Discuss the breadth of coverage of subjects contributing to an appreciation of environmental issues;
4. Discuss the connections amongst actions and lifestyles in developed and less-developed countries;
5. Develop a sense of self-confidence in presentation of their ideas and tolerance toward others and the ideas of others;
6. Debate a variety of environmental issues;
7. Critically examine their own life in relation to various environmental issues.

Content
This unit highlights the various aspects of science through the use of practical and theoretical case studies. The unit concentrates on the pure and applied sciences and their relevance and applications to historical and contemporary global environmental issues. Students will be required to explore areas such as population regulation in key emerging economies; population growth momentum; environmental history and spectrum of environmental thought; environmental groups and their work; connections amongst social justice and environmental issues (e.g., education levels, status of women, human rights, relative wealth); resource consumption, pollution and renewables in developing and developed countries; deforestation and biodiversity loss; water and soil resources; food production, biotechnology and appropriate agriculture; energy resources; chemical cycles including the greenhouse effect and ozone depletion; the roles of mathematics, physics, chemistry, biology, ecology and computing in global environmental issues. Topics will be developed within the context of risk management and ethical and moral frameworks.

Required Reading

Recommended Reading

Class Contact
Two (2) hours per week or equivalent for one semester comprising lectures and tutorials.

Assessment
One 45-minute written test (20%); one 2-hour written examination (80%).
On successful completion of this unit, students are expected to:
1. Identify key morphological features and life history characteristics of plants;
2. Distinguish major families, genera and species of Australian plants;
3. Develop tools for collecting and preserving plant specimens and
4. Use high-level identification guides to determine a range of plant species.
5. Communicate in written form complex information on various plant families and their evolutionary history.

Content
An understanding of: 1) the diversity and evolution of plants and fungi, with emphasis on Australian native plants and fungi; 2) the characteristic morphology and life history of the major plant groups and fungi; 3) the basic principles of the systematics of Australian plants including biological nomenclature, identification and classification; and 4) how the biogeography of Australian plants can be explained by their life history and the history of the continent, particularly to instil an understanding of how and why Australia has evolved a diverse and highly endemic primarily sclerophyllous flora where the forests and woodlands are dominated by two tree genera, Eucalyptus and Acacia.

Required Reading

Recommended Reading

Recommended Reading

**RBF2630 Community and Environment**

**Campus** St. Albans

**Prerequisites** Nil

**Content** Exploration of the various socially-based conceptual frameworks for understanding the range of environmental viewpoints in the community, and the consequences of these frameworks for practical environmental protection and repair. Practical experience in working with a wide range of community representatives on environmental protection and repair projects. Practical skills development in how to communicate with community groups and individuals, including clear, simple explanations, active and reflective listening, negotiating, consulting and drawing up and presenting project proposals. Insights into the range of skills and experience required to gain employment in environmental management fields, and the range of employment available.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Discuss complex issues relating to community participation in environmental protection and repair projects;
2. Work collaboratively to develop and argue a number of position statements relating to environmental protection and repair;

**Required Reading**

- *Developing alternatives. Community development strategies and environmental issues in the Pacific*. Melbourne: Victoria University, Faculty of Arts.

**Class Contact** Forty-eight (48) hours or equivalent for one semester (usually in block mode) comprising lectures, tutorials, practical workshops and site visits.
On successful completion of this unit, students are expected to:

1. Describe characteristic features of major animal phyla;
2. Outline the principles of ecological biogeography in relation to the fauna of Australia;
3. Describe the features adopted by animals for living in either a marine, freshwater or terrestrial environment.

Content: Diversity of animal life, with an emphasis on the Australian fauna; the science of systematics, including cladistic analysis; Bauplan; evolution and origin of biodiversity in marine and terrestrial environments; historical and ecological biogeography, including faunal regions and habitat types; ‘uniqueness’ of the Australian fauna.


Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and practical classes composed mainly of field excursions.

Assessment: Practical (40%); One 3-hour examination (40%); One written assignment (20%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF2922 SCIENCE AND SOCIETY

Campus: St Albans, Werribee.

Prerequisite: Nil.

Content: The subject aims to encourage students to appreciate modern scientific culture as historically unique phenomenon, and thus to enable them to analyse specific developments and events in modern society. The subject looks at the failure of philosophical attempts to establish a scientific method, and explores the view that science is fantastically creative rather than ‘dull-but-honest’. Two case-studies are used: the development of Darwinism, and the transition from Newton’s theory of gravitation to Einstein’s theory of general relativity. The development of modern scientific culture is analysed in the following case studies in particular: China and Japan’s divergent responses to confrontation with Western culture, technological developments in Nazi Germany and Stalinist Russia, the structure and funding of American basic research, and the development of the nuclear industry. The teaching of science subject and popular perceptions of science will also be looked at.


Class Contact: Four hours per week for one semester, comprising one two-hour lecture and one two-hour tutorial.

Assessment: Assignments, 50%; semester examination, 50%. A satisfactory assessment will require satisfactory attendance (80%) at tutorials.

RBF3110 MARINE & FRESHWATER ECOTHERAPY

Campus: St Albans.

Pre-requisite: RBF3130 Biology 1, RBF3220 Biology 2, RBF3610 Fundamentals of Ecology; or equivalents.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Distinguish marine and freshwater environments found in southern Australia
2. Display skills in biological techniques utilized in marine and freshwater ecology
3. Identify forms of environmental degradation that occur in marine and freshwater environments;
4. Differentiate amongst different management strategies applied in marine and freshwater ecology and critique their effectiveness.

Content: This unit provides an overview to the ecology and management of freshwater, estuarine and marine ecosystems in southern Australia. The material covered includes:

- Ecology of upland and lowland-Roofplain rivers (including impact of flow regulation and environmental water allocations);
- Ecology of lakes and reservoirs (including algal bloom control and impact of recreation);
- Wetland ecology and management (including international conventions on waterbirds); seagrass, mangrove and saltmarsh ecology and management; significance of rocky shore habitats in southern Australia;
- Coastal marine ecology (with particular emphasis on Port Phillip Bay and the Gippsland Lakes), and environmental degradation and repair of aquatic systems.


Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorial/directed learning, and two (2) whole-day field excursions.

Assessment: Continuous (within-semester) assessment at Weeks 6 and 12 (60%); Two field reports (40%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF3210 ENVIRONMENTAL REHABILITATION

Campus: St Albans.

Pre-requisite: RBF3110 Biology 1, RBF3120 Biology 2, RBF3610 Fundamentals of Ecology; or equivalents; or at the discretion of the Course Co-ordinator.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply ecological principles to environmental rehabilitation practices;
2. Work collaboratively to develop a land management plan;
3. Communicate in oral and written form to professionals and the general community approaches to rehabilitation and complex ecological principles;
4. Choose the correct method of assessment and management of communities and specific species;
5. Apply the principles of the Habitat Hectare approach and the Native Vegetation Management Framework to environmental assessments.

Content: Introduction to a range of tools that will assist in the rehabilitation of Victoria’s terrestrial environments and communities. Topics include the ecological parameters and adaptations of organisms in diverse environments and the key ecological relationships amongst organisms. Case studies of rehabilitation projects based on approaches using ecological theory will be included. Practicals will include hands-on experience in the use of the Native Vegetation Management Framework, the Habitat Hectare approach, development of land management plans, and specific threatened species rehabilitation programs.


Class Contact: Forty-eight (48) hours or equivalent per semester, timetabled as a block, comprising lectures, tutorials, practical workshops and site visits.

Assessment: One group project (40%); Field and practical reports (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF3530 ENVIRONMENTAL PHILOSOHY

Campus: St Albans.

Pre-requisite: Nil.

Content: Philosophy: a brief overview of Ancient, Medieval and Modern Western philosophy. Environmental Philosophy as the search for principles for guidance in conducting our lives in a practical way that is beneficial to the environment and as a spectrum of thought from Anthropocentrism to Ecocentrism. A focus on Ecocentrism, in particular what informs Deep (or Transpersonal) Ecology and the role of nature-based religions and patriarchy in the development of Ecofeminism.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:
1. Write about and discuss moral concerns arising from interaction between people and the natural world;
2. Explain their position regarding problems such as human overpopulation, biodiversity protection, energy use and provision of food and water - and relate it to various ethical positions;
3. Reflect on their own lives from an environment ethics perspective.

**Required Reading**


**Class Contact**

Three hours per week for one semester

**Assessment**

Major paper (40%); biography (20%); leading discussion (20%); evidence of prior reading of weekly material (20%).

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**RBF3540 LEADERSHIP AND THE ENVIRONMENT**

**Campus** St. Albans

**Prerequisite(s)** Nil

**Content**

Three phases in the history of leadership studies: the characteristics or traits of leaders from studies done in the first half of this century; the thirty years of theories of what would lead to effective leader behaviour in certain situations; the 1980's and after when a broader picture of what might explain leader success began to develop. The current place of ethics, morals, values, feeling and powers as sources of information regarding leader behaviour. Leadership as an art and as a service - as a weaving of relationships rather than an amassing of information. The strong links which exist between holistic environmentalism and emerging leadership theory. Case studies from business, government and environmental organisations of successful leaders who show evidence of wholeness, care and service for the other.

**Learning Outcomes**

1. Discuss leadership theories such as traits, behaviour, transformational and compassionate leadership;
2. Analyse leadership articles in terms of contingency theory, power, charisma, vision, symbolism, culture, density values, ethics, courage, gender and teamwork;
3. Explain connections between holistic environmentalism and emerging leadership theory.

**Required Reading**


**Class Contact**

Three hours per week.

**Assessment**

Major paper (30%); leadership folder (20%); examination (50%).

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**RBF3610 BIOSTATISTICS**

**Campus** St. Albans

**Prerequisites**

RMA1110 Mathematics for the Biological and Chemical Sciences 1 and RMA1120 Statistics for the Biological and Chemical Sciences 1; or equivalents

**Content**

This unit introduces students to the practical use of statistics in the biological, ecological and health sciences. Particular emphasis is given to experimental design and ‘real world’ use of statistical procedures. Material covered includes: Revision of statistical concepts and the significance of statistics/biometrics in biological/environmental analysis. Distributions and the nature of data; the use of correlation and regression in developing hypotheses. Sampling designs and units, confounding variables, hypothesis testing, parametric versus non-parametric procedures and assumptions, post-hoc testing. Design tools for experimental and field collection of data; type-I versus type-II errors, statistical power and the use of statistical power in experimental design. BACI models and design issues; pseudoreplication and true replication. Optimisation of sampling regime for a given sampling unit and variance. Inferential procedures, multiple factorial designs, univariate versus multivariate procedures in biological and environmental programs.

**Learning Outcomes**

On successful completion of the unit, students are expected to be able to:
1. Describe the main types of sampling distribution;
2. Generate appropriate descriptive statistics from data obtained through environmental investigation;
3. Utilise techniques such as regression, correlation, univariate and multivariate analysis;
4. Critically evaluate experimental and statistical models;
5. Select appropriate statistical methods for the testing of hypotheses;
6. Generate multifactorial experimental designs;
7. Apply parametric and non-parametric methods to biometric data as appropriate;
8. Control for confounding variables in experimental investigations;
9. Recognise types of sampling error;
10. Interpret the output from statistical testing.

**Required Reading**


**Recommended Reading**


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**RBF3620 CONSERVATION AND SUSTAINABILITY**

**Campus** St. Albans (offered subject to minimum enrolments in 2004)

**Prerequisites** RBF1310 Biology 1, RBF1320 Biology 2, RBF2610 Fundamentals of Ecology, or at the discretion of the subject co-ordinator

**Content**

The subject ties together, in both theoretical and practical ways, concepts and practices for maintaining biological diversity, and how these concepts and practices can be integrated with social and economic needs. The subject covers: the development of conservation theory and practice in Australia; extinction and its significance, including pathways to extinction; the meanings, levels and interpretation of concepts of biodiversity; ecological and adaptive management approaches to conservation and recovery, including design of reserves, setting priorities, off-reserve conservation and ex-situ (captive breeding, reintroduction and translocation); practical field studies and site visits will investigate the contributions of zoos, national and state parks, friends groups, councils and shires, other government agencies and private landholders to the conservation and recovery of plant and animal species, from insects to mammals, and from mushrooms to trees. The subject will also include practical appraisals of techniques used to determine integrity of ecosystems, landscapes and overall environment, the contributions made by biodiversity to ecosystem services and integrated methods for recovery and sustainable management of species and ecosystems.

**Required Reading**


**Recommended Reading**


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**RBF3630 ENVIRONMENTAL IMPACTS AND MONITORING**

**Campus** St. Albans (offered subject to minimum enrolments in 2004)

**Prerequisites** RBF1310 Biology 1, RBF1320 Biology 2

**Content**

This subject aims to introduce students to the ‘real world’ application of ecological studies, especially in the process of sustainable development. Topics covered will include: Overview of Australian natural resources subject to environmental degradation (e.g. land, soil, water, biota); The social and industrial factors responsible for degradation (e.g. erosion, water pollution, salinisation, habitat destruction, exotic species, extraction, biodiversity loss etc); The Environmental Impact Assessment process used to quantify impacts (e.g. role of consultants, the EEI process itself); Approaches to monitoring environmental degradation and recovery (e.g. sampling design, monitoring procedures, rapid assessment protocols, ANZCC guidelines); Mechanisms and approaches available to minimise impacts (reserve systems, limits of acceptable change technologies, financial tools, role of government departments). Particular emphasis is given to ‘hands on’ experience.

**Required Reading**


**Recommended Reading**


**Class Contact** four hours per week, comprising 1 x two hr lecture, 1 x two hr interactive tutorial/directed learning session (including group presentations).

**Assessment** Within-semester (ongoing) assessment at Weeks 6 and 13 (60%) plus one case study report or project (40%, including group presentation).

**RBF3650 POLLUTION BIOLOGY**

**Campus** St. Albans (this subject will first run in 2006)

**Prerequisites** RBF2610 Fundamentals of Ecology, RBF1310 Biology 1, RBF1320 Biology 2, Biometrics RBF3610, or subject co-ordinators discretion.

**Content** This subject aims to introduce students to the impact of pollutants on natural ecosystems. Topics covered include: Principles and concepts which apply to the analysis and evaluation of pollutant impacts on the natural environment. Experimental methodology employed in the evaluation of organism and ecosystem responses to pollutant exposure with special emphasis on statistical procedures which can be employed in evaluating impacts. Types of and significance of different groups of pollutants. Tolerance and susceptibility of organisms and biological systems to pollutants; pollution monitoring, biological indicators of pollution induced environmental stress; sequestering of exogenous compounds; partitioning; sources and environmental transport; uptake and depuration; case studies.

**Required Reading** To be advised


**Class Contact** Four hours per week for one semester, comprising two hours of lectures and two hours of practical.

**Assessment** Practicals and assignments: 40%; examination: 60%.

**RBF3660 INDIGENOUS SOCIETY AND ENVIRONMENTAL MANAGEMENT**

**Campus** St Albans

**Prerequisites** Nil


**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Discuss the relevance of indigenous perspectives to contemporary environmental issues in Australia;
2. Summarise and analyse articles with a broad indigenous focus, including history, bush tucker, education, health, reconciliation, land use practices, heritage and spiritual issues;
3. Engage meaningfully with guest speakers by attending to prior readings.


**Class Contact** Four (4) hours per week.

**Assessment** Indigenous folder (20%); case study/video/art work/story/photo essay (60%); evidence of prior reading of weekly material (20%).

**RBM1061 SAFETY 1**

**Campus** St Albans Internet

**Prerequisites Nil**

**Co-requisites**

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Explain, using examples, the structure and function of bones, joints, muscles, arteries, veins, lymphatics and nerves.
2. Understand the anatomy and histology of the structures of the thorax.
3. Understand the anatomy and histology of the structures of the abdomen.
4. Understand the anatomy and histology of the structures of the pelvis and perineum.
5. Problem solve common clinical problems, such as heart attack, diabetes, appendicitis, labour and delivery.

**Content** This unit of study introduces students to functional anatomy. After a brief introduction to bones, joints, muscles, vessels and nerves; students study gross, histological and some surface anatomy of the thorax, abdomen and pelvis. The following regions are studied: thoracic cage, pleura and lungs, heart, mediastinal structures, abdominal wall, pelvic girdle, gastrointestinal organs, urinary organs and reproductive organs. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those in other Functional Anatomy units.


**Class Contact** Five hours per week, 3h lectures, 2h tutorial/practical

**Assessment** Topic Test x 2, 10%; Practical exam, 45%; Theory exam, 45%.
On successful completion of this unit, the student will:
1. Have a sound understanding of the chemical level, the cellular level, and the tissue level of the human organism. Students will also have a sound understanding of the anatomy and physiology of the musculoskeletal system, the nervous system, the endocrine system and the cardiovascular system.
2. Have a sound understanding of major pathophysiological processes within each system listed above.

Content This unit will contain:
1. Organisation of the human body
   - Introduction to the human body
   - The chemical level of organisation
   - The cellular level of organisation
   - The tissue level of organisation
2. The principals of support and movement
   - The skeletal system
   - Bone tissue, the axial skeleton, and the appendicular skeleton
   - Joints
   - Muscle tissue
   - Muscular system
3. Central systems of the human body:
   - Nervous tissue
   - Spinal cord and spinal nerves
   - The brain and cranial nerves Sensory, motor and integrative systems
   - The special sensors
   - The autonomic nervous system
   - The endocrine system

Maintenance of the human body
- The cardiovascular system;
- The blood, the heart and blood vessels and hemodynamics;
- The lymphatic and immune system and resistance to disease;

Required Reading

Recommended Reading
Anderson DM, Keith J & Novak PD. (2005) Mosby's medical, organisation of the human body. Basic concepts in chemistry and biochemistry are presented as essential background for understanding pharmacology and the structure and function of cells and tissues. Students are introduced to microbiology and the importance of infection control. After these fundamental concepts have been covered, students will study the structure and function of the skeletal and muscular systems, the nervous system, and the endocrine system.

Class Contact
A total of 60 hours for the semester, or 5 hrs class contact per week comprising 2 hrs lecture, 1 hr tutorial and 2 hrs practical, or equivalent.

Assessment
1. Test (10%) - Week 5 or 6
2. Test (10%) - Week 10 or 11
3. Practical examination (30%) Exam period
4. Written examination (2.5 hours) (50%) Exam period

Students must achieve an aggregate score of 50% to pass this unit. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade where they have also scored at least 40% for the end of semester theory exam and have completed / submitted all other assessment tasks. Students must achieve at least 50% on the supplementary exam to be graded a P 50 as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

RBMI110 NUTRITIONAL BIOCHEMISTRY 1
Campus St Albans
Pre-requisite(s) Nil

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Describe the basic chemistry of macronutrients;
2. Explain the relationship between structure and function of macromolecules;
3. Discuss the nutritional importance of essential amino acids and lipids;
4. Explain the transport and storage of energy in the human body;
5. Describe protein synthesis and the basic metabolic pathways of macronutrients.

Content
Chemical bonding, water and buffers; structure-function relationships of macromolecules, including carbohydrates, proteins, lipids and nucleic acids; nutritional importance of essential amino acids and lipids; the role of biomolecules in transport around the body and the storage of energy; biomembranes; protein synthesis; major metabolic pathways.

Required Reading

Recommended Reading

Class Contact
Four hours per week for one semester comprising lectures and tutorials.
Assessment
Two assignments (1500 words each) (50% each); One 3-hour examination (3 hours) (50%).
RBM1174 HUMAN PHYSIOLOGY
Campus Footscray Park
Prerequisite(s) Nil.
Content The general aim of the subject is to give students an understanding of basic concepts in human physiology. The subject will comprise a description of basic cell structures and functions for generalised and specialised cells; outline co-ordinated body functions with specific applications to the cardiovascular, respiratory, musculoskeletal, nervous, alimentary and renal systems. In addition, basic concepts in organic metabolism and energy balance will be considered.
Class Contact Three hours per week for one semester comprising two one-hour lectures per week and a two hour laboratory session every second week.
Assessment Practical 20%; topic tests 20%; examination 60%

RBM1200 FUNCTIONAL ANATOMY OF THE LIMBS
Campus St Albans
Pre-requisite(s) RBM1100 Functional Anatomy of the Trunk
Learning Outcomes At the completion of this unit students should be able to:
• understand the anatomy of the upper limb
• understand the anatomy of the lower limb
• problem solve common clinical problems, such as a dislocated shoulder or hip replacement surgery.
Content Students study gross anatomy of the upper and lower limbs. The following regions are studied in detail: pelvic girdle, gluteal region, hip, thigh, knee, leg, ankle and foot; pectoral girdle, shoulder, arm, elbow, forearm, wrist and hand. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those in other Functional Anatomy units.
Recommended Reading Nil.
Class Contact Five hours per week, 3 hours lectures, 2 hours tutorial/practicals.
Assessment Written assignment 25%; Practical exam, 20%; Theory exam, 55%

RBM1203 BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION
Campus St Albans
Pre-requisite(s) RBM1503 Bioscience 1: Human Body Structure and Function
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• describe the composition of blood and understand the various functions of blood;
• understand the role of erythrocytes, thrombocytes, and leukocytes;
• describe the structure of, and understand the function of the lymphatic system;
• describe the structure of the heart, and understand cardiac physiology;
• describe the anatomy of arteries, veins, and capillaries;
• understand how the cardiovascular system maintains homeostasis of blood pressure and blood flow;
• describe the anatomy of the respiratory system and understand the mechanics of breathing;
• understand how the respiratory system maintains homeostasis of blood gases and pH;
• describe the structure of the renal system;
• understand how the kidney maintains fluid & electrolyte balance;
• describe the anatomy of the organs comprising the digestive system and understand the function of each;
• describe the structure and understand the function of the male and female reproductive systems;
• understand the basic principles of human genetics; and
• understand basic metabolism and nutrition.
Content
The aim of this unit is to build upon the anatomy and physiology introduced in Bioscience 1. The structure and function of the cardiovascular, respiratory, urinary, gastrointestinal, immune, and reproductive systems will be covered. The neuro-endocrine regulation of these systems will be presented to provide an understanding of how homeostatic mechanisms regulate variables such as blood pressure, blood gas status, acid-base balance, and fluid and electrolyte balance. Students will also be introduced to basic concepts of inheritance, nutrition, and metabolism.
A selection of relevant readings and websites compiled by the unit coordinator will be made available to students.
Class Contact 5 hours per week; comprising of 2 hours of lectures, 2 hours of practical and 1 hour of tutorial or equivalent.
Class Contact hours per week may vary according to clinical placement allocations.
Assessment
1. Test (10%) - Week 4
2. Test (10%) - Week 8
3. Practical examination (30%) Exam period
4. Written examination (2.5 hours) (50%) Exam period
Students must achieve an aggregate score of 50% to pass this subject. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade where they have also scored at least 40% for the end of semester theory exam and have completed / submitted all other assessment tasks. Students must achieve at least 50% on the supplementary exam to be granted a P 50 as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (Fail).

RBM1211 BIOSCIENCE 2
Campus St Albans
Prerequisites HFB1101 Bioscience 1
Co-requisites
Learning Outcomes On successful completion of this unit, the student will:
1. Have a sound understanding of the anatomy and physiology of the respiratory system, the digestive system, metabolism, urinary system, and the reproductive systems.
2. Have a sound understanding of major pathophysiological processes within each system listed above and their relationship to paramedic practice.
Content
This unit will contain:
1. Maintenance of the human body
   -The respiratory system
   -The digestive system
   -Metabolism
   -The urinary system
   -Fluid, electrolyte and acid base homeostasis
   -The reproductive systems
2. Microbiology and infection control
   -Fundamentals of microbiology
   -Host — microbe interactions
   -Control of micro-organisms
Class Contact Forty eight hours (48) over one 12-week semester, comprising of three (3) hours per week delivered as lectures and one (1) hour per week practical class delivered as laboratory or tutorial.
Assessment
This unit has three (3) assessment items, a one (1) hour written mid semester examination 25%, four (4) laboratory reports 25%, and a two (2) hour written end of semester examination 50%. To obtain a pass in this unit all components of assessment must be attempted and passed. Failed assessments may be re-attempted/re-submitted once only. Maximum possible marks to be obtained on any re-submission will be 50%. This unit is hurdle requirement.
On successful completion of this unit, students are expected to be able to recognize models of theories of accident causation as well as models and systems of accident control. They should be able to report, analyse and report on accidents and implement safety policies and programs. Also after completing this unit students should be able to follow the compensation and rehabilitative processes that are set after stressors cause workplace injury which then require programs for the injured worker to ensure that there is opportunity for them to return to work.

Content
This unit will cover theories of accident causation, describe the process of accident investigation, and control measures that should be introduced. Surveys, inspections, audits, accident and injury reporting, system safety, safety science, assessment of risk, management of risk and rehabilitation will be described and linked with discussion in the context of social, administrative and technical aspects of safety. How the person and their physical and social environment contribute toward the safety culture will also be described in this unit. This unit will also cover psychological hazards.

Required Reading

Recommended Reading

Class Contact
A two hour lecture delivered each semester week will cover the fundamentals of risk assessment and management and workplace requirements for compensation and rehabilitation. In addition there will be a one hour lecture to cover theories of accident causation, and investigation, and analysis and reporting of accidents. Further contact will include one hour tutorial every week of the semester.

Assessment
Tests 30%, Three Essays 35%, Assignment workplace analysis 12.5%, Assignment safety systems 12.5%, Tutorial participation 10%

RBM1502 FOUNDATIONS IN BIOMEDICAL SCIENCE B
Campus St Albans
Prerequisite(s) Nil
Content
This unit of study enables students to acquire the skills and techniques required to critically analyse written material, particularly scientific reports and to analyse scientific data. Topics include: basic mathematical principles, scientific notation and SI units, biophysics, introduction to data; descriptive statistics; introduction to probability; normal distribution, the t statistic, hypotheses testing and "p" values. Use will be made of statistical and other computer packages commonly used within biomedical sciences.

Required Reading
Strube P 2003 Bodyworks, 2nd ed. Prentice Hall; Utts & Heckard 2004 Mind On Statistics, 2nd ed. Thomson; Handbook of biophysics and biostatistics for biomedical science students in the Faculty of Science, Engineering and Technology

Recommended Reading

Class Contact
Five hours per week, 2h lectures, 2h practicals/workshops.

Assessment
Laboratory assessment tasks, 25%; Assignment, 25%; Biophysics test, 25%; Statistics test, 25%.

RBM1510 HUMAN BIOSCIENCE 1A - PSYCHOLOGY
Campus St Albans
Prerequisite(s) Nil
Content
This unit provides a basic knowledge and understanding of human cells, tissues and organ systems. It also introduces chemical and physical principles and relates these principles to the human body. Concepts of physiological regulation and homeostasis are discussed and applied to functions of body systems. This subject provides an overview of the structure and function of the human body.

Required Reading
To be advised by lecturers.

Class Contact
Seven hours per week comprising four hours lectures, three hours laboratory and/or tutorial.

Assessment
Tests and examinations, 55%; laboratory reports, laboratory tests and assignments, 45%.

RBM1514 FUNCTIONAL ANATOMY 1
Campus St Albans
Prerequisite(s) Nil
Co-requisite(s) RBM1514 Human Physiology 1

Content
This unit of study introduces students to functional anatomy. After a brief introduction to bones, joints, muscles, vessels and nerves; students study gross, histological and some surface anatomy of the head and neck and the back. The following regions are studied: skull and cranial cavity, brain and the associated nervous system, scalp and face, eye and ear, nasal and oral cavities, major structures of the neck, vertebral column and deep and superficial muscles of the back. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interleaved with those of the unit of study Functional Anatomy 2 and/or 3.

Required Reading

Class Contact: Five hours per week, 3h lectures, 2h practicals.

Assessment: Topic test x 2, 10%; Practical exam, 35%; Theory exam, 55%.

RBM1515 ANATOMY AND PHYSIOLOGY 1

Campus: St Albans
Prerequisite(s): Nil

Learning Outcomes:
On successful completion of this unit, students are expected to be able to:
1. Outline the structures and functions of human cells and tissues;
2. Explain the basic concepts of chemistry, biochemistry, microbiology and infection control in relation to the human body;
3. Describe the structures and functions of the integumentary, musculo-skeletal, endocrine and nervous systems;
4. Explain homeostasis and the role of the neuro-endocrine system in regulating body functions.

Content:
The structure and function of the human body is introduced and placed in an integrated fashion within the context of midwifery. Following a brief overview of the organisation of the human body, students are introduced to the structure and function of cells and various types of tissues. Basic concepts in chemistry and biochemistry are covered in relation to the human body and students are introduced to microbiology within the context of infection control. The bones, joints and muscles of the body are taught in an integrated way using a regional approach. The nervous system and endocrine system are discussed to highlight their regulatory role for control, co-ordination and communication. The importance of homeostasis and the role of the neuro-endocrine system in maintaining equilibrium within the human body are emphasised. This is followed by a discussion of the special senses, in particular the sense of sight, hearing and balance. The integumentary system is covered to emphasise the importance of, for example, skin colour, temperature and sensation relevant to midwifery. Information presented in this unit will be useful in the clinical context.

Required Reading:

Recommended Reading:
To be advised by Lecturer.

Class Contact:
Four hours per week for one semester comprising lectures, tutorials and laboratory work.

Assessment:
Test and assignment (20%); laboratory work, test (40%); theory examination (40%).

RBM1518 HUMAN PHYSIOLOGY 1

Campus: St Albans
Prerequisite(s): Nil

Content:
The importance of homeostasis and the role of the neuro-endocrine system in maintaining equilibrium within the body is emphasised. The nervous system and endocrine system are introduced in an integrated way to highlight their regulatory role for control, co-ordination and communication. The nervous system will be represented as the body’s most rapid means of maintaining homeostasis via sensations, integration and response to changes, both within the body and in the outside environment. The physiology of nerve cells will be used to introduce bioelectrical concepts. This provides the groundwork to support an understanding of the various types of cells within the body and their functions. The musculoskeletal system and cellular replication processes are covered. Topics studied in this subject may be interchanged with those of RBM1528 Physiology 2.

Required Reading:
Seeley, Stephens & Tate 2003, Anatomy and Physiology, 6th edn, McGraw-Hill.

Recommended Reading:

Class Contact:
Five hours per week for one semester, comprising three hours of lectures, two hours of practical on alternate weeks and one hour tutorial class per week.

Assessment:
Practical reports/test and assignment/worksheets, 45%; test/examination, 55%.

RBM1519 HUMAN BIOSCIENCE 1: BODY STRUCTURE & FUNCTION

Campus: St Albans
Prerequisite(s): Nil

Content:
In this subject, Human Bioscience will be introduced and placed in context with nursing in an integrated fashion. Content will include a brief overview of the organization of the human body; students will be introduced to the structure and functions of cells and the various types of tissues in the body. Basic concepts in chemistry and biochemistry will be covered providing the groundwork to support an understanding of the various types of cells and their functions within the body. Students are also introduced to microbiology and the importance of infection control. The importance of homeostasis is continuously highlighted and the role of the neuro-endocrine system in maintaining equilibrium within the body is emphasised. This will be followed by discussions of other body systems emphasizing the relationship between structure and function and their relevance to Nursing.

Required Reading:

Recommended Reading:

Recommended Websites:

Subject Hours:
A total of 48 hours, comprising lectures, tutorials and practicals.

Assessment:
Practical assignments and test 50%, theory test and examination 50%.

RBM1520 HUMAN BIOSCIENCE 2 - PSYCHOLOGY

Campus: St Albans, Werribee

Prerequisite(s): Students would normally be expected to successfully complete RBM1510 Human Bioscience 1A.

Content:
This subject aims to enable the students to extend theoretical knowledge of normal human structure and function developed in RBM1510 Human Bioscience 1A by examining more complex integrated functioning of the various systems in health and comparing these with selected deviations from health. Students will be introduced to fluid and electrolyte dynamics, the role of membrane structures and capillary dynamics, and integration of the neural, endocrine, circulatory, respiratory, and renal sub-systems in maintaining fluid, electrolyte and acid-base balance. Metabolism, body temperature control and nutrition are examined. Microbiology is introduced.

Required Reading:
To be advised by lecturer.

Class Contact:
Six hours per week comprising three hours of lectures, three hours of laboratory and/or tutorials for one semester.

Assessment:
Test and examination, 55%; laboratory reports and assignments, 45%.

RBM1524 FUNCTIONAL ANATOMY 2

Campus: St Albans

Prerequisite(s):
RBM1514 Functional Anatomy 1 and RBM1518 Human Physiology.

Co-requisite(s):
RBM1528 Human Physiology 2.

Content:
Students study gross, histological and some surface anatomy of the thorax, abdomen and pelvis. The following regions are studied: thoracic cage, pleura and lungs, heart, mediastinal structures, abdominal wall, pelvic girdle, gastrointestinal organs, urinary organs and reproductive organs. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those of the unit of study Functional Anatomy 2 and/or 3.

Required Reading:

Recommended Reading:

Class Contact:
Five hours per week, 3h lectures, 2h practicals.

Assessment:
Topic test x 2, 10%; Practical exam, 35%; Theory exam, 55%.

RBM1525 ANATOMY AND PHYSIOLOGY

Campus: St Albans

Pre-requisite(s):
RBM1515 Anatomy and Physiology 1; or equivalent.

Learning Outcomes:
On successful completion of this unit, students are expected to be able to:
1. Describe the structure and function of the cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems in the human body;
2. Explain how the homeostatic mechanisms regulate the blood pressure, blood gas
RBM1528 HUMAN PHYSIOLOGY 2
Campus St Albans
Prerequisite(s) RBM1518 Physiology 1
Content This subject continues the study of the structure and functions of the body, using homeostatic regulation of the internal environment as the ongoing theme. The cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems are placed in context with their overall regulation and co-ordination via the neuro-endocrine system. This provides an understanding of how homeostatic mechanisms regulate variables such as blood pressure, blood gas status, fluid and electrolyte balance and acid-base balance. The provision of nutrients to the body by the gastrointestinal system is integrated with the study of biochemistry and metabolism. An introduction to basic concepts of inheritance is followed by the study of the male and female reproductive systems.
Recommended Reading To be advised by Lecturer.
Class Contact Four hours per week for one semester comprising lectures, tutorials and laboratory work.
Assessment Test and assignment (20%); laboratory work/test (40%); theory examination (40%).

RBM1530 HUMAN BIOSCIENCE 2 BODY STRUCTURE & FUNCTION
Campus St Albans
Prerequisite(s) RBM1519 Human Bioscience 1: Body Structure and Function
Content In this subject, Human Bioscience 2 (Nursing), will be continued in context with nursing in an integrated fashion. Anatomy, physiology and basic concepts in chemistry and microbiology will be taught in an integrated fashion. Content will expand previous knowledge of the organization of the human body, structure and functions of cells and the various types of tissues in the body. Further concepts in chemistry, microbiology, infection control, homeostasis and the role of the neuro-endocrine system in maintaining equilibrium within the body are emphasized. The nervous system and endocrine system are expanded to highlight their regulatory role for control, co-ordination and communication. This will be followed by discussions of other body systems emphasizing the relationship between structure and function and their relevance to Nursing.
Class Contact A total of 32 hours comprising lectures, laboratories, tutorials.
Assessment Theory Examination (60%); Practical Examination 40%.

RBM1580 FUNCTIONAL ANATOMY 3
Campus St Albans
Prerequisite(s) RBM1514 or RBM1528
Content This subject introduces students to functional anatomy. After a brief introduction to the bones, joints, muscles, vessels and nerves of the body, students study gross anatomy using a regional approach. The following systems will be covered nervous, endocrine, cardiovascular, lymphatic, respiratory, gastrointestinal, renal, reductive, musculoskeletal, integumentary. Their relevance to Nursing will be highlighted.
Required Reading Seeley, Stephens & Tate 2003, Anatomy and Physiology, 6th edn, McGraw-Hill.
Class Contact Six weeks per week for one semester; comprising of two hours of lectures and two or three hours of practical/tutorial class per week.
Assessment Theory examination 55%, practical examination and oral examination 45%.

RBM1820 NUTRITION, SOCIETY, AND COMMUNICATION
Campus St Albans
Prerequisite(s) Nil.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Recall the major metabolic pathways and their essential components, and describe their integration and regulation;
2. Recall the mechanisms of gene expression, and the various potential sites of disease causation;
3. Name and explain the metabolic roles of micronutrients and dietary antioxidants;
4. Explain the mechanisms of enzyme action and inhibition;
5. Explain the physiological consequences of important genetic diseases;
6. Explain the action of ligands, antagonists and receptors and how these have regulatory roles in metabolism;
7. Discuss the neuro-endocrine influences on metabolic regulation;

RBM1536 HUMAN BIOSCIENCE B
Campus St Albans
Prerequisites Nil.
Co-requisites Nil.
Learning Outcomes On successful completion of this bridging subject, students should have a thorough knowledge of human anatomy and physiology.
Content In this subject, anatomy and physiology will be taught using a systems approach. The following systems will be covered nervous, endocrine, cardiovascular, lymphatic, respiratory, gastrointestinal, renal, reproductive, musculoskeletal, integumentary. Their relevance to Nursing will be highlighted.
Class Contact A total of 32 hours comprising lectures, laboratories, tutorials.
Assessment Theory Examination (60%); Practical Examination 40%.
8. Describe the metabolic transformations of steroid and other major hormones;
9. Explain the principles underpinning laboratory medicine.

**Required Reading**

**Recommended Reading**

**Class Contact**
5 hours/week or equivalent for one semester comprising lectures and tutorial/workshops.

**Assessment**
Two assignments (20%); Two case studies reports (20%); One examination (60%).

**RBM1830 DIET THERAPY 1**
Campus: St Albans

**Prerequisite(s)**
Nil.

**Content**
Dietary assessment techniques, case history taking to assess the dietary habits of clients, dietary nutrient requirements for a balanced and healthy diet, basic counselling skills with respect to the assessment and evaluation of dietary habits and the communication of corrective strategies to clients, codes of ethical practice in dealing with clients.

**Required Reading**

**Recommended Reading**

**Assessment**
Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); practical reports and laboratory work (30%); one topic test (15%); one 2-hour end-of-semester examination (55%). This unit is a hurdle requirement.

**Additional Statements**
Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Laboratory and practical sessions have a hurdle requirement of at least 80% attendance.

**RBM1910 MICROBIOLOGY FOR CHINESE MEDICINE PRACTITIONERS**
Campus: St Albans

**Prerequisite(s)**
Nil.

**Content**
Types of micro-organism and their place in, on and around us; how micro-organisms grow and how their growth is prevented or controlled in clinical settings; micro-organisms as agents of disease in the individual and in the population; how the body defends itself against microbial invasion and the role of the health practitioner in preventing the spread of disease.

**Required Reading**

**Recommended Reading**

**Assessment**
Examination (3 hour), 50%; Clinic observation journal, 50%.

**RBM2060 ERGONOMICS**
Campus: St Albans

**Prerequisites**
RBM1502 Fundamentals in Biomedical Sciences B and RBM1528 Human Physiology 2

**Co-requisites**

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to resource and use information for evaluating human factors so as to apply ergonomic methodologies to report on improving workplace environments.

**Content**
This unit shows the role of ergonomics in safety. This is by showing the scope and concepts of ergonomics and its application in occupational health and safety, which include studying many of the sub-disciplines of ergonomic such as biomechanics, anthropology, and approaches to assess energy expenditure in the workplace as well as work analysis. These approaches and methods are applied to product design and evaluation, assessment and design of the physical workplace, analysis of work activities, analysis and evaluation of work systems, injury management.

**Required Reading**

**Recommended Reading**

**Class Contact**
One two hour lecture, one hour tutorial and a two hour practical class for each week of a semester.

**Assessment**
Topic Questions 30%, Assignment Occupational Hygiene Workplace cases 40%, Tutorial participation 15%, Tests 15%.

**RBM2061 OCCUPATIONAL HYGIENE SCIENCE**
Campus: St Albans

**Prerequisites**
RBM1101 Safety 1

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to use available resources to plan sampling strategies to measure workplace contaminants and have some understanding of the principles in the measurement process. The student should be able to report on the significance of levels of occupational contaminants or environmental conditions, based on the method of assessment and the context of factors relating to the workplace environment at the time of sampling.

**Content**
This unit will cover the methods for monitoring and sampling stressors in workplace environments. Occupational hygiene topics will most focus on respiratory hazards (gases, aerosols, particulates), noise and thermal environments and it will describe the associated detection and measurement required for assessing these workplace stressors. This will be in the context of planning the sampling strategy, analysing and measuring the contaminant and assessing consequential outcome to a worker following their exposure. The statistical processing of data, as well as sensitivity and specificity of instruments and systems will be discussed to qualify the interpretation of results which affect the final report on the assessment of stressors in workplace environments. To assess the level of risk, comparative published exposure limit standards are described. Controls to reduce exposures will also be covered and the unit will discuss ventilation and personal protective equipment.

**Required Reading**

**Recommended Reading**

**Class Contact**
One two hour lecture, one hour tutorial and a two hour practical class for each week of a semester.

**Assessment**
Topic Questions 30%, Assignment Occupational Hygiene Workplace cases 40%, Tutorial participation 15%, Tests 15%.

**RBM2050 OCCUPATIONAL HYGIENE**
Campus: St Albans

**Prerequisites**
RBM1101 Safety 1

**Co-requisites**

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to use available resources to plan sampling strategies to measure workplace contaminants and have some understanding of the principles in the measurement process. The student should be able to report on the significance of levels of occupational contaminants or environmental conditions, based on the method of assessment and the context of factors relating to the workplace environment at the time of sampling.

**Content**
This unit will cover the methods for monitoring and sampling stressors in workplace environments. Occupational hygiene topics will most focus on respiratory hazards (gases, aerosols, particulates), noise and thermal environments and it will describe the associated detection and measurement required for assessing these workplace stressors. This will be in the context of planning the sampling strategy, analysing and measuring the contaminant and assessing consequential outcome to a worker following their exposure. The statistical processing of data, as well as sensitivity and specificity of instruments and systems will be discussed to qualify the interpretation of results which affect the final report on the assessment of stressors in workplace environments. To assess the level of risk, comparative published exposure limit standards are described. Controls to reduce exposures will also be covered and the unit will discuss ventilation and personal protective equipment.

**Required Reading**

**Recommended Reading**

**Class Contact**
One two hour lecture, one hour tutorial and a two hour practical class for each week of a semester.

**Assessment**
Topic Questions 30%, Assignment Occupational Hygiene Workplace cases 40%, Tutorial participation 15%, Tests 15%.
and the measurement of exposures that lead to energy transfer to organisms or disruption of energy within organisms.

**Required Reading**

**Class Contact**
Three and half hour lecture equivalents for 12 weeks and one hour tutorial equivalents delivered over 6 weeks online for one semester.

**Assessment**
Assignments, tutorial topic questions and tests.

**RBMT2100 REHABILITATION ANATOMY**

**Campus St Albans**

**Pre-requisite(s)**
RBMT200 Functional Anatomy of the Limbs

**Learning Outcomes**
At the completion of this unit students should be able to: understand and perform clinical tests on muscles and joints of the body.

**Content**
The relevance of functional and clinical anatomy to health and healing will be highlighted through a detailed study of the mechanics and muscles affecting the movement of joints in the body. This information will be presented and highlighted through the study of a number of different areas including kinesiology, biomechanics, gait analysis, posture, massage, muscle testing, exercise, stretching, basic soft tissue techniques, and awareness through movement and posture. There will be a particular emphasis on muscle testing and surface anatomy. Topics studied in this unit may be interchanged with those in other Functional Anatomy units.

**Required Reading**
Behnke, R.S., 2000, Kinetic Anatomy, Human Kinetics Australia.

**Recommended Reading**
Nil.

**Class Contact**
Five hours per week for one semester; 3 hours lecture, 2 hours practical/tutorial.

**Assessment**
Theory examination 55%, practical examination 20% written assignment 25%.

**RBMT2104 PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1**

**Campus St Albans**

**Pre-requisite(s)**
RBMT1203 Bioscience 2: Human Body Structure & Function

**Learning Outcomes**
On successful completion of this unit, students are expected to be able to: understand the fundamentals of microbiology and infection control; appreciate the relevance of microbiology in the work of health professionals; describe the major pathophysiological processes, which underlie commonly encountered diseases/conditions; understand the major pathophysiological concepts of disease and how diseases progress such as: aetiology, effect factors; pathogenesis, acute and chronic conditions, and complications; identify the environmental influences, which contribute to various pathophysiological processes, and relate these to disease prevention as well as pathogenesis; discuss severe and life-threatening complications, which may develop in particular disease conditions; discuss the scientific basis for preventative interventions, diagnosis and management of important pathophysiological conditions; apply all of the above concepts to commonly encountered diseases/conditions of the: cardiovascular system, respiratory system, renal system, nervous system and acid/base imbalances and fluid/electrolyte imbalances; discuss the principles of pharmacodynamics and pharmacokinetics as they apply to specific drugs or drug classifications; discuss medication administration and nursing management of the client receiving medications including legal and ethical issues; accurately calculate drug dosages; and demonstrate skills in the safe practice of medication management.

**Content**
The aim of this unit is to present major concepts and principles of pathophysiology, illustrating their relationship to a range of common/important acute and chronic illnesses. This unit supports the topics in concurrent nursing units by: providing a scientific basis for understanding disease processes such as cellular injury, inflammation, infection, and shock; by elucidating the underlying mechanisms which result in clinical manifestations; and by presenting the rationale for therapeutic interventions. In particular, students will be introduced to pharmacokinetics, pharmacodynamics and pharmacological interventions related to the pathophysiology studied. Microbiology will also be discussed with reference to the growth and physiology of micro-organisms, their pathogenic potential, infection control and antibiotic treatment. In this unit, major disorders of the cardiovascular, respiratory, renal and nervous systems will be examined, as well as fluid and electrolyte imbalances, acid/base imbalances and shock. The pathophysiological principles underlying disorders of major body systems and subsystems will also be discussed - for example, in cardiovascular pathophysiology, hypertension and atherosclerosis will be examined. However, specific systems in this subject may be interchanged with those in the fourth semester subject based on the relevant National Health Priorities studied in the associated nursing unit.

**Required Reading**

**Recommended Reading**

**Recommended Websites:**

**Class Contact**
Five hours per week; comprising 3-4 hours of lectures (total = 40 hours) and 1-2 hours of tutorial/laboratory or equivalent (total = 20 hours).

**Assessment**
1. Laboratory report (1000 words) (10%) Week 3 or 4
2. Written test (10%) Week 5 or 6
3. Written assessment (1000 words) (30%) Week 12
4. Written examination (2.5 hours) (50%) Exam period

Students must achieve an aggregate score of 50% and pass the written assessment to pass this subject. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade where they have also scored at least 40% for the end of semester theory exam and 50% for the written assessment. Students must achieve at least 50% on the supplementary exam to be granted a pass (P 50) as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

**RBMT2110 HUMAN BIOSCIENCE 3**

**Campus St Albans**

**Pre-requisite(s)**
RBMT1530 Body Structure and Function

**Learning Outcomes**
On successful completion of this subject, students should be able to: describe the major categories of pathophysiological processes which underlie common and important disease conditions, such as inflammation, infection, cellular injury and neoplasia; describe the major pathophysiological concepts of disease aetiology, risk factors, pathogenesis, acute and chronic conditions and complications; identify the environmental influences which contribute to various pathophysiological processes and relate these to disease prevention as well as pathogenesis; discuss the pathophysiology of commonly encountered and serious conditions of the cardiovascular, respiratory, renal and haematological systems; discuss severe and life-threatening complications which may develop in particular disease conditions; discuss the scientific basis for preventative interventions, diagnosis and management of disease conditions; and, discuss basic principles of pharmacology and the scientific basis for the mode of action of commonly prescribed drugs.

**Content**
In this subject major concepts and principles of pathophysiology illustrating their relationship to a range of common/important acute and chronic illnesses will be presented. This subject supports the topic in concurrent nursing units by providing a scientific basis for understanding disease processes such as cellular injury, inflammation, infection, neoplasia and shock; by elucidating the underlying mechanisms which result in clinical manifestations; and by presenting the rationales for therapeutic interventions. Microbiology will be discussed with reference to the growth and physiology of micro-organisms, their pathogenic potential and infection
control. The pathophysiological principles underlying disorders of body systems will be discussed; for example, in cardiovascular pathophysiology, shock and cardiac failure will be examined. Other topics covered will include disorders of haematological, immunological, respiratory and systems genetic disorders such as cystic fibrosis; and conditions resulting in acid/base and fluid and electrolyte imbalances. The epidemiological basis for distribution of disease conditions in population sub groups (eg. Indigenous, migrant, socio-economic) will also be examined.

Required Reading


Recommended Reading


Class Contact

Equivalent of 40 hours organised according to teaching mode used. Delivery of this subject is negotiated in relation to the students practicum commitments.

Assessment

Laboratory and topic tests 40%
Examination 60%

RBM2133 CELL AND MOLECULAR BIOLOGY

Campus St. Albans

Pre-requisite(s) RBF1310 Biology 1 or RBM1528 Human Physiology 2; or equivalent Learning Outcomes On successful completion of this unit, students are expected to be able to:

1. Describe the structures and function of the cell;
2. Describe the role of the cytoskeleton in cell transport and structure;
3. Explain cellular transport and cell movement mechanisms including the different mechanisms for protein uptake and excretion from cells: endocytosis, exocytosis, phagocytosis;
4. Describe the molecular mechanism for cell adherence;
5. Explain the cell cycle, its regulation and energy conversion and cell division;
6. Describe communication and cell signalling between cells including chemical and hormonal signalling and receptor mediated communication, including understanding and describe signal transduction events in cells;
7. Describe protein trafficking in the cell;
8. Explain how proteins are synthesized and processed by the human cell;
9. Explain how ions move through lipid membranes;
10. Describe the molecular structure, organisation and functioning of the eukaryotic cell;
11. Discuss the molecular basis of health and disease as emerging in the medical research;
12. Describe the organisation and structure of the cell nucleus and genome;
13. Explain how cell function can be altered in some diseases, with reference to cancer, neurodegenerative disorders and ion channel disorders;
14. Discuss current research findings about molecular mechanisms in immunity, inflammation and disease including neurodegenerative conditions.

Content Cell and Molecular Biology focuses on the investigation of the human body at the molecular and cellular levels. The unit will discuss the components of cells, how they are regulated, where they are located and how they interact to produce an entity that can live and reproduce, with a particular focus on biomedicine. Lecture series will cover topics such as the molecular structure, organisation and functioning of the eukaryotic cell and will make direct links to understanding of the molecular basis of health and disease as emerging in the medical research. Topics to be covered include: compartmentalisation; macromolecules, plasma and internal membrane structure; the cytoskeleton and its role in structure, function, and movement; cellular transport and cell movement mechanisms including: cell motility; cell crawling; molecular protein motors; transport and docking of vesicles; transmembrane movements via channels (ion flux in disease) as well as endocytosis and pinocytosis; organisation and structure of the cell nucleus; organisation and function of the genome, including repetitive and non repetitive DNA sequences; regulation of gene expression; intracellular targeting of proteins including co translational and post translational pathways; communication and cell signalling between cells including chemical and hormonal signalling and receptor mediated communication, signal transduction pathways; Extracellular matrix; Cell cycle and its regulation; Energy conversion; Cell to cell contact and adhesion; the molecular mechanisms of cell adherence and metastasis, and the role of apoptosis (programmed cell death) in development; investigation of current research into molecular mechanisms in immunity, inflammation and disease including cancer and neurodegenerative conditions, e.g., role of Tau protein in Alzheimer’s and neurofibrillary tangles. Current research and laboratory techniques are covered as is current knowledge on molecular and cellular mechanisms in key areas of disease, immunity and inflammation.

Required Reading


Recommended Reading


Class Contact

Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials/laboratories/workshops and self-directed learning. Participation in practical/workshop sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

Assessment

Participation in practical/workshop sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); Laboratory/workshop assessment items, eg., written, model, poster, presentation, tests (40%); One written examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and submitted and an aggregate mark of 50% must be attained.

RBM2141 PHARMACOLOGY AND NUTRITION

Campus St Albans

Pre-requisite(s) RBM 1810 Nutritional Biochemistry.

Learning Outcomes At the conclusion of this unit the successful student will be able to: recall the functional foods commonly encountered in foodstuffs, and their nutritional roles; recall the major classes of prescription drugs, their therapeutic roles and contra-indications; explain the principles of pharmacodynamics; be aware of the potential for specific drug-nutrient interactions and be able to demonstrate ability to retrieve such published information; be aware of the potential effects of polypharmacy; recall the effects of selected psychotropic agents.

Content

This unit covers the nutritional roles of functional foods; the classification of prescription drugs and their therapeutic uses and contra-indications; pharmacodynamics; polypharmacy; psychotropic agents; drug-nutrient interactions.

Required Reading

Bryant, B, Knights K; Pharmacology for Health Professionals. 2007. 2nd ed. Elsevier, NSW

Recommended Reading


Class Contact 3 hrs/wk, made up of lectures, tutorials/workshops

Assessment

Exam 50% assignments (2) 40%
On successful completion of this unit students should be able to:

- understand the anatomy and histology of the structures of the head and neck
- understand the anatomy and histology of the structures of the back
- problem solve common clinical problems, such as stroke and sinusitis.

Content

Students study gross and histological anatomy of the head, neck and back. The following regions are studied: skull and cranial cavity, brain and the associated nervous system, scalp, face, eye, ear, nasal and oral cavities, major structures of the neck, vertebral column, spinal cord and nerves, deep and superficial back muscles. The relevance of functional anatomy to health and healing will be highlighted. Topics included in the unit may be interchanged with those in other Functional Anatomy units.

Required Reading


Recommended Reading


Class Contact

Five hours per week for one semester comprising 2-3 hours lectures and 2-3 hours tutorial/practical.

Assessment

Topic tests 10%, Theory examination 45%, practical examination 45%.

RBMM2205 PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 2

Campus St Albans

Pre-requisite(s) RBMM2104 Pathophysiology and Quality Use of Medicines 1

Learning Outcomes

On successful completion of this unit, students are expected to be able to:

- understand the fundamentals of microbiology and infection control;
- appreciate the relevance of microbiology in the work of health professionals;
- describe the major pathophysiological processes, which underlie commonly encountered diseases/conditions;
- understand the major pathophysiological concepts of disease and how diseases progress such as: aetiology, risk factors; pathogenesis, acute and chronic conditions, and complications;
- identify the environmental influences, which contribute to various pathophysiological processes, and relate these to disease prevention as well as pathogenesis;
- discuss severe and life-threatening complications, which may develop in particular disease conditions;
- discuss the scientific basis for preventative interventions, diagnosis and management of important pathophysiological conditions;
- apply all of the above concepts to commonly encountered diseases/conditions of: the cardiovascular system, respiratory system, renal system, nervous system and acid/base imbalances and fluid/electrolyte imbalances;
- discuss the principles of pharmacodynamics and pharmacokinetics as they apply to specific drugs or drug classifications;
- discuss medication administration and nursing management of the client receiving medications including legal and ethical issues;
- accurately calculate drug dosages; and
- demonstrate skills in the safe practice of medication management.

Content

This unit furthers the understanding of pathophysiological principles and disease processes introduced in Pathophysiology & Quality Use of Medicine 1 and supports the content in concurrent nursing units. Topics will include neoplasia, disorders of the endocrine, musculoskeletal and haematological systems and the gastrointestinal tract and the quality use of medicines. Disorders of the reproductive tract including infertility will be presented. Important genetic disorders and their modes of inheritance will also be examined. Specific systems in this subject may be interchanged with those in the third semester subject based on the relevant National Health Priorities studied in the associated nursing unit. Students will further develop their knowledge of medications, their administration and management with a particular focus on drugs used in clients with a mental illness, diabetes mellitus, cancer, arthritis and musculoskeletal conditions and related co-morbidities.

Required Reading


Recommended Reading


Recommended Websites:

- Department of Human Services, Vic State Government: www.dhs.vic.gov.au;
Class Contact
A total of 60 hours; comprising
3-4 hours of lectures (total = 40 hours) and
1-2 hours of tutorial/labouratory or equivalent (total = 20 hours).

Class Contact hours per week may vary according to clinical placement allocations.

Assessment
1. Written test (10%) Week 4 or 5
2. Written test (10%) Week 8 or 9
3. Written assessment (1000 words) (30%) Week 12
4. Written examination (2.5 hours) (50%) Exam period

Students must achieve an aggregate score of 50% and pass the written assessment to pass this subject. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade where they have also scored at least 40% for the end of semester theory exam and 50% for the written assessment. Students must achieve at least 50% on the supplementary exam to be granted a pass (P 50) as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

RBM2210 HUMAN BIOSCIENCE 4
Campus St Albans
Pre-requisite(s) RBM2110 Human Bioscience 3

Learning Outcomes
On successful completion of this unit, students should be able to: Describe the major pathophysiological concepts of disease etiology, risk factors, pathogenesis, acute and chronic conditions and complications; Identify the environmental influences which contribute to various pathophysiological processes and relate these to disease prevention as well as pathogenesis; Discuss the pathophysiology of commonly encountered and serious conditions of the nervous, endocrine, musculoskeletal, gastrointestinal and reproductive systems; Discuss severe and life-threatening complications which may develop in particular disease conditions; Discuss the scientific basis for preventative interventions, diagnosis and management of disease conditions; and Discuss basic principles of pharmacology and the scientific basis for the mode of action of commonly prescribed drugs.

Content
In this subject major concepts and principles of pathophysiology illustrating their relationship to a range of common/important acute and chronic illnesses will be presented. This subject supports the topic in concurrent nursing units by providing a scientific basis for understanding disease processes. The pathophysiological principles underlying disorders of body systems will be discussed; for example, atherosclerosis and the nervous, endocrine, gastrointestinal, musculoskeletal and reproductive systems will be examined. The epidemiological basis for distribution of disease conditions in population sub-groups (eg. Indigenous, migrant, socio-economic) will also be examined.

Required Reading

Recommended Reading

Class Contact
Equivalent of 40 hours organised according to teaching mode used. Delivery of this subject is negotiated in relation to the students practicum commitments.

Assessment
Topic tests 40%
Examination 60%

RBM2218 PRACTITIONER HEALTH 2
Campus St Albans
Pre-requisite(s) RBM2111 Bioscience 2, AHE2111 Practitioner Health 1; or equivalents.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Provide the key concepts and definitions related to nutrition;
2. Define the various essential nutrients, and identify the chemical compositions of those nutrients;
3. Discuss the role energy plays, and identify the energy-yielding nutrients available to the human body;
4. Discuss the concepts of digestion, absorption and transportation in relation to nutrition;
5. Assess food choices against recommended dietary intakes, and implement appropriate diet planning for health;
6. Discuss nutritional requirements across the lifespan.

Content This unit will contain:
1. Overview of Nutrition
2. Digestion, Absorption and Transport
3. The Carbohydrates: Sugars, Starches and Fibre
4. The Lipids: Triglycerides, Phospholipids and Sterols
5. Protein: Amino Acids
6. Metabolism
7. Vitamins: Water Soluble and Fat Soluble Vitamins
8. Minerals: Major Minerals and Trace Minerals
9. Diet and Health:
   • Food Choices
   • Diet Planning
   • Food Labels
   • Diet and the Shift Worker
10. Lifelong Nutrition:
    • Children
    • Adolescence
    • Pregnancy/Lactation
    • Elderly

Required Reading

Recommended Reading
McGuire, M., & Beerman, K. A. (2006). Nutritional sciences: On successful completion of this unit, students are expected to

Class Contact Forty-eight (48) hours over one 12-week semester comprising lectures and practical classes delivered as laboratories or tutorials

Assessment One test (20%); One diet evaluation assignment (2000 words) (30%); One 2-hour written end-of-semester examination (50%). To obtain a pass or higher in this graded unit, all components of assessment must be passed. Failed assessments may be re-attempted/re-submitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. This unit is a hurdle requirement.

RBM2220 NUTRITIONAL BIOCHEMISTRY 2
Campus St Albans
Pre-requisite(s) RBM1110 Nutritional Biochemistry 1; or equivalent.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Recall the mechanisms of enzyme action and inhibition; 2. Recall the various metabolic pathways and their essential components, and describe their integration and regulation; 3. Recall the mechanisms of gene expression, and the various potential sites of disease causation; 4. Name and explain the metabolic roles of micronutrients and dietary antioxidants; 5. Explain the mechanisms of enzyme action and inhibition; 6. Explain the physiological consequences of important genetic diseases; 7. Explain the action of ligands, antagonists and receptors and how these have regulatory roles in metabolism; 8. Discuss the neuro-endocrine influences on metabolic regulation; 9. Describe the metabolic transformations of steroid and other major hormones; 10. Explain the principles underlying laboratory medicine.


Required Reading

Recommended Reading
Bender, D. A. (1997). Introduction to nutrition and
metabolism (2nd ed.). UK: Taylor and Francis.

Class Contact 5 hours per week or equivalent for one semester comprising lectures and tutorial/workshops.

Assessment Two assignments (20%); Two case studies reports (20%); One examination (60%).

RBM2222 PERFORMANCE NUTRITION
Campus St Albans
Pre-requisite(s) RBM2260 Diet and Nutrition, RBM2221 Nutritional Biochemistry 2; or equivalents.
Co-requisite(s) Nil.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Integrate their knowledge of biochemistry and physiology of exercise with the nutritional and ergonomic needs to optimize performance;
2. Assess the nutritional needs of different exercise modalities;
3. Discuss the parameters influencing the nutrient and fluid availability before, during and recovery after exercise;
4. Develop skills in prescribing nutritional and ergonomic aids to enhance exercise performance.

Content
The importance of nutrition and specific ergonomic aids to enhancing physical performance will be demonstrated. This unit integrates nutrition, biochemistry and intermediary metabolism with the physiology of exercise, allowing the student to apply this knowledge to the designing of nutritional advice to enhance human performance. The macro- and micro-nutrient needs of different sport and exercise types will be discussed with the aim of arriving at the skills to provide appropriate practical dietary and nutritional therapeutic advice for athletes.

Required Reading

Recommended Reading
To be advised by lecturer.

Class Contact
Four hours per week or equivalent for one semester, comprising lectures/tutorials and off-campus portfolio preparation.

Assessment
Case study/portfolio (20%); dietary and supplement prescription exercise (20%); final examination (60%).

RBM2260 DIET AND NUTRITION
Campus St Albans
Pre-requisite(s) RBM1528 Human Physiology 2 or equivalent

Content
This subject will demonstrate the relationships between gastrointestinal function, diet and human health. The subject examines the gastrointestinal structure and function, body composition, anthropometry, chemical nature of the nutrients, and their roles in body structure and function, energy intake and regulation, metabolism of nutrients, nutritional requirements under various environmental and physiological states, diet and disease, dietary guidelines, hormonal control of digestion, vitamins as antioxidants, nutrition and prevention of disease, role of intestinal flora in nutrition.

Student Learning Outcomes
At the successful completion of this unit, students should have: a) developed a detailed knowledge of the different classes of nutrients, e.g. carbohydrates, lipids, proteins, vitamins and minerals b) described the composition, role and regulation of these nutrients within a range of different diets. c) described the importance of digestion, metabolism, nutrition and energy balance to the wellbeing of an individual.

Required Reading
To be advised by lecturer.

Class Contact
Hours Five hours per week for one semester comprising three hours lecture and two hours laboratory

Assessment
Tests, 20%; laboratory reports, 30%; final examination, 50%.

RBM2261 PUBLIC AND ENVIRONMENTAL HEALTH
Campus Saint Albans
Pre-requisite(s) Minimal requirement - Completion of Diploma of Occupational Health and Safety (or equivalent) OR Completion of Level 1 BSc Biomedical Sciences (or equivalent)

Content
The decisions a society makes about its public and environmental health are based on scientific information to assess the degree and distribution of its risks. These are measures of the determinants of risks the strategies to reduce or remove risk reflect the values of the society. These values are expressed in its customs and laws. The sciences underlying the environmental and public laws include not only biology and chemistry, but others such as psychology, sociology and economics. The role of the public health political process is critically dependent on measurements of health and illness, the compromise between waste and the balance of communal wealth with the perceived impacts of these in drafting public and environmental health laws and their implementation.

Required Reading
Recommended Reading

Class Contact
Two hour online lecture and one hour tutorial equivalents delivered online per week for one semester.

Assessment
Assignments, tutorial topic questions and tests.

RBM2361 SAFETY PRACTICE
Campus St Albans
Pre-requisite(s) RBM2161 Ergonomic Science (equivalent) OR Completion of Level 1 BSc Biomedical Sciences (or equivalent).

Content
Skills in making the Occupational Health and Safety unit of a business become part of the organization. These require that there is sufficient understanding of ergonomics - to achieve optimum productivity and cost efficiency and minimum risk of injury, quality management, environmental, affairs, behavioural safety and basic financial management.

Required Reading

Recommended Reading

Class Contact
Two hour lecture and one hour tutorial equivalents delivered online per week for one semester.

Assessment
Assignments, tutorial topic questions and tests.

RBM2365 MEDICAL MICROBIOLOGY
Campus St Albans
Pre-requisites RBM1528 Human Physiology 2 or equivalent.

Co-requisites

Learning Outcomes

Content
Topics include: nature and classification of micro organisms and their growth requirements, microbial genetics, normal flora, host defence mechanisms, immune response, host microbe interaction, infection, sterilisation, disinfection, asepsis, antisepsis, sources and mode of transfer of infectious agents and the compromised host, principles of safe clinical practice, antibiotics, epidemiology, analytical methods and food safety. To investigate application of microorganisms in medicine, industry and biological work products.

Required Reading

Recommended Reading

Class Contact
Four hours per week for one semester, 2-3 hours lectures, 1-2 hours tutorial/labouratory.

Assessment
Topic test, 10%; Laboratory reports, 30%; End of semester examination, 60%.

RBM2461 WORKPLACE PLACEMENT A
Campus St Albans Internet
Pre-requisites RBM1061 Safety 1, RBM2061 Safety 2, BLO2233 Health and Safety Law
SCHOOL OF BIO MEDICAL AND HEALTH SCIENCES

RBM2517 HUMAN BIOSCIENCE 3

Campus: St Albans
Prerequisite(s): RBM1530 Human Bioscience 2.
Content: The presentation of major concepts and principles of pathophysiology; illustrating their relationship to a range of common/important acute and chronic illness. This subject supports the topics in concurrent nursing units by providing a scientific basis for understanding disease processes such as cellular injury, inflammation, infection, and shock; by elucidating the underlying mechanisms which result in clinical manifestations; and by presenting the rationale for therapeutic interventions. Microbiology will be discussed with reference to the growth and physiology of micro-organisms, their pathogenic potential, infection control and antibiotic treatment. The pathophysiological principles underlying disorders of major body systems and subsystems will be discussed; for example, in cardiovascular pathophysiology, shock, cardiac failure, hypertension and atherosclerosis will be examined. Other topics covered may include haemotology, the respiratory system, renal system, and fluid and electrolyte imbalances, however specific systems in this subject may be interchanged with those in the fourth semester subject as appropriate.


Subject Hours: 40 hours per semester of lectures and tutorials.

Assessment: Test, 30%; examination, 70%.

RBM2528 PATHOPHYSIOLOGY IN MIDWIFERY

Campus: St Albans
Pre-requisite(s): Anatomy and Physiology I & 2.
Content: This unit of study will introduce pathophysiological concepts, principles and disease processes, illustrating their relationship to a range of common and important acute and chronic disease conditions; relevant to midwifery practice. The aims of the subject are: to provide a scientific basis for understanding disease processes such as cellular injury, inflammation and neoplasia; to elucidate the underlying mechanisms which result in clinical manifestations; and to present the rationale for therapeutic interventions. Microbiology will be discussed with reference to the pathogenetic potential and infection control of microorganisms. The pathophysiological principles underlying disorders of body systems will be discussed with an emphasis on midwifery; for example, in cardiovascular pathophysiology: hypertensive disorders of pregnancy and shock associated with blood loss will be examined. Other topics to be covered will include disorders of: blood (eg. anaemias) and body defences (eg. incompatibilities), the renal system, fluid and electrolytes, the reproductive system (eg. sexually transmitted diseases, infertility), endocrinology, metabolism (eg. diabetes) and nutrition associated with pregnancy. Genetic and developmental abnormalities of the foetus will also be examined.


Subject Hours: 56 hours comprising lectures (3 hours/week); laboratories (1 hour/week). Laboratory report - 15%, Test -15%, Examination - 70%.
RBM2530 PATHOPHYSIOLOGY 1
Campus St Albans
Prerequisite(s) RBM1520 or RBM1528 or equivalent

Content
This subject aims to provide students with an understanding of the control and co-ordination of body systems and the effects of disturbances to body functions. The mental status and some psychosocial factors associated with these processes will be discussed. Students are introduced to major pathologic processes which may affect all parts of the body. Topics include tissue injury, inflammation and repair, normal immune function and deviations from normal, cancer from the molecular level to the whole person, neural and endocrine dysfunction including impaired cognition such as dementia and impaired co-ordination and control. In the laboratory, students will be introduced to basic laboratory techniques and apply scientific principles to the assessment of dysfunction in humans. Students are also introduced to the research literature, research techniques and the communication of scientific information by a series of presentations. There may be some interchange of topic material relating to specific body systems between RBM2530 and RBM2540 and the specific diseases chosen to illustrate major processes may vary as appropriate.

Student Learning Outcomes
At the successful completion of this unit, students will be able to:

1. Recognise the need for, locate and critically analyse scientific data, especially with respect to epidemiology, disease causation and normal reference ranges for physiological parameters.
2. Recognise the main types of study used to identify the causes of disease and critically assess the quality of these studies.
3. Describe and explain the major concepts of disease and how homeostatic imbalances may progress to disease: for example, aetiology, risk factors, pathogenesis, acute and chronic conditions, sequela and complications.
4. Describe and explain how a range of general pathologic (disease) processes and homeostatic imbalances interplay with body systems. These processes may include: injury, inflammation and immunopathology, neoplasia, genetic disorders and dysfunction, endocrine disorders and neurological disorders.
5. Utilise basic scientific principles of adequate and appropriate controls in the investigation of disease. Apply scientific thought and process to the investigation of pathologilical conditions, especially with respect to physical examination and measurement of physiological parameters.
6. Utilise knowledge of pathophysiology to solve moderately complex problems and analyse case studies of disease.
7. Discuss the scientific basis for preventative interventions, and management of important pathophysiological conditions.
8. Recognise how psychosocial and cultural issues may contribute to disease processes, and apply this knowledge to understand how different strategies may be necessary to prevent the development or worsening of disease in a context of social diversity.
9. Undertake group tasks and reflect critically on processes, specifically in the context of laboratory exercises where data is collected and analysed.
10. Recognise a range of written scientific formats, such as case studies, reviews and original reports of research. Produce assignments and laboratory reports in a range of formats.
11. Communicate orally with peers through presentations, discussion and debate in the context of understanding and investigating disease.

Required Reading
Lippincott Williams and Wilkins, Philadelphia or McCance KL and Huether SE, 2006, Pathophysiology: the Biologic Basis for Disease in Adults and Children (5th edition), Mosby.

Recommended Reading

Class Contact
78 hours per semester, comprising three hours of lectures per week, ten three hour laboratory sessions incorporating 2.5 hours of experimental work plus 0.5 hours of tutorial, and eleven hours of formal tutorial for one semester.

Assessment
Test and examinations, 50%; practical work, 35%; Assignment, 15%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM2540 PATHOPHYSIOLOGY 2
Campus St Albans
Prerequisite(s) RBM2530 Pathophysiology 1 or equivalent

Content
This subject primarily examines the effects of dysfunction in particular human body systems, drawing on the knowledge of basic pathologic processes and overall regulation of the human body discussed in RBM2530. Overall organ and system dysfunction such as hepatic, renal, cardiovascular and respiratory failure will be discussed. Specific disorders of the following systems will also be discussed: cardiovascular, renal, respiratory, blood, reproductive, gastrointestinal and musculoskeletal. Major disease types and processes such as circulatory shock, atherosclerosis, disorders of acid-base balance and sexually transmitted diseases will be examined and the psychosocial effects of such disorders will be included. Specific diseases will be chosen to illustrate the major concepts as appropriate. Students are introduced to further techniques for assessment of disorders, which may include physical assessments, spirometry, electrocardiography and various biochemical analyses. There may be some interchange of topic material relating to specific body systems between RBM2530 and RBM2540 and the specific diseases chosen to illustrate major processes may vary as appropriate.

Student Learning Outcomes
At the successful completion of this unit, students will be able to:

1. Recognise the need for, locate and critically analyse scientific data, especially with respect to epidemiology, disease causation and normal reference ranges for physiological parameters.
2. Recognise the main types of study used to identify the causes of disease and critically assess the quality of these studies.
3. Describe and explain a range of disease processes and homeostatic imbalances with reference to specific organ systems and their interplay. These systems may include: respiratory, reproductive, renal, cardiovascular, musculo-skeletal, gastrointestinal and blood.
4. Utilise basic scientific principles of adequate and appropriate controls in the investigation of disease. Apply scientific thought and process to the investigation of pathological conditions, especially with respect to physical examination and measurement of physiological parameters.
5. Utilise knowledge of pathophysiology to solve moderately complex problems and analyse case studies of disease.
6. Discuss the scientific basis for preventative interventions, and management of important pathophysiological conditions.
7. Recognise how psychosocial and cultural issues may contribute to disease processes, and apply this knowledge to understand how different strategies may be necessary to prevent the development of or worsening of disease in a context of social diversity.
8. Undertake group tasks and reflect critically on processes, specifically in the context of laboratory exercises where data is collected and analysed.
9. Recognise a range of written scientific formats, such as case studies, reviews and original reports of research. Produce assignments and laboratory reports in a range of formats.
10. Communicate orally with peers through presentations, discussion and debate in the context of understanding and investigating disease.

Required Reading
Lippincott Williams and Wilkins, Philadelphia or McCance KL and Huether SE, 2006, Pathophysiology: the Biologic Basis for Disease in Adults and Children (5th edition), St Louis, Elsevier Mosby.

Recommended Reading

Class Contact
78 hours per semester, comprising three hours of lectures per week, ten three hour laboratory sessions incorporating 2.5 hours of experimental work plus 0.5 hours of tutorial, and ten hours of formal tutorial for one semester.

Assessment
Test and examinations, 50%; practical work, 35%; assignment 15%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM2541 HUMAN BIOSCIENCE 3 PATHOPHYSIOLOGY
Campus St Albans
Prerequisites RBM 1530 Human Bioscience 2: Body Structure and Function
Co-requisites Nil

Learning Outcomes On completion of this subject, students should be able to: On completion of this subject, students should be able to:

- Describe the major categories of pathophysiological processes which underlie common and important disease conditions, such as inflammation, infection, cellular injury and neoplasia;
- Understand the major pathophysiological concepts of disease—oedematoxic, pathophysiology, acute and chronic conditions and complications;
- Identify the environmental influences which contribute to various pathophysiological processes and relate these to disease prevention as well as pathogenesis;
- Discuss the pathophysiology of commonly encountered and serious conditions of the cardiovascular, respiratory, renal, haematological, nervous, endocrine, musculoskeletal, gastrointestinal and reproductive systems;
- Discuss severe and life-threatening complications which may develop in particular disease conditions;
- Discuss the scientific basis for preventative interventions, diagnosis and management of disease conditions; and
- Discuss basic principles of pharmacology and the scientific basis for the mode of action of commonly prescribed drugs.

- Describe the major categories of pathophysiological processes which underlie common and important disease conditions, such as inflammation, infection, cellular injury and neoplasia;
- Understand the major pathophysiological concepts of disease—oedematoxic, pathophysiology, acute and chronic conditions and complications;
- Identify the environmental influences which contribute to various pathophysiological processes and relate these to disease prevention as well as pathogenesis;
- Discuss the pathophysiology of commonly encountered and serious conditions of the cardiovascular, respiratory, renal, haematological, nervous, endocrine, musculoskeletal, gastrointestinal and reproductive systems;
- Discuss severe and life-threatening complications which may develop in particular disease conditions;
- Discuss the scientific basis for preventative interventions, diagnosis and management of disease conditions; and
- Discuss basic principles of pharmacology and the scientific basis for the mode of action of commonly prescribed drugs.

Content In this subject major concepts and principles of pathophysiology illustrating their relationship to a range of common/important acute and chronic illnesses will be presented. This subject supports the topic in concurrent nursing units by providing a scientific basis for understanding disease processes such as cellular injury, inflammation, infection, neoplasia and shock; by elucidating the underlying mechanisms which result in clinical manifestations; and by presenting the rationales for therapeutic interventions. Microbiology will be discussed with reference to the growth and physiology of microorganisms, their pathogenic potential and infection control. The pathophysiological principles underlying disorders of body systems will be discussed; for example, in cardiovascular pathophysiology, shock, cardiac failure, hypertension and atherosclerosis, will be examined. Other topics covered will include disorders of the haematological, immunological, respiratory, renal, nervous, endocrine, gastrointestinal, musculoskeletal and reproductive systems; genetic disorders such as cystic fibrosis; and conditions resulting in acid/base and fluid and electrolyte imbalances. The epidemiological basis for distribution of disease conditions in population sub-groups (eg. Indigenous, migrant, socio-economic) will also be examined.


Class Contact Equivalent of 80 hours organised according to teaching mode used. Delivery of this subject is negotiated in relation to the students' practicum commitments.

Assessment Laboratory report and topic tests 40%, Examination 60%.
theme provides a brief introduction to the evolution of humans and the evolution of consciousness, drawing upon Darwinian theory. Questions such as what it means to be human, what consciousness is and whether there are biologically determined roles for men and women may be discussed. The human genome project will be examined.

The third theme is the current image of the human body in society with respect to what is considered healthy and what is considered to be acceptable modification of the human body. Topics which may be discussed here include body image disorders, cloning, tissue engineering, and xenotransplantation.

**Required Reading**


**Class Contact**
Four hours per week comprising two one hour lectures and one two hour tutorial/seminar session for one semester.

**Assessment**
Two essays, 30% each; one tutorial presentation/debate, 25%; tutorial attendance and participation, 15%.

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**RBM2750 NUTRITION**
Campus Werribee

**Prerequisite(s)**
RBF1310 Biology 2 or equivalent. Students would be expected to have studied or undertaken concurrent study in RBF2520 Biochemistry 1.

**Content**
The subject aims to provide an introduction to the principles of human nutrition as a background for further studies in Food Technology (units RBF3731 and RBF3732), to enable students to appreciate the nutritional consequences and responsibilities associated with the provision, processing and development of food and food products. This subject examines: body composition and anthropometry; nutrient requirements and role in body structure and function; energy intake and expenditure; food and nutrient supply; nutritional requirements under different environmental and physiological states; diet and health; dietary guidelines; dietary requirements and special dietary foods.

**Required Reading**

**Class Contact**
Four hours per week for one semester comprising three hours of lectures and one hour of tutorials.

**Assessment**
Assignments, 30%; final examination, 70%.

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**RBM2800 CARDIORESPIRATORY AND RENAL PHYSIOLOGY**
Campus Footscray Park

**Prerequisite(s)**
RBM1518 Human Physiology 1 and RBM1528 Human Physiology 2.

**Content**
This subject aims to provide students with an understanding of the function, control and co-ordination of the cardiovascular, respiratory and renal systems. The subject will examine cardiac, pulmonary and renal function and normal and abnormal circulatory, respiratory and renal dynamics. An overview of the co-ordination of these systems will be achieved through an examination of the mechanisms involved in maintaining fluid and electrolyte balance including the role of membrane structures and capillary dynamics, and the integration of neural and endocrine function in the control of cardiovascular, respiratory and renal systems. Homeostatic control of the cardiac, pulmonary and renal systems will also be examined by investigating their responses to stresses, including exercise, high altitude, increased temperature, spaceflight and aging.

**Required Reading**

**Recommended Reading**

**Class Contact**
Six hours per week for one semester comprising three hours of lectures and three hours of practical and/or tutorial per week.

**Assessment**
Semester examination, 60%; practical reports, 20%; assignment, 20%.

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**RBM2850 NUTRITIONAL THERAPEUTICS A**
Campus St Albans

**Prerequisite(s)**
RBM1820 Nutrition, Society and Communication, RBM1110 Nutritional Biochemistry 1, RBM1830 Diet Therapy 1; or equivalents.

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**Learning Outcomes**
On successful completion of this unit, students are expected to be able to:

1. Describe normal and abnormal signs of GIT function;
2. Explain abnormal GIT function from a pathophysiological perspective;
3. Relate lifestyle and stress to body function;
4. Discuss normal and abnormal liver function;
5. Describe nutrient requirements and dietary supplementation for support of normal GIT function;
6. Discuss contraindications to the use of food supplements.

**Content**
Normal GIT function; signs and pathophysiology of GIT dysfunction; lifestyle effects on normal function; effects of stress on function; pathogenesis of untreated signs and symptoms; nutritional support of liver function; clinical laboratory evaluation of GIT; nutrients required for normal GIT function; use of dietary supplements to restore normal GIT function; contraindications to the use of food supplements.

**Required Reading**

**Recommended Reading**

**Class Contact**
Four hours per week for one semester comprising lectures and tutorial/workshops.

**Assessment**
One assignment (2000 words) (20%); One case study (20%); One examination (60%).

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**RBM2855 NUTRITIONAL THERAPEUTICS B**
Campus St Albans

**Prerequisite(s)**
RBM 1830 Diet Therapy 1; RBM 2850 Nutritional Therapeutics A

**Content**
Symptoms of system dysfunction in the following body systems - skin, respiratory system, nervous system, circulatory system, genito-urinary system, immune system, musculolkeletal system and hormonal system; using observation and evaluating case histories; working from case history records; identification of nutritional deficiency within a patients case history; prioritising treatment, including the use of dietary supplements; lifestyle effects that may flow from the treatment; lifestyle effects on normal function.

**Required Reading**

**Recommended Reading**

**Class Contact**
Four hours per week for one semester comprising two hours lecture, two hours tutorial/workshop.

**Assessment**
Examination (3 hours), 50%; case history, 50%.

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**RBM2911 PATHOPHYSIOLOGY 1**
Campus St Albans

**Prerequisite(s)**
RBM1525 Anatomy And Physiology; Or Equivalent.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Describe the key milestones indicative of normal infant and childhood development;
2. Briefly describe typical age-related biological changes found in the adolescent and young, middle-aged, older-aged and frail-aged adult;
3. Describe the signs and symptoms of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems;
4. Describe the pathophysiology and immunology of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and lymphatic systems;
5. State the routine clinical laboratory, radiology and other functional tests for common conditions and diseases affecting the cardiovascular, respiratory,
gastrointestinal, hepatic, renal, endocrine and lymphatic systems;
6. List classes of drugs and other treatment modalities used for common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems;
7. Predict the typical outcomes, with and without treatment, of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems;
8. Outline the basic epidemiology of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems;
9. Demonstrate development of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content Emphasis on fundamental pathophysiological processes affecting body and cellular systems; introduction to acute and chronic conditions and common and rare disease profiles affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems; presentation and oetiology of common conditions affecting those systems across the lifespan; diagnostic and treatment regimes and outcomes relevant to those systems; pertinent medical terminology and medical case note reporting.


Class Contact Hours Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Assessment Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 3-hour examination (60%). This unit is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.
RBM3101 GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH
Campus St Albans
Prerequisites Completion of core second year units in Ecology and Sustainability (RBF2610 Fundamentals of Ecology, RBF2640 Australian animals, RBF2620 Australian Plants) or in Biomedical Sciences (RBM2260 Diet and Nutrition, RBM2530 Pathophysiology 1, RBM2540 Pathophysiology 2).
Co-requisites
Learning Outcomes The development of high level skills in locating, processing and evaluating information relevant to natural resource management, conservation and public health. The development of high level problem solving and decision-making abilities based on the interpretation of complex information. An ability to communicate complex information in written form.
Content Types of data. GIS software applications in common use. Methods for data collection and entry, specific plotting and mapping of integrated data. The interpretation of complex temporal and spatial data. Practical applications of GIS including the use of data from programs that monitor and manage endangered species in the Australian context. Computer simulations and the formulation of models to predict the outcome of the effects of habitat degradation, conservation management activities or health service provision.
Required Reading Students will be provided with recent case studies and research from the scientific literature along with material based on current research by University personnel and Associates. Excerpts from relevant software manuals will be provided.
Class Contact Four hours per week comprising two hours of lecture and two hours of workshops providing hands on experience with data collection and GIS.
Assessment Laboratory reports and computer exercises (30%). CGA: P3, I3, O2, C2. Written Assignment of 2500 words based on analysis and discussion of GIS data: 40%: I3, P3, W3, A3. Examination (1.5 hours): 30%. The examination will assess the main theoretical concepts underlying the applications of GIS discussed throughout the unit. CGA: I3, A2

RBM3161 TOXICOLOGY
Campus St Albans
Prerequisite(s) RBM2061 Occupational Hygiene Science (or an equivalent subject) OR RBM2530 Pathophysiology 1 (or equivalent)
Content Topics covered in this subject include mechanisms of action, biotransformation pathways and metabolic bioactivation, toxicokinetics and protection of cellular toxicity by antioxidants. Descriptions of genotoxins, teratogens and carcinogens are included with topics showing specific organ toxins.
Class Contact Two hour online lecture and one hour tutorial equivalents delivered online per week for one semester.
Assessment Based on assignments, tutorial topic questions and essays.

RBM3171 ENDOCRINOLOGY AND REPRODUCTION
Campus Footscray Park, St Albans.
Prerequisite(s) RBM1528 Human Physiology 2 or equivalent
Content This subject examines the mechanisms by which hormones exert their effects on metabolism, renal function, reproductive function and growth. This subject encompasses the basic principles involved in understanding the mechanisms of hormone action and specifically concentrates on the following areas. Mechanisms of hormone action: peptide hormones and steroids; hormonal control of metabolism; the importance of renal function in maintaining homeostasis; reproductive endocrinology; growth and development; hormonal and metabolic control of growth.

RBM3261 RISK MANAGEMENT
Campus St Albans
Prerequisite(s) RBM2261 Public and Environmental Health (or equivalent)
Content The terms of risk analysis are specifically defined to show that risk this is a process of risk assessment as well as risk management. For risk management the risk evasion and risk assessment need to be qualified as being distinct from risk assessments that are more quantified. With regard to risk management there are economic - to include the more valuable, beneficial, cost effective, activities; personal - to try to avoid those activities which you did not prefer and; communal - what is done is consistent with what the community expects (risks in the case of risk management. These definitions levels are examined in this subject.
Class Contact Two hour lecture and one hour tutorial equivalents delivered online per week for one semester.
Assessment Based on assignments, and tutorial topic questions.

RBM3264 ADVANCED NERVE AND MUSCLE PHYSIOLOGY
Campus Footscray Park
Prerequisite(s) RBM2800 Cardiorespiratory and Renal Physiology or equivalent
Content The aim of the subject is to examine in detail the mechanisms of nerve and muscle function. Topics include: physico-chemical principles underlying nerve and muscle function; behaviour of excitable cells; mechanisms of muscle contraction; neural influences over muscles and muscle fibre types; muscle fibre recruitment; metabolic processes in active muscle; neuromuscular fatigue; co-ordinating motor activity, and diseases of the nervous and muscular systems. Research techniques in nerve and muscle physiology.
Required Reading Nerve and muscle physiology section of any basic physiology textbook.
Class Contact Two hours of lectures, one one-hour tutorial and three hours of practical work each week for one semester.
Assessment Based on laboratory reports, tutorial assignments and an end-of-semester examination.

RBM3361 OCCUPATIONAL HEALTH AND SAFETY PROJECT
Campus St Albans
Prerequisite(s) RBM2361 Safety Practice OR Completion of level 2 Biomedical Sciences (or equivalent)
Content This subject is based on setting up, conducting and successfully completing, an occupational health and safety project. Methodologies in ergonomics, incident investigation, occupational hygiene, risk analysis and management; system safety etc., are demonstrated through problem formulation and problem definition, project management, publication of project outcomes.
R. 2004 Occupational health and safety law and policy., 2nd Ed. LBC Information Services. North Ryde (Sydney)

Class Contact One hour lecture and case study tutorial equivalents delivered online per week for the first half of a semester. The final half of the semester will concern student completion of their project reports.
Assessment Based on tutorial topic questions assignments and a project report (50%).

RBM3462 WORKPLACE PLACEMENT B
Campus St Albans
Prerequisites RBM2361 Safety Practice
Co-requisites
Learning Outcomes The outcomes from studying this unit will be that students demonstrate their understanding of OHS inspections and audits in managing occupational health and safety systems. Students will have gained experience in managing OHS through communication, attending committees, training and management and monitoring of these processes as well as workplace hazards and risks.
Content This placement will allow students to undertake a structured work experience in risk management. Within their workplace(s) they need to show practical understanding of risk prevention strategies based on safety, science and management knowledge and skills, that are deployed at a higher management level than for the unit Workplace Placement A, in industry(ies).
Class Contact Attend for a minimum of 84 hours in a designated workplace(s).
Assessment P3, I2, W1, A2, D3 Assessment will be based on applied understanding or OHSMS in the workplace(s).

RBM3515 CLINICAL PHARMACOLOGY AND PATHOPHYSIOLOGY
Campus St Albans
Prerequisite(s) RBM2570 Phytopharmaceuticals
Content Fundamental pathophysiology, commonly used pharmaceuticals, and pertinent medical terminology with particular emphasis on understanding the actions of specific pharmaceuticals and the identification of potentially life-threatening conditions.
Class Contact The equivalent of six hours per week for one semester consisting of lectures, tutorials and clinical observation in appropriate health care settings.
Assessment One assignment, 25%; one examination, 50%; and one clinical report, 25%.

RBM3550 GROWTH, DEVELOPMENT AND AGING
Campus St Albans
Prerequisite(s) St Albans
Content This subject presents the major regulating systems of the body and thus involves advanced study in the areas of neurological, hormonal and reproductive changes. Life stages from the embryo to senescence will be studied and environmental, societal, psychological and cultural influences will also be discussed. The subject allows exposure to a range of scientific techniques through the laboratory component and may include a minor project.
Student Learning Outcomes At the completion of this unit, student should be able to:
- describe the major physiological changes that occur throughout the life cycle, from conception to early childhood
- identify the environmental influences that contribute to various disease processes
- gain an understanding of the relationship between embryonic phases of life, the development of the major systems of the body and their subsequent degeneration
- gain an understanding of the inter-relationship between the individual and psychosocial and environmental influences on health and development
- be introduced to various scientific techniques and methodologies through reading and practice, including research design and ethical consideration.

Required Reading A selection of readings compiled by the lecturers.
Class Contact Hours Five hours per week, comprising two to three hours of lectures and up to three hours of workshop/tutorial work per week.
Assessment Examination 55% and project/practical work 45%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM3560 GROWTH, DEVELOPMENT AND AGING
Campus St Albans
Prerequisite(s) RBM3550 Growth and Early Development or equivalent.
Content This subject continues on the theme of human development and ageing and the physiological processes that occur, building on RBM3550 Growth and Early Development. This includes the exploration of changes that occur throughout the life cycle and interaction with the environment. The subject allows exposure to a range of scientific techniques and methods through the laboratory/workshop component and includes a minor project.
Student Learning Outcomes At the completion of this unit, students should be able to:
- describe the anatomical and physiological changes that occur as the body ages including major diseases; describe the inter-relationship between individual behaviours, life experience, environmental, psychosocial and cultural factors which affect development, health, well being, life satisfaction and aging, be introduced to various scientific techniques and methodologies through reading and practice, including research design and ethical consideration.

Required Reading A selection of readings compiled by the lecturers.
Class Contact Hours Five hours per week, comprising two to three hours of lectures and up to three hours of workshop/tutorial work per week.
Assessment Examination 55% and laboratory work and project 45%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM3590 ADVANCED EXPERIMENTAL TECHNIQUES
Campus St Albans
Prerequisite(s) RBM2800 Cardiorespiratory and Renal Physiology.
Content This subject introduces students to a variety of experimental techniques and the role they play in medical research. There will be a particular emphasis on students receiving practical skills in a laboratory setting. Students will obtain skills in animal surgery, sterile technique, tissue sampling, preparation of fixed and frozen sections for light and electron microscopy, basic tissue staining, immunohistochemistry, electrophoresis and PCR. This unit is recommended for students wishing to complete a laboratory based RBM3910 Project in semester 2 and a laboratory based RBM4000 Honours project.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
- design novel experiments to test scientific questions, collect and analyse data, interpret findings, and make conclusions.
- dress in surgical attire and perform a sterile operation on a rat.
- collect, process and section tissue samples for light and electron microscopy.
- use immunohistochemistry to localise proteins in tissue sections.
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- use florescence to measure metabolites in muscle cells.
- use electrophoresis and PCR to measure gene expression.

Required Reading: A selection of readings compiled by the lecturer.

Class Contact: Hours Five hours per week for one semester comprising two hours of lectures and three hours of practicals.

Assessment: Grant application 40%; Journal article 20%; assignment 20%; laboratory reports 20%.

RBM3610 BIOMEDICAL SCIENCE, ETHICS AND VALUES

Campus: St Albans

Prerequisite(s): Successful completion of a full first year of tertiary study and appropriate subject(s) in human biology or psychology at second year tertiary level.

Content: Students will be introduced to ethical practice in animal and human research, incorporating the various policies and codes of practice for conducting research within Victoria University. This subject discusses, with examples, how scientists have investigated the functioning of the human body in health and disease: in-vitro experiments, forced or voluntary participation in experimentation, the use of animal models etc. The ethics of these practices are examined - how do we justify or choose the practices which elucidate the function of the human body? Who regulates the conduct of research? Can research into humans be objective and is objectivity a gendered concept? Issues arising from the practice of biomedical sciences will be examined, such as in-vitro fertilisation, the human genome project, genetic screening, competition and fraud, and toxicity testing. Reference may also be made to ethical practice in sociological and psychological research. The selected topics may vary as appropriate.


Class Contact: Four hours per week comprising two one hour lectures and one two hour tutorial/seminar session for one semester.

Assessment: One essay, 30%; one VU animal or human ethics proposal 30%, one tutorial presentation/debate, 25%; tutorial attendance and participation, 15%.

RBM3620 CHALLENGING THE SCIENTIFIC PARADIGM

Campus: St Albans

Prerequisite(s): RBF2922 Science and Society or an appropriate unit from the health sciences or complementary therapies.

Content: This subject examines how biomedical science in the twentieth century is understood question. Alternative theories of the functioning of the human body will be explored - for example, from the complementary theories and from non-Western cultures. Critiques of complementary therapies from a biomedical sciences viewpoint and critiques of biomedical science from a complementary therapies viewpoint will be examined to address questions such as whether the two perspectives overlap and whether there can be a synthesis of biomedical science with aspects of complementary therapies. Environmental philosophy will be drawn upon to examine how humans perceive themselves in relation to the environment in general and other species in particular. Some human-centred versus eco-centric views will be explored.

Required Reading: To be advised by lecturer.


Class Contact: Four hours per week comprising two one-hour lectures and one two-hour tutorial/seminar session for one semester.

Assessment: Two essays, 60%; one tutorial presentation, 25%; tutorial attendance and participation, 15%.

RBM3630 SCIENCE, MEDIA AND COMMUNICATION

Campus: St Albans

Prerequisite(s): ACC1047 Culture and Communication; ACC1043 Communications B or equivalent.

Content: In this subject, students will be introduced to the forms by which information about biomedical sciences and health is communicated via the media. A critical understanding will be developed of the ways in which media information is used to persuade individuals about the value or otherwise of biomedical information to market products and influence behaviour will be examined with particular attention paid to the marketing of pharmaceutical products, medical practice, health education programmes and complementary therapies. Students will examine materials such as newspapers, popular magazines concerned with health, health education material and examples of the scientific reports of public institutions concerned with the biomedical sciences.

Required Reading: To be advised by lecturer.

Class Contact: Four hours per week comprising two one-hour lectures and one two-hour seminar session for one semester.

Assessment: Assignment, 40%; class presentation, 20%; media scrapbook and critical journal, 40%.

RBM3640 ADVANCED NEUROSCIENCES

Campus: St Albans

Prerequisite(s): RBM2530 Pathophysiology.

Content: This subject aims to provide insights into the most important current ideas in the study of neuroanatomy, neurophysiology and developmental neurobiology. This subject provides an advanced series of lectures in specialised areas of neuroscience research. The content of the subject may vary with the expertise and research interests of the lecturing staff.

Required Reading: Various scientific journals.

Class Contact: Three hours of lectures per week for one semester.

Assessment: Theory examination 55%, practical examination/assignment 45%.

RBM3650 ADVANCED REPRODUCTION AND DEVELOPMENT

Campus: St Albans

Prerequisite(s): RBM2540 Pathophysiology.

Content: This subject provides an advanced series of lectures examining current research questions in the area of reproduction and development. Topics include: maternal recognition of pregnancy via fetal signalling and the resultant maternal response during the period of implantation; development of the embryonic neural crest, including epidermal-mesenchymal transformation, migration, and contribution to mature differentiated cell types; the role of steroid hormones in placental function; the role of autocrine and paracrine growth factors in the development of the foetal lung; the role of various extracellular matrix cytokines in the breakdown of the foetal membranes at birth. The content of this subject may vary with the expertise and research interests of the lecturing staff.

Required Reading: Various scientific journals.

Class Contact: Three hours of lectures per week for one semester.

Assessment: Theory examination 55%, practical examination/assignment 45%.

RBM3660 HUMAN DEVELOPMENTAL AND CLINICAL GENETICS

Campus: St Albans

Prerequisite(s): RBM 2540 Pathophysiology 2 and either RBM 2560 Medical Biochemistry or RBF2330 Cell Biology.

Content: This subject is designed to introduce students to developmental and clinical genetics with a specifically human focus. The major emphasis is on the importance of gene expression in normal development and variation, and the contribution of genetic abnormalities to disease.

Topics may include: The role of genes in development; differentiation and congenital malformation; human genetic principles such as assortment and segregation of genes, genetic variation and genetic defects; the importance of genetic heterogeneity, Mendelian inheritance and gene frequencies in populations; Diagnosis and classification of genetic disorders; prenatal screening and diagnosis; disorders with genetic and environmental associations.

Student learning outcomes At the successful completion of this unit, students will be expected to understand describe:
- The structure of the human genome, and the function of different components.
- The difference between protein-coding genes and non-coding repeat sequence elements.
- The organisation of genes into clusters and families, and how they are related.
- Different types of gene maps: how they are made, the information given by each type, and how they differ from each other.
Molecular processes involved in gene expression: regulatory molecules, and the levels of control provided.
- Cellular processes of cleavage and axis formation, and how differential gene expression induces and maintains the differentiated state.
- Neural development and the genes expressed during the process.
- The chromosomal basis for sex determination.
- The nature of mutations and how genetic instability contributes to mutation.
- Inheritance patterns of genetic disease in humans, and the molecular defects involved in particular disease states at the chromosomal or individual gene level.
- Methods used to detect mutations and diagnose genetic diseases; advantages and limitations of each method.

Required Reading: Research and review articles as appropriate.

Class Contact: Hours 54 hours per semester, consisting of three hours of lectures each week and three hours practical/tutorial work in alternate weeks for one semester.

Assessment: Theory examination 50%, practical reports/assignment 50%

RBM3670 MOLECULAR PSYCHOLOGY
Campus: St Albans
Prerequisite(s): RBM3550 Growth and early development or equivalent

Content: This subject explores the relationships between Molecular Biology, Psychology, Anatomy and Genetics and Human Behaviour and Emotions. These relationships will be discussed in light of current research findings and current literature. The lecture series will explore the current zeitgeist of the medical and scientific community with respect to Molecular psychology, e.g. Topics may include explanation of brain anatomy and psychology and anti-social behaviour patterns, e.g. violent criminal behaviour.

Required Reading: Research and review articles as appropriate.

Class Contact: Three hours of lectures 1 semester

Assessment: Theory examination 50%, assignments 50%

RBM3720 IMMUNOLOGY
Campus: St Albans
Prerequisite(s): RBM2360 Medical Microbiology 1 or RBM2530 and RBM2540 Pathophysiology 1&2.

Content: The aim of this subject is to provide students with an understanding of theoretical and practical bases of immunology. Subject topics include: active and passive immunity, components of the immune system, the immune response, immunological techniques and their application, molecular diagnostics including the use of monoclonal antibodies. The subject will be explored as a basic science with applications in the agriculture industry, food science, environmental science and medical science.

Required Reading: Roitt, I.M., Brostoff, J. and Male, D.K. 1993, Immunology, 3rd edn, Mosby, St Louis.

Class Contact: Six hours per week comprising three hours of lectures and three hours of laboratory/tutorial work for one semester.

Assessment: Assignments, 20%; practical work, 30%; final examination, 50%

RBM3800 PHARMACOLOGY
Campus: St Albans
Prerequisite(s): RBM2560 Medical Biochemistry and RBM2540 Pathophysiology 2, or equivalent units.

Content: The unit begins with an introduction to the general principles of pharmacokinetics and pharmacodynamics. A wide range of drug groups will then be studied with attention focused on the pharmacokinetics, pharmacodynamics, clinical uses, and side effects of each drug. Aspects relating to medicinal chemistry, toxicity testing, clinical trials and requirements for the admission of new drugs are covered in topics that relate to new drug development. Pharmacokinetics, pharmacogenetics, sensitivity and resistance to drug therapies are further topics that address variation in drug outcomes. Social drug abuse and types of drug dependence are also discussed in this unit.

Student learning outcomes: On successful completion of this unit, students should be able to:
- Explain the general principles of pharmacokinetics and pharmacodynamics
- List the major drug groups used to target the autonomic nervous system and cardiorespiratory system, and understand mechanism of action of each
- Name the major drug groups used to target the blood, kidney, gastrointestinal system, and endocrine system, and explain the mechanism of action
- Name the major groups of chemotherapeutic agents and anti-microbials and describe the mechanism of action
- Describe the principles of psychopharmacology
- Provide examples and understand the mechanism of action of anaesthetics, analgesics, and anti-inflammatory drugs
- Describe processes involved in new drug development and requirements for the admission of new drugs.


Recommended Reading: A selection of readings compiled by the unit coordinator will be made available to students.

Class Contact: Hours Five hours per week, comprising lectures, tutorials, and practicals.

Assessment: Presentation 10%; Practical reports 20%; Online tests 20%; Examination 50%.

RBM3810 WELLNESS 1
Campus: St Albans

Prerequisite(s): RBM2530 Pathophysiology 1 and RBM2540 Pathophysiology 2 or equivalent, or RBM2800 Cardiorespiratory and Renal Physiology plus other relevant second year units at the discretion of the co-ordinator.

Content: Module A: This unit introduces the concepts of mind, body and spirit. These areas are explored from psychological, physiological, philosophical and sociological perspectives. Current literature will be used to introduce the areas of psychophysiology and psychoneuroimmunology and their connections to the mind/body paradigm. The ethics of human research and evaluation will be discussed throughout the series of lectures. In addition, students will be introduced to basic methods of information gathering with respect to the mind-body-spirit paradigm including the evaluation of its status in individuals. Further, aspects of psychophysiology and psychoneuroimmunology such as stress and disease, sexuality and the impact of environment on the health of the mind, body and spirit are examined. Current research literature in the area will be analysed.

Module B: Students will be introduced to fundamental concepts of health and wellness. The difference between professional/scientific concepts and lay concepts will be explored. Wellness promotion will be presented primarily in the context of established public health approaches utilised in health education, promotion and prevention including medical, behavioural, educational, social and empowerment strategies. Some of the dilemmas and pitfalls in health promotion will be canvassed. Students will also be introduced to base concepts of occupational health and safety and workplace health promotion. Risk assessment, material safety, manual handling and relevant legislation will be discussed. Context will be provided by guest speakers from relevant organisations.


Class Contact: Module A: Three hours per week for one semester, comprising two hours of lectures and one hour of tutorial. Module B: Three hours per week for one semester comprising one and a half hours of lectures and one and a half hours tutorial/seminar.

Assessment: Assignment/tutorial work, 25%; examination, 25% for each of Module A and B.

RBM3820 WELLNESS 2
Campus: St Albans

Prerequisite(s): RBM3810 Wellness 1.

Content: Module A: The subject extends the material covered with respect to Mind, Body and Spirit, and explores complimentary therapies, techniques, treatments and strategies that are used to promote and maintain health and well-being as well as treat disease.

Module B: Students will be introduced to the systematic planning of health and wellness education and promotion. Examples and discussion will be provided in the context of relevant issues, for example, community participation, the role of professionals, young people and STD’s/AIDS, alcohol use, and the role of the media in health. Guest speakers from health-promoting organisations will be provided to explore health education and promotion issues. Examples include the local communities.
government planning process/healthy cities approach, Alzheimers Disease, Eating disorders and the Quit campaign. Other relevant speakers/issues may be discussed as appropriate. An individual health promotion project within the unit requires students to assess their own health/wellness needs, then design, implement and evaluate an appropriate program for themselves over the semester. Students are further strongly encouraged to take the third year project in conjunction with this unit, and to apply their skills to the development of the project as a health promotion and education exercise oriented to the workplace or conducted within an organisation that promotes health.


**Class Contact** Module A: Three hours per week for one semester, comprising two hours of lectures and one hour of tutorial. Module B: Three hours per week for one semester comprising one and a half hours of lectures and one and a half hours tutorial/seminar.

**Assessment** Assignment/tutorial work, 30%; examination, 20% for each of Module A and B.

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**RBM3850 NUTRITIONAL THERAPEUTICS C**

**Campus** St Albans

**Prerequisite(s)** RBM2850 and RBM2855 Nutritional Therapeutics A and B. RBM2540 Pathophysiology 2

**Content** Diet, novel and common food supplementation support for the following - energy metabolism dysfunction, neurological dysfunction, behavioural disorders, life threatening illnesses; laboratory testing for system dysfunction; formulation and costing of supplementation programs to meet patient needs; regulation and boundaries when working with practitioners who treat patients with life threatening illnesses; analysis of patient follow-up and reformulation of treatment protocols where required.


**Class Contact** Four hours per week for one semester comprising two hours lecture, two hours tutorial/workshop.

**Assessment** Examination (3 hours), 50%; case history, 50%.

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**RBM3855 NUTRITIONAL THERAPEUTICS D**

**Campus** St Albans

**Prerequisite(s)** Completion of 2nd year; RBM 3850 Nutritional Therapeutics C. RBM2540 Pathophysiology 2

**Content** Diet, novel and common food supplementation support, laboratory testing for system dysfunction, formulation and costing of supplementation programs to meet patient needs: Analysis of patient follow-up and reformulation of treatment protocols.


**Class Contact** Four hours per week for one semester comprising two hours lecture, two hours tutorial/workshop.

**Assessment** Examination (3 hours), 50%; case history, 50%.

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**RBM3910 PROJECT**

**Campus** Footscray Park, St Albans, Werribee

**Prerequisite(s)** Successful completion of the second year of the Biomedical Sciences degree

**Content** Third year student projects provide students with an opportunity to select and undertake either (a) a brief research project in an area of interest with members of the Biomedical Sciences staff; or (b) a work-based placement in the industry he/she intends to enter. Both the research and work-based placements enable the student to undertake a structured work experience program as an integral part of their degree course. Gaining practical experience in their chosen field enables students to test interest and ability in these areas.

Selection The number of Project places will be limited by the number of available projects. Places will be allocated on the basis of academic merit. It would be expected that students wishing to do Project would have a Credit average and be in their final semester of the course.

**Required Reading** Selected material as advised by the project supervisor

**Class Contact** Six hours per week for one semester comprising laboratory work or work-based placement

**Assessment** Project Presentation and Report 100%

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**RBM3921 WESTERN MEDICAL DIAGNOSIS AND INTERVENTIONS 1**

**Campus** St Albans

**Prerequisite(s)** RBM2912 Pathophysiology 2; or equivalent

**Student Learning Outcomes:** On successful completion of this unit, it is expected that students will be able to:

1. Describe basic pharmacology and toxicology terms in plain English;
2. Explain the nomenclature, classifications, formulations and routes of administration of western pharmacocuticals;
3. Explain mechanisms of actions, indications, contraindications, adverse reactions of the major classes of drugs as outlined in western pharmacopoeia;
4. Describe the absorption, distribution and excretion of and detoxification for common prescription, over-the-counter and recreational drugs, including xenobiotics and plant contaminants where relevant;
5. Explain the factors that influence the dose-response relationship;
6. Explain the dose-response relationship in terms of effectiveness of treatment;
7. Outline and predict the main types of drug-herb-nutrient interactions;
8. Explain the types and mechanisms of adverse reactions to drugs and outline the management of drug-related adverse outcomes and other emergencies;
9. Explain the appropriate use of antidotes;
10. Explain the drugs and poisoning schedule as it applies in Australia;
11. State the reporting procedures for adverse drug and drug/herb outcomes;
12. Identify pharmacological conditions warranting referral to other health professionals;
13. Use reference materials and information services to obtain information on drugs;
14. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

**Content** Introduction to the basic and clinical concepts in pharmacology and toxicology. Routes of administration. Pharmacokinetics: absorption, distribution, metabolism and excretion of drugs. Pharmacodynamics: receptors, mechanisms of action, dose-response effects. Indications, and contraindications for safe use of drugs. Adverse and toxic reactions of the major classes of drugs. Resistance and tolerance. Drug/herb/nutrient interactions; plant contaminants. Australian drugs and poisoning schedules and reporting mechanisms. Pharmacotherapeutics: anaglogics, opioids, NSAIDs, cardiovascular-renal and lipid lowering drugs, psychoactives and other nervous system agents, hormone replacement and endocrine drugs, paediatric, recreational and over-the-counter drugs. Western prescription writing, patient compliance and polypharmacy. A western medical emphasis will be given to the treatment of conditions presented in the CM and western clinical specialties, including management of drug-related disorders and drug-related emergencies and appropriate use of available antidotes.


Class Contact Hours Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Assessment Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 2-hour examination (60%). This unit is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.

RBM3922 WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS

Campus St Albans

Prerequisite(s) RBM3921 Western Medical Diagnoses and Interventions 1; or equivalent.

Student Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Explain the principles of western medical history taking and western physical examination techniques; 2. Discuss key social, cultural and demographic factors that impact in health care, and outline the factors, including interprofessional, that need to be considered in the clinical interview; 3. Conduct interviews sufficient to record western medical case notes in a legal (legible, accurate, orderly) manner; 4. Accurately record medical histories as western medical case notes, using accepted abbreviations and format, e.g., POMR; 5. Explain the processes and issues involved in specific physical examinations; 6. Conduct examination procedures in a way to minimize patient distress, embarrassment and risk of injury; 7. Demonstrate skilful use of standard western diagnostic instruments, e.g., stethoscope, sphygmomanometer, otoscope, and palpate organs to proficiency standards acceptable in CN clinics; 8. Outline best practice western communications strategies that mentally prepare patients for clinical laboratory tests and minor medical procedures; 9. List common and routine diagnostic and screening tests conducted in haematology, serology, biochemistry, microbiology and pathology laboratories, and explain the indications and any contraindications of these clinical laboratory tests; 10. Distinguish amongst ‘reference’, ‘normal’, ‘clinical’ and ‘abnormal’ values on clinical laboratory reports; 11. Explain the principles of interpreting clinical laboratory results and interpreting the reliability (accuracy, precision, specificity, sensitivity) of clinical laboratory tests; 12. Define terminology commonly used in radiology and x-ray reports, and explain the clinical significance of those terms; 13. Explain the clinical indications for requesting specialized clinical laboratory tests and radiographic procedures such as contrast, Doppler, tomographic and labelling techniques; 14. Apply the basic principles of radiographic interpretation to diagnostic images of normal and pathological anatomy; 15. Use appropriate terminology when referring to findings on radiographic and other imaging procedures; 16. Identify conditions warranting referral to other health professionals; 17. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Content Development of material covered in pathophysiology, with particular emphasis on the identification of potentially life-threatening acute and chronic conditions that warrant referral. Knowledge of the main clinical laboratory tests and western medical treatment techniques; indications, contra-indications and complications of diagnostic and screening procedures; interpretation of clinical results and reliability of clinical tests. The use of the stethoscope, sphygmomanometer, otoscope, ECG, organ palpation and knowledge of other investigative procedures including contemporary imaging and laboratory procedures employed by health care professionals. A standardized systems approach to western medical history taking and case note recording and interpreting, with emphasis on conditions presenting in the CM clinical specialties. Social, cultural and interpersonal factors that impact on the clinical interview and physical examination, and best practice western communications strategies that mentally prepare patients for clinical laboratory tests and minor medical procedures.


Contact Hours Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Assessment Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 2-hour examination (60%). This unit is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.

RBM3950 NUTRITIONAL THERAPY IN PRACTICE

Campus St Albans

Prerequisite(s) HMM0021 Counselling Skills for Natural Therapies. RBM2540 Pathophysiology 2

Content Nutritional treatment for patients at critical life stages; managing patients with challenging nutritional and behavioural characteristics, eg addiction, non-compliance, aggression, eating disorders, vulnerable client groups; ethical dilemmas in clinical practice, patient record keeping.


Class Contact Minimum of 90 hours supervised clinical practice.

Assessment Examination (3 hours), 50%; case history, 50%.

RBM3955 NUTRITIONAL THERAPY IN PRACTICE 2

Campus St Albans

Prerequisite(s) RBM3950 Nutritional Therapy in Practice 1; RBM3850 Nutritional Therapeutics C. RBM2540 Pathophysiology 2

Content Nutritional treatment for patients at critical life stages, managing patients with challenging nutritional and behavioural characteristics, eg addiction, non-compliance, aggression, eating disorders, vulnerable client groups; ethical dilemmas in clinical practice; patient record keeping.

Illness, 2nd edn, Third Line Press.
Class Contact Minimum 90 hours supervised clinical practice.
Assessment Examination (3 hours), 50%; case history, 50%.

**RBM3960 NUTRITIONAL FRONTIERS**
Campus St Albans
Prerequisite(s) Satisfactory completion of year 2 SBNT; or equivalent
Content Advances in nutrition research in selected topics, including cardiovascular, metabolic, mental, reproductive and public health, cancer, infectious disease and nutrigenomics. Evidence for and against the effectiveness of various therapies and non-invasive solutions.
Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Evaluate recent research in the area of nutrition.
2. Monitor and evaluate nutritional therapies in a clinical setting.
Required Reading Current nutrition scientific journals.
Class Contact Hours Four hours per week for one semester comprising two hours of lectures, two hours of tutorials/seminars.
Assessment Two essays (2500 words each) 50% total; one 2-hour examination (50%).

**RBM3970 OPERATING A CLINICAL PRACTICE**
Campus St Albans
Prerequisite(s) Nil.
Content Factors in establishing and operating a clinical practice; legal, professional and insurance issues, including personal and professional indemnity and OHS regulations; business accounting and accountability, including taxation laws and essential business record keeping and reporting requirements; basic marketing techniques; codes of ethics and practice; using media in practice; to find appropriate employment.
Class Contact Four hours per week for one semester comprising two hours lecture, two hours workshop.
Assessment Examination (3 hours), 40%; assignment 2500 words each, 40%; written application and interview, 20%.

**RBM4001 SCIENCE HONOURS 1**
Campus St Albans, Footscray Park.
Prerequisite(s) Satisfactory completion of an undergraduate degree program with a credit average (65%) in the final year; or at the discretion of the Course Co-ordinator.
Content The Honours program consists of a research project and coursework. The research project will be undertaken in one of the research areas of the School of Biomedical Sciences and may, subject to approval, be undertaken at an external location. The coursework component covers a range of information including advanced areas of medical research, literature analysis and critical appraisal, ethics in research, scientific writing, oral presentation, methodological techniques, experimental design, statistics, data analysis, computer applications and software data presentation. The literature review will provide the scientific background and rationale for the research project, while the experimental design will provide the methodology to be applied in the research project.
Required Reading To be advised by the supervisor and searched by student as part of the research project.
Class Contact No formal contact hours, although a normal fulltime load is considered a minimum of 20 hours per week. Regular meetings with the supervisor are recommended.
Assessment The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written statistics or experimental design examination. The research project assessment will consist of a written literature review, an oral presentation and submission of an experimental design.

**RBM4002 SCIENCE HONOURS 2**
Campus St Albans, Footscray Park.
Prerequisite(s) Satisfactory completion of an undergraduate degree program with a credit average (65%) in the final year, or at the discretion of the Course Co-ordinator.
Content The Honours program consists of a research project and coursework. The research project will be undertaken in one of the research areas of the School of Biomedical Sciences and may, subject to approval, be undertaken at an external location. Students will conduct a research project under supervision. The project will comprise a novel scientific investigation in an area of expertise of the project supervisor. The results of the project will be reported in an oral presentation and a written thesis, which will include an introduction, a description of methodology, results, a discussion of the results (including a critical appraisal of the results) and recommendations for further research in the area.
Required Reading To be advised by the supervisor and searched by student as part of research training.
Class Contact No formal contact hours, although a normal fulltime load is considered a minimum of 20 hours per week. Regular meetings with the supervisor are recommended.
Assessment The research project will be assessed on the oral presentation and the quality of the research and its presentation in the written thesis as well as the ability to answer questions regarding the research work undertaken.

**RBM4923 WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 3**
Campus St Albans
Prerequisite(s) RBM3922 Western Medical Diagnoses and Interventions 2; or equivalent
Student Learning Outcomes On successful completion of this unit, it is expected that students will be able to:
1. Evaluate differences amongst western and Chinese medical approaches to acute and chronic health problems;
2. Distinguish amongst western and Chinese medical treatment and management regimes in terms of the diagnosis of gastrointestinal, renal, urgenetal, musculoskeletal, immunological and skin conditions;
3. Explain within a contemporary western medical framework, the presentation, investigations, diagnosis, aetiology, treatment options and management of patients with common acute and chronic conditions typically presenting at western medical gastroenterology, urology, rheumatology, dermatology and orthopedics clinics;
4. Explain within a contemporary western medical framework, differential diagnoses of various symptom presentations and investigative findings for patients presenting with gastrointestinal, renal, urgenetal, musculoskeletal, immunological and skin conditions;
5. Demonstrate skilful use of relevant diagnostic equipment, including the use of the stethoscope, sphygmomanometer, otoscope, and organ palpation and other region-specific procedures;
6. Explain the features and applications of typical invasive and non-invasive western medicine techniques, such as EKG, echocardiography, angiography, lung function, CT scan, MRI, reflux tests, barium meal, barium enema, endoscopy, colonoscopy, laparoscopy, liver function tests, biopsy, radio-active implants, radio-tracking;
7. Explain, in plain English and in professional language, the need for routine and advanced clinical laboratory, imaging and functional tests of, and complex diagnostic procedures on the gastrointestinal, renal, urgenetal, musculoskeletal, immunological and integumentary systems;
8. Discriminate amongst conditions warranting routine and urgent referral to medical practitioners and other health professionals;
9. Communicate orally and in writing, in plain English and in professional language, the need for a patient referral to any of the western medical specialist clinics in gastroenterology, urology, rheumatology, dermatology and orthopedics;
10. Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.
Content Development of material covered in pathophysiology with particular emphasis on the identification of potentially life-threatening acute and chronic conditions presenting in western medical gastroenterology, urology, rheumatology, dermatology and orthopedics. An understanding of advanced clinical laboratory, imaging and functional tests and complex diagnostic techniques; reinforcement of skills in using the stethoscope, sphygmomanometer, otoscope, organ palpation and other procedures used by health care professionals. A multi-systems approach is used to present a western medical emphasis on conditions presented in the CM clinical specialties.


Class Contact Hours The equivalent of 72 hours for one semester comprising lectures, tutorials and practicals. Practical sessions have a hurdle requirement of at least 80% attendance.

Assessment Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (2500 words each) (20% each); one 3-hour examination (60%). This unit is a hurdle requirement.

Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

RBM5510 NEUROLOGICAL DISORDERS: THE NERVOUS SYSTEM

Course Learning Outcomes

1. Students will have an understanding of the role of the nervous system in health and disease.
2. Students will be able to apply knowledge of neurological disorders to clinical practice.
3. Students will be able to work collaboratively in teams.

Content

The subject content will include:
- Basic principles of neuroscience
- Physiology of the nervous system
- Neuroanatomy
- Neuroplasticity
- Neuroimaging
- Neuropsychological assessment
- Clinical manifestations of neurological disorders
- Management of neurological disorders
- End-of-life care

Assessment

- Written assignment (40%); case studies x2 (30% each).

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

RBM5610 CLINICAL NUTRITION

Course Learning Outcomes

1. Students will have an understanding of the role of diet in health and disease.
2. Students will be able to apply knowledge of clinical nutrition to clinical practice.
3. Students will be able to work collaboratively in teams.

Content

- Basic principles of human nutrition
- Macronutrients and micronutrients
- Dietary sources
- Demonstrated knowledge of appropriate dietary patterns suitable for patients with various conditions and in rehabilitation.

Assessment

- Written assignment (40%); case studies x2 (30% each).

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES
nutrition. Role of nutrition in: Cardiovascular disease, Diabetes, Obesity, Neuropathy, Musculoskeletal conditions, Mental illness, Chronic obstructive airways disease.
Treatment aspects of these conditions. Fad diets


Class Contact: two hours lecture or equivalent for one semester.

Assessment: case studies (x 3) each approx. 2000 words, 100%
Supplementary assessment will only be offered if all assessable components have been submitted, and a mark of 40-49% is achieved in all assessable components.

RBM8001 RESEARCH THESIS 1 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBM8002 RESEARCH THESIS 2 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBM8011 RESEARCH THESIS 1 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBM8012 RESEARCH THESIS 2 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/
Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RCS3411 ENVIRONMENTAL LEGISLATION
Campus: St Albans
Prerequisite(s): Nil.
Required Reading: To be advised by lecturer.
Class Contact: Four hours of lectures per week for one semester.
Assessment: Fieldwork and assignments, 40%; examinations, 60%.

RCS5172 SOLID WASTE MANAGEMENT
Campus: Footscray Park
Prerequisite(s): Nil.
Content: Nature and sources of solid wastes; hazardous waste handling; incineration; landfills; other disposal alternatives; monitoring and control.
Required Reading: To be advised by lecturer.
Class Contact: Three hours per week for one semester.
Assessment: Assignment and site visit reports, 40%; examination, 60%.
SCHOOL OF MOLECULAR SCIENCES

Below are details of courses offered by the School of Molecular Sciences in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

COURSES BACHELOR OF SCIENCE IN BIOTECHNOLOGY
Course Code: SBBY
CRICOS No: 038482G

Course Objectives
The biotechnology degree prepares students for exciting careers in cutting edge science. This program provides in depth education in many areas of modern biology including: genetic engineering, medical research, cloning, forensics, environmental biotechnology, microbiology and biochemistry. There is a strong emphasis on the development of laboratory-based skills for which the school is equipped with state-of-the-art facilities.

Admission Requirements
The minimum entry requirement for persons under 21 years of age on 1 January 2006 is the satisfactory completion of a Year 12 course of study approved by the Victorian Curriculum and Assessment Board (VCAB), or an equivalent program approved by Victoria University for entry.
Prerequisites are Units 3 and 4 in the following subjects: English, and Mathematics (any).
There is also provision for mature age entry and entry as a disadvantaged person. Mature age provisions apply to those persons aged 21 and over as at 1 January for the year in which they are applying. Entry into the degree can also be attained through TAFE articulation.

Course Structure

Year 1

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Elective (Semester One) 12

Elective (semester 2) 12

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1The second year electives can be units chosen from any course within the university subject to the approval of the course co-ordinator.
2The two six credit point units will both be taken in semester 2.

BACHELOR OF APPLIED SCIENCE IN CHEMISTRY
Course Code: SBCP

Course Objectives
This course provides a sound background in the fundamentals of chemistry and leads to a professional qualification which meets the membership requirements of the Royal Australian Chemical Institute. The course has major emphasis on analytical and organic chemistry and includes significant studies in other areas.

Course Duration
This course is specifically designed for part-time study by students employed in chemical and related industries. The course recognises that students in employment develop a wide range of on-the-job skills and consequently it only includes a limited number of subjects in areas other than chemistry. The course is organised to enable completion in six years but may be completed in a shorter time if work commitments permit. Employment in a chemical or related industry for a minimum of three years is a co-requisite and is required for graduation.

Admission Requirements
Applicants should have successfully completed VCE or another Year 12 qualification with studies in English and Mathematics. Applicants with other qualifications should seek advice from the Faculty of Health, Engineering and Science. An aptitude for science should be evident.
Potential students for the Bachelor of Applied Science in Chemistry should apply directly to the University.
BACHELOR OF SCIENCE IN MEDICAL, FORENSIC AND ANALYTICAL CHEMISTRY

Course Code: SBMF
CRICOS No: 036142M

Course Objectives
The course provides theoretical and practical training in medical, forensic and analytical chemistry. The design of the course has taken account of recent market research indicating that employers seek graduates with specific skills in analytical chemistry as applied to industrial, medical and forensic issues. Concomitant studies in Molecular Sciences, Biosciences, Communication, Mathematics and Computer Literacy give the graduate the employment skills that support the technical expertise.

The course is designed to meet the professional membership requirements of The Royal Australian Chemical Institute (RACI).

The course commences with a typical first year that exposes the student to a wide range of science disciplines. Second and third year have a core of subjects offering advanced studies in medical chemistry, forensic chemistry, analytical chemistry and organic chemistry. A number of molecular biology electives are available in second and third year for those students wishing to obtain expertise in this area and related medical and forensic fields or progress to further studies in molecular biology. In the final year chemical knowledge and applications are consolidated through appropriate choices of subjects and electives.

Admission Requirements
Admission will be based upon completion of VCE or equivalent Year 12 qualification. Prerequisites are Units 3 and 4 in English and Mathematics (any). Thus, in keeping with the intention of the University to operate an open access policy, the absence of prior studies in chemistry in particular, and science in general will not preclude admission to the proposed course. However, applicants who have successfully completed Chemistry and/or Specialist Mathematics and/or Physics will be deemed to have a TER of 3 percentage points higher for each study. Certain subjects passed in other courses at Victoria University or at other Institutions may be considered for advanced standing. Provision will be made for articulation from TAFE science programs with appropriate credit.

Course Duration
The course is offered on a full-time basis over three years or part-time equivalent. This course is also designed to allow mid-year entry.

Course Structure

Year 2

Semester One

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Semester Two

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One of the following two Electives

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Year 3

Semester One

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Two of the following three Electives*

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*In Year 3 students must do at least one semester of Medical Chemistry 3 and one semester of Forensic Methods 3.

Semester Two

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236
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*In Year 3 students must do at least one semester of Medical Chemistry 3 and one semester of Forensic Methods 3.

**BACHELOR OF SCIENCE IN NUTRITION, FOOD AND HEALTH SCIENCE**

**Course Code:** SBNH

**CRICOS No:** 011610E

**Course Objectives:**
The Nutrition, Food and Health Science degree is designed to develop the knowledge and skills in the science of food, its safety and quality as required by today’s nutritionists and food scientists. Increasing consumer awareness and demands in regard to food related health issues and the increasingly important role of nutrition in the development and evaluation of food products has generated a rapidly growing need for graduates with a good understanding of both food manufacturing nutrition and health. The course has been specifically designed to meet the demand for such graduates.

**Admission Requirements:**
The minimum entry requirement for persons under 21 years of age on 1 January 2001 is the satisfactory completion of a Year 12 course of study approved by the Victorian Curriculum and Assessment Board (VCAB), or an equivalent program approved by Victoria University for entry. Prerequisites for the Nutrition, Food and Health Science course are Units 3 and 4 in English and Mathematics (any). There is also provision for mature age entry and entry as a disadvantaged person. Mature age provisions apply to those persons aged 21 and over as at 1 January for the year in which they are applying. Certain subjects passed in other courses at Victoria University or at other Institutions may be considered for advanced standing. Provision will be made for articulation from TAFE science programs with appropriate credit.

**Course Duration:**
The Bachelor of Science program requires the equivalent of three years full-time study.

**Course Structure**

**Year 1**

**Semester One**

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**Semester Two**

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**Year 2**

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**Semester Two**

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**Year 3**

**Semester One: Core**

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**Professional Recognition**

**THE FOOD SCIENCE AND TECHNOLOGY SPECIALISATION HAS BEEN ACCREDITED BY THE AUSTRALIAN INSTITUTE OF FOOD SCIENCE AND TECHNOLOGY AND GRADUATES IN THIS SPECIALISATION WILL BE ELIGIBLE FOR MEMBERSHIP.**

**Course Code:** SGBT

**Course Objectives:**
The Graduate Diploma in Biotechnology is designed to provide students with skills, knowledge and expertise in the field of Biotechnology and related areas. The specific aims of the course are to provide students with:

(a) A sound knowledge at an advanced level of the scientific principles underlying the basis of the biotechnology industry and research in the area.

(b) Problem solving skills.

(c) The skills to use and locate information on problems relating to biotechnology from textbooks, scientific journals and the Internet.
(d) Excellent oral and written communication skills including discussions on various topics related to the biotechnology field.

**Admission Requirements**

Applications will be considered from graduates who have completed an undergraduate degree, comprising the equivalent of at least three years full-time study in an approved area of study. Eligible areas include Biology, Chemistry, Biochemistry, Biomedical Sciences, Veterinary Science, MBBS and other related fields. Academic performance in the undergraduate degree will be required to be, on average, at credit level or higher. A substantial amount of laboratory work will be required to have been completed in the undergraduate degree so that students are already proficient in basic biological, microbiological and chemical laboratory techniques. In addition, there will be the normal requirement for a minimum score of 6.5 in the IELTS English language test (exceptions may be made by the Faculty).

**Course Duration**

The duration of the course is one year full-time with the option of a part-time equivalent.

**Course Structure**

The Graduate Diploma in Biotechnology is a nested award within the Master of Science — Biotechnology (Biotechnology and Bioinformatics Streams) and requires completion of the units in the first year of the Masters course. This requires completion of the 6 core units in Group A and 2 electives from Groups B or C listed below, to a total of 96 credit points. After completion of this year, students can elect to study one more year and complete the MSc — Biotechnology (SMBT).

(Group A, Core Units)

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Examples of Elective Units (Group B)

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Examples of Elective Units (Group C)

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**GRADUATE DIPLOMA IN ENVIRONMENTAL MANAGEMENT**

**Course Code:** SGEM

**Course Objectives**

The course is aimed at producing graduates with a good understanding of contemporary environmental problems and solutions. A mixture of coursework will be provided including solid waste management, water pollution control and environmental law.

**Course Duration**

The course will be offered in full-time and part-time modes.

**Admission Requirements**

The normal entry requirement is a relevant degree or diploma, but special admission may be granted for applicants without the required qualifications but with a number of years of relevant industrial experience.

**Course Structure**

**Session 1**

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**Session 2**

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**Assessment**

Assessment will consist of assignments, field reports, class presentations and end-of-semester examinations.
GRADUATE DIPLOMA IN FOOD SCIENCE (EXIT POINT FOR THE MASTER OF SCIENCE IN FOOD SCIENCE (SMFO))
Course Code: SGFO

Course Objectives
The course is designed to provide professional training in food science and technology for graduates in science, applied science, engineering, agricultural and other related disciplines who may or may not have had previous formal training in this area.
The course seeks to equip graduates with the necessary knowledge and skills required to operate effectively in the food industry at various management levels. The course is designed not only to train recent graduates as food technologists, but also to enable those already employed in the food and associated industries to enhance their professional status.

Admission Requirements
To qualify for admission to the course an applicant must have satisfactorily completed a four year science based undergraduate degree, or a science based honours degree, or a three year science based undergraduate degree plus relevant employment experience.
Applicants who do not meet these qualifications may be admitted after the completion of an approved course of pre-study, or on submission of such other evidence of academic, professional or vocational attainment to indicate that the applicant possesses the educational preparation and capacity to pursue the course.

Course Duration
The course requires the successful completion of a program of core and elective subjects, totalling a minimum of 96 credit points. Subject to demand, the course is offered on a one-year full-time basis or equivalent part time. The Graduate Diploma in Food Science is an exit point from the Master of Science (Food Science).

Course Structure

Bachelor of Science (Honours) Biology (Biotechnology) (i)
Course Code: SHBB

Course Objectives
An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in: working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Admission Requirements
To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a ‘credit’ average, or equivalent, in the final year of the degree.

Course Duration
The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program for the Conservation Biology and Environmental Management specialisation can be either at the beginning of the academic year (February) or at a mid-year intake (July) to allow for field-based research with seasonal limitations.

Course Structure

Bachelor of Science (Honours) in Chemical Sciences (i)
Course Code: SHCB

Course Objectives (for SHBT, SHFT and SHCB)
An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in: working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Admission Requirements
To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a ‘credit’ average, or equivalent, in the final year of the degree.

Course Duration
The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program for the Conservation Biology and Environmental Management specialisation can be either at the beginning of the academic year (February) or at a mid-year intake (July) to allow for field-based research with seasonal limitations.
Course Structure

Year 1

Semester 1

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Part Time students enrol in RCS4610 over 2 semesters (24 credit points each semester)

The course consists of advanced coursework and a research thesis. Assessment will be based on written assignments, seminar presentations, a written examination and the research thesis.

Coursework assessment will be based on seminar presentations, written assignments and examination.

BACHELOR OF SCIENCE (HONOURS) (NUTRITION AND FOOD SCIENCES) (I)

Course Code: SHNF

Course Objectives

An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in: working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Admission Requirements

To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a 'credit' average, or equivalent, in the final year of the degree.

Course Duration

The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program for the Conservation Biology and Environmental Management specialisation can be either at the beginning of the academic year (February) or at a mid-year intake (July) to allow for field-based research with seasonal limitations.

Course Structure

Semester 1

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The course consists of advanced coursework and a research thesis. Assessment will be based on written assignments, seminar presentations, a written examination and the research thesis.

Coursework assessment will be based on seminar presentations, written assignments and examination.

MASTER OF SCIENCE - BIOTECHNOLOGY

Course Code: SMBI

Course Objectives

This Masters program is designed to provide students with skills, knowledge and expertise in the field of Biotechnology and related areas. The specific aims of the course are to provide students with:

(a) A sound knowledge at an advanced level of the scientific principles underlying the basis of the biotechnology industry and research in the area.

(b) Problem solving skills

(c) The skills to use and locate information on problems relating to biotechnology from textbooks, scientific journals and reliable sources on the Internet.

(d) Excellent oral and written communication skills including discussions on various topics related to the biotechnology field.

(e) An opportunity to further develop their skills and knowledge in the biotechnology, environmental management or food science, depending on electives chosen in the second stage of the course.

Course Duration

The duration of the course is two years full-time with the option of a part-time equivalent.

Admission Requirements

Applications will be considered from graduates who have completed an undergraduate degree, comprising the equivalent of at least three years full-time study in an approved area of study. Eligible areas include Biology, Chemistry, Biochemistry, Biomedical Sciences, Veterinary Science, MBBS and other related fields. Academic performance in the undergraduate degree will be required to be, on average, at credit level or higher. A substantial amount of laboratory work will be required to have been completed in the undergraduate degree so that students are already proficient in basic biological, microbiological and chemical laboratory techniques. In addition, there will be the normal requirement for a minimum score of 6.5 in the IELTS English language test (exceptions may be made by the Faculty).

Course Structure

The Master of Biotechnology course consists of 16 units worth 192 credit points. In the first year of the degree, students are required to take 8 core units to a total of 96 credit points. In the second year of the degree students are required to take 3 core units and choose elective units to a total of 96 credit points. Other units from the School of Molecular Sciences or other schools and faculties may also be taken as electives subject to approval by the Course Coordinator.

Note that an exit point (Graduate Diploma in Biotechnology - SGBT) is also available after successful completion of the first year of this course i.e. the 8 core units, completing a total of 96 credit points. This is a nested award within the Master of Science — Biotechnology.

Year 1, Semester 1

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Students may exit with a Graduate Diploma in Biotechnology after successfully completing 8 units (96 credit points).

Year 2, Semester 1

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Plus electives from List A or approved units from other courses*

Year 2, Semester 2

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<th>Credit Point</th>
<th>EFTSL</th>
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<tr>
<td>RMS5130</td>
<td>FUNCTIONAL GENOMICS &amp; BIOINFORMATICS THEORY</td>
<td>12</td>
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<tr>
<td>RMS5135</td>
<td>FUNCTIONAL GENOMICS &amp; BIOINFORMATICS APPLICATIONS</td>
<td>12</td>
<td>0.1250</td>
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</tbody>
</table>

Plus electives from List B or approved units from other courses*

Students will graduate with a Master of Science in Biotechnology after successfully completing 16 units (192 credit points).

Other Course Notes

List A Electives
RMS6220 Research Project 2 (Biotechnology) 24 credit points
List B electives
RMS 6203 Environmental Biotechnology - 12 credit points
RMS 6205 Medical Biotechnology - 12 credit points

Other units from the School of Molecular Sciences (Master of Science - Food Science or Master of Science - Environmental Management) or other schools and faculties may also be taken as electives subject to approval by the Course Coordinator.

Students performing at a distinction average will have the opportunity to conduct Research Project 1 and 2 in a government or private research laboratory.

MASTER OF SCIENCE - BIOTECHNOLOGY (BIOTECHNOLOGY AND BIOINFORMATICS STREAMS) FOR CONTINUING STUDENTS ONLY (I)

Course Code: SMBT

Course Objectives
This Masters program is designed to provide students with skills, knowledge and expertise in the field of Biotechnology and related areas. The specific aims of the course are to provide students with:
(a) A sound knowledge at an advanced level of the scientific principles underlying the basis of the biotechnology industry and research in the area.
(b) Problem solving skills
(c) The skills to use and locate information on problems relating to biotechnology from textbooks, scientific journals and reliable sources on the Internet.
(d) Excellent oral and written communication skills including discussions on various topics related to the biotechnology field.
(e) An opportunity to further develop their skills and knowledge in the biotechnology, bioinformatics, computing, business and law areas, depending on electives chosen in the second stage of the course.

Course Duration
The duration of the course is two years full-time with the option of a part-time equivalent.

Admission Requirements
Applications will be considered from graduates who have completed an undergraduate degree, comprising the equivalent of at least three years full-time study in an approved area of study. Eligible areas include Biology, Chemistry, Biochemistry, Biomedical Sciences, Veterinary Science, MBBS and other related fields. Academic performance in the undergraduate degree will be required to be, on average, at credit level or higher. A substantial amount of laboratory work will be required to have been completed in the undergraduate degree so that students are already proficient in basic biological, microbiological and chemical laboratory techniques. In addition, there will be the normal requirement for a minimum score of 6.5 in the IELTS English language test (exceptions may be made by the Faculty).

Course Structure
The Master of Biotechnology course consists of two streams, Biotechnology and Bioinformatics, each of which consists of a total of 16 units worth 192 credit points. In the first year of the degree, students in each stream are required to take 6 core units (Group A) and 2 electives from Groups B or C to a total of 96 credit points. In the second year of the degree students in the Biotechnology stream are required to choose two elective units from Group B and others from Groups B or C to a total of 96 credit points. Students in the Bioinformatics stream must take the four core units for this stream listed below and other electives from Group B or C to a total of 96 credit points. Other units from the School of Molecular Sciences or other schools and faculties may also be taken as electives subject to approval by the Course Coordinator. Note that an exit point (Graduate Diploma in Biotechnology - SGBT) is also available after successful completion of the first year of this course i.e. the 6 core and 2 elective units, completing a total of 96 credit points. This is a nested award within the Master of Science — Biotechnology.

Core Units for Both Streams

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<tr>
<th>Course Code</th>
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<th>Credit Point</th>
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<tr>
<td>RMS5110</td>
<td>MOLECULAR GENETICS THEORY</td>
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<tr>
<td>RMS5120</td>
<td>APPLIED GENETIC ENGINEERING</td>
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<td>BIOPROCESSING TECHNOLOGY PRINCIPLES</td>
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<td>RMS5145</td>
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<td>RMS5130</td>
<td>FUNCTIONAL GENOMICS &amp; BIOINFORMATICS THEORY</td>
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<td>RMS5135</td>
<td>FUNCTIONAL GENOMICS &amp; BIOINFORMATICS APPLICATIONS</td>
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Core Units for Bioinformatics Stream

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<th>Credit Point</th>
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<tr>
<td>RMS6130</td>
<td>BIOINFORMATICS I</td>
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<tr>
<td>RCS5800</td>
<td>OBJECT ORIENTED PROGRAMMING GD1</td>
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<tr>
<td>RMS6135</td>
<td>BIOINFORMATICS II</td>
<td>12</td>
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<tr>
<td>RCM6607</td>
<td>STATISTICAL COMPUTING</td>
<td>12</td>
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Examples of Elective Units

Group B

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<tr>
<td>RMS5150</td>
<td>ETHICS AND REGULATORY AFFAIRS IN BIOTECHNOLOGY</td>
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<tr>
<td>RMS6130</td>
<td>BIOINFORMATICS I</td>
<td>12</td>
<td>0.1250</td>
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<tr>
<td>RMS6135</td>
<td>BIOINFORMATICS II</td>
<td>12</td>
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</table>
MASTER OF SCIENCE IN ENVIRONMENTAL MANAGEMENT
Course Code: SMEM

Course Objectives
The program in Environmental Management will provide students with a solid foundation in environmental science that will allow them to understand the major aspects of environmental assessment. Students completing the full postgraduate course will have the knowledge and skills required to identify, analyse and respond to a range of environmental management issues; work with a diversity of stakeholders with differing values and needs; develop strategies for environmental assessment, management and evaluation; use field study techniques and methods appropriately and effectively; collect and analyse data using computer technology; write reports for and communicate with a range of audiences; and operate as an environmental manager in a professional context.

Admission Requirements
To qualify for admission to the course an applicant must have satisfactorily completed a four year science based undergraduate degree, or a science based honours degree, or a three year science based undergraduate degree plus relevant employment experience.

Applicants who do not meet these qualifications may be admitted after the completion of an approved course of pre-study, or on submission of such other evidence of academic, professional or vocational attainment to indicate that the applicant possesses the educational preparation and capacity to pursue the course.

All admissions are subject to approval by the course selection officer.

Course Duration and Structure
The course requires successful completion of a program of compulsory and elective subjects, totalling a minimum of 192 credit points.

Course Structure
Year 1
Semester 1
RCC5111 PRINCIPLES OF ENVIRONMENTAL SCIENCE AND MANAGEMENT 12 0.1250 2
RMS5101 ENVIRONMENTAL MANAGEMENT AS A PROFESSION 12 0.1250 2
RMS5102 TERRESTRIAL ECOLOGY 12 0.1250 2
RMS5103 AQUATIC ECOLOGY 12 0.1250 2

Students may exit with a Graduate Certificate in Environmental Management after successfully completing 4 units (48 credit points).

Semester 2
RMS5200 ENVIRONMENTAL MANAGEMENT IN A CHANGING WORLD 12 0.1250 2
RMS5201 LANDSCAPE SCALE RESTORATION 12 0.1250 2
RMS5202 AQUATIC SYSTEMS MANAGEMENT 12 0.1250 2
RCC5100 RESEARCH METHODOLOGY 12 0.1250 2

Students may exit with a Graduate Diploma in Environmental Management after successfully completing 8 units (96 credit points).

Year 2
Semester 1
RMS6100 BIODIVERSITY ASSESSMENT 12 0.1250 2
RMS6101 GEOGRAPHICAL INFORMATION SYSTEMS AND REMOTE SENSING 12 0.1250 2
RMS6102 ENVIRONMENTAL TOXICOLOGY 12 0.1250 2
RMS6103 ECOCYLOGY OF INVASIVE SPECIES 12 0.1250 2

Semester 2
RMS6201 PROTECTED AREA MANAGEMENT 12 0.1250 2
RMS6202 ENVIRONMENTAL MANAGEMENT PROJECT 12 0.1250 2

Or TWO elective units from LIST A

RMS6203 ENVIRONMENTAL BIOTECHNOLOGY 12 0.1250 2

LIST A Elective Units
RMS5150 ETHICS AND REGULATORY AFFAIRS IN BIOTECHNOLOGY 12 0.1250 2
RMS5160 CELL CULTURE AND FERMENTATION TECHNOLOGY 12 0.1250 2
RMS5170 DRUG DESIGN & DEVELOPMENT 12 0.1250 2
RMS5205 MEDICAL BIOTECHNOLOGY 12 0.1250 2

Students may exit with a Master of Science in Environmental Management after successfully completing 16 units (192 credit points).
**Other Course Specific Notes**
Assessment will include field reports, class presentations, end-of-semester examinations and a project report.

**MASTER OF SCIENCE (FOOD SCIENCE) (I)**

**Course Code:** SMFO

**Course Objectives**
The course is designed to provide professional training in food science and technology for graduates in science, applied science, engineering, agricultural and other related disciplines who may or may not have had previous formal training in this area.
The course seeks to equip graduates with the necessary knowledge and skills required to operate effectively in the food industry at various management levels. The course is designed not only to train recent graduates as food technologists, but also to enable those already employed in the food and associated industries to enhance their professional status.

**Admission Requirements**
To qualify for admission to the course an applicant must have satisfactorily completed a four year science based undergraduate degree, or a science based honours degree, or a three year science based undergraduate degree plus relevant employment experience.
Applicants who do not meet these qualifications may be admitted after the completion of an approved course of pre-study, or on submission of such other evidence of academic, professional or vocational attainment to indicate that the applicant possesses the educational preparation and capacity to pursue the course.

**Course Duration**
The course requires the successful completion of a program of compulsory and elective subjects, totalling a minimum of 192 credit points.
Subject to demand, the course is offered on a full-time basis over two years or equivalent part time.

**Course Structure**

**Year 1**

**Semester 1**

<table>
<thead>
<tr>
<th>Module Code</th>
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<tr>
<td>RBF5110</td>
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<td>RBF5120</td>
<td>FUNDAMENTALS OF FOOD SAFETY AND QUALITY ASSURANCE</td>
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<tr>
<td>RBF5130</td>
<td>FOOD PRODUCT AND PROCESS DEVELOPMENT</td>
<td>12</td>
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<td>RBF5140</td>
<td>CHEMISTRY OF FOODS</td>
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**Semester 2**

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<tr>
<td>RBF5210</td>
<td>FUNDAMENTALS OF PRESERVATION AND PROCESSING TECHNOLOGIES</td>
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<tr>
<td>RBF5220</td>
<td>FUNDAMENTALS OF FOOD ANALYSIS</td>
<td>12</td>
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<tr>
<td>RBF5230</td>
<td>MANAGING FOOD ENTERPRISES</td>
<td>12</td>
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<td>RCS5100</td>
<td>RESEARCH METHODOLOGY</td>
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Students may exit with a Graduate Diploma in Food Science after successfully completing 8 units of study (96 credit points)

**Year 2**

**Semester 1**

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**Semester 2**

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**Commodity Electives (Plant foods)**

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<tr>
<td>RBF6120</td>
<td>FRUIT AND VEGETABLE SCIENCE AND TECHNOLOGY</td>
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<td>RBF6130</td>
<td>GRAIN SCIENCE AND TECHNOLOGY</td>
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**Commodity Electives (Animal foods)**

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<tr>
<td>RBF6230</td>
<td>MUSCLE FOOD SCIENCE AND TECHNOLOGY</td>
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<td>RBF6220</td>
<td>DAIRY SCIENCE AND TECHNOLOGY</td>
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**General Electives**

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<tr>
<td>RMS5145</td>
<td>BIOPROCESSING TECHNOLOGY APPLICATIONS</td>
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<td>RMS5140</td>
<td>BIOPROCESSING TECHNOLOGY PRINCIPLES</td>
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<tr>
<td>RMS6140</td>
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<td>RBF6310</td>
<td>MINOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY</td>
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<tr>
<td>RBF6320</td>
<td>SPECIAL TOPICS IN FOOD SCIENCE AND TECHNOLOGY</td>
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<td>BHS5583</td>
<td>MARKETING RESEARCH</td>
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<td>RBF6330</td>
<td>INDUSTRY BASED TRAINING</td>
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*Other Units of Study from other Schools and Faculties may also be taken as electives subject to approval by the Course Coordinator.*
SUBJECTS

Below are subject details for courses offered by the School of Molecular Sciences in 2009.

IMPORTANT NOTE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

RBF1140 INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1
Campus Footscray Park
Prerequisite(s) Nil.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Describe the food industry in Australia and overseas;
2. Discuss the composition of foods, including food composition data;
3. Explain the basic principles of food processing and the importance of food safety;
4. Explain at an introductory level, preparation techniques for various food commodity groups.

Content This unit provides students with an introduction to nutrition and food science. The unit comprises an introduction to the food industry, its components and organisation, both in Australia and internationally; the composition of foods, food processing and food safety; introduction to the preservation and processing of fruits and vegetables, grains and oilseeds, dairy products, meat, poultry, fish and beverages.


Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorial/demonstrations.

Assessment Assignments and tests (40% each); One final examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF1145 INTRODUCTION TO FOOD, NUTRITION AND HEALTH 2
Campus Werribee
Prerequisite(s) Nil.

Content Principles of nutrition and nutritional aspects of various food commodities and their impact on health.

Required Reading Parker, R., 2003, Introduction to Food Science, Delmar, Thomson Learning Inc. Albany, USA.


Class Contact Four hours per week comprising of three h of lectures and one hour of tutorial/demonstration.

Assessment Assignment (2x2000 words), 40%; Examination (1x3 hrs), 60%.

RBF1310 BIOLOGY 1
Campus Footscray Park
Prerequisite(s) Nil.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Identify major organelles and structures in a typical cell;
2. Use a microscope in a laboratory setting;
3. Describe the relationship between surface area and volume in a cell and explain its significance in biological systems;
4. Describe processes in major organ systems;
5. Identify key structures of the mammalian heart and eye;
6. Gather and interpret data in a laboratory setting.

Content This unit introduces students to the structure and function of living organisms, with an emphasis on animals. Topics covered include cell biology; internal transport mechanisms; sensory systems; gas exchange systems; digestive systems; support and movement; defence against pathogens; and homeostasis.


Recommended Reading Nil.

Class Contact Sixty (60) hours or equivalent for one semester comprising lectures and practical classes.

Assessment Essay (10%); Practical work (30%); One written examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF1320 BIOLOGY 2
Campus Footscray Park
Prerequisite(s) Nil.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Identify structures and major cell types in flowering plants;
2. Describe the flow of water and nutrients through the vascular system of a flowering plant;
3. Construct and use a simple dichotomous key;
4. Compare and contrast the effects of genetic drift and selection on populations;
5. Perform and write up experiments in laboratory settings.

Content This unit complements material covered in RBF1310 Biology 1. Topics covered include structure and function of plants; photosynthesis and cell respiration; the cell cycle; principles of genetics; evolution and biodiversity; and basic population and community ecology.


Recommended Reading Nil.

Class Contact Sixty (60) hours or equivalent for one semester comprising lectures and practical classes.

Assessment Essay (10%); Practical work (30%); One written examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF2141 FOOD COMPONENTS AND INTERACTIONS
Campus Werribee
Prerequisites RBF1140 Introduction to Food, Nutrition and Health 1, RCS1601 Chemistry A, RCS1602 Chemistry B; or equivalents.

Requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Describe and assess the structural and compositional features of food macromolecules;
2. Predict the functional properties of food molecules based on their chemical properties;
3. Recognise and evaluate the key chemical features of food systems;
4. Develop novel food systems based on complex interactions of their main macromolecules.

Content Food constituents; water, structure, chemistry, stability and functional properties of proteins, carbohydrates, fats and oils, vitamins and minerals. Food colour, texture and flavour. Reactions leading to deterioration of foods: oxidative deterioration and rancidity, anti-oxidants, browning reactions; food additives, natural and synthetic colorants and flavouring agents; gels, colloids, foams and emulsions. This unit will also address the effects of processing on basic components and interactions amongst food components.


Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorials and practise sessions.

Assessment Two assignments (2000 words each) (20% each); One 3-hour examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

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RBF2210 NUTRITION AND FOOD ANALYSIS 1

Campus Werribee

Prerequisites RBF1135 and RBF1140 and RBF1145 Introduction to Food, Nutrition and Health 1 and 2, and RCS1601 Chemistry A and RCS 1602 Chemistry B or equivalent

Co-requisites Nil

Content To study experimental techniques as applied to nutrition and food studies. Rational for experimental procedures used in nutrition, experimental design, statistical analysis, anthropometry, feeding trials, N balance studies, amino acid score, digestibility of food, nutritional survey and data collection, dietary instrument design, diet analysis, calorimetry, analysis of specific nutrients, use of analysis software, site visits. Pitfalls and complications encountered in human nutrition experimentation, and strategies commonly used to overcome these. Procedures for analysis of foods using HPLC, GC, UV/Vis, IR.

Required Reading

Class Contact
Three hours per week comprising of lecture/tutorial/laboratory and site visits

Assessment Assignments 20%, examination 50%, practical work 30%.

RBF2215 NUTRITION AND FOOD ANALYSIS LABORATORY-2

Campus Werribee

Prerequisite(s) RBF1145 Introduction to Food, Nutrition and Health Science and RCS1601 Chemistry A and RCS1602 Chemistry B or equivalent

Content Rationale for experimental procedures used in nutrition, experimental design, statistical analysis, anthropometry, feeding trials, N balance studies, amino acid score, digestibility of food, nutritional survey and data collection, dietary instrument design, diet analysis, calorimetry, analysis of specific nutrients, use of analysis software, site visits. Pitfalls and complications encountered in human nutrition experimentation, and strategies commonly used to overcome these.

Required Reading

Class Contact
Four h per week, comprising two hours of lecture and two hours of lab

Assessment Assignment (2x2000 words), 20%; Examination (1x3 hrs), 50%; Practical work (6 lab reports), 30%.

RBF2218 NUTRITION AND COMMUNITY HEALTH

Campus Werribee

Prerequisite(s) RSM 2750 Nutrition or equivalent

Content Importance of community nutrition in public health promotion. Health behavior theories. Food security. Community nutrition throughout the lifespan (breastfeeding promotion; childhood and adolescence; adults and chronic disease prevention; nutrition-related problems in the elderly). Development of effective communication programs. Education and intervention programs in locating public health data and health epidemiology. Cultural competency and International nutrition.

Required Reading

Recommended Reading

Class Contact
Four h per week, comprising of three hours of lecture and one hour of tutorial.

Assessment Assignment (2x2000 words), 20%; Examination (1x3 hrs), 50%; Case study 1, 30%.

RBF2242 FOOD PRESERVATION

Campus Werribee

Prerequisites RBF1140 Introductory Food, Nutrition and Health 1; or equivalent.

Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Discuss different methods of spoilage of various food groups;
2. Explain different methods of preservation and fermentation;
3. Suggest appropriate methods of preservation including the concept of hurdles to control a given deterioration;
4. Describe the issues associated with food packaging.


Required Reading

Recommended Reading

Class Contact
Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials.

Assessment Assignments and tests (30%); Final examination, (70%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF2243 FOOD PROCESSING OPERATIONS

Campus Werribee

Prerequisites RBF1140 Introductory Food, Nutrition and Health 1; or equivalent.

Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Discuss different methods of spoilage of various food groups;
2. Explain different methods of preservation and fermentation;
3. Suggest appropriate methods of preservation including the concept of hurdles to control a given deterioration;
4. Describe the issues associated with food packaging.


Required Reading

Recommended Reading

Class Contact
Seventy-two (72) hours or equivalent for one semester comprising lectures and tutorials.

Assessment Assignments (40%); One final open-book examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF2300 MICROBIOLOGY 1

Campus Werribee.

Prerequisite(s) RBF1310 Biology 1.

Required Reading To be advised by lecturer.
Class Contact Five hours per week comprising three hours of lectures per week and eight three hour laboratory classes during the semester.
Assessment Assignment, 20%; practical work, 25%; examination, 55%.

RFB2310 MICROBIOLOGY 2
Campus Werribee
Prerequisite(s) RFB2300 Microbiology 1.
Content This subject aims to build on material covered in RFB2300 Microbiology 1 to further develop the student's knowledge of microbiology. Topics include: introduction to microbial ecology, evolutionary and ecological aspects of interactions between microbes and higher organisms, microbiota associated with selected animals and plants, non-specific host defences in a range of plants and animals, entry of pathogens into a range of plant and animal hosts, pathogenic effects in a range of plant and animal hosts, clinical and diagnostic microbiology, basic principles of public health microbiology.
Required Reading To be advised by lecturer.
Class Contact Five hours per week comprising two hours of lectures, two hours of laboratory work and one one-hour tutorial for one semester.
Assessment Assignment, 20%; practical work, 25%; final examination, 55%.

RFB2330 CELL BIOLOGY
Campus St Albans, Werribee.
Pre-requisite(s) RFB1310 Biology 1, RBN1528 Human Physiology 2; or equivalents.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Describe in detail eukaryotic cell structures and their respective functions;
2. Define the pathways of signal transduction and the cell cycle in normal and cancerous cells;
3. Identify mechanisms of intracellular transport;
4. Discuss the molecular basis of cancer;
5. Locate, appraise and synthesise relevant scientific literature.
Content This unit complements units in Biochemistry and provides a strong foundation for students moving into areas such as: biotechnology, molecular biology, medical sciences and environmental sciences. Topics include: eukaryotic cell organisation (covering all of the major organelles) and compartmentalisation; membranes and transport mechanisms; the cell surface; intracellular targeting of proteins including co-translational and post translational pathways; transport and docking of vesicles; motor proteins, movement and the cytoskeleton; communication between cells including receptors and signal transduction pathways; cell cycle and its regulation; apoptosis; the molecular basis of cancer.
Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials.
Assessment Assignments (40%); Written examination (60%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RFB2390 MOLECULAR GENETICS
Campus Werribee
Prerequisites RFB2520 Biochemistry 1.
Content Introduction to developments at the forefront of molecular biology of gene structure and function and molecular genetics. The subject will build on material covered in Biochemistry 1 and Cell Biology and strengthen the foundations for the unit ‘Genetic Engineering’ in the final year of the degree program. Main topics include: organisation of eukaryotic genomes including repetitive and nonrepetitive DNA sequences, multigene families, pseudogenes; organisation of prokaryotic genomes; genomic rearrangements including transposable genetic elements, retroviruses and other mechanisms, genetic rearrangements in the immune system, replication of DNA, telomeres and telomerase, methylation and imprinting of DNA, mutations and repair mechanisms, regulation of gene expression, specialised genetic systems including genes in early development, genes responsive to hormones and heat shock.
Required Reading To be advised by the lecturer.
Class Contact Four hours per week, comprising three hours of lectures and one hour tutorial, for one semester.
Assessment Assignment work, 40%; examination, 60%.

RFB2410 FOOD COMPONENTS
Campus Werribee
Prerequisite(s) RFB1140 Introduction to Food, Nutrition and Health Science and RCS1601 Chemistry A and RCS1602 Chemistry B or equivalent.
Content Food constituents: water, structure, chemistry, stability and functional properties of proteins, carbohydrates, fats and oils, vitamins and minerals. Food colour, texture and flavour. Reactions leading to deterioration of foods: oxidative deterioration and rancidity, anti-oxidants, browning reactions; food additives, natural and synthetic colorants and flavouring agents; gels, colloids, foams and emulsions.
Class Contact four hours per week, comprising of three hours of lecture and one hour of lecture/tutorial.
Assessment Assignment (2x2000 words), 40%; Examination (1x3 hrs), 60%.

RFB2520 BIOCHEMISTRY 1
Campus St Albans, Werribee.
Prerequisite(s) RFB1310 Biology 1 and RCS1601 Chemistry 1A or equivalent.
Content This subject aims to provide a general introduction to biochemistry and includes: structure and functions of carbohydrates, lipids, proteins and nucleic acids. Biological membranes. Enzymes: kinetics and regulatory enzymes. Metabolism: bioenergetics, glycolysis, citric acid cycle, chemiosmosis, gluconeogenesis, amino acid metabolism, fatty acid metabolism, photosynthesis. DNA: structure, replication, expression, and basic gene cloning.
Required Reading To be advised by lecturer.
Class Contact Six hours per week, comprising three hours of lectures, two hours of laboratory, and one hour of tutorial work for one semester.
Assessment Practical work, 30%; final examination, 55%; assignment/test, 15%.

RFB2530 BIOCHEMISTRY 2
Campus Werribee
Prerequisite(s) SFB2520 Biochemistry 1.
Content The aim of this subject is to expand on material covered in Biochemistry 1, and complement the Molecular Cell Biology and Microbiology subjects. Along with Biochemistry 1, this subject will provide a solid foundation in biochemical principles, reactions and applications. Topics covered include bioenergetics, the pentose phosphate pathway, amino acid and nucleotide metabolism, photosynthesis, aspects of plant metabolism and biochemistry of neurotransmitters. Other topics covered will include the structure and function of biological molecules, ligand binding and conformational changes, mechanisms of enzyme action, advanced enzyme kinetics, regulation of biochemical systems such as hormonal and transcriptional control. Applied aspects of biochemistry will also be considered.
Required Reading To be advised by lecturer.
Class Contact Six hours per week, comprising three hours of lectures, two hours of laboratory work and one one-hour tutorial for one semester.
Assessment Assignments, 15%; practical work (including test), 25%; final examination 60%.

RFB3230 ANIMAL FOOD PROCESSING
Campus Werribee
Prerequisite(s) Nil
Required Reading To be advised by the instructor.
Class Contact three hours per week comprising lecture and tutorial.
Assessment Assignment (2x3000 words), 50%; Exam (1x three h), 50%.
RBF3235 PLANT FOOD PROCESSING  
Campus Werribee  
Prerequisite(s) Nil  
Content  
Required Reading  
To be advised by the instructor.  
Recommended Reading  
Class Contact  
Three hours per week comprising lecture and tutorial.  
Assessment  
Assignment (1x3000 words), 20%; Exam (1x three h), 50%  
Practical reports/class tests 2, 30%.  

RBF3240 FUNCTIONAL FOODS  
Campus Werribee  
Prerequisite(s) RSM2750 Nutrition  
Content  
This subject examines the role and potential of functional ingredients and foods in human nutrition; natural anti-microbial substances in human nutrition; the role of intestinal flora in human health; prebiotics, probiotics, probiotic bacteria and symbiosis.  
Required Reading  
Class Contact  
Three hours per week comprising lectures/tutorials for one semester.  
Assessment  
Assignments, 40%; final examination, 60%.  

RBF3250 FOOD SAFETY AND QUALITY  
Campus Werribee  
Prerequisite(s) RBF1140 Introduction to Food, Nutrition and Health Science.  
Content  
Major factors used in assessing food quality, sampling, control charts, shelf-life testing, product recalls, collaborative testing, cleaning and sanitizing, rapid testing methods, government regulations, and overall quality plans such as HACCP. Human sensory perception of food components and their interactions and role of sensory methods in assessment of food quality and safety. Toxicology and allergenicity of foods.  
Required Reading  
To be advised by the lecturer.  
Recommended Reading  
Class Contact  
Four hours per week comprising three hours of lectures and one hour of tutorial/demonstration/practical work.  
Assessment  
Assignment (2x2500 words), 30%; Exam (1x three h), 50%; Practical reports/class tests 2/2, 20%.  

RBF3255 PRODUCT DEVELOPMENT  
Campus Werribee  
Prerequisite(s) RBF1140 and RBF1145 Introduction to Food, Nutrition and Health Science-1 and 2.  
Content  
Product idea generation; concept development and testing; Marketing-strategy development, Product and process development process (project planning, formulation development, process development, shelf-life testing); Consumer testing: Market trial methods and estimation of market size; Product specifications (raw materials, process, finished product); Packaging and labelling, product evaluation, product testing and pricing; Production planning; Market development and product launch.  
Required Reading  
Recommended Reading  
Class Contact  
Three hours per week comprising twp hours of lectures and one hour of tutorial/demonstration/practical work.  
Assessment  
Assignment (1x3000 words), 20%; Exam (1x three h), 50%  
Practical reports/class tests 2, 30%.  

RBF3370 FOOD MICROBIOLOGY  
Campus Werribee  
Prerequisite(s) Nil. 1.  
Content  
The aim of this subject is to develop and increase the student’s knowledge and skills in microbiology with particular reference to the role of micro-organisms in food processing, food spoilage and food-borne disease. Topics include: characteristics of major groups of micro-organisms of importance in foods; ecology of food spoilage. Microbial growth in foods; microbial fermentation and fermented products; biomass; waste treatment; food-borne infections and food poisoning; control and prevention of food-borne disease; hygiene and sanitation; mycotoxins; legislation and standards will be covered.  
Required Reading  
Recommended Reading  
Class Contact  
Six hours per week for one semester comprising lectures, tutorials and practical work.  
Assessment  
Assignments, 15%; practical work, 25%; final examination, 60%.  

RBF3810 NUTRIENT AND DRUG INTERACTION  
Campus Werribee  
Prerequisite(s) RBF 2550 Nutrition, SBM 2260 Diet and Nutrition or equivalent, SNH2110 Disease and Health.  
Content  
The aim is to study metabolic fate of drugs and nutrient and drug interactions. Metabolic fates of drugs and xenobiotics, known drug-nutrient interactions, role of nutrient-drug interactions in the development of nutritional imbalance. Pharmacodynamics. Major classes of prescription drugs and their indications, and their effects on gastrointestinal and metabolic function. Role of nutrient-drug interactions in the aetiology and treatment of significant disease conditions. Impact of hepatic and renal insufficiency on drug and nutrient bioavailability.  
Required Reading  
Recommended Reading  
Class Contact  
Three hours per week for one semester comprising lectures and tutorials.  
Assessment  
Assignments 40%, final examination 60%.  

RBF3900 PROJECT  
Campus Werribee  
Prerequisite(s) Students would normally be expected to have successfully completed all Year 1 and 2 subjects.  
Content  
The subject aims to enable students to become competent in applying research methodology to a specific problem and to enable them to develop an area of personal interest relevant to their degree specialisation. This subject covers project methodology, experimental design and analysis, and research plan preparation. The project will be, as far as is possible, concerned with a real problem and will require the presentation of an oral and written report and may form all or part of a research publication. The project will be chosen by the student in consultation with staff members.  
Required Reading  
There are no prescribed texts for this subject.  
Class Contact  
Eight hours per week for one semester comprising lectures, tutorials and practical work.  
Assessment  
A choice of research project will be made halfway through semester five.
and an assignment concerned with establishing the methodology for this project will be assessed and will contribute 20% to the overall assessment of the project. The written project will contribute 60% and the oral presentation will contribute 20% to the overall assessment.

**RBF4001 SCIENCE HONOURS**
Campus Werribee
Prerequisites Satisfactory completion of an undergraduate degree program with a credit average in the final year.
Co-requisites
Content The program will consist of a research project and a coursework component. The major focus of the course component is research methodology and subjects include experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location. Required Reading To be advised by the lecturer.
Required Reading To be advised by the lecturer.
Recommended Reading
Class Contact An average of 20 hours per week for one semester.
Assessment The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written examination. The research project assessment will consist of an oral presentation and submission of a thesis.

**RBF4002 SCIENCE HONOURS**
Campus Werribee
Prerequisites RBF4001 Science Honours
Co-requisites
Learning Outcomes
Content This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be a scientific investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the scientific investigation described in detail; results and conclusions from the study are elaborated; and an extended discussion presented. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location. Required Reading To be advised by the lecturer.
Required Reading To be advised by the lecturer.
Recommended Reading
Class Contact An average of 30 hours per week for one semester.
Assessment The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written examination. The research project assessment will consist of an oral presentation and submission of a thesis.

**RF5110 FUNDAMENTALS OF FOOD MICROBIOLOGY**
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines
Learning Outcomes
On successful completion of this unit, students are expected to generalize concepts related to microbial ecology of food, to apply methods to control the growth of spoilage and eliminate pathogenic microorganisms in food to minimize the risks associated with the presence of spoilage microorganisms in foods and alleviated occurrence of foodborne diseases of public significance. The students are anticipated to appraise the microbial ecology of different food groups, to consider microorganisms used in the production of contemporary and functional foods, and design and develop best practices of storing handling and distribution of food.

**Content**

**Required Reading**

**Recommended Reading**
A selection of reading material compiled by the lecturer.

**Class Contact**
The equivalent of 72 hours for one semester or 6 hrs per week comprising of 3 hrs of lecture and 3 hrs of tutorial/practice.

**Assessment**
Assignment (oral presentation and written report, 3000 words) and tests - 40%;
Practical work - 20%;
final examination (3 hrs written exam) 40%

**RF5120 FUNDAMENTALS OF FOOD SAFETY AND QUALITY ASSURANCE**
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines
Learning Outcomes
On successful completion of this unit, students are anticipated to apply principles of quality assurance and quality management systems in the food manufacturing and distribution to produce safe foods that would meet quality and legal requirements. Students after completion are expected to be able to appraise principles of chemical analysis, microbiology and statistical control techniques to assure the quality and safety of food.

**Content**
This unit provides an introduction to the concepts and principles of food safety and quality assurance, food legislation, food standards, sensory and objective evaluation of foods and conduct of objective and sensory evaluation tests on foods. The unit covers: sensory attributes and sensory evaluation; sensory perception, use of sensory and objective evaluation in quality control and product development, experimental design and analysis, questionnaire design, taste panels, shelf-life assessment; food law: Australian and International food standards codes, food hygiene regulations, micro-biological standards and codes of practice, the development and underlying principles of food standards, Codex standards, export standards; food additives, types, functions, toxicological evaluation and regulations governing usage; toxic substances and contaminants; hygiene and sanitation in food processing and production, techniques for evaluation of food processing plants; quality assurance principles and systems: parameters of food quality and its evaluation and control, role of quality assurance, concepts of total quality control (TQC) and total quality management (TQM), good manufacturing practice, sampling plans, specification writing, hazard analysis and critical control point (HACCP) concept, product recall procedures, Australian and International quality systems.

**Required Reading**

**Recommended Reading**

**Class Contact**
The equivalent of 72 hours for one semester or 6 hrs per week comprising of lecture/tutorial/practice.

**Assessment**
Assignments and tests 30%, practical work 20%, final examination 50%.
RBF5130 FOOD PRODUCT AND PROCESS DEVELOPMENT
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines
Learning Outcomes
On successful completion of this unit, students are expected to be able to appraise the main features and trends of a specific food product within an appropriate market setting; to assess the nature of the development cycle of a food product and the principles of marketing theory. Students are anticipated to be able to apply factors that affect consumers food choices and design and develop a prototype food product with specified parameters constructing a technical specification for the developed product followed by testing an appropriate market and evaluating consumers response.
Content
This unit provides an introduction to the systematic methods used in the development of new products, market research, product design and specification and evaluation of product development project. This unit covers: Development of aims, objectives and constraints; Collection and analysis of marketing and technical information required for product and process development; Product idea generation; Screening of new product and process ideas; Product and process concept development and testing; Marketing-strategy development; Product development process (project planning, formulation development, process development, shelf-life testing); Consumer testing: Market trial methods and estimation of market size; Product specifications (raw materials, process, finished product); Packaging and labelling, product evaluation, product casting and pricing; Production planning; Market development and product launch
Required Reading
Recommended Reading
Class Contact
The equivalent of 48 hours or 4 hrs per week comprising of lectures and tutorial/practice.
Assessment
Assignment and tests 20%, practical work (a specific food product development) 40%, final examination 40%.

RBF5140 CHEMISTRY OF FOODS
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.
Learning Outcomes
On successful completion of this unit, students are expected to be able to generalize and assess the structural and compositional features of food macromolecules; to predict functional properties of food molecules based on their chemical properties, to recognize and evaluate the key chemical features of food systems and to develop novel food systems based on complex interactions of their main macromolecules.
Content
The basic components forming the structure of food products consist of the natural materials assembled in relationships that can be altered by the presence of additives, ingredients and processing. The unit covers the composition and macrostructure of food, and the relationships between the basic components and structure and the additives. This will include the interactions between emulsifiers and flavourings within a food matrix, and interactions between water-proteins, water, lipids, protein-proteins, protein-lipids, protein-carbohydrates, and carbohydrate-lipids. This unit will also address the influence of processing on basic components and interactions among food components.
Required Reading
Recommended Reading
Class Contact
The equivalent of 60 hours or five hours per week comprising of three hrs of lectures and two hrs of tutorials/practical work.
Assessment
Practical work, 20%; Assignment (3000 words) and tests 40%; Final examination (1x3 hrs) 40%.

RBF5210 FUNDAMENTALS OF PRESERVATION AND PROCESSING TECHNOLOGIES
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.
Learning Outcomes
On successful completion of this unit, students are expected to be able to appraise unit operations and equipment used in food processing with respect to their function and effects on food materials; to apply the mechanisms underlying short and long term food preservation and predict the effects these processes on the food quality and safety and to design and establish process flow diagrams and calculate heat and mass balances.
Content
This unit provides an introduction to the principles and technology of food processing and preservation by traditional and modern techniques and their effects on the safety, appearance and nutritional quality of foods and the implications of processing and preservation methodologies on the physical, chemical, microbiological and nutritional quality of foods. This unit covers: A brief history of the food processing industry; A basic introduction to unit operations. Preservation by moisture control: water activity, intermediate moisture foods, concentration, dehydration and freeze drying. Preservation by heat treatment: pasteurisation, sterilisation, canning. Preservation by chilling and freezing. Chemical preservation and fermentation. Preservation by irradiation. Modified atmospheres. Influence of processing on product safety, quality and nutritional value of foods. Principles of food packaging, packaging requirements.
Required Reading
Recommended Reading
Class Contact
Total of 72 hrs per semester or six hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.
Assessment
Assignments and tests 40%, practical work 20%, final examination 40%.

RBF5220 FUNDAMENTALS OF FOOD ANALYSIS
Campus Werribee
Pre-requisite(s)A completion of an undergraduate science degree or other relevant related disciplines.
Learning Outcomes
On successful completion of this unit, students are anticipated to be able to discuss and evaluate the principles of and procedures for the food analysis and labeling; to compare and assess different methods used in food analysis of foods, distinguishing between methods used for quality control and rapid screening techniques in comparison to official methods; to estimate accuracy and reproducibility in analysis and to propose, design and establish novel methods of food analysis.
Content
This unit provides an introduction to the laboratory analysis of the chemical, physical and biochemical properties of foods and food components. The unit covers: the reasons for analysing foods; food composition tables and databases; sampling and
sample preparation; the proximate analysis system; water activity; analyses of proteins, carbohydrates, lipids, vitamins, minerals and pigments; the use of enzyme based assays for food components; rheology, texture, viscosity and colour of foods - principles and recent developments in analysis; enzymes as processing aids and as deteriorative agents - measurement of food enzymes.

Required Reading

Recommended Reading

Class Contact
The equivalent of 60 hours or five hours per week comprising two hours of lectures/tutorials and three hours of practical laboratory work for one semester.

Assessment
Assignments and tests 40%, practical work 30%, final examination 30%.

RBF5230 MANAGING FOOD ENTERPRISES
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines

Learning Outcomes
On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design experiments to test hypotheses, to analyse and solve problems, to apply knowledge to new problems, and to plan, design, conduct and report on an individual research project.

Content
In this unit students will conduct a research project of their own design, analyse and interpret data and communicate research findings clearly and concisely in both oral and written form. The project will be carried out on an individual basis under the supervision of a relevant staff member and a member of industry where appropriate. The unit involves: Conduct of a thorough literature search on current issues in food science and technology; Design and development of the study; Presentation of a seminar on the research work. Unit to approval, the project may be related to the student’s work situation and/or may involve laboratory or plant based work.

Required Reading
Students will be responsible for reviewing the current literature on their project topic.

Recommended Reading
Nil

Class Contact
The equivalent of at least 12 hours per week of laboratory/tutorial work for one semester.

Assessment
Presentation (15+5 min, Powerpoint) 20%, Written report (max 5000 words) 80%

RBF6120 FRUIT AND VEGETABLE SCIENCE AND TECHNOLOGY
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.

Learning Outcomes
On successful completion of this unit, students are anticipated to be able to critically appraise the relationship between properties of raw materials with quality of stored fresh and processed fruit and vegetable products; to predict physicochemical changes that take place during storage and processing of various fruit and vegetable products including reproduction of flow diagrams and identification of the critical control points; to selected processing equipment at a pilot plant scale; to implement GMP in production of selected fruit and vegetable products.

Content
This unit introduces students to the principles and technology of fruit and vegetable processing and to recent developments in the processing of these commodities. Topics covered include: The fruit and vegetable industry: plant physiology, the biochemistry of fruit ripening; diseases; maturity prediction and testing; post-harvest handling and storage, chilling and freezing, canning, microwave processing, cooking and dehydration, changes in quality. The juicing of fruit and vegetables, product deterioration, blanching treatments, product quality, quality assurance, and legal requirements.

Required Reading

Recommended Reading
Arthay, D. and Ashurst, P.R., 1996, Fruit Processing, Blackie Academic and Professional, Glasgow.

Class Contact
The equivalent of 72 hrs per semester or six hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Assessment
Assignments and tests 30%, practical work 20%, final examination 50%
Content
This unit will provide students with an understanding of the principles and practices involved in the technology of food cereals and legumes. Topics covered include:
Cereal and legumes of the world - nutritional, physical, compositional and biochemical characteristics. The characteristics of grain proteins and starches; protein functionality; the starch granule. The milling of cereals and legumes - cleaning, conditioning, the concept of starch damage and the control of mill product quality. Flour quality, analytical approaches, quality control, grain sprouting and end use suitability.

Required Reading

Recommended Reading

Class Contact
The equivalent of 72 hrs per semester or six hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Assessment
Assignments and tests 30%, practical work 20%, final examination 50%.

RBF6210 MAJOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY - 2
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.

Learning Outcomes
On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design experiments to test hypotheses, to analyze and solve problems, to apply knowledge to new problems, and to plan, design, conduct and report on an individual research project.

Content
In this unit students will conduct a research project of their own design, analyse and interpret data and communicate research findings clearly and concisely in both oral and written form. The project will be carried out on an individual basis under the supervision of a relevant staff member and a member of industry where appropriate.
The unit involves: Conduct of a thorough literature search on current issues in food science and technology; Design and development of the study; Presentation of a seminar on the research work. Unit to approved, the project may be related to the student’s work situation and/or may involve laboratory or plant based work.

Required Reading
Students will be responsible for reviewing the current literature on their topic project.

Recommended Reading
Nil

Class Contact
The equivalent of minimum 144 hrs per semester or at least 12 hrs per week of laboratory/tutorial work for one semester

Assessment
Presentation (15+5 min, Powerpoint) 20%, Written report (max 5000 words) 80%.

RBF6220 DAIRY SCIENCE AND TECHNOLOGY
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.

Learning Outcomes
On successful completion of this unit, students are anticipated to be able to critically appraise the relationship between properties of raw materials with the quality of processed dairy products; to predict physicochemical changes that take place during processing of various dairy products including reproduction of flow diagrams and identification of the critical control points; to operate selected processing equipment at a pilot plant scale; to implement GMP in production of selected dairy products.

Content
This unit provides a study of the science and technology associated with the processing of milk and milk products. The unit covers: Structure of the Dairy Industry; Effects of heat treatment on milk; Processing of milk to various dairy products; Advances in testing of milk and milk products; Quality management of milk and dairy products; Starter cultures and friendly bacteria; Advances in dairy fermentation; UHT of milk and milk products; Membrane technology; Nutritional issues in dairy product development; Dairy ingredients.

Required Reading

Recommended Reading

Class Contact
The equivalent of 60 hrs per semester or five hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Assessment
Assignments and tests 40%, practical work 20%, final examination 40%.

RBF6230 MUSCLE FOOD SCIENCE AND TECHNOLOGY
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.

Learning Outcomes
On successful completion of this unit, students are expected to be able to apply and integrate the principles and practices of meat science and technology to the production, preservation and distribution of safe meat; to critically evaluate and synthesize information from diverse sources to address issues relevant to the production of meat products; to critically evaluate production processes used in the meat industry and plan and design novel methodologies; to appraise the impact of culture on meat consumption and usage in both domestic and international markets.

Content
This unit aims to study the physical, chemical and biochemical parameters of muscle foods which have effect on the processing, technology and final quality of the product. The unit covers: The meat industry; Anatomical microstructure and histochemical characters of muscle; Muscle pigments; Post-mortem biochemistry of muscle; Conversion of muscle to food by processing - slaughtering, chilling, freezing, curing, emulsifying, smoking, fermenting, canning and others. The assessment of product quality. Special religious requirements and the processing of muscle foods to meet these values; By-product processing.

Required Reading

Recommended Reading

Class Contact
The equivalent of 60 hrs per semester or five hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Assessment
Assignments and tests 40%, practical work 20%, final examination 40%.
RBF6310 MINOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.

Learning Outcomes
On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design experiments to test hypotheses, to analyze and solve problems, to apply knowledge to new problems, and to plan, design, conduct and report on an individual research project.

Content
This unit allows students to conduct a research project of their own design, analyse and interpret data and communicate research findings clearly and concisely in both oral and written form. This unit covers: Conduct of a project on an aspect of food science and technology; Design and development of the study, collection and analysis of data and submission of a written report; Presentation of a seminar on the research work. Subject to approval, the project may be related to the student’s work situation and/or may involve laboratory or plant based work.

Required Reading
Students will be responsible for reviewing the current literature on their project topic.

RBF6320 SPECIAL TOPICS IN FOOD SCIENCE AND TECHNOLOGY
Campus Werribee
Pre-requisite(s) A completion of an undergraduate science degree or other relevant related disciplines.

Learning Outcomes
On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design research question, to analyze and solve problems, to apply knowledge to new problems, and plan, conduct and report on an individual research project.

Content
This unit allows students to develop and study a selected aspect of food science and technology and requires the conduct of a project on the selected topic. This project is not laboratory based but is designed to allow students to research the literature on a topic of interest to themselves. The work will be carried out on an individual basis under the supervision of a relevant staff member. The unit includes: assessment of current issues relevant to the field; generation of a research question; public delivery of collected information and submission of a written report. Subject to approval, the project may be related to the students’ work situation and/or may involve plant based work.

Required Reading
Students will be responsible for reviewing the current literature on their project topic.

RBF8001 RESEARCH THESIS 1 FULL TIME
This subject is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBF8002 RESEARCH THESIS 2 FULL TIME
This subject is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBF8011 RESEARCH THESIS 1 PART TIME
This subject is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBF8012 RESEARCH THESIS 2 PART TIME
This subject is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RCS1000 MEDICAL, FORENSIC AND ANALYTICAL CHEMISTRY 1
Campus Werribee
Prerequisite(s) Nil.

Content
Overview and introduction to the principles and methodology of medical, forensic and analytical chemistry. Medical chemistry: introduction to medical therapeutics and diagnostics, organic and inorganic medical chemistry, nuclear medicine and drug design. Forensic chemistry: introduction to physical evidence, fire and explosion investigation, firearm investigation, drug analysis and the analysis of chemical evidence such as fibres. An introduction to the relevant areas of analytical chemistry include an overview of measurements in the analytical laboratory, solutions
and concentrations, and an introduction to classical analytical chemistry including volumetric analysis and methods based on analytical separations.


**Recommended Reading** Students will be directed towards relevant sections of the medical, forensic and analytical chemistry literature.

**Class Contact** Three hours of lectures and one hour of tutorials/demonstrations per week.

**Assessment** Written examination, 100%.

**RCS1008 INDUSTRIAL EXPERIENCE 1A**

**Campus** Werribee

**Prerequisite(s)** Nil

**Content** No formal content; students will be required to provide evidence of 12 months full-time (or equivalent part-time) employment in a Chemical Industry acceptable to the Head of School. Students should consult with appropriate staff prior to commencing the subject to ensure their situation is acceptable to the School.

**Class Contact** Class Contact No set contact hours.

**Assessment** Evidence of appropriate industrial experience in the form of a letter from the employer detailing the experience is required.

**RCS1110 CHEMISTRY FOR BIOLOGICAL SCIENCES A**

**Campus** St Albans

**Prerequisite(s)** Nil

**Content** Chemistry relevant to biological sciences including the topics which follow: Matter and energy, Measurement, Atomic theory and the periodic table, Chemical and physical bonding, Chemical formulae, reactions and equations, Molecular structure and the state of matter, Solutions and aqueous chemistry.


**Recommended Reading** To be advised by lecturer.

**Class Contact** Six hours per week for one semester comprising three hours of lectures, one hour tutorial and two hour practical classes.

**Assessment** Assignment, 10%; Practical work, 20%; Examination, 70%.

**RCS1120 CHEMISTRY FOR BIOLOGICAL SCIENCES B**

**Campus** St Albans

**Prerequisite(s)** RCS1110 Chemistry for Biological Sciences A or equivalent

**Content** Chemistry topics relevant to biological sciences and which incorporate specific reference to biological systems. Topics will include the following: Basic physical chemistry including chemical equilibrium and kinetics; acids and bases, Thermochemistry, Oxidation and reduction, Inorganic and nuclear chemistry with reference to selected elements of biological chemistry, Organic chemistry and biological chemistry.


**Recommended Reading** To be advised by lecturer.

**Class Contact** Six hours per week for one semester comprising three hours of lectures, one hour tutorial and two hour practical classes.

**Assessment** Assignment, 10%; Practical work, 20%; Examination, 70%.

**RCS1601 CHEMISTRY 1A**

**Campus** Footscray Park

**Pre-requisite(s)** Nil

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Identify the elements in the periodic table and state their properties in relation to their position in the periodic table;
2. Identify the types of bonds (ionic and covalent) and, using the concept of Lewis structure and VSEPR, draw the geometry of the molecules;
3. Describe the mole concept and its relationship to Avogadro’s number;
4. Draw and complete stoichiometric equations;
5. Identify the geometry of various coordination complexes and indicate the structural name of these complexes;
6. Identify the various types of chemical reactions (precipitation reactions, acid-base reactions and redox reactions).

**Content** Chemistry methods and measurements; atomic theory and the periodic table; structures and properties of ionic and covalent compounds; chemical equation, reactions and solutions; co-ordination chemistry, acids and bases.


**Class Contact** Eight-four (84) hours or equivalent for one semester comprising lectures, tutorials and laboratories.

**Assessment** Laboratory work (30%); Tutorial assessments (15%); Examination (55%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

**RCS1602 CHEMISTRY 1B**

**Campus** Footscray Park

**Pre-requisite(s)** Nil

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Identify the various functional groups associated with organic molecules.
2. Complete nuclear equations and state the factors affecting nuclear stability;
3. Identify the various functional groups associated with organic molecules.
4. Describe the mole concept and its relationship to Avogadro’s number;
5. Identify the factors that influence the rate of a chemical reaction;
6. Complete nuclear equations and state the factors affecting nuclear stability;
7. Identify the various functional groups associated with organic molecules.

**Content** States of matter; physical and chemical changes (energy, rate and equilibrium); oxidation-reduction reaction (electrochemistry); the nucleus, radioactivity and nuclear medicine. Organic chemistry; saturated and unsaturated hydrocarbons; alcohol phenols, thiols and ethers; aldehydes and ketones; carboxylic acids and their derivatives; amines and amides; biological chemistry.


**Class Contact** Eight-four (84) hours or equivalent for one semester comprising lectures, tutorials and laboratories.

**Assessment** Practical work (30%); Tutorial assessments (15%); Examination (55%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

**RCS2000 INDUSTRIAL EXPERIENCE 2A**

**Campus** Werribee

**Prerequisite(s)** Nil

**Content** No formal content; students will be required to provide evidence of 12 months full-time (or equivalent part-time) employment in a Chemical Industry acceptable to the Head of School. Students should consult with appropriate staff prior to commencing the subject to ensure their situation is acceptable to the School.

**Class Contact** Class Contact No set contact hours.

**Assessment** Evidence of appropriate industrial experience in the form of a letter from the employer detailing the experience is required.

**RCS2100 ORGANIC CHEMISTRY 2A**

**Campus** Werribee

**Prerequisite(s)** RCS1602 Chemistry 1B

**Learning Outcomes** On successful completion of this unit, it is expected that students will be able to:

- use mechanisms to explain simple organic chemical reactions;
- describe the factors which control simple organic reactions;
- characterise aromatic compounds and describe their common reactions;
- provide examples of simple reactions involving carbonarins and carbocations;
- perform common practical organic chemistry manipulations.

**Content** The aims of this unit are to introduce students to fundamental aspects of synthetic organic chemistry, organic reaction mechanisms along with applications of spectroscopy to organic chemistry. The topics covered include: aromativity, electrophilic and nucleophilic aromatic substitution reactions. The chemistry of
carbons and of carbocations. Practical exercises providing substantial ‘hands-on’ experience with chromatographic and spectroscopic instrumentation will complement the lecture material.


**Class Contact** Two hours of lectures and three hours of practical classes per week for one semester.

**Assessment** End-of-semester examination, 70% (P2, I2, W2); Practical work, 20% (P2, A2, I2, W2, O2); Assignment, 10% (P2, I2).

### RCS2200 ORGANIC CHEMISTRY 2B

**Campus** Werribee

**Prerequisite(s)** RCS1200 Organic Chemistry 2A

**Learning Outcomes** On successful completion of this unit, it is expected that students will be able to:

- define free radicals and explain their common reactions;
- describe and explain basic polymers, their preparation and properties;
- describe and evaluate photochemical and pericyclic reactions;
- utilise the disconnection approach to devise synthetic pathways of simple organic compounds.

**Content** The aim of this unit is to build upon the concepts introduced in RCS1200 Organic Chemistry 2A. Topics covered will include: the chemistry of free radicals; an introduction to polymer chemistry; photochemistry and molecular orbital reactions and an introduction to the design of synthetic sequences. Practical exercises providing substantial ‘hands-on’ experience with chromatographic and spectroscopic instrumentation will complement the lecture material.


**Class Contact** Two hours of lectures and three hours of practical classes per week for one semester.

**Assessment** End-of-semester examination, 70% (P2, I2, W2); Practical work, 20% (P2, A2, I2, W2, O2); Assignment, 10% (P2, I2).

### RCS2502 MEDICAL CHEMISTRY 2

**Campus** Werribee

**Prerequisite(s)** RCS1000 Medical, Forensic and Analytical Chemistry 1 or equivalent.

**Learning Outcomes** At the conclusion of this unit students will be able to:

- discuss the importance of medical inorganic chemistry and minerals in health;
- identify the structure carbohydrates and lipids; and explain their analysis;
- characterise amino acids and proteins and explain their preparation, analysis and basic structure;
- discuss the principles behind drug-protein interactions.

**Content** The aim of this subject is to introduce students to aspects of Medical Chemistry. The topics covered include Nuclear Chemistry and the application of Radioisotopes in Medical Chemistry. Bioinorganic Chemistry and the role of inorganic compounds in medicine. The synthesis and analysis of proteins, the structure and physiology of carbohydrates and lipids and a brief introduction to drug/molecule interactions.


**Class Contact** Two hours of lectures and three hours of practical classes per week for one semester.

**Assessment** End-of-semester examination, 80%; practical work 20%.

### RCS2503 FORENSIC CHEMISTRY 2

**Campus** Werribee

**Prerequisite(s)** RCS1000 Medical, Forensic & Analytical Chemistry 1 or equivalent.

**Learning Outcomes** At the conclusion of this unit students will be able to:

- describe current practices in arson investigation including taking samples, recovery and gas chromatographic analysis of ignitable liquid residues and identification of accelerants;
- develop analytical procedures to investigate environmental pollutants;
- develop extraction procedures for drugs and metabolites in biological samples;
- define genome and chromosome structure and the nature of repeat regions;
- describe the principles of DNA replication and PCR;
- perform a number of forensic analyses including Duquenois-Levine test for marijuana, fingerprinting, Plater of Paris casts of footprints, colour tests for drugs in white powders, drug analysis using IR and UV-Vis spectrophotometry, links by TLC, alcohol by GC and metal poisons by AA.

**Content** This subject builds upon the concepts introduced in Medical, Forensic & Analytical Chemistry 1 and introduces students to forensic chemical techniques. Topics covered include: arson investigation, forensic toxicology, environmental forensics and an introduction to molecular biology. Practical exercises provide ‘hands-on’ experience in a range of forensic chemical techniques.


**Recommended Reading** Students will be directed to relevant sections of Saferstein, R., (ed), Forensic Science Handbook Vol 1, 2 and 3, Prentice Hall.

**Class Contact** Two hours of lectures and three hours of practical classes per week for one semester.

**Assessment** A combination of assignments, 15%; practical work, 30%; and examination, 55%.

### RCS2601 ANALYTICAL CHEMISTRY 2A

**Campus** Werribee

**Prerequisite(s)** RCS1601 Chemistry 1A, RCS1602 Chemistry 1B or equivalent.

**Content** Statistics of errors and treatment of analytical data. Sampling of complex materials. Analytical methods based on emission and absorption of radiation including UV visible and fluorescence spectroscopy. Introduction to NMR and mass spectrometry. Practical exercises will provide substantial ‘hands-on’ experience with modern analytical instruments and will illustrate important analytical and physicochemical techniques.


**Recommended Reading** To be advised by lecturer and will be based on the most current texts and journal articles that are relevant to the subject.

**Class Contact** Two hours per week of lectures and three hours of laboratory classes per week for one semester.

**Assessment** Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

### RCS2602 ANALYTICAL CHEMISTRY 2B

**Campus** Werribee

**Prerequisite(s)** RCS1601 Chemistry 1A, RCS1602 Chemistry 1B or equivalent.

**Content** Principles of instrumentation. Chromatographic methods including gas chromatography and liquid chromatography. Introduction to electrochemical methods. Analytical separation techniques and processes. Practical exercises will provide substantial ‘hands-on’ experience with modern analytical instruments and will illustrate important analytical and physicochemical techniques.


**Recommended Reading** To be advised by lecturer and will be based on the most current texts and journal articles that are relevant to the subject.

**Class Contact** Two hours per week of lectures and three hours of laboratory classes per week for one semester.

**Assessment** Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.
RCS3000 INDUSTRIAL EXPERIENCE 3A
Campus Werribee
Prerequisites Nil
Content No formal content; students will be required to provide evidence of 12 months full-time (or equivalent part-time) employment in a Chemical Industry acceptable to the Head of School. Students should consult with appropriate staff prior to commencing the subject to ensure their situation is acceptable to the School.
Class Contact Class Contact No set contact hours.
Assessment Evidence of appropriate industrial experience in the form of a letter from the employer detailing the experience is required.

RCS3601 ANALYTICAL CHEMISTRY 3A
Campus Werribee
Prerequisite(s) RCS2601 Analytical Chemistry 2A and RCS2602 Analytical Chemistry 2B or equivalent.
Content Chemical literature and use of library resources; modern trends in chemical analysis; review of analytical methodologies; an operational model for analytical chemistry; evaluation and criticism of analytical results; development of new analytical methods and trends in analytical research; project planning; selection and purchase of analytical equipment and apparatus; optimisation of analysis. Applications of advanced spectroscopy to organic analysis and structure elucidation. Analysis of carbohydrates, lipids, terpenes, steroids, heterocyclic compounds and proteins.
Recommended Reading Students will be referred to various texts and journals during the subject and will be expected to read widely from them.
Class Contact Two hours of lectures per week and four hours of laboratory classes per week for one semester.
Assessment Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

RCS3602 ANALYTICAL CHEMISTRY 3B
Campus Werribee
Prerequisite(s) RCS2601 Analytical Chemistry 2A and RCS2602 Analytical Chemistry 2B or equivalent.
Content Principles, instrumentation, interferences and applications in chemical analysis of absorption and emission spectroscopy including vibrational, rotational, advanced UV visible and fluorescence spectroscopy, and flameless AAS. Electrochemical methods of analysis including ion-selective electrodes, and modern polarography and stripping voltammetry. Flow injection analysis. Capillary electrophoresis. Specialized physical techniques of analysis including thermal methods, techniques for surface analysis and the analysis of polymer molecular weights. Practical work providing substantial ‘hands on’ experience will complement the lecture material.
Recommended Reading Students will be referred to various texts and journals during the subject and will be expected to read widely from them.
Class Contact Two hours of lectures per week and four hours of laboratory classes per week for one semester.
Assessment Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

RCS3603 MEDICAL CHEMISTRY 3 A
Campus Werribee
Prerequisite(s) RCS2502 Medical Chemistry 2nd and RCS2100 Organic Chemistry 2A or equivalent.
Learning Outcomes At the conclusion of this unit students will be able to:
• apply the principles of various organic synthetic procedures to drug synthesis;
• categorise the different classes of protecting groups and describe their role in organic synthesis;
• evaluate various chiral synthetic methodologies and their application to drug synthesis;
• discuss the importance of X-Ray diffraction and its application to determining the structure of small molecules and proteins;
• describe the fundamentals of protein chemistry in relation to the isolation and purification of proteins;
• discuss the principles and application of combinatorial synthesis;
• utilise basic computer modelling as applied to drug design.
Content The synthesis of new chemicals and biochemicals which mimic natural molecules. Methods used to assess the purity of synthetically generated products. Methods used for the bioassay of chemically synthesized chemical. The design of chemicals using 3D drug design.
Class Contact Two hours of lectures and four hours of practical classes per week.
Assessment Practical work, 40%; final examination, 60%.

RCS3604 MEDICAL CHEMISTRY 3 B
Campus Werribee
Prerequisite(s) RCS2502 Medical Chemistry 2.
Content Students enrolled in medical chemistry 3 will become skilled in the use of the theoretical basis of advanced physico-chemical and biochemical methods for body fluid analysis for the diagnosis of human diseases. These techniques will include ELISA assays and the analysis of human tissues using techniques such as PCR to determine the DNA profile of human tissues.
Required Reading A range of textbooks and journal articles will be recommended by the lecturer.
Recommended Reading Leach, A., 1996, Molecular Modelling: Principles and Application, Longman.
Class Contact Two hours of lectures and four hours of practical classes per week.
Assessment Practical work, 40%; examinations, 60%.

RCS3605 FORENSIC METHODS 3A
Campus Werribee
Prerequisite(s) RCS2503 Forensic Chemistry 2 or equivalent.
Content Forensic Methods 3A provides training in sophisticated methods of analysis as currently applied to the examination of materials that have in some way been associated with crime. Topics covered include: gun shot residue analysis, chemical fingerprinting, paint analysis and pesticide analysis. Practical exercises provide ‘hands-on’ experience in a range of forensic chemical techniques.
Recommended Reading Students will be directed to relevant sections of Saferstein, R., (ed), Forensic Science Handbook Vol 1, 2 and 3, Prentice Hall.
Class Contact Two hours of lectures and three hours of practical classes per week for one semester.
Assessment Practical work, 30%; and examination, 70%.

RCS3606 FORENSIC METHODS 3B
Campus Werribee
Prerequisite(s) RCS2503 Forensic Chemistry 2 or equivalent.
Learning Outcomes At the conclusion of this unit students will be able to:

SCHOOL OF MOLECULAR SCIENCES
- discuss important considerations in the examination of different types of physical evidence;
- describe the role of DNA profiling in forensic science; describe the nature of molecular markers and carry out laboratory procedures related to the above such as DNA amplification and separation;
- define the role of forensic science within the legal system;
- perform a number of forensic analyses including GSR on hands using FAAS, quinine in urine by fluorometry, drugs in white powders by HPLC, ignitable liquids in fire debris by GC, IR microscopy of fibres, opiates in opium powder by GCMS, refractive index of glass, DNA isolation, amplification and separation of PCR products using electrophoresis.

Content Forensic Methods 3B provides training in sophisticated methods of analysis as currently applied to the examination of materials that have in some way been associated with crime. Various topics in this subject will be delivered by practicing forensic scientists. These include crime scene investigation, chemical trace evidence, fire and explosion investigation, fingerprints, drug analysis, clandestine laboratory scene investigation, forensic toxicology and DNA profiling. Legal studies is also included and introduces students to the legal system, courtroom practices and expert testimony. Practical exercises provide ‘hands-on’ experience in a range of forensic chemical techniques.


Recommended Reading Students will be directed to relevant sections of Saferstein, R., (ed.), Forensic Science Handbook Vol 1, 2 and 3, Prentice Hall.

Class Contact Two hours of lectures and three hours of practical classes per week for one semester.

Assessment Practical work, 30%; and assignments/examination, 70%.

RCS3607 ADVANCED ANALYTICAL ANALYSES
Campus Werribee
Prerequisites RCS3601 Analytical Chemistry 3A
Co-requisites

Learning Outcomes To provide students with an understanding of the design, interpretation and application of a range of advanced analytical techniques. Content This subject will introduce FT-NMR and associated techniques, 13C NMR, decoupling, relaxation, nOe’s and DEPT. The role and interpretation of 2D NMR experiments such as COSEY, HSBC and NOESY. The use of LC/MS and MSn in the identification and characterisation of a range of chemical classes will be discussed. Particular emphasis will be placed upon single ion monitoring and fragment monitoring. Other techniques including fluorescence spectroscopy and its role in chemical analysis will also be discussed.


Students will be directed towards relevant sections of the analytical Chemistry Literature.

Class Contact 2 hrs of lectures per week
Assessment Assessed by two assignments and a written examination. Each assignment is worth 20% and has a 1000 word limit and may be supplemented with an appropriate number of figures, charts and/or tables. The assignments will be spread evenly over the semester. The written examination is worth 60% and there are no specific conditions for the exam.

RCS3608 POLYMER TECHNOLOGY
Campus Werribee
Prerequisites SCS2521 Applied Chemistry 2 - Organic
Co-requisites

Learning Outcomes To provide students with an understanding of polymer chemistry as it relates to the plastics industry.

Content This unit will introduce students to the preparation of polymers, including radical and ionic polymerisation as applied to chain reaction and step reaction polymerisation reactions. The determination of polymer molecular weight and analysis using GPC will be presented. The physical properties of polymers and their importance to the plastics industry will also be a focus of this subject.


Recommended Reading Billmeyer, F. W. Jr., Textbook of Polymer Science, 3rd Edn., Wiley, New York, 1984. [N.B. This is the latest edition of this most popular, well-renown book on basic polymer science!]. Students will be directed towards relevant sections of the analytical Chemistry Literature.

Class Contact 2 hrs of lectures per week
Assessment Assessed by one assignment and a written examination. The assignment is worth 30% and has a 1000 word limit and may be supplemented with an appropriate number of figures, charts and/or tables. The written examination is worth 70% and there are no specific conditions for the exam.

RCS4201 HONOURS COURSEWORK
Campus Werribee
Prerequisites Satisfactory completion of an appropriate undergraduate degree program with at least a credit average in the final year.

Content The major focus of the course component is research methodology and subjects include experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation.

Required Reading To be advised by the lecturer.

RCS4601 HONOURS PROJECT PART TIME
Campus Werribee
Prerequisites Nil

Content The program will consist of a research project and a coursework component. The major focus of the course component is research methodology and subjects include experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location. Required Reading To be advised by the lecturer. Normally the coursework component will be conducted in the first two semesters and the research component in the third and fourth semester.

Required Reading To be advised by the lecturer. Normally the coursework component will be conducted in the first two semesters and the research component in the third and fourth semester.

Class Contact An average of 10 hours per week
Assessment The assessment will vary and may be based on written assignments, seminar presentations and a written examination.

RCS4602 HONOURS PROJECT
Campus Werribee
Prerequisites Nil

Content This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be a scientific investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the scientific investigation described in detail; results and conclusions from the study are elaborated; and an extended discussion presented. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.

Required Reading To be advised by supervisor.

Class Contact An average of 30 hours per week for one semester
Assessment The assessment will consist of an oral presentation and submission of a thesis.

RCS4610 HONOURS PROJECT PART TIME
Campus Werribee
Prerequisites Satisfactory completion of an appropriate undergraduate degree program with at least a credit average in the final year.
Content This subject, the aim of which is to enable students to competently research an area of study utilizing knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be a scientific investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the scientific investigation described in detail; results and conclusions from the study are elaborated; and an extended discussion presented. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.

Required Reading To be advised by supervisor.

Recommended Reading

Class Contact An average of 15 hours per week for one semester

Assessment The assessment will consist of an oral presentation and submission of a thesis.

RCS5100 RESEARCH METHODOLOGY

Campus Footscray Park

Prerequisite(s) Nil.

Content Experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation. Qualitative data analysis.

Required Reading To be advised by lecturer.


Class Contact One hour/week x 26 weeks/53 hours per week for one semester lectures and computer labs.

Assessment Continuous assessment by assignments only.

RCS5111 PRINCIPLES OF ENVIRONMENTAL SCIENCE AND MANAGEMENT

Campus Footscray Park

Prerequisite(s) Nil.


Required Reading There are no standard textbooks for this subject. Reading to be advised by the lecturer.


Class Contact Three hours of lectures per week for one semester.

Assessment Assessment will be by four assignments (4 x 10% = 40%) and one end of semester exam (60%). Each assignment has a 1,000 word limit (no more than 10 pages) and may be supplemented with an appropriate number of figures, charts and/or tables. Assignments and assignment deadlines will be spread evenly across the semester. There are no special conditions for exams.

RCS5131 WATER POLLUTION MONITORING & LIQUID WASTE MANAGEMENT

Campus Footscray Park

Prerequisite(s) Nil.


Required Reading There are no standard textbooks for this subject. Reading to be advised by the lecturer.


Class Contact Three hours of lectures per week for one semester.

Assessment Assessment will be by four assignments (4 x 10% = 40%) and one end of semester exam (60%). Each assignment has a 1,000 word limit (no more than 10 pages) and may be supplemented with an appropriate number of figures, charts and/or tables. Assignments and assignment deadlines will be spread evenly across the semester. There are no special conditions for exams.

RCS5132 ENVIRONMENTAL LAW AND STANDARDS 2

Campus Footscray Park

Prerequisite(s) Nil.


Class Contact Three hours of lectures per week for one semester.

Assessment Continuous assessment by assignments, presentations and reports.

RCS8001 RESEARCH THESIS 1 FULL TIME

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeForPostgraduateResearch/PolicyProcessesandGuidelines/

RCS8002 RESEARCH THESIS 2 FULL TIME

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeForPostgraduateResearch/PolicyProcessesandGuidelines/

RCS8011 RESEARCH THESIS 1 PART TIME

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeForPostgraduateResearch/PolicyProcessesandGuidelines/

RCS8012 RESEARCH THESIS 2 PART TIME

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeForPostgraduateResearch/PolicyProcessesandGuidelines/
**RMS1000 BIOTECTNOLOGY PROFESSION**

Campus Werribee  
**Prerequisite(s)** Nil  
**Content** Context specific materials from the world of biotechnology will be used to develop the students’ awareness and understanding of the professional skills and duties that comprise professional practice. Practicing biotechnologists and other scientists will be invited to give presentations on their experiences in the profession. The ethics of biotechnology practice will be emphasised and students will be will be encouraged to give formal and impromptu presentations on biotechnology and society.  
**Required Reading** Students will be asked to review a selection of papers from the literature.  
**Recommended Reading** To be advised  
**Class Contact** Four hours per week for one semester consisting of 2 x 2hr workshops per week.  
**Assessment** Assignment two x 1000 word (30%), Oral presentations x 2 (20%), Examination (50%).

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**RMS1171 BIOCHEMISTRY 1 (OSTEOPATHY)**

Campus St Albans, City Flinders  
**Prerequisite(s)** Nil  
**Student Learning Outcomes** On successful completion of this unit, it is expected that students will be able to:  
1. Describe various nutrients, and discuss the structures and functions of biological macromolecules and their component subunits;  
2. Explain how nutrients are metabolized;  
3. Discuss the importance of clinical biochemistry and the role of clinical enzymology in the diagnosis and prognosis of various diseases in the human body;  
4. Explain the biological mechanism of inflammation and allergy;  
5. Define the different types of muscle;  
6. Use muscle biochemistry to explain muscle contraction and relaxation;  
7. Outline various metabolic pathways for energy production in muscle;  
8. Predict and explain the clinical implications resulting from aberrations in pathways or deficits in nutrient intake;  
9. Describe cellular signalling from intracellular and extracellular perspectives, including the molecules involved.  
**Content Insights** into biochemical events that occur in the human body. This includes an overview of nutrients such as proteins, carbohydrates, vitamins and fats, and how nutrients are metabolized. Specific biochemical systems occurring in muscle that will be studied include glycolysis, the tricarboxylic acid (TCA) cycle, oxidative phosphorylation, gluconeogenesis, glycogen and lipid metabolism. Other topics include the biochemistry of allergy and inflammation, nervous system biochemistry; the extracellular matrix, calcium and bone metabolism. The importance of clinical biochemistry and clinical enzymology will be discussed. Cellular signalling will be dealt with in detail.  
**Assessment** Assignment two x 1000 word (30%), Oral presentations x 2 (20%), Examination (50%).

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**RMS1272 BIOCHEMISTRY (OSTEOPATHY) 2**

Campus St Albans, City Flinders, Off Campus.  
**Prerequisites** RMS1171 Biochemistry (Osteopathy) 1; or equivalent.  
**Co-requisites** Nil  
**Learning Outcomes** On successful completion of this unit, it is expected that students will be able to:  
1. Describe biochemical events that occur in the human body;  
2. Explain the biochemical and pathological basis of metabolic diseases;  
3. Make cautious interpretations of test results, taking into account various factors that can affect the results;  
4. Correctly handle commonly used biocatalytic laboratory equipment, such as micropipettes, spectrophotometers, burettes, glassware, centrifuges;  
5. Critically analyse data obtained in experiments;  
6. Write formal laboratory reports in a conventional scientific manner;  
7. List principles of Good Laboratory Practice (GLP) and apply those principles in the laboratory at all times;  
8. Behave in a safety-conscious manner in a laboratory.  
**Content** Further insights into the biochemical events that occur in the human body. Biochemical pathology: inborn errors of metabolism and their effects. Clinical biochemistry and diagnosis of disease. Importance of biochemical tests in the diagnosis of disease. Use of clinical cases to discuss normal and altered human biochemistry. Practical laboratory skills, interpretation of results and the application of good laboratory practice.  
**Assessment** Assignment two x 1000 word (30%), Oral presentations x 2 (20%), Examination (50%).

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**RMS3000 BIOPROCESSING TECHNOLOGY**

Campus Werribee  
**Prerequisites** RBF2300  
**Content** Topics include the principles of biochemical engineering, process flow charts, material and energy balances, fluid statics and dynamics, bioreactor design, production and maintenance of commercial strains, scale up, downstream processing including harvesting, concentration and purification of bioproducts, sterilization.  
**Class Contact** Three (3) hours per week or equivalent for one semester comprising tutorials and laboratory practicals. Practical sessions have a hurdle requirement of 100% attendance.  
**Assessment** Laboratory practical performance and reports (50%); one theory and practical skills examination (25%); clinical case study workshops (25%).

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**RMS3101 BIOPROCESSING APPLICATIONS**

Campus Werribee  
**Prerequisite(s)** Nil  
**Content** Topics include enzyme production and applications, algal biotechnology, bioremediation, biotreatment of metals from low grade ores, commercial and domestic wastewater treatment, biomass conversion and microbial fuel production. The ethical issues associated with these topics will be discussed.  
RMS3020 GENOMICS, PROTEOMICS AND BIOINFORMATICS
Campus Werribee
Prerequisite(s) RBF2520 Biochemistry I.
Content An overview and definitions of terms; the logic, scope and rationale of genomics and proteomics; descriptions of approaches used in genomics and proteomics; applications of bioinformatics including accessing internet resources such as GenBank and EnBank, data mining, and using programs such as BLAST and FASTA; examples of applications in a range of settings including forensics, drug design, medical research. The theory underlying a range of analytical techniques used in nucleic acid and protein analysis will also be covered. Ethical issues concerning the ownership of and access to information in databanks will be covered.


Class Contact 5 hours per week comprising three hours of lectures and two hours of laboratory work.
Assessment Assignment (1 x 3000 words), 20%; Laboratory Reports (10 x reports), 30%; Exam (1 x three hrs), 50%.

RMS3030 GENETIC ENGINEERING
Campus Werribee, St Albans
Prerequisites RBF2520 Biochemistry 1; RBF2390 Molecular Genetics.
Content The subject will include gene cloning, PCR, restriction enzymes and their uses; site-directed mutagenesis; heterologous gene expression systems; DNA profiling and forensics; Southern and Northern Blotting; gene mapping; transgenics and gene knockouts; the Human Genome Project and gene therapy; recombinant DNA-based medical diagnostics; positional cloning: plant genetic engineering; and the ethics, risks and benefits of genetic engineering.


Class Contact 5 hours per week comprising three hours of lectures and two hours of laboratory work.

Assessment Assignment 20%; Laboratory Reports (4 x reports), 25%; Exam (1 x three hrs), 55%.

RMS3040 PROJECT 1 - BIOTECHNOLOGY
Campus Werribee
Prerequisite(s) Students would normally be expected to have completed all Year 1 and 2 subjects.
Content This subject covers project methodology, experimental and analytical design, and research plan preparation. A project will be selected by the student in consultation with academic staff and will, as far as is possible, address a genuine research issue related to Biotechnology.

Required Reading Third Year Project Study Guide, 2006, Victoria University; Students will be required to review from the current literature a selection of papers related to their chosen topic.

Recommended Reading Texts and peer-reviewed literature related to the chosen topic.

Class Contact 6 hours per week comprising laboratory work and workshops.

Assessment Written proposal (1 x 2,500 word), 30%; Poster presentation, 15%; Journal club, 10%; Critical Review (1 x 2000 words), 25%; Oral presentation 20%.

RMS3045 PROJECT 2 - BIOTECHNOLOGY
Campus Werribee
Prerequisite(s) Students would normally be expected to have completed Project 1-Biotechnology.
Content This subject covers project methodology, experimental and analytical design, research plan preparation, analysis of results and thesis writing. A project will normally have been selected by the student in consultation with academic staff in the prerequisite subject, Project 1-Biotechnology.

Required Reading Third Year Project Study Guide, 2006, Victoria University; Students will be required to review from the current literature a selection of papers related to their chosen topic.

Recommended Reading Texts and peer-reviewed literature related to the chosen topic.

Class Contact 6 hours per week comprising laboratory work and workshops.

Assessment 6 hours per week comprising laboratory work and workshops.

RMS3050 ADVANCED MEDICAL MICROBIOLOGY
Campus Werribee
Prerequisite(s) RBF2310 Microbiology 2 or equivalent.
Content The unit will focus on the molecular aspects of microbial pathogenesis and highlight the principal intervention strategies used to treat infectious diseases. The emphasis will be on the relationship between a pathogen (bacteria, viruses and protozoans) and its human host. An in depth review of the life cycles of several organisms will inform discussion of the current research in the areas of pathogenesis, genetic and phenotypic variation in pathogens and the implications for treatment and control strategies. Consideration will be given to the ethical issues relating to eg vaccination protocols and antimicrobial therapy.

Required Reading To be advised by the lecturer.

Recommended Reading To be advised by the lecturer.

Class Contact Three hours per week comprising lectures and tutorials.

Assessment Assignment (1 x 3000 words), 40%; Exam (1 x three hrs), 60%.

RMS3060 MICROBIAL TECHNOLOGY AND CELL CULTURE
Campus Werribee
Prerequisite(s) RBF2300 Microbiology 1 or equivalent.
Content Topics include batch, fed-batch and continuous culture, bioreactors and their various modes of operation, plant cell culture and animal cell culture. Topical issues related to the ethics associated with the source and use of various cell lines eg stem cells, will be discussed.


Class Contact three hours per week, comprising lectures and practical work in alternating weeks.

Assessment Laboratory Reports (3 x reports), 40%; Exam (1 x two hrs), 60%.

RMS3113 COMPARATIVE IMMUNOLOGY
Campus Werribee
Pre-requisite(s) RBF2520 Biochemistry 1, RBF2300 Microbiology 1, RBF2330 Cell Biology
Learning Outcomes On successful completion of this unit, students are expected to be able to: describe the adaptive and innate immune response to pathogens in vertebrates; compare and contrast strategies of defence against pathogens in prokaryotes and eukaryotes; recall key evolutionary events leading to the development of the immune response; perform several immunology-based laboratory techniques including the ELISA assay, Western Blot and Immunodiffusion assay; apply this knowledge in areas of biotechnology.

Content This unit of study examines strategies of disease resistance and internal defence in prokaryotes and eukaryotes and their importance in the field of biotechnology. The specific aims of this unit of study are: to develop an understanding of the nature of immunity and resistance; to develop an understanding of the mechanisms underlying...
internal defence in organisms; to develop an understanding of the evolution of defence mechanisms in prokaryotes and eukaryotes. Topics covered include: the molecular and cellular components of the vertebrate immune system; innate and adaptive responses to pathogens; the evolution of metazoan immunity; the restriction modification system and other defence mechanisms of prokaryotes; hypersensitive response and systemic acquired resistance in plants; immunology-related advances in biotechnology.

**Required Reading**


**Recommended Reading**


**Class Contact**

72 hours per semester, comprising lectures, laboratory classes and tutorials.

**Assessment**

Assignment (20%) Students will submit a written assignment on a topic related to the unit of study. Students will be required to locate, evaluate and synthesise information from a variety of sources, including the scientific literature. It is expected that the assignment will be within a word range of 2000 - 2500 words. Main core graduate attributes: I3, W3, A3

Practical classes (30%) Students will attend 8 practical classes and submit laboratory reports. Practical classes will require students to work co-operatively and independently and to interpret the results of immunology-based laboratory techniques. Main core graduate attributes: P3, C3, A3

Written examination (50%) Students are required to pass a written examination of 3 hours duration. Main core graduate attributes: P3, W3, A3

**RMS5100 ENVIRONMENTAL IMPACT ASSESSMENT FOR ECOLOGISTS**

**Campus** Werribee

**Pre-requisite(s)** Nil

**Learning Outcomes**

On successful completion of this unit, students are expected to be able to:

- identify key issues in environmental impact assessment
- locate and interpret relevant legislation
- use databases to gather relevant ecological information
- develop a plan for conducting the ecological component of an EIA on a nominated area
- locate, appraise and synthesise relevant literature
- prepare a report in an appropriate style
- communicate with a range of stakeholders

**Content**

This unit introduces environmental impact assessment and its importance in ecologically sustainable development. Its specific aim is to develop the knowledge and skills required to design and undertake an EIA. The unit begins with an overview of the principles and practices of EIA, especially those involving ecological studies, and a survey of the relevant Commonwealth and state legislation. Topics covered include the elements of the EIA process; communication with stakeholders; protocols for baseline studies; impact predictions under differing scenarios; impact mitigation; the importance of continued monitoring; and an introduction to the emerging field of strategic environmental assessment (SEA).

**Required Reading**


**Recommended Reading**


**Class Contact**

36 hours for one semester comprising 24 hours of lectures and 12 hours of workshops.

**Assessment**

Written assignment 1 (30%) 2,000 2,500 words.

Written assignment 2 (30%) 2,000 2,500 words.

Written report (40%) 3,500 4,000 words.

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

**RMS5101 ENVIRONMENTAL MANAGEMENT AS A PROFESSION**

**Campus** Werribee

**Pre-requisite(s)** Nil

**Learning Outcomes**

On successful completion of this unit, students are expected to be able to:

- demonstrate familiarity with the range of employment opportunities for environmental managers
- prepare a brief for an EIA
- prepare a tender document
- prepare a report for a target audience

**Content**

This unit introduces students to the professional practice of environmental management. Its specific aim is to develop an understanding of the role of the environmental manager in industry and the wider community. It covers ethics and responsibilities; types of employment for environmental managers; outsourcing and specialization; managing uncertainty and risks; interpreting consultancy briefs; tendering for consultancy opportunities; and preparing reports for varying audiences.

**Required Reading**


**Recommended Reading**


**Class Contact**

36 hours for one semester comprising 27 hours of lectures and 9 hours of workshops

**Assessment**

Written assignment (25%) 2,000 2,500 words.

Written assignment (25%) 2,000 2,500 words.

Written report (50%) 4,500 5,000 words.

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

**RMS5102 TERRESTRIAL ECOLOGY**

**Campus** Werribee

**Pre-requisite(s)** Nil

**Learning Outcomes**

On successful completion of this unit, students are expected to be able to:

- recognise major groups of eukaryotic organisms from terrestrial ecosystems
- describe the major abiotic and biotic characteristics of different types of terrestrial ecosystems
- identify key problems affecting terrestrial ecosystems
- locate, appraise and synthesise relevant literature

**Content**

This unit examines the biodiversity and ecological processes of terrestrial systems ranging from deserts to rainforests, with an emphasis on vegetation types that are particularly vulnerable to human-induced change. Its specific aim is to develop an understanding of the biotic and abiotic components of terrestrial ecosystems and their interactions at all levels. It covers the influence of geology and soils on vegetation; solar radiation and the water cycle; primary productivity; nutrient cycles; disturbance and succession; resilience and stability in major ecosystems; and the application of ecology to management issues.

**Required Reading**


**Recommended Reading**


**Class Contact**

36 hours for one semester comprising 21 hours of lectures and 15 hours of field trips

**Assessment**

Essay (25%) 2,000 2,500 words.

Field trip report (25%) 2,000 2,500 words.

Examination (50%)

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.
RMS5103 AQUATIC ECOLOGY
Campus Werribee
Pre-requisite(s) Nil.
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• recognise major groups of eukaryotic organisms from aquatic ecosystems
• describe the major abiotic and biotic characteristics of different types of aquatic ecosystems
• identify key problems affecting aquatic ecosystems
• locate, appraise and synthesise relevant literature

Content
This unit examines the biodiversity and ecological processes of aquatic habitats from upland rivers to the ocean. In focussing on lowland and coastal water systems, the unit emphasises those environments that are likely to suffer the greatest impact from human activity. Its specific aim is to develop an understanding of the biotic and abiotic components of aquatic ecosystems and their interactions at all levels. Topics covered include the systematics and biology of aquatic organisms; characteristics of marine, estuarine and freshwater habitats; water chemistry; primary productivity; fisheries; pollution; natural and human-induced disturbance and recovery; conservation, including marine protected areas; invasive species; and climate change.

Required Reading
Recommended Reading

Class Contact
36 hours for one semester comprising 21 hours of lectures and 15 hours of field trips.
Assessment
Essay (25%) 2,000-2,500 words.
Field trip report (25%) 2,000-2,500 words.
Written examination (50%)

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS5110 MOLECULAR GENETICS THEORY
Campus Werribee
Pre-requisite(s) Nil.

Content
This subject will cover principles of and developments in molecular biology, gene structure and function, and molecular genetics. The theoretical component will include topics such as prokaryotic and eukaryotic genome structure, multigene families, genomic rearrangements including transposable elements, methylation and imprinting of DNA and repair mechanisms. The subject will also cover theoretical aspects of genetic engineering or recombinant DNA technology such as plasmid biology, cloning vectors and recombinant cloning strategies, and ethical concerns related to these technologies.

Required Reading

Recommended Reading

Class Contact
Three hours of class contact time per week consisting of lectures and tutorials.
Assessment
One assignment (3000 words, 50%); tests (5x15 min, 10%) and final examination (3 h, 40%).

RMS5120 APPLIED GENETIC ENGINEERING
Campus Werribee
Pre-requisite(s) or Co-requisite RMS5110 Molecular Genetics Theory.

Content
This subject will cover practical aspects of molecular genetics and recombinant DNA technology. This will include more practical aspects of topics covered in Molecular Genetics Theory such as plasmid biology, cloning vectors and recombinant cloning strategies, Northern and Southern blotting, PCR and DNA sequencing. Applications of these techniques in plant, animal biotechnology and in human applications will be discussed.

Required Reading

Recommended Reading

Class Contact
Three hours per week practicals or workshops for one semester.
Assessment
Practical work (70%); One assignment (3000 words, 30%).

RMS5130 FUNCTIONAL GENOMICS & BIOINFORMATICS THEORY
Campus Werribee
Pre-requisite(s) or Co-requisite Molecular Genetics Theory (RMS5110)

Content
Topics covered include genome and proteome analysis, expression analyses such as microarrays, proteome analysis such as 2-D electrophoresis, MALDI-TOF and ESI analysis. The bioinformatics section will cover sequence analysis using worldwide databases such as GenBank, EMBL and KEGG. It will examine how the databases have been organized, what they contain and programs available to analyse the data from them. Programs used for sequence similarity searching, alignment of sequences, in silico PCR primer design, translation and finding of protein motifs will be examined.

Required Reading

Recommended Reading

Class Contact
36 hours (3 hours lectures/workshops per week).
Assessment
One written assignment (3000 words, 30%); tests (1x1h, 20%) and final examination (3 h, 50%).

RMS5135 FUNCTIONAL GENOMICS & BIOINFORMATICS APPLICATIONS
Campus Werribee

Pre-requisite(s) or Co-requisite Molecular Genetics Theory (RMS5110), Functional Genomics & Bioinformatics Theory (RMS5130)

Content
This subject will complement the theoretical subject, Functional Genomics and Bioinformatics Theory (which is a pre- or co-requisite for this subject). It will consist of hands-on practicals or workshops using data generated from genome and proteome analysis experiments. The computer laboratory exercises will include analysis of gene array data, sequence database searching using data mining tools such as BLAST and FASTA, as well as analysis tools such as ORF finder, FoldX-Six-Frames, BestFit and ClustalW and PCR-Prime. Structure-function relationships will also be examined in selected proteins from the PDB database, and using programs such as Rasmol, Chimera or Protein Explorer.

Required Reading

Recommended Reading

Class Contact
36 hours
Assessment
Practical exercises and reports (70%); assignment (3000 words, 30%).

RMS5140 BIOPROCESSING TECHNOLOGY PRINCIPLES
Campus Werribee
Pre-requisite(s) Nil.

Content
Principles of biochemical engineering, material and energy balance, fermentation technologies, bioreactor design and applications, harvesting and purification of bioproducts, filtration systems and commercial-scale applications of biological-based systems.

Required Reading

Recommended Reading
Class Contact Three hours per week of lectures/tutorials.
Assessment One assignments (3000 words, 30%); examination (3h, 70%).

RMS5145 BIOPROCESSING TECHNOLOGY APPLICATIONS
Campus Werribee
Prerequisite(s) or Co-requisite Bioprocessing Technology Principles
Content Laboratory-scale experiments will be conducted that train students in the areas of downstream processing, plant and algal products, heat-exchange, fermentation, fluid flow, enzyme engineering, biomass conversion and sustainable energy systems.
Class Contact Three hours/week of laboratory practicals.
Assessment Laboratory reports (100%).

RMS5150 ETHICS AND REGULATORY AFFAIRS IN BIOTECHNOLOGY
Campus Werribee
Prerequisite(s) Nil.
Content This unit will examine social and technical issues in biotechnology from an ethical viewpoint. Environmental and human impacts of genetic engineering will be discussed. The obligations to patients and the community will be described in the regulations governing manufacture and clinical trials of new drugs. Comparisons will be made between drugs and devices, human and veterinary products, and different national systems.
Websites for the US Food and Drug Administration, the European Agency for the Evaluation of Medicinal Products, and the Australian Therapeutic Goods Administration, and others, will be referred to throughout this unit.
Class Contact Three hours lectures per week for one semester.
Assessment One assignment (3000 words, 50%); final examination (3h, 50%).

RMS5160 INTELLECTUAL PROPERTY AND COMMERCIALISATION IN BIOTECHNOLOGY
Campus Werribee
Prerequisite(s) Nil.
Content This unit of study will examine the need for patent protection, patent procedures in Australia, the USA and Europe, and methods of patent searching. Laboratory practices needed in protecting discoveries will be described, as well as the defence of intellectual property (IP) rights. The various options for commercial development will be compared, including licensing, partnerships, and start-up companies. The problems of raising finance will be demonstrated with the preparation of a business plan. Case studies will be used to illustrate both IP and commercialisation issues, and all students will prepare a business plan for a start-up company. The problems of raising finance will be demonstrated with the preparation of a business plan. Case studies will be used to illustrate both IP and commercialisation issues, and all students will prepare a business plan for a start-up company.
Recommended Reading Ernst & Young - Global Biotechnology Report, 2002.
Websites such as http://www.derwent.co.uk, http://www.ipaustralia.gov.au, and others will be utilised throughout this subject.
Class Contact Three hours per week lectures/tutorials for one semester.
Assessment One assignment (3000 words, 50%); final examination (3h, 50%).

RMS5200 ENVIRONMENTAL MANAGEMENT IN A CHANGING WORLD
Campus Werribee
Pre-requisite(s) Nil
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• identify the potential impacts of climate change on different locations
• recognise the major causes of anthropogenic climate change
• interpret basic climate data
• use computer programs to explore human geography
• identify the potential impacts of changing populations
Content This unit explores the potential impacts of climate change, including drought and sea level change, and of increasing population density in vulnerable areas. It specific aim is to develop the knowledge and skills required to manage the environment in the face of large scale changes. It covers natural and anthropogenic climate change; methods of assessing, monitoring and interpreting climate data; Australian and international agreements; changes in human geography; impacts on natural ecosystems; impacts on human populations; mitigation politics; and informed decision-making processes.
Class Contact 36 hours for one semester comprising 18 hours of lectures and 18 hours of workshops.
Assessment Case studies (30%)
Written exam (70%)
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS5201 LANDSCAPE SCALE RESTORATION
Campus Werribee
Pre-requisite(s) RMS5102 Terrestrial Ecology
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• identify key issues affecting different types of degraded lands
• assess problems affecting a nominated site
• develop a basic rehabilitation plan for a nominated site
• evaluate alternative proposals for restoration of a nominated site
Content This unit builds on knowledge and skills developed in RMS5102 Terrestrial Ecology and introduces students to the principles and practices of landscape scale rehabilitation in degraded environments, with special emphasis on mine sites and agricultural land. Its specific aim is to develop an understanding of the mechanisms of terrestrial restoration and the way in which they interact. It covers the assessment of rehabilitation sites, including sites affected by salinity, acid sulphate soils and toxic waste; planning and implementation of revegetation programs; importance of animals in rehabilitation; habitat connectivity; sites affected by salt and acid sulphate scald; reclamation of land for public amenity; monitoring and management
Class Contact 36 hours for one semester comprising 21 hours of lectures and 15 hours of field trips.
Assessment Written proposal (30%) 3,000 3,500 words.
Oral presentation (15%)
Written report (55%) 4,000 4,500 words.
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.
RMS5202 AQUATIC SYSTEMS MANAGEMENT

Campus: Werribee
Pre-requisite(s): RMS5103 Aquatic Ecology

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• identify microbial and eukaryotic bioindicators
• identify key issues affecting different types of degraded water bodies
• develop a basic restoration plan for a nominated water body
• design a monitoring program for a nominated water body

Content
This unit builds on knowledge and skills developed in RMS5XXX Marine and Freshwater Ecology and introduces students to the principles and practices of aquatic resource management. Its specific aim is to develop an understanding of the mechanisms of aquatic management and the way in which they interact. It covers assessment of freshwater, marine and estuarine ecosystems, including salt lakes, mangroves and salt marshes; hydrology; the impact of irrigation and altered water flow; pollution and eutrophication; rehabilitation of water bodies; microbial indicators; and monitoring techniques in the field and laboratory.

Required Reading

Recommended Reading


Class Contact
36 hours for one semester comprising 21 hours of lectures and 15 hours of field trips.

Assessment
Written proposal (30%) 3,000 3,500 words.
Written report (55%) 4,000 4,500 words.
Oral presentation (15%) Written report 4,000 4,500 words.

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS6101 GEOGRAPHICAL INFORMATION SYSTEMS AND REMOTE SENSING

Campus: Werribee
Pre-requisite(s): RMS5102 Terrestrial Ecology and RMS5103 Aquatic Ecology

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• capture data using Global Positioning Systems (GPS);
• analyse a variety of layers of spatial data in a range of application areas;
• perform overlaying operations;
• interpret basic remote sensing data;
• communicate complex ideas to a target audience

Content
This unit introduces students to the fundamentals of spatial analysis, including the structure, function and use of geographic information systems (GIS) and remote sensing. Its specific aim is to develop the knowledge and skills required to undertake spatial analyses in environmental management. Topics covered include the principles of GIS and remote sensing; raster and vector data; data acquisition and entry; remote sensing on land and in the ocean; and the application of GIS and remote sensing to environmental management, including computer modelling of environmental change.

Required Reading

Recommended Reading

Class Contact
36 hours for one semester comprising 21 hours of lectures and 15 hours of workshops.

Assessment
Written assignment (25%) 2,000 2,500 words.
Workshop reports (75%) 4,500 5,000 words.

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS6100 BIODIVERSITY

Assessment
Campus: Werribee
Pre-requisite(s): RMS5102 Terrestrial Ecology and RMS5103 Aquatic Ecology

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• identify major groups of plants and animals
• design an assessment plan for a nominated location
• map vegetation at a nominated site
• select species to act as biodiversity surrogates
• apply suitable sampling techniques to different taxa and habitats
• build a reference collection

Content
This unit introduces students to the theory and practice of assessing biodiversity in aquatic and terrestrial habitats. Its specific aim is to develop the knowledge and skills to plan and undertake biodiversity assessments. Topics covered include alpha, beta and gamma diversity; introduction to the major groups of plants and animals; techniques of assessing biodiversity at a site; vegetation mapping; rapid biodiversity assessment; use of surrogate species; introduction to bioinformatics, including DNA barcoding; and reference collections.

Required Reading
School of Molecular Sciences. (2008) Class notes in Biodiversity Assessment.

Recommended Reading

Class Contact
36 hours for one semester comprising 12 hours of lectures, 12 hours of field trips and 12 hours of workshops.

Assessment
Workshop reports (50%) 3,000 3,500 words.
Field report (50%) 3,000 3,500 words.

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS6102 ENVIRONMENTAL TOXICOLOGY

Campus: Werribee
Pre-requisite(s): RMS5102 Terrestrial Ecology and RMS5103 Aquatic Ecology

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• list the major environmental contaminants and their effects on biota
• undertake basic laboratory analysis in toxicology
• identify major bioindicator species
• design an environmental monitoring plan for a nominated site

Content
This unit covers the most frequently encountered environmental contaminants, including pesticides and heavy metals. Its specific aim is to develop knowledge and skills required to recognise and reduce the effects of contaminants in ecosystems. It examines methods of detection and quantification of contaminants, including biomarkers and bioindicators; the effects of contaminants on terrestrial and aquatic biota; bioaccumulation; risk and public perception; techniques for amelioration and rehabilitation. The unit includes case studies from Australia and overseas.

Required Reading
School of Molecular Sciences. (2008) Lecture Notes in Environmental Toxicology. Victoria University.

Recommended Reading

Class Contact
36 hours for one semester comprising 18 hours of lectures, 12 hours of laboratory classes and 6 hours of field trips.

Assessment
Laboratory reports (40%) 1,000 1,500 words.
Monitoring plan (60%) 5,000 5,500 words.

Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.
RM5103 ECOLOGY OF INVASIVE SPECIES
Campus Werribee
Prerequisite(s) RMS5102 Terrestrial Ecology and RMS5103 Aquatic Ecology
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• describe the processes of invasion by exotic species
• identify key characteristics that contribute to a species ability to become invasive
• collect and analyse distributional data on an invasive species
• model the potential spread of a species using dedicated computer programs
• communicate complex ideas to a target audience

Content
The unit examines the characteristics and environmental and economic impacts of invasive species of plants and animals. Its specific aim is to develop the skills to recognise invasive species, predict their potential distribution and undertake programs to control their spread. It covers the biological characteristics of invasive vs non-invasive species; impact on natural ecosystems and agribusiness; sources of invasive species; mechanisms of entry into the country; methods of detection; data collection on invasive species; modelling the spread of invasive species under current conditions and under climate change scenarios; and mechanisms of control.

Required Reading

Recommended Reading

Class Contact
36 hours for one semester comprising 18 hours of lectures, 12 hours of workshops and 6 hours of field work.

Assessment
Case study (40%) 3,500-4,000 words.
Written examination (60%)
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RM5130 BIOINFORMATICS I
Campus Werribee
Prerequisite(s) or Corequisite(s) Molecular Genetics Theory (RM5110), Principles of Genomics, Proteomics & Bioinformatics (RM5130), Applied Genomics, Proteomics & Bioinformatics (RM5135)

Content
Topics will include sequence alignment methods, substitution scores and gap penalties, the HMM model, recognition of motifs and patterns, phylogenetic data analysis and tree-building methods, detection of functional sites in DNA such as ORFs and CpG islands, folding classes in proteins, protein structure prediction and homology modelling.

Required Reading

Recommended Reading

Class Contact
36 hours (3 hours lectures/workshops per week)

Assessment
Practicals and workshops (50%), tests (1 x 1hr, 20%) and final examination (2 hours, 30%).

RM5135 BIOINFORMATICS II
Campus Werribee
Prerequisite(s) or Corequisite(s) Molecular Genetics Theory (RM5110), Principles of Genomics, Proteomics & Bioinformatics (RM5130), Applied Genomics, Proteomics & Bioinformatics (RM5135), Bioinformatics 1 (RM5130)

Content
Topics will include sequence assembly and finishing, large-scale genome analysis, simple and integrated genome and proteome circuits. In addition, examples of how the programming language, Perl, is used for biological analysis will be examined, such as the use of Perl modules and subroutines to find a common ancestor, splice junction recognition and enzyme kinetics.

Required Reading

Recommended Reading

Class Contact
Three hours per week of lectures and/or tutorials with some computer laboratory demonstrations.

Assessment
Practicals and workshops (30%); assignment (30%) and final examination (3hrs, 40%).

RM5140 CELL CULTURE AND FERMENTATION TECHNOLOGY
Campus Werribee
Prerequisite(s) Nil.

Content
This subject will provide students with knowledge in the cultivation of microorganisms and higher eukaryotic cells or the small-scale laboratory and commercial scales. This includes plant culture, microbial fermentations and animal cell culture techniques. Topics will include batch, fed-batch and continuous cultures and bioreactors. The technology of stem cells will also be introduced and ethical issues regarding these will be discussed.

Required Reading
Bryce, C.F.A., 1999, Fermentation Microbiology and Biotechnology, T&F STM.

Recommended Reading

Class Contact
Three hours/week comprising lectures and practical work each alternate week.

Assessment
Three practical reports (40%); final examination (3h, 60%).

RM5141 ANIMAL AND PLANT BIOTECHNOLOGY
Campus Werribee
Prerequisite(s) Molecular Genetics Theory.

Content
This subject will provide an in-depth understanding of how animal productivity and efficiency have been improved using technology such as embryo transfer, embryo splitting, in vitro fertilisation and cloning; principles of genetic engineering as applied to a wide range of plant species including wheat, canola oil and soy beans; use of transgenic technology to produce novel proteins and other biomolecules for the pharmaceutical industry.

Required Reading

Recommended Reading

Class Contact
Class contact will be three hours per week for one semester.

Assessment
One assignment (3000 words, 20%); one test (20%) and final examination (3h, 50%).

RM5145 PROTEIN PRODUCTION, PURIFICATION & ANALYSIS
Campus Werribee
Prerequisite(s) Nil.

Content
Topics covered in the subject will include protein production in mammalian, bacterial, yeast and insect cell expression systems, protein purification and characterization using methods such as SDS-PAGE, purification using affinity and ion-exchange chromatography, protein crystallization, determination of protein structure, principles of X-ray crystallography and NMR in determining the structure of biological molecules including proteins.

Required Reading

Recommended Reading

Class Contact
Three hours a week lectures, tutorials or practicals.
RMS6170 DRUG DESIGN & DEVELOPMENT

Campus Werribee
Prerequisite(s) First year undergraduate chemistry.
Content The concept of drugs and drug targets; drug action at proteins, nucleic acids and receptors; structural considerations; drug discovery, design and development; drug-target interactions; pharmacokinetics and quantitative structure-activity relationships (OSAR); combinatorial synthesis and computational chemistry in medicinal chemistry; specific drugs such as antibacterials, opium analgesics, etc.; case studies with respect to rational drug design.
Class Contact Two hours lectures and one hour computer laboratory per week for one semester.
Assessment One assignment (3000 words, 20%); one test (1 h each, 20% each) and final examination (3h, 60%).

RMS6200 PROJECT (BIOTECHNOLOGY)

Campus Werribee or Off-Campus in Industry
Prerequisite(s) Successful completion of first year of the SMBT degree or equivalent with an average grade of Distinction (H2A) or higher, including Research Methodology (KCSS100) or equivalent. The offering of this project unit option is subject to availability of suitable projects and supervisors, as well as quality of academic performance of the student in the course to date
Content Students will propose and conduct an independent, practical, hands-on biotechnology project either industry-based or internally offered. Students undertaking this option will be expected to apply the knowledge and skills gained from the coursework component of SMBT degree to the project. The project will be a scientific investigation of an approved topic, consisting of a comprehensive literature review, project proposal, conduct of laboratory or computer-based research, critical analysis and interpretation of results, clear and concise communication of these and discussion followed by a conclusion. The student will be expected to comply with all regulations concerning Occupational Health and Safety (OH&S) and Good Laboratory Practice (GLP).
Class Contact This unit will replace four electives in the existing Masters course. There are no contact hours in this unit as it is a entirely project-based. A total of 432 hours input will be expected for the unit, consisting of literature searches, proposal writing, laboratory research work and report-writing for the unit. This unit is worth 48 credit points (25%) of the course.
Assessment A report on all aspects of the project including literature review, aims of the proposal, experimental methods, results, critical evaluation of results and discussion, the length of which shall be in the range of 15,000 to 25,000 words (75%); appraisal and assessment from the supervisor of the oral & written communication and problem-solving skills of the student as well as the general conduct and performance in the project e.g. application, punctuality, compliance with OH& S regulations and adherence to GLP principles.

RMS6201 PROTECTED AREA MANAGEMENT

Campus Werribee
Pre-requisite(s) Nil
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• identify the characteristics of major categories of marine and terrestrial protected areas
• locate and summarise relevant legislation
• identify threatening processes
• compare and contrast the principles and processes of public and private protected areas
• identify the major opportunities for commercialisation and their advantages and disadvantages
Content This unit introduces students to the principles and practice of managing protected areas, such as national parks, game reserves and sanctuaries. Its specific aim is to develop the skills required to design and implement plans to protect ecologically important areas. Topics covered include the concept and changing nature of protected areas; economic and cultural values; Federal and state legislation; the process and implications of World Heritage listing; selection of protected areas; tourism; private protected areas; public education; threats to protected areas; commercialisation and sustainable bioresource use; and conflict analysis and resolution.
Class Contact 36 hours for one semester comprising 18 hours of lectures, 12 hours of workshops and 6 hours of field trips.
Assessment Written proposal (30%) 3,000 3,500 words.
Oral presentation (15%) Written report (55%) 4,000 4,500 words.
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS6202 ENVIRONMENTAL MANAGEMENT PROJECT

Campus Werribee
Pre-requisite(s) Successful completion of the first year of the SMEEM degree or equivalent.
Learning Outcomes On successful completion of this unit, students are expected to be able to:
• locate and analyse the literature on a selected topic
• develop a project proposal
• plan and carry out a project independently
• collect and interpret data
• prepare a report based on these data
Content This unit provides students with the opportunity to plan and carry out an original independent project concerning an aspect of environmental management. Its specific aim is to develop research skills relevant to a particular area of interest. The project may range in scope from a field survey to a computer- or laboratory-based investigation, subject to approval from the unit co-ordinator.
Class Contact 72 hours for one semester comprising 3 hours of lectures, 3 hours of workshops and 66 hours of practical work.
Assessment Written proposal (15%) 3,000 3,500 words.
Oral presentation (15%) Written report (70%) 10,000 10,500 words.
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.
RM56203 ENVIRONMENTAL BIOTECHNOLOGY
Campus Werribee
Pre-requisite(s) Nil
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
- recognise the potential contribution of medical biotechnology to the improvement in human health and wellbeing.
- assess and evaluate the potential role of biotechnology in medical research and development.
- interpret legislative and regulatory frameworks that underpin medical biotechnology.
- contribute to the public and professional discourse on ethical issues relating to medical biotechnology.

Content
This unit will provide students with an overview of the role of biotechnology in environmental management. Topics covered will include: bioremediation, renewable energy, liquid and solid waste treatment, biotechnology and sustainable agriculture, the contribution of biotechnology to improving environmentally responsible industry practice, ethical and legal framework concerning biotechnology and environmental management.

Required Reading

Recommended Reading
Reading material for this unit will be supplemented with selected literature from scientific journals and other publications.

Class Contact
36 hours for one semester comprising lectures and workshops.

Assessment
Written assignment (30%) 2,500-3,000 words.

Examination (70%)
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RM56205 MEDICAL BIOTECHNOLOGY
Campus Werribee
Pre-requisite(s) Nil
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
- recognise the potential contribution of medical biotechnology to the improvement in human health and wellbeing.
- assess and evaluate the potential role of biotechnology in medical research and development.
- interpret legislative and regulatory frameworks that underpin medical biotechnology.
- contribute to the public and professional discourse on ethical issues relating to medical biotechnology.

Content
This unit will provide students with an overview of the role of biotechnology in the diagnosis and treatment of a range of diseases and inherited disorders. Topics covered will include: Stem cell biology and technology, bioprocess and bioproduct development, mapping of the human genome, the roles of individual genes in predictive and diagnostic technologies and the use of therapeutic cloning in new treatment regimens.

Required Reading

Recommended Reading
Reading material for this unit will be supplemented with selected literature from scientific journals and other publications.

Class Contact
The equivalent of 36 hours for one semester comprising lectures and workshops.

Assessment
Written assignment (30%) 2,500-3,000 words.

Examination (70%)
Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RM56210 RESEARCH PROJECT (BIOTECH.) 1
Campus Werribee
Pre-requisite(s) Successful completion of the first year of the SMBT degree, including

RCS 5100 Research Methodology. Students achieving a Distinction average following the first year of their studies will be eligible to select an Industry-based project, subject to availability of suitable projects and supervisors.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
- independently carry out investigative laboratory experiments;
- objectively and critically analyse, discuss and report the results obtained.

Content
This unit provides students with the opportunity to plan and carry out an original independent biotechnology project, which is laboratory-based and will have industry involvement. Students will be expected to apply the knowledge and skills gained from the coursework component of the SMBT degree to the project. The project will be a scientific investigation of an approved topic, consisting of a literature review, project proposal, conduct of laboratory research and critical analysis and interpretation of results. Students will be expected to comply with all regulations concerning Occupational Health and Safety and Good Laboratory Practice.

Required Reading
Texts and peer-reviewed literature related to the chosen topic.

Recommended Reading

Class Contact
The equivalent of 72 hours for one semester comprising lectures, workshops and practical work.

Assessment
Written proposal (50%) 3,000 3,500 words.
Oral presentation (30%) Poster (20%)
**RHN2110 DISEASE AND HEALTH**

**Campus** Werribee  
**Prerequisites** Nil.  
**Content** The unit will study inflammatory and immune responses and pathogenic process of common disorders. Inflammatory and immune responses, essentials of the pathologic process of the common disorders with nutritional involvement, including; anaemia, alimentary dysfunction, cardiovascular disease, cancer, obesity, diabetes, inborn errors of metabolism. Diagnostic and therapeutic modalities.


**Class Contact** Four hours per week comprising of lecture/tutorial/workshop for one semester.  
**Assessment** Assignment, 40%; final examination, 60%.

**RHN3210 SPECIAL TOPICS IN NUTRITION, FOOD AND HEALTH SCIENCE**

**Campus** Werribee  
**Prerequisites** RBF2750 Nutrition, or RBF2260 Diet and Nutrition, or equivalent, and RBF2210 Food Components or equivalent  
**Content** To develop and study a selected aspect of nutrition and food science, requiring conduct of a project of a selected topic. Recent advances and controversies in selected topics of nutrition and food science, including: GMO’s, nutrition labelling, nutrient fortification, reference intake levels, nutrigenomics.  
**Required Reading** Student will be responsible for reviewing current literature on their project topic.  
**Class Contact** Nil, however, students are expected to spend at least three hours per week in the library.  
**Assessment** Presentation 20%, report 80%.
SCHOOL OF NURSING AND MIDWIFERY

Below are details of courses offered by the School of Nursing and Midwifery in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

COURSES BACHELOR OF NURSING

Course Code: HBBN

Course Objectives
To prepare work-ready graduates as beginning practitioners who meet requirements for registration as Division 1 nurses with the Nurses Board of Victoria. Through their program of study, graduates will have been enabled to:
• take a lifespan and developmental approach to providing culturally sensitive nursing care to the diverse Australian community;
• provide quality nursing care in a range of healthcare settings;
• apply a health promotion and educational focus to their work;
• undertake a team based and multidisciplinary approach to care;
• have well-developed clinical decision-making skills; and
• adopt a lifelong approach to learning.

Admission Requirements
Eligibility Requirements
To qualify for admission to the course applicants must:
1. have successfully completed the Victorian Certificate of Education (VCE) or equivalent and meet all extra requirements and selection procedures listed through VTAC OR
2. be currently registered (or eligible to register) as a Division 2 registered nurse with the Nurses Board of Victoria and have satisfactorily completed a bridging program with a bioscience unit and a transition unit OR
3. have successfully completed an Australian bachelor’s degree or equivalent.

Alternative entry
Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course.

Applicants who consider their capacity to qualify under normal entry provisions have been limited by some disadvantage, for example, illness, disability, economic hardship or isolation may apply to be considered as a disadvantaged person. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course.

Selection Criteria
Year 12
ENTER and two-stage process with a middle band of approximately 20%.
Division 2 Nurses and Non-Year 12
Academic record, STAT Multiple Choice (not VU VE), VTAC Pi (Personal Information) form.
Graduates from other bachelor degrees
Academic record, VTAC Pi (Personal Information) form, interview.
For international students the following English language requirement is needed for entry to the course where their education was conducted in a language other than English.
• An International English Language Testing System (IELTS) Academic test score of at least 6 in Reading and Listening, and a score of at least 6 in Writing and Speaking and an overall band score of at least 6.

This requirement is based on the Nurses Board of Victoria level of English attainment for initial registration and indicates the level of proficiency expected for safe practice in nursing in a clinical setting. Students require this level of English proficiency because they will be practising and communicating in the workplace from semester 2 of the course.

Course Duration
The course is offered over three years on a full-time basis.

Course Structure
Year 1
Semester 1
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<tr>
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<th>Course Title</th>
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Year 2
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BACHELOR OF NURSING (DIVISION 2 ENTRY) (I)

Course Code: HBDE

Course Objectives
The Course seeks to provide students with the following attributes:

- A sound knowledge of the theory and practice of nursing.
- An understanding and appreciation of health and illness as it is influenced by a variety of political, social, psychological, economic, cultural (in particular Indigenous Australian culture), and biological factors.
- A broad range of clinical practice skills that can be used to provide care to individuals, families, and communities within the context of the promotion of health, the prevention of ill health, the management of ill health, and attempts to promote recovery from ill health.
- Comprehensive nursing skills that will lead to employment and beginning practice in a broad range of health care settings.
- An ability to practice independently, in an ethical and professional manner and, collaboratively in multidisciplinary settings.
- Locate, evaluate, manage and use information technology effectively.
- Prepare students in ways to help them begin to deal with the world of work with its attendant uncertainties, ambiguities, conflicts and change.

Course Duration
The course is 4 semesters in length, and is offered to full-time students over two years. Students undertaking a part-time load, which is possible under certain circumstances, would normally complete the course in a maximum of 8 semesters or four years. Any part-time load is negotiated between the student and the Course Coordinator.

Apart from the clinical practicum units of study, all units of study are currently offered in an ‘on campus’ mode, however there are on-line components to some units of study. In the future more use may be made of this teaching medium with some units of study being offered in ‘off campus’ or ‘mixed’ mode.

Admission Requirements

To qualify for admission to this course applicants must have:

- current registration as a Division 2 Registered Nurse (or eligibility for registration) with the Nurses Board of Victoria.
- satisfactory completion of recognised study in health assessment and tertiary study skills, human bioscience and psychology.

For students who have not completed the appropriate recognised study as mentioned above, a bridging program is available prior to commencement of the course in order to meet the above prerequisites. The program is offered in January/February each year and will consist of the following units of study:

- Introduction to Health Assessment;
- Human Bioscience;
- Psychology.

The school has a Recognition of Prior Learning Committee, which, under the School’s Operational Guidelines, oversees this process and develops guidelines or policy (in accordance with Faculty and University policies) where this is needed.

Selection mode
Applicants will be required to apply through VTAC and will receive an offer, conditional upon meeting the prerequisites.

Aborigines and Torres Strait Islanders
Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine the suitability and potential for success in the course.

Entry as a Disadvantaged Person
Applicants who consider that their capacity to qualify under normal entry provisions has been limited by some disadvantage, for example, illness, disability, economic hardship, isolation or English language learning difficulties, may apply to be considered as a disadvantaged person. Applicants will be assessed on an individual basis to determine the suitability and potential for success in the course.

Course Structure

Year 1, Semester 1

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Year 1, Semester 2

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BACHELOR OF NURSING (GRADUATE ENTRY) (CONTINUING STUDENTS ONLY)

Course Code: HBGE

Course Objectives
The Course aims to provide students with the following attributes:

• a sound knowledge of the theory and practice of nursing;
• an understanding and appreciation of health and illness as it is influenced by a variety of political, social, psychological, economic, cultural, and biological factors;
• a broad range of clinical practice skills that can be used to provide care to individuals, families, and communities within the context of the promotion of health, the prevention of ill health, the management of ill health, and attempts to promote recovery from ill health;
• comprehension nursing skills that will lead to employment and beginning practice in a broad range of health care settings;
• an ability to practice independently, in an ethical and professional manner and collaboratively in multidisciplinary settings;
• an ability institutional and social change in health care settings;
• locate, evaluate, manage and use information technology effectively.

Course Duration
This course will be offered full-time over two years.

Admission Requirements
To qualify for admission to this course applicants must be graduates of other degree programs and must have satisfactory completion of recognised graduate study in Introduction to Nursing, Human Bioscience and Psychology.

For students who have not completed the appropriate higher degree study, a bridging program is available prior to commencement of the course in order to meet the above prerequisites. The program is offered in January - February each year and will consist of the following Units of Study:

• Introduction to Nursing Studies;
• Human Bioscience;
• Psychology.

Course Structure

Year 1, Semester 1

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Year 1, Semester 2

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Year 2, Semester 1

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Year 2, Semester 2

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BACHELOR OF NURSING (PRE-REGISTRATION)(MENTAL HEALTH MAJOR) (CONTINUING STUDENTS ONLY)

Course Code: HBMH

Course Objectives
The aims of the course are to:
- prepare competent beginning nurse practitioners who are eligible and able to practice in a variety of health care settings with a particular focus on mental health nursing;
- provide an education which contributes to the student’s personal, professional, and intellectual growth;
- prepare students in ways to help them begin to deal with the world of work with its attendant uncertainties, ambiguities, conflicts and change.
- prepare students who can participate effectively in a teamwork approach; and
- enable graduates to register professionally as Division 1 nurses with the Nurses Board of Victoria.

Course Duration
The course is offered over three years on a full-time or part-time equivalent.

Admission Requirements
To qualify for admission to the course applicants must have successfully completed the Victorian Certificate of Education (VCE) including Units 3 and 4 with a study score of at least 25 in English any and study score of at least 20 in one of biology, chemistry, health and human development, physics, psychology or mathematics (any combination). Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Course Structure

Year 2

Semester One

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BACHELOR OF MIDWIFERY (CONTINUING STUDENTS ONLY)

Course Code: HBMJ

Course Structure
(Continuing students only)

Year Two

Semester Two

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Professional Recognition
Graduates from this program will be eligible for registration with the Nurses Board of Victoria. Graduates may also apply for membership of the Australian College of Midwives Inc.

BACHELOR OF MIDWIFERY
Course Code: HBNW
(Subject to approval by the Nurses Board of Victoria)

Course Objectives
The course aims to prepare midwives who will be able to:
• practise competently and confidently in a variety of maternity settings;
• demonstrate practice which is evidence-informed, according to the ACMI Competency Standards for Midwives (2001);
• reflect attitudes which are congruent with the philosophy of valuing women, women-centred care, and woman-midwife partnership;
• work both as a primary carer and in collaboration with other healthcare professionals in providing comprehensive care through women’s reproductive life; and
• achieve employment in a variety of maternity care settings.

Admission Requirements
To qualify for admission to the course, an applicant must have successfully completed the Victorian Certificate of Education (VCE), with Units 1 and 2 Maths (any); Units 3 and 4 English and a study score of at least 20; Units 3 and 4 of at least one of the following: Biology, Chemistry, Health Education, Psychology, Human Development, Physics, or Maths (any).

Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Course Regulations
The following should be read in conjunction with the faculty regulations detailed earlier in this Handbook, and the University Statutes and Regulations.

Practical Placement
Students should note that they will be subject to safety screening (Police checks) before placement in accordance with Department of Human Services policy (March 2000).

Students may also be asked to declare their immunization status to satisfy the requirements of the hospital/agency at which they will be placed.

Students’ progress towards competency is gauged against the expected minimum competency rating for each semester of the course. Absence from practice placement may affect a student’s ability to demonstrate the expected level of competency. Students who have been absent from practice experience during semester, are required to provide appropriate documentation (eg medical certificate or a statutory declaration) to account for their absence.

The provision of make-up time is at the discretion of the School and students should not assume that it is an automatic right. At the discretion of the School additional midwifery practice may be negotiated within a maximum stated time frame to attain competency. Students who do not provide documentary evidence or do not attend the arranged additional practice hours will incur a ‘fail’ grade and will be required to repeat the relevant Midwifery subjects.

Academic Progression
Unsatisfactory progress
Students will be deemed to have made unsatisfactory progress if they fail to complete the course in six calendar years (on full-time basis).

Each sequential stage of the course must be completed before progression to a subsequent stage.

Course Duration
The course is offered over three years on a full-time basis.

Course Structure
(Year 1 only commencing in 2006)

Year 1
Semester One

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Semester Two

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BACHELOR OF NURSING (PRE-REGISTRATION) (CONTINUING STUDENTS ONLY)

Course Code: HBRN

Course Objectives
The aims of the course are to:

- prepare competent beginning nurse practitioners who are eligible and able to practice in a variety of health care settings;
- provide an education which contributes to the student’s personal, professional, and intellectual growth;
- prepare students in ways to help them begin to deal with the world of work with its attendant uncertainties, ambiguities, conflicts and change.
- prepare students who can participate effectively in a teamwork approach; and
- enable graduates to register professionally as Division 1 nurses with the Nurses Board of Victoria.

Course Duration
The course is offered over three years on a full-time or part-time equivalent.

Admission Requirements
To qualify for admission to the course applicants must have successfully completed the Victorian Certificate of Education (VCE) including Units 3 and 4 with a study score of at least 25 in English any and study score of at least 20 in one of biology, chemistry, health and human development, physics, psychology or mathematics (any combination).

Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Course Structure

Year 2

Semester One

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Nursing Theory 8: Electives (Choose one)

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Clinical Practicum 8: Electives (Choose one)

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Consolidation

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BACHELOR OF NURSING (HONOURS)

Course Code: HHNO

Course Objectives
The aims of the course are to enable graduates to:

- demonstrate advanced knowledge and specialised skill in the selection, application and integration of qualitative research methods to generate, test and extend theory;
- assess how the concepts of causality, correlation and probability impact on choice of scientific design derived from the classic experimental model;
Students may exit with a Graduate Certificate in Diabetes Education and Management after successfully completing 4 units (48 credit points).

Semester 1
- HMD5106 INTRODUCTION TO HEALTH RESEARCH DESIGNS AND METHODS
- HMD5105 ADVANCED CLINICAL AND HEALTH ASSESSMENT

Semester 2
- HMD5204 DIABETES CLINICAL INTERNSHIP
- HMD5203 COMMUNICATING DIABETES

Credit Point EFTSL SC Band

Year 1

Course Structure
Four semesters (full time)

Course Duration
The duration of the course is offered over one year on a full-time basis or part-time equivalent.

Admission Requirements
To qualify for admission to the course applicants must:
- have satisfactorily completed a bachelor degree in nursing with a grade average of Credit (C) or higher throughout the course; and
- be eligible for registration as a Division 1 Nurse with the Nurses Board of Victoria.

Students who consider that their capacity to qualify under normal entry provisions has been limited by some disadvantage, for example, illness, disability, economic hardship or isolation, may apply to be considered as a disadvantaged person. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course.

Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course.

Eligibility Requirements
To qualify for admission to the course, applicants must have:
- be eligible for registration as a Division 1 Nurse with the Nurses Board of Victoria.
- have satisfactorily completed a bachelor degree in nursing with a grade average of Credit (C) or higher throughout the course; and
- eligibility for registration as a Division 1 Nurse with the Nurses Board of Victoria.
- eligibility for registration as a Division 1 Nurse with the Nurses Board of Victoria.

Alternative entry
2. relevant and recent professional experience of at least two years duration in a health-related field, as approved by the School of Nursing & Midwifery.

To qualify for admission to the course applicants must:
- a Degree in Nursing or another health-related discipline (e.g. podiatry, or dietetics); and
- eligibility for registration as a Division 1 or Division 3 Nurse with the Nurses Board of Victoria.
- satisfactory completion of a bachelor degree in a discipline other than nursing with a grade average of Credit (C) or higher throughout the course; and
- eligibility for registration as a Division 1 Nurse with the Nurses Board of Victoria.

Course Objectives
On completion of the course, graduates should be able to:
- examine a variety of philosophical positions and be able to determine their contribution to nursing’s epistemology; and
- facilitate professional ethical and moral development in practice and research.

Admission Requirements
Eligibility Requirements
To qualify for admission to the course, applicants must have:
1. a Degree in Nursing or another health-related discipline (e.g. podiatry, or dietetics); and
2. relevant and recent professional experience of at least two years duration in a health-related field, as approved by the School of Nursing & Midwifery.

Alternative entry
Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course.

Applicants who consider that their capacity to qualify under normal entry provisions has been limited by some disadvantage, for example, illness, disability, economic hardship or isolation, may apply to be considered as a disadvantaged person. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course.

For international students whose education was conducted in a language other than English, the following English language requirement is needed for entry to the course:
- An International English Language Testing System (IELTS) Academic overall score of at least 7.0

This requirement is based on the Nurses Board of Victoria level of English attainment for initial registration and indicates the level of proficiency expected for safe practice in nursing in a clinical setting. Students require this level of English proficiency because they will be practising and communicating in the workplace during the course.

Course Duration
Four semesters (full time)

Course Structure
Year 1
Semester 1
- HMD5106 CLINICAL PERSPECTIVES OF DIABETES
- HMD5102 TREATMENT AND MANAGEMENT OF DIABETES

Semester 2
- HMD5203 COMMUNICATING DIABETES
- HMD5204 DIABETES CLINICAL INTERNSHIP

Students may exit with a Graduate Certificate in Diabetes Education and Management after successfully completing 4 units (48 credit points).

Year 2
Semester 1
- HMD5105 ADVANCED CLINICAL AND HEALTH ASSESSMENT
- HMD5106 INTRODUCTION TO HEALTH RESEARCH DESIGNS AND METHODS
Semester 2

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Students may exit with a Graduate Diploma in Diabetes Education and Management after successfully completing 7 units (96 credit points).

Year 3

Coursework Stream

Semester 1

HMD6108 HEALTH PROMOTION AND POLICY 24 0.2500 0

Semester 2

HMD6209 PROFESSIONAL CLINICAL PROJECT 24 0.2500 0

OR

Minor Thesis Stream

HHA6115 MINOR THESIS (FULL TIME) 48 0.5000 0

OR

HHA6116 MINOR THESIS (PART TIME) 24 0.2500 0

Students may exit with a Master of Health Science in Diabetes Education and Management after successfully completing 10 units (144 credit points).

MASTER OF NURSING (BY RESEARCH)

Course Code: HRNR

Course Objectives

The Master of Nursing (by Research) is offered to students who have demonstrated the ability to undertake extensive study and research in a focused area of nursing. Although expected to demonstrate a high degree of independence, the student works under the guidance of a qualified and experienced supervisor. While the successful completion of this qualification depends entirely upon the examination of the thesis, the School of Nursing also places great emphasis on the development of research skills and background knowledge deemed necessary for successful completion of the research project.

Areas of Specialisation

Staff within the School will supervise research in a number of areas of specialisation including:

- acute care nursing;
- community health nursing;
- mental health;
- midwifery;
- neuroscience nursing;
- nursing education;
- nursing theory and clinical practice;
- ontology and epistemology of caring;
- professional nursing issues;
- substance abuse;
- women’s health.

These areas of study are not exhaustive and applicants are advised to contact the School directly to discuss their proposed area of study.

Course Duration

Completion of the Master of Nursing (by Research) normally requires two years of full-time study or part-time equivalent.

Course Structure

Semester One

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<tr>
<td>HNM6801</td>
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Admission Requirements

To qualify for admission to the Master of Nursing applicants must hold an undergraduate degree in nursing or equivalent. Some students may be required to undertake additional studies in specific areas, for example advanced research subjects.

Degree Requirements

In order to be awarded the Master in Nursing (by Research) students must undertake an appropriate research design subject, or any other subject, as required by the School; have their candidature approved by the Faculty; and successfully complete a thesis undertaken with appropriate supervision.
HHA6115 MINOR THESIS (FULL TIME)
Campus St Albans
Prerequisites Nil
Co-requisites Nil
Learning Outcomes
Upon successful completion of this unit, students are expected to be able to:
1. Independently conduct research that demonstrates the ability to define a problem, undertake a detailed literature search and review the relevant theoretical and practical implications on the topic area;
2. Develop a research design and methodology and apply it to an appropriate pure or applied problem;
3. Develop a set of research questions, and perform scholarly research tasks;
4. Develop data collection tools including collection strategies and analysis skills;
5. Develop a scholarly written thesis that demonstrates high levels of analytical and written communication skills.

Content
The minor thesis is intended to provide students with an opportunity to undertake independent inquiry into an area of personal interest and applicable to their professional development. The thesis will be a research paper of not less than 15,000 words and not more than 20,000 words. It will report on independently-conducted original research, which demonstrates the student’s ability to clearly define a research question and to undertake a critical review of the relevant literature. Data selection, collection and analysis skills should also be demonstrated. The thesis should allow the candidate to utilise a methodology applicable to a research question. It is expected that the student will attend sessions on quantitative or qualitative research methods depending on the approach they intend to use in their approach to the topic chosen. It is intended that the topic chosen for investigation will be in consultation with a supervisor approved by the School who will oversee the conduct of the research.

Required Reading

Recommended Reading

Class Contact
The Minor Thesis unit is available in either full-time or part-time mode and is conducted over one or two semesters respectively. Appropriate consultation time with the supervisor must be negotiated prior to the commencement of the semester and a learning contract that includes aims and objectives and time frame of the research project will be negotiated with each student.

Assessment
One written thesis (100%). The format and word count will depend on both the discipline and the subject matter. The scope of the research project should reflect the current Faculty guidelines and the word limit should not exceed 20,000 words. The thesis will be graded independently by two examiners and assessment will comply with Faculty requirements for marking postgraduate theses.

HHA6116 MINOR THESIS (PART TIME)
Campus St Albans
Prerequisites Nil
Co-requisites Nil
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Independently conduct research that demonstrates the ability to define a problem, undertake a detailed literature search and review the relevant theoretical and practical implications on the topic area;
2. Develop a research design and methodology and apply it to an appropriate pure or applied problem;
3. Develop a set of research questions, and perform scholarly research tasks;
4. Develop data collection tools including collection strategies and analysis skills;
5. Develop a scholarly written thesis that demonstrates high levels of analytical and written communication skills.

Content
The minor thesis is intended to provide students with an opportunity to undertake independent inquiry into an area of personal interest and applicable to their professional development. The thesis will be a research paper of not less than 15,000 words and not more than 20,000 words. It will report on independently-conducted and original research, which demonstrates the student’s ability to clearly define a research question and to undertake a critical review of the relevant literature. Data selection, collection and analysis skills should also be demonstrated. The thesis should allow the candidate to utilise a methodology applicable to a research question. It is expected that the student will attend sessions on quantitative or qualitative research methods depending on the approach they intend to use in their approach to the topic chosen. It is intended that the topic chosen for investigation will be in consultation with a supervisor approved by the School who will oversee the conduct of the research.

Required Reading

Recommended Reading

Class Contact
The Minor Thesis unit is available in either full-time or part-time mode and is conducted over one or two semesters respectively. Appropriate consultation time with the supervisor must be negotiated prior to the commencement of the semester and a learning contract that includes aims and objectives and time frame of the research project will be negotiated with each student.

Assessment
One written thesis (100%). The format and word count will depend on both the discipline and the subject matter. The scope of the research project should reflect the current Faculty guidelines and the word limit should not exceed 20,000 words. The thesis will be graded independently by two examiners and assessment will comply with Faculty requirements for marking postgraduate theses.
3. Discuss the impact of diabetes on the integration of human body systems which act together in complex body functions in healthy states;
4. Analyse the normal glucose metabolic pathways and their dysfunction in diabetes mellitus;
5. Describe the organs and tissue structures related to diabetes that are essential for theoretical, research, clinical and pathological evaluations ranging from macromolecules to whole organ level;
6. Critique using a strong scientific knowledge base, the complications and consequences of diabetes mellitus;
7. Discuss clinical presentation, treatment and management of diabetes;
8. Explain the use of oral hypoglycemic agents and insulin treatment regimes;

Content
This unit introduces students to the epidemiology of diabetes and examines its complex pathophysiology processes associated with the disease. This unit will also examine the pathophysiological relationships with other endocrine disorders. It includes contemporary and recent treatment and management regimes for Type 1, Type 2, LADA, and Gestational Diabetes Mellitus. Recent diabetes clinical and scientific research regarding risk factors and aetiology of the disease will also be examined.

Required Reading

Recommended Reading

Class Contact
A total of 36 hours or equivalent for one semester comprising lectures and tutorials.

Assessment
One 2-hour examination consisting of 50 multiple-choice questions and short answer questions (50%); Workbooks/tutorial reports (50%). In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.

HMD5102 TREATMENT AND MANAGEMENT OF DIABETES
Campus St Albans
Pre-requisite(s) Nil
Required Reading

Content
This unit provides the necessary theoretical and practical skills required to manage the complex needs of diabetes clients, including their pathophysiological, cultural, psychological, dietary and health promotion needs. The unit further develops students’ understanding of the cultural, psychosocial and pathophysiological influences on the aetiology, onset, pathophysiology and course of diabetic disease. The second part of this unit deals with the impact of culture on individual health-related perceptions, experiences and behaviours.

Required Reading

Recommended Reading

Class Contact
A total of 36 hours or equivalent for one semester comprising lectures and tutorials.

Assessment
One workbook (50%); One case history and presentation (50%). In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.

HMD5105 ADVANCED CLINICAL AND HEALTH ASSESSMENT
Campus St Albans
Pre-requisite(s) HMD5101 Clinical Perspectives, HMD5102 Treatment and Management of Diabetes, HMD5203 Communicating Diabetes, HMD5204 Diabetes Clinical Internship; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Perform an advanced health assessment;
2. Utilise concepts from a range of disciplines to obtain an advanced medical history relevant to their field of practice;
3. Assess clients’ physical status utilising their understanding of the complications and consequences of disease processes;
4. Assess clients’ mental and psychological states on the trajectory of their disease;
5. Appraise the roles of culture and other variables in the formation and maintenance of people’s health-related experiences, beliefs and practices;
6. Determine a clients’ explanatory model as an integral part of their overall assessment;
7. Determine where there is a lack of congruence between the student’s explanatory model and that of their clients;
8. Evaluate the impact of lifestyle factors that may impact on a person’s health, including diet, exercise, smoking, drug and alcohol use, work, leisure and sleep pattern; and
9. Critique emerging and potential health care literature for its application to client assessment.

Content
This unit provides the necessary theoretical and practical skills required to perform a comprehensive advanced client health assessment. The unit will further develop students’ understanding of the cultural, psychosocial and pathophysiological influences on the aetiology, onset, pathophysiology and course of disease. The second part of this unit will deal with the impact of culture on people’s attitudes and health related perceptions, experiences and behaviours.

Required Reading

Recommended Reading

Class Contact
A total of 36 hours or equivalent for one semester comprising lectures and tutorials.

Assessment
One workbook (50%); one case study and presentation (50%). In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.

HMD5106 INTRODUCTION TO HEALTH RESEARCH DESIGNS AND METHODS
Campus St Albans
Pre-requisite(s) HMD5101 Clinical Perspectives, HMD5102 Treatment and Management of Diabetes, HMD5203 Communicating Diabetes, HMD5204 Diabetes Clinical Internship; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Describe the research process in relation to nursing practice;
2. Critically examine the relationship between nursing research and improvement in health care outcomes;
3. Discuss research designs and methodologies typically found in health research;
4. Critically evaluate a piece of clinical and health research;
5. Discuss the ethical implications of conducting health practice research;
6. Develop a research proposal relevant to an area of professional health practice.

Content
This unit provides knowledge in research for health care practices. It provides a broad range of research designs and methodologies for health research. In undertaking this unit, students are able to utilise current research strategies of health researchers to validate and refine existing health practice knowledge in order to improve professional practice.

Required Reading


Recommended Reading

Class Contact
A total of 36 hours or equivalent for one semester comprising lectures and tutorials.

Assessment
One research proposal related to the field of study/professional practice. The proposal must include a comprehensive review of the literature, a description of the research process(es), a justification of the proposed research, budget costing and timeframe for the research (5000 words) (100%).

HMD5203 COMMUNICATING DIABETES
Campus St Albans
Pre-requisite(s) Nil

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Develop improvement plans, business cases and funding applications for diabetes services;
2. Develop culturally relevant and appropriate diabetes education material;
3. Identify and problem solve barriers to clients’ self-management;
4. Assist clients to determine a comprehensive self-management plan.

Content
This unit considers the basic principles and practices in health promotion and prevention in relation to diabetes. Current models and approaches related to health promotion and prevention of diabetes will be examined within the framework of the new public health. Students will be required to develop and present a health promotion/prevention program related to diabetes.

Required Reading

Recommended Reading

Class Contact
A total of 36 hours or equivalent for one semester comprising lectures and tutorials.

Assessment
Presentation of a health promotion/prevention program (40%); one major project (60%). In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.

HMD5204 DIABETES CLINICAL INTERNSHIP
Campus St Albans
Pre-requisite(s) Nil
Co-requisite(s) HMD5101 Clinical Perspectives of Diabetes, HMD5102 Treatment and Management of Diabetes, HMD5203 Communicating Diabetes; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Develop and enhance diabetes education and management clinical skills introduced in theoretical units in a practice setting;
2. Observe and practise, under the supervision of experienced clinicians, interviewing, assessing, and managing the care of diabetes clients;
3. Critique evidence-based practice in diabetes;
4. Describe the basic business skills required for the operation of a health unit;
5. Discuss teaching and learning principles, counselling techniques, and communication strategies appropriate to a diabetes clinical setting;
6. Plan, develop, implement and evaluate client and peer educational diabetes programmes;
7. Participate in a community-oriented health education/promotion program involving needs assessment, planning, implementation and/or evaluation phases;
8. Discuss the multidisciplinary nature of diabetes care;
9. Work towards further developing personal skills in diabetes education and management, including: adapting to new and challenging situations; assessing and reflecting on personal strengths and weaknesses; critiquing presentation skills; and acquiring self-evaluation skills.

Content
This unit provides students with opportunities to further develop their clinical skills in diabetes education and management in a clinical setting.

Required Reading

Recommended Reading

Class Contact
A total of 40 hours for one semester as prescribed by the Registration body.

Assessment
Clinical competency assessment as set out by the ADEA clinical guidelines (designed specifically for this area). The supervising Diabetes Educator will conduct the
assessment. One case history of diabetes management regime. One written business strategy for a Diabetes Educator. In order to obtain a pass in the ungraded unit, all components of assessment must be passed.

HMD5207 ADVANCED CLINICAL MEDICATION MANAGEMENT
Campus St Albans
Pre-requisite(s) HMD5101 Clinical Perspectives, HMD5102 Treatment and Management of Diabetes, HMD5203 Communicating Diabetes, HMD5204 Diabetes Clinical Internship; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Explain at an advanced level, the use of drug therapy with reference to their specialised area of study.

Content
This unit is designed to advance students’ understanding of pharmacology to a level where they are competent to practice independently and in line with relevant guidelines as prescribed by statutory professional accreditation bodies in Australia.

Required Reading

Recommended Reading

Assessment
One 2-hour examination comprising 50 multiple-choice and short answer questions (50%); One case-study assignment on therapeutic interventions (2500 words) (50%). In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.

HMD6108 HEALTH PROMOTION AND POLICY
Campus St Albans
Pre-requisite(s) HMD5105 Advanced Clinical and Health Assessment, HMD5106 Introduction to Health Research Design and Methods, HMD5207 Advanced Clinical Medication Management; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Determine learning and health promotion needs of both individuals and aggregates of people;
2. Appraise policy for its health enhancing potential;
3. Utilise health promotion strategies that are cognisant of, and sensitive to, the cultural and social identities of individuals and groups;
4. Discriminate amongst practices that are emancipatory and those that are not;
5. Critically analyse programs and projects in relation to their potential to yield sustainable health outcomes;
6. Evaluate, at a theoretical level, approaches undertaken to enhance the health and wellbeing of individuals or groups of people.

Content
This unit provides students with knowledge about contemporary concepts, values and debates in health promotion. The unit is designed to encourage an enhanced understanding of the health promotion needs of individuals with complex chronic conditions.

Required Reading

Recommended Reading


Class Contact
A total of 54 hours or equivalent for one semester comprising lectures and tutorials.

Assessment
One assignment (2500 words) (50%); One case study (50%). In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.

HMD6209 PROFESSIONAL CLINICAL PROJECT
Campus St Albans
Pre-requisite(s) HMD5105 Advanced Clinical and Health Assessment, HMD5106 Introduction to Health Research Design and Methods, HMD5207 Advanced Clinical Medication Management; or equivalents.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
1. Critically analyse structure, process and outcome of activities in their professional healthcare practice;
2. Identify an area of personal interest to improve practice by developing a proposal to and implement change;
3. Promote the highest standard of professional healthcare practice and excellence in their specialised field of practice;
4. Demonstrate independence, autonomy, and clinical decision-making skills in multi-disciplinary environments;
5. Promote individual commitment to, and recognition of life-long learning;
6. Competently utilise available evidence for continuous practice improvement.

Content
The clinical project is the culmination of the depth and breadth of the course. The project is intended to provide the student with opportunities to pursue their own area of study in a clinical or related setting. The project should incorporate:
- Advanced practical skills and techniques;
- Problem solving techniques;
- Organization and management strategies;
- Incorporation of appropriate biological and social sciences;
- Relevant research findings;
- Teaching and learning approaches.

The student will be required to choose a topic related to their professional practice, and approval will be required prior to commencement of the project. The project may include program evaluation, efficacy of a particular treatment modality, or psychosocial or other factors related to diabetes conditions. The work of the student must be original and will be carried out under the guidance of a supervisor approved by the School.

Required Reading


consultation with the supervisor using a learning contract.

**Assessment**

One written proposal, which includes a comprehensive background and justification of the clinical project (1000 words) (10%); one clinical project comprising an extensive and relevant literature review, a proposed change for practice and a plan for implementation of change. Students are encouraged to use various media creatively in the implementation of this project (900 words or negotiated equivalent) (90%).

**HNB1101 FRAMEWORKS FOR NURSING PRACTICE**

**Campus** St Albans  
**Pre-requisite(s)** Nil

**Learning Outcomes**

On successful completion of this unit, students are expected to be able to:

- critically discuss portrayals of the nurse found in the media;
- discuss some of the ways in which National Health Priorities are being addressed through health promotion strategies;
- discuss ethical and legal boundaries of nursing practice;
- discuss the role of the registered nurse in terms of regulatory frameworks for practice;
- discuss duty of care as it relates to nurses practice;
- discuss the use of evidence in nursing practice;
- demonstrate an understanding of the purpose of assessment frameworks for nursing practice;
- outline the principles underpinning the quality use of medicines;
- demonstrate beginning skills in professional communication, including an understanding at professional boundaries and self-awareness;
- complete a mathematics mastery test;
- demonstrate beginning skills in information literacy; and
- begin developing a personal professional practice portfolio.

**Content**

This unit comprises three parts. Part 1 (3 weeks) enables students to explore portrayals of nursing in the media and to consider these critically in relation to their personal perceptions of nursing. Part 2 (8 weeks) introduces them to broad frameworks which shape the scope and dimensions of nursing practice. These include population health/promotion considered within the National Health Priorities; professional practice (ethics, law and regulatory frameworks); critical thinking and analysis (use of evidence in practice); frameworks for patient/client assessment of care; quality use of medicine and therapeutic relationships. Part 3 (1 week) introduces students to issues surrounding the development of a professional practice portfolio which they will develop further throughout their course of study.

**Required Reading**


**Class Contact**

Lectures: 2 hours per week Total = (24 hours)  
Tutorials: 2 hours per week Total = (24 hours)  
Laboratory sessions (computer) 1 hour per week Total = (12 hours) Total: 60 hours of class contact time

**Assessment**

1. Presentation (5 minute) and report (500 words) (30 %) - Week 4 or 5  
2. Mathematics mastery test (30 minute exam) (hurdle) Week 4  
All students are required to achieve 100% in the mathematics mastery test. Any student not achieving 100% in this test will be required to undertake remedial work in mathematics skills and be retested. NB. If all other assessments in this unit are passed failure in the mathematics mastery test will not impede progress to the following nursing unit. Students will however need to continue with remediation until they successfully complete the mathematics mastery test.

3. Written assessment (1000 words) (30%) - Week 8  
4. Written assessment (1500 words) (40%) - Week 11  
Students must achieve an aggregate score of 50% to pass this unit. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a pass (P 50%) as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

**HNB1113 FOUNDATIONS IN PROFESSIONAL PRACTICE**

**Campus** St Albans  
**Prerequisite(s)** Nil

**Learning Outcomes**

Demonstrate beginning physical and mental health assessment skills. Document physical and mental health assessment data clearly and accurately.

**Content**

Module 1: Functional Health Patterns: emphasis on health perception and management; clinical reasoning process; occupational health and safety; procedural hand washing and asepsis; the complete nursing health history and general survey; assessment of family health; assessment of mental health status; cultural assessment including indigenous cultures; and physical examination of body systems. Module 2: Topic content in this module includes: an introduction to the Australian Nursing and Midwives Council (ANMC) and their role in nursing regulation including both the historical and contemporary influences on the development of nursing as a profession in Australia; and the structures both within and outside of nursing that influence scope of practice and professional boundaries. Credit Transfer Arrangements (including Articulation Pathways) if applicable.

**Required Reading**


Subject Hours Equivalent of 60 hours.

**Assessment**

Evaluation of physical and mental health assessment skills and clinical reasoning 40%.

**HNB1114 HEALTHCARE INFORMATICS**

**Campus** St Albans  
**Prerequisites** Nil  
**Co-requisites** Nil

**Learning Outcomes**

It is expected that by the end of the subject the student will be able to:

- Search for and find articles using appropriate databases;
- Demonstrate search strategies using Boolean operators and MESH terms;
- Evaluate the information found for its accuracy and quality;
- Develop the skills to produce writing appropriate to both the tertiary and clinical field they will be working in;
- Understand how technology may be used to inform clients/patients on various issues;
- Understand how electronic health records and other clinical systems can...
enhance the care and outcomes of patient encounters;
- Describe the use of technology systems for risk assessment;
- Understand modern patient dependency systems and how they may be used;
- Demonstrate skills in electronic communication and information retrieval;
- Discuss developments in technology assessment and the implications for nursing care; and
- Show a beginning understanding of the ethical and privacy issues these systems may produce.

Content
There are four broad content areas in this subject:
- The gathering of information for evidenced based practice. In this theme students will learn about the sources of best practice information including the Cachrrane library and the Joanna Briggs institute as well as journal data-bases and the World Wide Web. The student will also be taught the beginnings of how the information gathered from these sources may be evaluated and the skills needed to turn this information into appropriate written works for both the tertiary and clinical field students will be working in.
- The use of technology to record and evaluate health care. HealthConnect, the Government’s universal health record, will be used as an example of where the government sees electronic health records being used in the future. Students will be introduced to how technology is increasingly being used to manage risk assessment, nursing workloads through patient dependency systems and to give first line managers financial and turnover information so that they may manage their work areas through such systems as Trendcare and Excelcare.
- The use of technology in patient education. This can vary from the many Web sites that offer health information, such as the Better Health Channel to small ‘in-house’ technology based programs that are used to educate patients to the production of low cost information sheets produced by ‘desktop publishing’ programs put together by many words and departments.
- The emerging use of technology in the remote and rural areas through the use of ‘tele-health’ technology and the nurses’ participation and role in this area.

Required Reading

Recommended Reading

HNB1115 HEALTHCARE LAW AND ETHICS
Campus St Albans
Prerequisite(s) Nil
Learning Outcomes
Module 1
The student will be expected to:
- Discuss legislation and common law relevant to professional practice;
- Discuss health law as an essential aspect of professional practice;
- Discuss the regulation of nursing in Australia with particular reference to Victorian statutory;
- Distnguish between civil and criminal law and discuss how each may apply to professional practice;
- Explain what must be shown to prove negligence in health care contexts;
- Discuss the legal requirements to maintain patient/client confidentiality;
- Reflect upon own values, attitudes and beliefs about nursing and compare these with the value statements in the Code of Ethics for Nurses in Australia (ANC, 1993);
- Appreciate the importance of an ethical code of practice as foundational to practice;
- Apply ethical frameworks to issues that arise in professional practice;
- Understand the concept of personhood;
- Examine the moral arguments for maintaining or breaching confidentiality in professional practice;
- Discuss meaning/s of the concept of advocacy as this is presented in professional practice; and
- Explore the differences and similarities of ethical and legal frameworks and implications of these frameworks on the nurses’ and midwives’ professional relationship with clients, their families and other health care providers.

Module 2
The student will be expected to:
- Show an understanding of the role of State and Federal governments within the Australian Health Care context;
- Discuss the significance for nursing care of public and private sector funding mechanisms for acutely ill patients;
- Discuss growing pressures on the Pharmaceutical Benefits Scheme and their implications for patient care; and
- Discuss Medical pluralism and how this may impact on patient care.

Content
This module introduces the student to care legal and ethical principles required for beginning professional practice within the Australian Health Care system and covers the following topics: Introduction to Australian Law, Working within the Law, Legal Concepts, Professional Regulation, The regulation of drugs, Life and Death Issues, Professional practice and the ethical perspective. Module 2 This module introduces the student to: The interrelations between Commonwealth, state and private sector roles in health care, Health insurance and the funding of health services including: Healthcare funding, DRGs and Casemix, Pressures on the Pharmaceutical Benefits Schemes, The organisation of Health care services, Reforms of the Health Service.

Required Reading

Recommended Reading

Contact Hours Equivalent of 40 hours.
Assessment
Written assignment (1500 words.) 40% Annotated bibliography - including search strategies used (1500 words) 40% On-line participation in discussion groups 20%

HNB1201 WORKING WITH FAMILIES
Campus
Pre-requisite(s) Nil
Learning Outcomes
On successful completion of this unit, students are expected to be able to:
- identify major health needs of families living in the Western region of Melbourne and compare these to Victorian, National and global health priorities;
- discuss theories of family and community nursing;
- assemble a genogram of a family;
- apply professional, ethical, legal and cultural principles to communication with individual, family and community;
- identify key health issues for families in the Western region with particular emphasis on:
  - maternal and child health,
  - adolescent health,
  - adult health,
  - the health of older persons;
• identify the health impacts of socio-economic disadvantage, and cultural and geographic dislocation.

Content
This unit provides students with an understanding of some of the major health needs of families living within the Western region of Melbourne. It introduces students to family and community nursing with particular emphasis on health issues across the lifespan related to cultural diversity, geographical dislocation and socio-economic disadvantage. It also explores ethical issues related to access to health care.

Required Reading


Recommended Reading

Class Contact
Lectures: 2-3 hours per week (total = 30 hours)

Laboratory sessions: 1-2 hours per week (total = 12 hours)

Total: 60 hours of class contact time

Class Contact hours per week may vary according to clinical placement allocation.

Assessment
1. Written assessment plan (500 words) (10%) - Week 4
2. Written assessment (2000 words) (60%) - Week 10
3. Written examination (1 hour) (30%) - Exam period

Students must achieve an aggregate score of 50% and pass the written examination to achieve a pass in the subject. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

HNB1202 HEALTH PRIORITIES & NURSING 1

Campus St Albans
Pre-requisite(s) HNB1101 Frameworks for Nursing Practice
Co-requisite(s) HNB1203 Clinical Practicum 1

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• discuss population approaches to injury prevention and control (i.e. policies, legislation and health promotion initiatives);
• identify key issues in injury prevention and control across the lifespan and in a variety of settings;
• demonstrate an awareness of skills to aid in developing and supporting self in relation to nursing practice;
• discuss a range of history taking and physical assessment tools and techniques used in Victorian health care settings;
• demonstrate beginning skills in history taking and physical assessment in the clinical laboratory;
• discuss consent, privacy, and confidentiality when dealing with patients/clients and their information;
• differentiate between the roles of the division 1 and division 2 registered nurse and patient services assistants/personal care attendants;
• discuss how clients cultural and family values can be met within the clinical environment;
• briefly explain health care funding, its relationship to the provision of care and actions nurses can take to utilise resources efficiently.

Content
This unit introduces students to the National Health Priority, Injury Prevention and Control, and provides them with an opportunity to apply the knowledge learnt in their personal and professional lives. In the clinical laboratory, students learn the skills required to undertake a comprehensive health assessment, identify normal and abnormal findings and document these.

Required Reading


Recommended Reading


Class Contact
Lectures: 1-2 hours per week (total = 20 hours)

Laboratory sessions: 1-2 hours per week (total = 20 hours)

Total: 60 hours of class contact time

Class Contact hours per week may vary according to clinical placement allocation.

Assessment
1. Written assessment (1000 words) (35%) - Week 5
2. Mathematics mastery test (30 minute exam) (hurdle) - Week 6

All students are required to achieve 100% in the mathematics mastery test. Any student not passing this test will be required to undertake remedial work in mathematics skills and be retested. NB. Successful completion of the mathematics mastery test is a requirement for progression into Health Priorities & Nursing 2 and Clinical Practicum 2.

3. Practical examination (20 minutes) (15%) - Examination period

4. Written assessment (1500 words) (50%) Week 12

Students must achieve an aggregate score of 50% to pass this subject. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).
On completion of this unit of study, students are expected to be able to:
- identify their current scope of practice and work within this;
- demonstrate beginning skills in risk assessment;
- identify key issues in injury prevention in the clinical setting;
- discuss Occupational Health and Safety in relation to risk assessment and nursing practice and apply this in the clinical setting;
- discuss infection control principles and demonstrate these in the clinical setting;
- conduct a health assessment interview to obtain a health history and accurately record this using appropriate medical terminology;
- demonstrate beginning skills in mental status examination and taking a psychiatric history;
- demonstrate beginning physical assessment skills in the clinical setting;
- undertake functional health assessments appropriate to allocated patients and accurately record these identifying any abnormalities;
- demonstrate respect for individuals values and beliefs;
- assess the health status for an allocated patient then plan, implement care for and evaluate the care of this patient in consultation with the nursing team;
- describe the role of the Nurse Unit Manager/Nurse in-charge in an institutional setting with stable clients;
- identify how clients cultural and family values are met within the clinical environment;
- use the situation, task, action and result (STAR) format to begin entering clinical achievements into their personal professional practice portfolio.

Content
This unit provides students with the opportunity to apply the knowledge learnt in Health Priorities & Nursing 1 in beginning professional practice. Students will undertake comprehensive health assessments, identifying normal and abnormal findings and documenting these. Students will focus on injury prevention and safety issues while undertaking their clinical placement. Students will also observe the roles of other members of the health care team and consider how the values of the family and culture are met within the care facility.

Required Reading


Recommended Reading


Class Contact
7 hours of medium fidelity simulation laboratories will be conducted during semester to complement the theory and laboratory hours in Health Priorities in Nursing 1.

Assessment
1. Group activity sheet completion in two simulation laboratories (10%) Weeks 6 and 8
2. Formative Clinical Appraisal (feedback) End of week 1 of placement
3. Summative Clinical Appraisal (60%) End of week 3 of placement

Written clinical problem solving task (1000 words) (30%) - End of week 3 of placement

Students must achieve an aggregate score of 50% and pass the summative clinical appraisal and written clinical problem solving task to pass this unit. Students who do not pass the summative clinical appraisal will be permitted to undertake up to five additional clinical days until they reach the required standard. However, those unable to complete requirements to pass within the extended time frame will be given a fail grade. Students who demonstrate unsafe practice will be removed from the clinical practicum. Depending upon the safety issue in question the student may be able to return to clinical practicum following remediation. Otherwise a fail grade will be awarded. Students who do not achieve a pass in both mandatory components of assessment but who achieve an aggregate of 50% or greater will have a U (ungraded fail) grade awarded as their final result.
HNB1233 CLINICAL PRACTICUM 1: ACUTE CARE

Campus St Albans

Prerequisite(s) HNB1113 Foundations in Professional Practice

Content Students will be required to participate in the delivery of health care to patients in a variety of acute care settings under the supervision of a clinical teacher/preceptor. Using the ANCI Competencies, students’ clinical performance will be guided and assessed by experienced clinical teachers and/or preceptors.

Learning Outcomes
On completion of this subject, students should be able to:

- Abide by the Code of Professional Conduct for Nurses in Australia in the delivery of nursing care;
- Plan and perform safe and competent nursing care in accordance with the ANCI Competencies;
- Demonstrate the application of knowledge of health breakdown processes to the acute care setting;
- Document accurately patient care as required by the clinical agency under the supervision appropriate to this level of the program;
- Apply the principles of occupational health and safety to all aspects of health care delivery;
- Utilise clinical reasoning process to assess and individualise nursing care;
- Engage in professional communication with patients, families, and healthcare personnel; and
- Utilise a self-directed approach to learning and professional development.

Required Reading

Recommended Reading

HNB2102 HEALTH PRIORITIES & NURSING 2

Campus St Albans
Pre-requisite(s) HNB1202 Health Priorities & Nursing 1; HNB2103 Clinical Practicum 1
Co-requisite(s) HNB2103 Clinical Practicum 2

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

- describe population approaches to identified national health priorities (i.e. policies, legislation, health ecology and health promotion initiatives);
- identify genetic and social determinants of health in relation to identified national health priorities;
- discuss holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities;
- discuss burden of disease and health costs associated with identified national health priorities;
- demonstrate knowledge of the nursing management of individuals across the lifespan experiencing asthma, respiratory and cardiovascular diseases and related disease processes in various contexts of care using a problem solving approach;
- demonstrate knowledge of infection control and Occupational Health and Safety issues in the institutional, community and global context in relation to one or more of the conditions identified in the national health priorities;
- discuss communication theory, non-verbal communication and active listening;
- in the clinical laboratory demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders etc.)

Content
This unit builds on previous nursing units of study and further develops the students knowledge of the National Health Priorities and complements Pathophysiology & Quality Use of Medicines 2. In particular students will study the nursing management of patients suffering from asthma, other respiratory disorders, cardiovascular disease and their related co-morbidities.

Required Reading

Recommended Reading

Class Contact
1. Group activity sheet completion in two simulation laboratories (5% each) Weeks 6 and 8
2. Written assessment (750 words) (25%) Week 9
3. Hurdle requirement for clinical placement Week 4 Drug calculation mastery test (100% needed for pass)

Assessment
1. Formative Clinical Appraisal (feedback) between day 8 and 11 of placement
2. Summative Clinical Appraisal (70%) from day 17 to 20 of placement
3. Written clinical problem solving task (1000 words) (30%) - End of placement

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• identify their current scope of practice and work within this;
• demonstrate more advanced communication skills and interview techniques within the clinical setting;
• demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities;
• demonstrate knowledge of the nursing management of individuals across the lifespan experiencing asthma, respiratory and cardiovascular disease and related disease processes in various contexts of care using a problem solving approach;
• apply the principles of infection control and Occupational Health and Safety in an institutional setting and in relation to one or more of the conditions identified in the national health priorities;
• assess, plan and implement the care for and evaluate the care of an increasing patient load within the student’s scope of practice and in consultation with the patient and the health care team;
• demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders etc.);
• continue entering clinical achievements into their personal professional practice portfolio.

Content
This unit builds on previous nursing units of study and further develops the students assessment and clinical decision making skills in the clinical environment. Students will apply their knowledge of pathophysiology, nursing interventions and the quality use of medicines to management of clients suffering from asthma, other respiratory diseases, cardiovascular disease and their related co-morbidities.

Required Reading

Recommended Reading

Class Contact
1. Group activity sheet completion in two simulation laboratories (5% each) Weeks 6 and 8
2. Written assessment (750 words) (25%) Week 9
3. Hurdle requirement for clinical placement Week 4 Drug calculation mastery test (100% needed for pass)

Assessment
1. Formative Clinical Appraisal (feedback) between day 8 and 11 of placement
2. Summative Clinical Appraisal (70%) from day 17 to 20 of placement
3. Written clinical problem solving task (1000 words) (30%) - End of placement

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• identify their current scope of practice and work within this;
• demonstrate more advanced communication skills and interview techniques within the clinical setting;
• demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities;
• demonstrate knowledge of the nursing management of individuals across the lifespan experiencing asthma, respiratory and cardiovascular disease and related disease processes in various contexts of care using a problem solving approach;
• apply the principles of infection control and Occupational Health and Safety in an institutional setting and in relation to one or more of the conditions identified in the national health priorities;
• assess, plan and implement the care for and evaluate the care of an increasing patient load within the student’s scope of practice and in consultation with the patient and the health care team;
• demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders etc.);
• continue entering clinical achievements into their personal professional practice portfolio.

Content
This unit builds on previous nursing units of study and further develops the students assessment and clinical decision making skills in the clinical environment. Students will apply their knowledge of pathophysiology, nursing interventions and the quality use of medicines to management of clients suffering from asthma, other respiratory diseases, cardiovascular disease and their related co-morbidities.

Required Reading

Recommended Reading

Class Contact
1. Group activity sheet completion in two simulation laboratories (5% each) Weeks 6 and 8
2. Written assessment (750 words) (25%) Week 9
3. Hurdle requirement for clinical placement Week 4 Drug calculation mastery test (100% needed for pass)

Assessment
1. Formative Clinical Appraisal (feedback) between day 8 and 11 of placement
2. Summative Clinical Appraisal (70%) from day 17 to 20 of placement
3. Written clinical problem solving task (1000 words) (30%) - End of placement

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• identify their current scope of practice and work within this;
• demonstrate more advanced communication skills and interview techniques within the clinical setting;
• demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities;
• demonstrate knowledge of the nursing management of individuals across the lifespan experiencing asthma, respiratory and cardiovascular disease and related disease processes in various contexts of care using a problem solving approach;
• apply the principles of infection control and Occupational Health and Safety in an institutional setting and in relation to one or more of the conditions identified in the national health priorities;
Become familiar with the theoretical bases of mental health nursing; Understand the use of the Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM IV-TR) and International Classification of Diseases (10th Ed) (ICD-10); Explore contemporary research relevant to mental health and illness nursing; Utilize a problem solving approach as a framework to guide practice in mental health settings; Explore the clinical manifestations of common psychiatric disorders; Develop beginning mental health assessment knowledge and skills in psychosocial assessment and mental status examination; Develop the requisite knowledge to plan, implement and evaluate mental health nursing care for individuals and families; Discuss common therapeutic modalities, including psychopharmacology; Develop and practice beginning psychotherapeutic communication skills in mental health nursing.

Content
The aim of this unit is to develop students' knowledge, skills and attitudes in the promotion of mental health and to meet the needs of people with altered mental health status in in-patient and community settings.

Required Reading

Recommended Reading

Internet links

Class Contact
Lectures 24 hours (3 hours per week) Tutorials 16 hours (2 hours per week)

Assessment
Portfolio worth 40% of the unit grade; 20 minute Seminar presentation worth 20% of the unit grade; One and a half hour exam worth 40% of the unit grade. In order to pass the unit students must attend at least 6 out of the 8 tutorials.

HN2132 NURSING THEORY 2: ACUTE CARE

Campus St Albans

Prerequisite(s)
HN2132 Nursing Practice 1; RBM1530 Human Bioscience 2: Body Structure and Function

Learning Outcomes
Identify the relevant ethical and legal issues associated with nursing clients experiencing medical/surgical and psychiatric conditions;

Content
The content of this subject will be organised around the Functional Health Patterns, in particular: Activity & Exercise, Nutrition & Metabolism, Cognition and perception (neurological dysfunction). Specific nursing skills to be taught will relate to parenteral medication administration; pain assessment and management; nutrition and metabolism maintenance including IV therapy; occupational health and safety protocols and knowledge of infection control principles in relation to the above; hospitalisation and acute episodic illness including the planning, implementing and evaluation of care with a variety of medical and surgical conditions, including respiratory, cardiac, vascular and neurological; education processes and skills; and factors such as cultural and indigenous issues, legal and ethical issues, communication skills, and organisational factors will also be considered in the analysis of client care in clinical settings. Credit Transfer Arrangements (including Articulation Pathways) if applicable

Required Reading

Recommended Reading


Asthma Australia: http://www.asthmaaustralia.org.au/


The Cancer Council: http://www.ccc.org.au


PapScreen Victoria: http://www.papscreen.org.au


Diabetes Australia: http://www.diabetesaustralia.com.au


Virtual Hospital: http://www.vh.org/

Subject Hours Equivalent of 40 hours.

Assessment
Problem based learning (PBL) group exercise - 30%, 1½ hour examination - 40%, case study related literature review - 30%, Drug Calculation: Satisfactory/Unsatisfactory.

HN2134 CLINICAL PRACTICUM 2: ACUTE CARE

Campus St Albans

Prerequisite(s)
Nursing Practice 1: Acute Care, Clinical Practicum 1: Acute Care, Human Bioscience 2: Body Structure and Function Content Students will be expected to develop an increasingly independent role in the delivery of nursing care to clients in acute medical/surgical settings. Students will be to be supervised by clinical teachers and/or preceptors during this period of experiential learning. The ANC Competencies will be used as an assessment framework by preceptors and clinical instructors. The students will be expected to focus on the themes they have been exposed to in the accompanying theory subject taken prior to this clinical practicum as outlined in the subject guide. Reflective practice will be encouraged in order to enable students to critically evaluate their clinical practice. The completion of University-specific client care documentation at intervals throughout the clinical placement will enhance the students' clinical communication/documentation skills. Client-student ratios will be graduated throughout the placement and numbers will depend upon the level of
HNB2136 CLINICAL PRACTICUM 3: HEALTH AND ILLNESS IN OLDER ADULTS

Campus St Albans
Prerequisite(s) Nursing Practice 1: Acute Care, Clinical Practicum 1: Acute Care

Learning Outcomes
Adapt knowledge of physical and mental health assessment procedures to the individualised care requirements of older adults; students will be expected to develop the foundation skills and knowledge for evolving independence in the delivery of nursing care to the older adult. The completion of a University-specific assessment tool will enhance the students’ clinical communication and documentation skills. Client-student ratios will be graduated throughout the placement to develop a knowledge base of mental health needs of older people living in the community, within residential care facilities or on admission to acute or rehabilitation care venues.

Recommended Reading

Required Reading


Contact Hours Equivalent of 70 hours.
Assessment In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following: satisfactory performance of holistic assessment of one client, as demonstrated by care planning documentation; demonstration of competence in selected skills, according to specified criteria, and in line with the ANC Competencies as defined for a student at this stage of the course; and demonstrate safe and competent practice in line with the ANC Competencies as defined for a student at this stage of the course. Final assessment: Satisfactory/Unsatisfactory.

HNB2202 HEALTH PRIORITIES & NURSING 3

Campus St Albans
Pre-requisite(s) HNB 2102 Health Priorities and Nursing 2; HNB2103 Clinical Practicum 2
Co-requisite(s) HNB 2203 Clinical Practicum 3

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

- discuss mental health and illness throughout the lifespan including the social and genetic determinants of mental illness;
- briefly explain the structure, function and policy issues of Victoria’s Psychiatric Services;
- describe the theoretical bases of mental health nursing;
- briefly explain the use of the Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM IV-TR) and International Classification of Diseases (10th Ed) (ICD-10);
- demonstrate knowledge of the legislative and ethical foundations of mental health care and treatment, in particular the roles and responsibilities of the nurse under the Victorian Mental Health Act;
- discuss the use of a problem solving approach as a framework to guide practice in mental health settings;
- describe the clinical manifestations of common psychiatric disorders;
- demonstrate beginning health assessment knowledge and skills in psychosocial assessment and mental status examination;
- demonstrate the ability to plan, implement and evaluate mental health nursing care for individuals and families in simulated scenarios;
- discuss common therapeutic modalities, including psychopharmacology; demonstrate beginning psychotherapeutic communication skills in mental health nursing, including the use of Ivey’s stage interview in clinical skills laboratories; and
- discuss the principles of mental health risk assessment and crisis intervention.

Content
This unit introduces students to the National Health Priority, Mental Health and Wellbeing and builds on the communications and assessment skills developed in previous units. It aims to develop students knowledge, skills and attitudes in the promotion of mental health. The unit provides the skills students require to meet the needs of people with altered mental health status in institutional and community settings. It also complements the information provided in Pathophysiology & Quality Use of Medicines 2.

Required Reading

Recommended Reading
Australian College of Mental Health Nurses home page. The College is the professional body for mental health nurses and the site provides many useful links, including a newsgroup email subscription (free). http://www.anzcmn.org
Mental Health Council of Australia www.mhca.com.au
Australian Early Intervention Network (AusEinet) http://ausinet.flinders.edu.au
Early Psychosis Prevention and Intervention Centre http://home.vicnet.net.au/~eppic/
health-public-affairs/mhcs/
Mental Health Branch of Department of Health & Aged Care www.health.gov.au/
hsdd/mentalhe/
Class Contact
Lectures: 1-2 hours per week (total = 20 hours)
Laboratory sessions: 1-2 hours per week (total = 20 hours)
Simulation: 10 hours across the semester
Total: 50 hours of class contact time
Class Contact hours per week may vary according to clinical placement allocation.
Assessment
1. Hurdle requirement for clinical placement in Clinical Practicum 3 - Week 1 or 2.
   Drug calculation mastery test (100% needed for pass) Students are not permitted to administer medications until they have passed this hurdle requirement.
2. Written assessment (1000 words) (35%) Week 6
3. Written examination (2 hours) (65%) Exam period
To gain an overall pass in this unit students must achieve an aggregate score of 50% and pass the written examination. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail). Students who do not achieve a pass in the mandatory component of assessment but who achieve an aggregate of 50% or greater will have a U (ungraded fail) grade awarded as their final result.

HN82203 CLINICAL PRACTICUM 3
Campus St Albans
Pre-requisite(s) HN82102 Health Priorities and Nursing 2; HN82103 Clinical Practicum 2
Co-requisite(s) HN82202 Health Priorities and Nursing 3

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• identify their current scope of practice and work within this;
• utilize a problem solving approach as a framework to guide practice in mental health settings;
• demonstrate knowledge of the legislative and ethical foundations of mental health care and treatment, in particular the roles and responsibilities of the nurse under the Victorian Mental Health Act;
• describe the clinical manifestations of common psychiatric disorders;
• demonstrate beginning health assessment knowledge and skills in psychosocial assessment and mental status examination;
• demonstrate the ability to plan, implement and evaluate mental health nursing care for individuals and families in consultation with the nursing team;
• discuss common therapeutic modalities, including psychopharmacology;
• demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders etc.);
• demonstrate beginning psychotherapeutic communication skills in mental health nursing, including the use of Ivey’s 5 stage interview;
• demonstrate beginning assessment skills in mental health risk assessment and crisis intervention;
• demonstrate culturally appropriate assessment and intervention strategies;
• continue entering clinical achievements into their personal professional practice portfolio.

Content
The aim of this unit is to provide students with the opportunity to apply the mental health knowledge and skills developed in Pathophysiology and Quality Use of Medicines 2 and Health Priorities and Nursing 3 in an institutional and/or community setting.

Required Reading

Recommended Reading

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Internet links


Early Psychosis Prevention and Intervention Centre http://lpa.meic.menat.net.


Mental Health Branch of Department of Health & Aged Care www.health.gov.au/hsdd/mentalhe/


Class Contact

Nil. This is a clinical subject which aligns with the theory subject Health Priorities and Nursing 3.

Assessment

1. Formative Clinical Appraisal (feedback) between day 8 to 11 of placement
2. Summative Clinical Appraisal (30%) from day 17 to 20 of placement
3. Written clinical problem solving task (2000 words) (70%) end of placement

To gain an overall pass in this unit students achieve an aggregate score of 50% and gain a pass in both the summative appraisal and the written problem solving task.

Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

Students who do not achieve a pass in both mandatory components of assessment but who achieve an aggregate of 50% or greater will have a U (ungraded fail) grade awarded as their final result.

HNB2204 HEALTH PRIORITIES & NURSING 4

Campus St Albans

Pre-requisite(s) HNB2102 Health Priorities & Nursing 2

Learning Outcomes

On successful completion of this unit, students are expected to be able to:

- demonstrate consolidation of knowledge specific to the identified national health priorities through the completion of Problem Based Learning scenario(s);
- analyse the role of the nurse in relation to emerging knowledge of genetics in relation to identified national health priorities;
- demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities using a Problem Based Learning approach;
- critically appraise the evidence base for the nursing management of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities;
- demonstrate further development of communication skills and interview techniques.

Content

This unit builds on previous nursing units of study and further develops the students knowledge of the National Health Priorities. In particular students will be introduced to the nursing management of patients suffering from diabetes mellitus, cancer, arthritis and musculoskeletal conditions and related co-morbidities.

Required Reading


Recommended Reading


Class Contact

Lectures: 2-3 hours per week (total = 24 hours)

Tutorials: 1-2 hour per week (total = 12 hours)

Laboratory sessions: 2 hours per week (total = 24 hours)

Total: 60 hours of class contact time

Class Contact hours may vary according to clinical placement allocation.

Assessment

1. Written assessment (1000 words) (30%) Week 5

2. Written assessment (1000 words) (30%) Week 10

3. Written examination (1.5 hours) (40%) - Exam Period

Students must achieve an aggregate score of 50% and pass the written examination to pass this subject. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

Students who do not achieve a pass in both mandatory components of assessment but who achieve an aggregate of 50% or greater will have a U (ungraded fail) grade awarded as their final result.

HNB2227 NURSING THEORY 5: MENTAL HEALTH AND ILLNESS B

Campus St Albans

Pre-requisite(s) HNB2127 Nursing Theory 5: Mental Health and Illness A

Learning Outcomes

This unit is designed to provide students with an opportunity to: Develop further skills in caring for consumers who are receiving treatment and care for their mental illness; Explore the clinical manifestations of psychiatric disorders such as personality, eating, substance related and cognitive disorders; Further develop skills in mental status examination; Develop beginning assessment skills in risk assessment and crisis intervention; Develop the requisite knowledge to plan, implement and evaluate mental health care for individuals and families; Discuss common therapeutic modalities, including psychopharmacology, group and family therapy and motivational interviewing; Develop culturally appropriate skills in assessment and intervention.
for individuals from various cultural groups including Aboriginal and Torres Strait Islanders; Explore contemporary research relevant to mental health and illness nursing.

**Content**

The aims of this unit are to further develop students' knowledge, skills and attitudes gained in the first semester subject HNB2127 in the promotion of mental health and to meet the needs of people with altered mental health status in in-patient and community settings. To provide culturally appropriate care to individuals from various cultural groups, including Aboriginal and Torres Strait Islanders.

**Required Reading**


**Recommended Reading**


**Internet links**


**Class Contact**

Lectures 24 hours (3 hours per week) Tutorials 16 hours (2 hours per week)

**Assessment**

One 3 hour exam worth 60% of the unit grade. Seminar presentation and 2000 word written assignment worth 40% of the unit grade. In order to pass the unit students must attend at least 6 out of the 8 tutorials.

**HNB2234 CLINICAL PRACTICUM 4: ACUTE CARE**

**Campus**

St Albans

**Prerequisite(s)**

Nursing Practice 2: Acute Care, Clinical Practicum 2: Acute Care, Nursing Practice 3: Health & Illness in Older Adults, Clinical Practicum 3: Health & Illness in Older Adults

**Content**

Students will be expected to develop an increasingly independent role in the delivery of nursing care to clients in acute medical/surgical settings. Students will be be supervised by clinical teachers and/or preceptors during this period of experiential learning. The ANC Competencies will be used as an assessment framework by preceptors and clinical instructors. The students will be expected to focus on the themes they have been exposed to in the accompanying theory subject taken prior to this clinical practicum as outlined in the subject guide. Reflective practice will be encouraged in order to enable students to critically evaluate their clinical practice. The completion of University-specific client care documentation at intervals throughout the clinical placement will enhance the students' clinical communication/documentation skills. Client-student ratios will be graduated throughout the placement and numbers will depend upon the level of acuity.

**Learning Outcomes**

On completion of this subject, students should be able to:

- Demonstrate application of knowledge acquired through related theoretical and skills based subjects;
- Adapt knowledge of health assessment procedures to the individualised care requirements of clients in the acute care setting related to the themes of the subject;
- Perform safe and competent nursing care in accordance with the ANC Competencies (2000), and consistent with level of knowledge expected at this stage of the Bachelor of Nursing;
- Develop individualised nursing care plans for clients acknowledging physical/mental condition, communication skills, socio-cultural or indigenous background and developmental stage;
- Apply the principles of occupational health and safety and infection control to all aspects of health care delivery;
- Apply knowledge of communication skills to all aspects of the clinical experience, and demonstrate appropriate interpersonal skills with clients, families, and healthcare personnel;
- Demonstrate knowledge of pharmacological agents such as route of administration, distribution, metabolism, common side effects and excretion;
- Apply legal and ethical principles to the holistic health care requirements of clients;
- Participate in reflective practice process through documentation, discussion and self-evaluation of learning experiences, both on campus and in the clinical setting and the relationship between these experiences;
- Critically apply relevant theoretical concepts from related areas of study in the analysis of nursing situations; and
- Participate in client education and provide information regarding the availability of community resources for persons requiring assistance on discharge or transfer.

**Required Reading**


**Recommended Reading**

Galbraith, A., Bullock, S., & Manins, E. (2004). Fundamentals of pharmacology. (4th ed.). Frenchs Forest, NSW: Pearson Education Australia. Nurses Board of Victoria. (1999). Professional conduct information for registered nurses. Melbourne: Author. (Available at http://www.nbv.org.au) Nurses Board of Victoria. (2001). Professional boundaries. Guidelines for registered nurses in Victoria. Melbourne. Author. (Available at http://www.nbv.org.au). Subject Hours Equivalent to 70 hours Assessment In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following: satisfactory performance of holistic assessment of one client, as demonstrated by care planning documentation. Demonstration of competence in selected skills, according to specified criteria, and in line with the ANC Competencies as defined for a student at this stage of the course; satisfactory participation in reflective practice, as defined by completion of personal learning objectives and reflective journal entries during each week of clinical placement; and demonstration of safe and competent practice in line with the ANC Competencies as defined for a student at this stage of the course. Final assessment: Satisfactory/Unsatisfactory.
HNB2239 CLINICAL PRACTICUM 5 MENTAL HEALTH & ILLNESS
Campus St Albans
Prerequisites: APT 1311 Psychology Across the Lifespan
Co-requisites Nil
Learning Outcomes: On completion of this subject, students should be able to:
• Demonstrate the application of knowledge acquired through related theoretical and skills based subjects;
• Adapt knowledge of health assessment procedures to the individualised care requirements of clients in appropriate care settings;
• Perform safe and competent nursing care in accordance with the ANC competencies (2000) and Australian and New Zealand College of Mental Health Nurses Inc. Standards of Practice for Mental Health Nursing, and consistent with level of knowledge expected at this stage of the bachelor of nursing;
• Develop individualised nursing care plans for clients acknowledging physical/mental condition, communication skills, socio-cultural or indigenous background and developmental stage;
• Apply the principles of occupational health and safety and infection control to all aspects of health care delivery;
• Apply knowledge of communication skills to all aspects of the clinical experience, and demonstrate appropriate interpersonal skills with clients, families, and healthcare personnel;
• Demonstrate knowledge of pharmacological agents such as route of administration, distribution, metabolism, common side effects and excetration;
• Apply legal and ethical principles to the holistic health care requirements of clients;
• Participate in reflective practice process through documentation, discussion and self-evaluation of learning experiences both on campus and in the clinical setting and the relationship between these experiences;
• Critically apply relevant theoretical concepts from related areas of study in the analysis of nursing situations; and
• Participate in client education and provide information regarding the availability of community resources for persons requiring assistance on discharge or transfer.
Content: Students will be provided with opportunities to practice a range of mental health nursing skills, including:
• Conduct psychosocial health assessment and mental status assessment and interviewing;
• Utilise a range of therapeutic communication techniques;
• Observe therapeutic modalities;
• Develop nursing care plans for persons with mental health disorders, including anxiety disorders, depression, schizophrenia, bi-polar, eating, substance use, personality disorders;
• Utilise reflective skills to evaluate nursing practice;
• Provide care to clients with psychiatric disorders, including bi-polar, eating, substance use, and personality;
• Provide care to clients with psychiatric disorders of older age, including dementia and confusion;
• Provide care to clients who are suicidal and engage in self-harm;
• Develop beginning skills in risk assessment and crisis intervention;
• Assist in pharmacological interventions, including anti manic and antidepressants;
• Engage clients in medication education; and
• Culturally appropriate assessment and interventions including indigenous Australians.
Class Contact: Equivalent of 140 hours
Assessment: In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following:
• Demonstrate safe and competent practice in line with the ANCI Competencies and Australian and New Zealand College of Mental Health Nurses Inc. Standards of Practice for Mental Health Nursing, as defined for a student at this stage of the course; and
• Demonstrate competency in conducting a Mental Health Status Examination.
Final assessment: Satisfactory / Unsatisfactory

HNB2241 NURSING THEORY 4 ACUTE CARE
Campus St Albans
Prerequisites: HNB 1232 Nursing Theory 2: Acute Care, HNB 2135 Nursing Theory 3: Health & Illness in Older Adults
Co-requisites Nil
Learning Outcomes: On completion of this subject, students should be able to:
• Apply clinical reasoning skills to the identification of nursing problems, appropriate interventions and prioritisation of care for clients in clinical settings;
• Develop selected nursing skills related to clients experiencing episodes of illness related to the themes of the subject;
• Participate in client education and provide information regarding the availability of community resources for persons requiring assistance on discharge or transfer;
• Participate in reflective practice process through documentation, discussion and self-evaluation of learning experiences both on campus and in the clinical setting and the relationship between these experiences;
• Critically apply relevant theoretical concepts from related areas of study in the analysis of nursing situations; and
• Participate in client education and provide information regarding the availability of community resources for persons requiring assistance on discharge or transfer.
Content: The content of this subject will be organised around the Functional Health Patterns, in particular: Nutrition & Metabolism, Elimination (gastrointestinal & renal); Movement and coordination (musculoskeletal skeletal trauma); Sexuality and reproduction (reproductive cancers).
Specific nursing skills to be taught will relate to:
• Parenteral medication administration;
• Complex care needs for those patients who are unable to care for their own health needs;
• Elimination pattern;
• Sexuality and reproduction pattern;
• Occupational health and safety protocols and knowledge of infection control principles in relation to the above;
• Hospitalisation and acute episodic illnesses including the planning, implementing and evaluation of care used to treat clients with a variety of medical and surgical conditions, including gastrointestinal, renal, musculoskeletal trauma, reproductive cancers;
• Hospitalisation and acute episodic illnesses including the planning, implementing and evaluation of care used to treat clients with a variety of medical and surgical conditions, including gastrointestinal, renal, musculoskeletal trauma, reproductive cancers;
• Patient education processes and skills; and
• Focus on cultural and indigenous issues, legal and ethical issues, communication skills, and organisational factors will also be considered in the analysis of client care in clinical settings.

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Class Contact Equivalent of 40 hours
Assessment Problem based learning (PBL) group exercise 30% 1½ hour Examination 40%
Case study related literature review (1200 words .) 30%

HNB3100 PHARMACOLOGY IN NURSING PRACTICE
Campus St Albans
Pre-requisite(s) RNB2541 Human Bioscience 3: Pathophysiology, HNB2241 Nursing Theory 4: Acute Care, HNB2238 Nursing Theory 5: Mental Health & Illness
Learning Outcomes Students will be expected to: Apply the general principles of pharmacology to the responsibilities of nursing practice. Explain the pharmacokinetics factors involved in the modification of drug action. Predict the changes in response to medications across the lifespan. Identify significant relationships of polypharmacy and clinical overdose. Discuss the relationship between individuals presenting with peripheral nervous system, central nervous system, heart and vascular system, kidney and urinary system, respiratory system, gastrointestinal system, special senses, endocrine system, reproductive system, microorganisms or body defences conditions and the drugs which modify or reverse these the pathophysiological responses of these conditions. Discuss the relationship of conventional drug therapy to nutritional and complementary therapies in the care of individuals.
Content The aim of this unit of study is to build upon the previously introduced general principles of pharmacology as they relate to nursing. The unit of study aims to assist students to attain an advanced level of knowledge of the pharmacological management of complex health problems that an individual may experience, and as such addresses: Pharmacology in the professional context sociocultural aspects, legal and ethical issues Professional responsibilities - clinical decision making in drug therapy, medication errors and management of adverse drug reactions. Pharmacokinetics: factors that modify drug action. Changes in response to medications across the lifespan. Polypharmacy and clinical overdose. Drugs affecting the peripheral nervous system, central nervous system, heart vascular system, kidney and urinary system, respiratory system, gastrointestinal system, special senses, endocrine system, reproductive system, proliferation of microorganisms and body defences. Nutritional and natural therapies
Class Contact Lectures - 24 hours Tutorials - 16 hours Total — 40 hours
Assessment Written critique of drug therapy in nursing practice (3000 words) 80% Drug Calculation Test 20%

HNB3101 RESEARCH FOR PRACTICE
Campus St Albans
Prerequisite(s) Nil
Content Significance of research in nursing;
• Links between nursing education, theory and practice;
• Approaches to research process: qualitative and quantitative designs including mixed and triangulation methods;
• Classification and characteristics of exploratory, descriptive and explanatory studies;
• Steps in the research process: identification of problem statement, literature review, theoretical framework, sampling, data collection and analysis using descriptive and inferential statistics;
• Ethics and research;
• Disseminating and applying nursing research;
• Evaluate research reports and appraise a systematic review of the literature;
• Basic statistics for appraisal of systematic reviews, including statistical significance, chance, probability, confidence intervals, odds ratios, numbers needed to treat and pitfalls in analysis; and
• How to appraise the professional application of a systematic review and meta analysis to an aspect of professional practice.
Learning Outcomes At the completion of this subject, the students should be able to:
• Understand the research process in relation to nursing practice;
• Critically examine the relationship between nursing research and improvement in health care outcomes;
• Develop an understanding of research designs and methodologies;
• Critically evaluate a piece of nursing research;
• Understand the ethical implications of research;
• Develop a beginning knowledge in research proposal relevant to clinical practice;
• Be able to access and appraise research papers and systematic reviews;
• Develop the ability to appraise a systematic review of the literature on an aspect of clinical practice; and
• Understand how to utilise research to inform clinical practice.

SCHOOL OF NURSING AND MIDWIFERY
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HNBJ307 HEALTH & ILLNESS IN THE COMMUNITY

Campus St Albans
Prerequisite(s) Nil

Learning Outcomes Describe the scope of ‘community’ nursing in Australia in relation to general and psychiatric nursing; Describe the changes in, and causes of, the major physical and mental health problems in cosmopolitan and non-cosmopolitan populations over the past 200 years, including Australia’s Aboriginal populations; Discuss the significance of social, cultural, structural and environmental factors in determining physical and mental health outcomes in the early 21st Century;

Content Frameworks, for understanding general and psychiatric community nursing in the 21st century;
The psycho-social determinants of health - understanding the mechanisms; Epidemiological data - revisiting the psycho-social determinants of health;


Subject Hours Equivalent of 40 hours.

Assessment Assignment (2000 words) - 50%, two hour examination - 50%.

HNBJ3108 NURSING THEORY 6 CHILD ADOLESCENT & FAMILY

Campus St Albans
Pre-requisite(s) RMN 2517 Human Bioscience 3: Pathophysiology, HNB 2238 Nursing Theory 4: Acute Care, HNB 2238 Nursing Theory 5: Mental Health & Illness.

Co-requisites Nil

Learning Outcomes On completion of this subject, students should be able to:

- Apply relevant knowledge of bioscience and developmental psychology to the growth and development of the child and adolescent;
- Apply relevant knowledge of bioscience and developmental psychology to common paediatric disorders;
- Demonstrate communication skills required in providing care and support for children/adolescents and their families;
- Select appropriate strategies and interventions which assist in the reduction of stress and anxiety for the child/adolescent;
- Examine how the family’s structure and pattern of functioning affects the health of family members;
- Explore the cultural and socio-political rights of children and adolescents and their implications for nursing practice;
- State the data specifically pertinent to assessment of infants, children and adolescents;
- Apply a problem-solving approach to meet the needs of children/adolescents and their families during hospitalisation;
- Identify the adaptations that may need to be made to the care of children/adolescents who are from diverse cultural, indigenous and ethnic backgrounds; and
- Understand the mental health issues of the older child and adolescent.

Content The content of this subject will reflect the following:

- Family centred care and the effects of hospitalisation on the child;
- The effect of different cultural, indigenous and ethnic backgrounds on the care and role of children and adolescents within the family and health care setting;
- Growth and developmental stages of the child from infancy to adolescence;
- Prevention and early intervention of sexually transmitted diseases (excluding HIV/AIDS);
- Episodic illnesses and life events including the planning, implementing and evaluation of care used to treat clients with a variety of medical and surgical conditions, including diabetes and planned and unplanned pregnancy;
- Medication issues in relation to child and adolescent nursing;
- Infectious childhood diseases and their impact on the child’s health, including immunization programs available to various cultural and indigenous groups;
- Basic life support for children;
- Services available to assist adolescents work through individual health issues;
- The role of the nurse in child and adolescent nursing in relation to mandatory reporting requirements;
- Mental health issues of the older child and adolescent, including homelessness, abuse (physical, psychological, sexual), eating disorders, and the early onset of other mental health disorders;
• Suicide, self-harm, substance abuse prevention and intervention in cultural groups including indigenous Australians; and

• Family assessment.

**Required Reading**


**Recommended Reading**


**Class Contact**

Equivalent of 40 hours

**Assessment**

Presentation and written summary 40%

Field work and written assignment 60%

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**HNB3109 CLINICAL PRACTICUM 7: COORDINATED CARE**

**Campus** St Albans

Pre-requisite(s) HNB 2241 Nursing Theory 4; Acute Care HNB 2234 Clinical Practicum 4; Acute Care RRM 2110 Human Biocience 3

**Learning Outcomes**

This subject will allow students to: 1. Critique the care of patients with multiple diagnoses. Students will concentrate on patients with complex care needs (e.g. multiple systems involvement) in the acute care setting; and apply theoretical knowledge and problem solving skills in order to work toward the total nursing management of those patients (with appropriate supervision). 2. Apply analytical and creative approaches to acute medical and surgical nursing. Apply theoretical components of nursing knowledge to enable the provision of competent care to acutely ill person understand the impact of illness on the acutely ill person and be able to respond using a process of holistic nursing care.

**Content**

This practicum will allow students to participate in the care and coordination of patients with complex health problems. The focus will be on the further development of the professional nurse role as a member of the health care team. The students will be expected to apply advanced theoretical principles and clinical skills to a number of conditions as outlined in HNB3105 (theory component). It is anticipated the students will build on previous Acute Care units (HNB2134 and HNB2234) and the linked theory units in the integration and coordination of nursing care.

**Required Reading**


**Recommended Reading**


**Class Contact**

140 hours over 4 weeks of placement (Clinical Placement)

**Assessment**

In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following: Demonstration of competence in selected skills, according to specified criteria, and in line with the ANMC Competencies as defined for a student at this stage of the course; Satisfactory participation in reflective practice, as defined by completion of personal learning objectives and reflective journal entries during each week of clinical placement; and Demonstration of safe and competent practice in line with the ANMC Competencies as defined for a student at this stage of the course. Final assessment: Satisfactory / Un satisfactory
HNB3118 NURSING AND COMPLEX CARE

Campus St Albans

Pre-requisite(s) HNB2202 Health Care Priorities and Nursing 3; HNB2204 Health Care Priorities and Nursing 4; HNB2203 Clinical Practicum 3

Co-requisite(s) HNB3119 Clinical Practicum 4

Learning Outcomes

On successful completion of this unit, students are expected to be able to:

- demonstrate consolidation of knowledge and clinical decision making through the completion of problem based learning packages;
- discuss the legal and ethical issues surrounding refusal of treatment and end of life decisions;
- demonstrate the ability to assess, plan, implement and evaluate the care of complex patients in case based scenarios;
- demonstrate the ability to safely undertake complex interventions in the laboratory;
- demonstrate skills in the safe practice of complex medication regimes (including drug calculation, knowledge of medication used, medication orders etc.) in the laboratory;
- demonstrate time management skills in the laboratory;
- demonstrate the ability to work as a member of a team collaboratively planning care for patients within the laboratory;
- demonstrate beginning delegation and supervision skills in the laboratory.

Content

This unit integrates and builds upon the knowledge and skills gained in previous units of study. Students gain a deeper knowledge of health conditions of the health needs of the local community and other conditions not previously studied. Students also gain a greater understanding of the socio-cultural aspects of the person and how these impact on their health and the illness experience. The unit seeks to facilitate individual and family management skills through the application of higher-level knowledge and skills in clinical decision making. This unit aims to promote the ability of students to influence decisions affecting care outcomes.

Required Reading


Recommended Reading


Assessment

1. Hurdle requirement for clinical placement Week 1 Drug calculation mastery test (100% needed for pass) Students are not permitted to administer medications until they have passed this hurdle requirement.

2. Written assessment (1000 words) (30%) Week 6

3. Written examination (2 hours) (70%) Exam period

To gain an overall pass in this unit students must achieve an aggregate score of 50% and gain a pass in the written examination. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who do not achieve a pass in the written examination but who achieve an aggregate of 50% or greater will have a U (ungraded fail) grade awarded as their final result.
• utilise communication strategies to enhance disciplinary and interdisciplinary teamwork;
• demonstrate problem solving, time management and decision-making strategies that support successful outcomes in patient care;
• demonstrate comprehensive risk management in patient care;
• demonstrate the ability to provide patient care in a changing health care environment;
• demonstrate effective presentation and report writing skills;
• demonstrate consolidation of knowledge and clinical decision making through discussion of patient care with preceptors/educators;
• demonstrate the ability to assess, plan and implement the care for and evaluate the care of complex patients;
• demonstrate the ability to safely undertake complex interventions;
• demonstrate skills in the safe practice of complex medication regimes (including drug calculation, knowledge of medication used, medication orders etc.);
• demonstrate time management skills;
• demonstrate the ability to work as a member of the multidisciplinary team collaboratively planning care for patients;
• demonstrate professional communication skills in interactions with patients, carers and health professionals;
• continue entering clinical achievements into their personal professional practice portfolio.

Content
This unit integrates and builds upon the knowledge and skills gained in previous units of study. Students apply the knowledge and skills gained in Nursing & Complex Care to the clinical setting specifically focussing on the health needs of the local community. Students also consider how the social-cultural aspects of clients in their care impact on their health and the illness experience. Students apply the higher-level knowledge and skills gained in Nursing & Complex Care in clinical decision making, enabling more independent decision making and skills to engage in collaborative practice in a range of contexts across the lifespan. This unit aims to promote the ability of students to influence decisions affecting care outcomes.

Required Reading


Recommended Reading


Class Contact
Nill. This is a clinical subject which aligns with the theory subject Nursing and Complex Care.

Assessment
1. Formative Clinical Appraisal (feedback) between day 8 and 11 of placement
2. Summative Clinical Appraisal (70%) from day 17 to 20 of placement
3. Written clinical problem solving task (1000 words) (30%) - End of placement

Students must achieve an aggregate score of 50% and pass the summative clinical appraisal and written clinical problem solving task to pass this unit. Students who do not pass the summative clinical appraisal will be permitted to undertake up to five additional clinical days until they reach the required standard. However, those unable to complete requirements to pass within the extended time frame will be given a fail grade. Students who demonstrate unsafe practice will be removed from the clinical practicum. Depending upon the safety issue in question the student may be able to return to clinical practicum following remediation. Otherwise a fail grade will be awarded. Students who do not achieve a pass in both mandatory components of assessment but who achieve an aggregate of 50% or greater will have a U (ungraded fail) grade awarded as their final result.

HNB3120 ISSUES IN PROFESSIONAL PRACTICE

Campus St Albans

Pre-requisite(s) HNB2202 Health Priorities and Nursing 3; HNB2204 Health Priorities and Nursing 4; HNB203 Clinical Practicum 3

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• determine best practice services in the health care industry;
• describe quality measures used to evaluate healthcare delivery performance;
• discern and utilise communication strategies to enhance disciplinary and interdisciplinary teamwork (including conflict resolution, and grievance procedures);
• compare leadership styles and determine how teamwork can be fostered to achieve an effective work and care environment;
• analyse critical pathways as a modality of patient care;
• examine problem solving, time management and decision-making strategies that support successful outcomes in patient care;
• explain comprehensive risk management in patient care;
• clearly identify the role of the Division 1 nurse;
• discuss employer expectations of the Division 1 nurse;
• discuss the realities of providing patient care in a dynamic and challenging health care environment;
• demonstrate effective presentation and report writing skills;
• finalise their Personal-Professional practice portfolio including their reflective journal, record of in-service education, SDL, short courses, voluntary work, student reps, awards and appraisals;
• appraise their own self-wellness and psychological resilience.

Content
The aim of this unit is for students to further consider the concept of professional practice. Professional practice will be explored in the context of the healthcare system and with a practical insight into the processes of transition from student to beginning practitioner.

Required Reading

Australian Nursing Federation (Available at http://www.anfnamec.org.au/)


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Royal College of Nursing (Available at http://www.rcn.org.au/site/)

Recommended Reading

Class Contact
Lectures: 1-2 hours per week (total = 20 hours)
Tutorials: 1-2 hours per week (total = 20 hours)
Simulation: 10 hours across the semester
Total: 50 hours of class contact time

Class Contact hours may vary according to clinical placement allocation.

Assessment
1. Written assessment plan (500 words) (15%) - Week 6
2. Written assessment (2000 words) (70%) - Week 12
3. Oral presentation on written assignment topic (10 minutes) (15%) - Weeks 9-12
To gain an overall pass in this unit students must achieve an aggregate score of 50%. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

Learning Outcomes
On completion of this subject, students should be able to:
- Understand the theoretical background and principles of cognitive behaviour therapy, group therapy, prevention and management of aggression, and case management;
- Discuss cognitive behaviour therapy, group therapy, prevention and management of aggression, and case management;
- Explore contemporary relevant research in cognitive behaviour therapy, group therapy, prevention and management of aggression, and case management;
- Discuss health policy and issues related to mental health service provision;
- Discuss family sensitive practice; and
- Understand the concept of social inclusion.

Content
Related mental health and illness research;
Cognitive behaviour therapy;
Group therapy;
Prevention and management of aggression;
Case management;
Mental health policy;
Family sensitive practice; and
Social inclusion.

Required Reading

Recommended Reading

Class Contact Equivalent of 40 hours
Assessment Case management study, comprising:
- Interview and assessment (1500 words) 40%
- Case management report (2500 words) 60%

HNB3204 NURSING THEORY 8: (ELECTIVE) CHILD ADOLESCENT & FAMILY

Campus St Albans
Prerequisites HNB 3103 Nursing Theory 6: Child, Adolescent & Family
Co-requisites Nil

Learning Outcomes
On completion of this subject, students will be able to:
- Utilise the principles of growth and development when assessing the health or illnesses of sick children and adolescent;
- Apply selected interventions to promote health of the child and adolescent in a variety of settings;
- Select age and culturally appropriate interventions to promote healthy personal and social development of the child and adolescent including indigenous clients; and
- Develop an understanding of psychosocial alterations in the child and adolescent including behaviour problems.

Content
- Review of principles of growth and development in relation to acute paediatric nursing, such as the sick child and adolescent in a variety of settings;
- Health promotion and societal concerns of childhood and adolescence such as AIDS, behaviour problems, sexual assault;
- The more common child and adolescent genetic and development disorders;
HNB3205 NURSING SPECIFIC POPULATIONS

Campus St Albans
Pre-requisite(s) HNB3118 Nursing & Complex Care
Co-requisite(s) HNB 3206 Clinical Practicum 5

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

• identify and solve complex clinical problems;
• demonstrate the ability to comprehensively assess, plan, implement and evaluate care in complex clinical simulations;
• demonstrate the ability to adjust care and priorities in changing situations;
• demonstrate professional communication skills in interactions during simulations;
• demonstrate delegation and supervision skills during clinical simulations;
• use research findings to support or improve current practice.

Students will also develop specific individualised learning objectives related to the specific population and student's identified learning needs.

Content
In this unit students develop deeper and broader knowledge about health issues affecting one of the following populations:

• Mental health (mandatory for students undertaking major studies in mental health)
• Acute/critical care
• Child adolescent and family
• Care of older adults
• Generalist nursing practice

Required Reading


Recommended Reading

MENTAL HEALTH


ACUTE/Critical Care


OLDER ADULTS


GENERALIST NURSING PRACTICE


Class Contact

Lectures: 2 hours per week (total = 24 hours)
Tutorials: 1 hour per week (total = 12 hours)
Simulation: 1 hour per week (total = 12 hours)
Total: 48 hours of class contact time

Assessment

1. Hurdle requirement for clinical placement Week 1 Drug calculation mastery test (100% needed for pass) Students are not permitted to administer medications until they have passed this hurdle requirement.
2. Group activity sheet completion in two simulation laboratories (10% X 2=20%) Weeks 6 & 8
3. Written assessment plan (500 words) (20%) Week 4
4. Written assessment (2000 words) (60%) Week 10

To gain an overall pass in this unit students must achieve an aggregate score of 50%. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).
HNB3206 CLINICAL PRACTICUM 5
Campus St Albans
Pre-requisite(s) HNB3118 Nursing & Complex Care; HNB3119 Clinical Practicum 4
Co-requisite(s) HNB3205 Nursing Specific Populations

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• Identify their current scope of practice and work within this;
• Professionally identify and solve complex clinical problems;
• Demonstrate the ability to comprehensively assess, plan, implement and evaluate care for a patient load similar to that of a graduate nurse;
• Demonstrate the ability to adjust care and priorities in changing situations;
• Demonstrate professional communication skills in interactions with patients, significant others and health professionals;
• Demonstrate begging delegation and supervision skills in the clinical environment;
• Use research findings to support or improve current practice.

Students will also develop specific individualised learning objectives related to the specific population and student s identified learning needs.

Content
In this unit students apply the knowledge gained in Nursing Specific populations to their clinical practice in the same area:
• Mental health (mandatory for students undertaking major studies in mental health)
• Acute/critical care
• Child adolescent and family
• Care of older adults
• Generalist nursing practice

Required Reading

Recommended Reading
MENTAL HEALTH

ACUTE/CRITICAL CARE

CHILD, ADOLESCENT AND FAMILY

OLDER ADULTS

Learning Outcomes
On successful completion of this unit, students are expected to be able to:
• Discuss state-wide and national approaches to the delivery of mental health services;
• Identify genetic and social determinants of mental health in relation to rural and remote populations;
• Identify resources available within rural and remote settings for the treatment, care and support of individuals experiencing mental illness, their families and the wider community;
• Demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing symptoms of mental illness;
• Demonstrate familiarity with telepsychiatry and videoconferencing techniques;
• Discuss burden of disease related to mental illness in rural and remote communities;
• Discuss the specific needs of individuals from culturally and linguistically diverse backgrounds, particularly Australian Indigenous persons;
• Discuss the implications of working as a lone practitioner in rural and remote areas;
• Demonstrate communication skills and interview techniques appropriate to rural and remote populations;
• Continue to develop their personal professional practice portfolio.

Content
The aim of this unit is to develop students knowledge, skills and attitudes in the provision of treatment care and support in rural and remote settings to individuals and
On completion of this subject, students will be able to:

- Social inclusion and stigma;
- Psychotropic medication and the related roles of nurses, consumers and carers;
- Skills required to effectively document consumer care;
- Communication and assessment skills;
- Diagnostic systems including DSM-IV-TR and ICD 10;
- Person with mental illness and co-existing physical illness, the homeless, prisoners, refugees and survivors of violence and abuse;
- Mental health across the lifespan;
- Related mental health and illness research;
- Cognitive behavioural therapy;
- Group therapy;
- Prevention and management of aggression;
- Case management;
- Mental health policy and Mental Health Act of Victoria 1986;
- Family sensitive practice;
- Social inclusion;
- Person with mental illness and co-existing physical illness, the homeless, prisoners, refugees and survivors of violence and abuse;

Required Reading


Recommended Reading

Class Contact
Four one-day workshops throughout semester
Total: 32 hours of class contact time

Assessment
1. Written fieldwork proposal (750 words) (25%) Week 5
2. Written fieldwork report (2500 words) (75%) Week 12

To gain an overall pass in this unit students must achieve an aggregate score of 50% and pass the written examination. Students will normally be granted a supplementary assessment if they achieve a grade of 40 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail). Students who do not achieve a pass in the mandatory component of assessment but who achieve an aggregate of 50 % or greater will have a U (ungraded fail) grade as their final result.

HNB3215 NURSING THEORY 8: MENTAL HEALTH NURSING

Campus St Albans
Prerequisites HNB2328 Nursing Theory 5: Mental Health & Illness
Co-requisites Nil

Learning Outcomes
On completion of this subject, students will be able to:

- Understand mental health across the lifespan;
- Discuss cognitive behaviour therapy, group and family therapy, prevention and management of aggression;
- Discuss the application and practice of case management within Australia;
- Discuss health policy and issues related to mental health service provision in Australia, in particular the Mental Health Act of Victoria 1986;
- Discuss the role of self-help groups and Non-Government Organisations (NGO’s) in the provision of care;
- Discuss the importance of cultural sensitivity when planning and implementing care;
- Discuss family sensitive practice;
- Understand the concept of social inclusion and stigma;
- Understand the role of the consumer and consumer representative in mental health care;
- Discuss psychotropic medication in relation to the knowledge and skills in administration, including the related roles of nurses, consumers and carers;
- Understand the skills required to effectively document consumer care;
- Further develop communication and assessment skills;
- Understand the diagnostic systems including DSM-IV-TR and ICD 10;
- Discuss special populations such as the person with mental illness and co-existing physical illness, the homeless, prisoners, refugees and survivors of violence and abuse.

Content
- Mental health across the lifespan;
- Related mental health and illness research;
- Cognitive behavioural therapy;
- Group therapy;
- Prevention and management of aggression;
- Case management;
- Mental health policy and Mental Health Act of Victoria 1986;
- Family sensitive practice;
- Social inclusion;
- Person with mental illness and co-existing physical illness, the homeless, prisoners, refugees and survivors of violence and abuse;
- Diagnostic systems including DSM-IV-TR and ICD 10;
- Communication and assessment skills;
- Skills required to effectively document consumer care;
- Psychotropic medication and the related roles of nurses, consumers and carers;
- Social inclusion and stigma;
- Cultural sensitivity;
- Self-help groups and Non-Government Organisations (NGO’s).

Required Reading

Recommended Reading


Class Contact Equivalent of 40 hours.
Assessment Case management study, comprising:
- Interview and assessment (1500 words.) 40%
- Case management report (2500 words.) 60%
HNB3216 CLINICAL PRACTICUM 8: MENTAL HEALTH NURSING
Campus St Albans
Prerequisites HNB2238 Nursing Theory 5: Mental Health & Illness, HNB2239 Clinical Practicum 5: Mental Health & Illness
Co-requisites Nil

Learning Outcomes
On completion of this subject, students will be able to:
- Participate in psychotherapeutic approaches to care, such as cognitive behaviour therapy, and group therapy;
- Observe and assist in the prevention of aggression;
- Observe the therapeutic management of aggression;
- Reflect on his or her practices in the prevention and management of aggression;
- Participate in case management;
- Develop an understanding of mental health policy and issues related to mental health service provision;
- Explore the role of self-help groups and Non-Government Organisations (NGO’s) in the provision of care;
- Practice cultural sensitivity when planning and implementing care;
- Participate in family sensitive practice;
- Understand the concept of social inclusion and stigma;
- Understand the role of the consumer in mental health care;
- Discuss psychotropic medication in relation to the knowledge and skills in administration, including the related roles of nurses, consumer and carers;
- Understand the skills required to effectively document consumer care;
- Further develop communication and assessment skills;

Content
Students will be provided with opportunities to practise a range of mental health nursing skills, including:
- Observing and participating in psychotherapeutic approaches to care, such as cognitive behaviour therapy, and group therapy;
- Observing, assisting and reflecting on the prevention of aggression;
- Observing and reflecting on the therapeutic management of aggression;
- Observing and participating in case management;
- Developing an understanding of mental health policy and issues related to mental health service provision;
- Exploring the role of self-help groups and Non-Government Organisations (NGO’s) in the provision of care;
- Practising cultural sensitivity when planning and implementing care;
- Participating in family sensitive practice;
- Supporting the concept of social inclusion and stigma;
- Supporting the role of consumer representatives in mental health care;
- Administering psychotropic medication, as appropriate;
- Participating in discussion about the roles of nurses, consumers and carers regarding psychotropic medication;
- Reinforcing the skills required to effectively document consumer care;
- Further developing communication and assessment skills;

Required Reading

Recommended Reading

Assessment
In order to be awarded a satisfactory grade for this Unit of study, the student must successfully complete each of the following:
- Demonstrate competence in skills in line with those required for a graduate nurse at beginning level, in line with the ANMC competencies (2005);
- Demonstrate safe and competent practice in line with the ANMC Competencies and Australian and New Zealand College of Mental Health Nurses Inc. Standards of Practice for Mental Health Nursing, as defined for a student at this stage of the course; and
- Demonstrate competency in conducting a Mental Health Status Examination.

Final assessment: Satisfactory / Unsatisfactory

HNB3230 CLINICAL PRACTICUM 8 (ELECTIVE): MENTAL HEALTH & ILLNESS
Campus St Albans
Prerequisite(s) HNB2235 Nursing Practice 5: Mental Health & Illness, HNB2236 Clinical Practicum 5: Mental Health & Illness

Content
Students will be provided with opportunities to practise a range of mental health nursing skills, including:
- Observing and participating in psychotherapeutic approaches to care, such as cognitive behaviour therapy, and group therapy;
- Observing and assisting in the prevention and therapeutic management of aggression;
- Observing and participating in case management;
- Reflecting on his or her practices in the prevention and management of aggression; and
- Developing an understanding of mental health policy and issues related to mental health service provision.

Learning Outcomes
On completion of this subject, students should be able to:
- Participate in psychotherapeutic approaches to care, such as cognitive behaviour therapy, and group therapy;
- Assist in the prevention and therapeutic management of aggression;
- Participate in case management;
- Reflect on his or her practices in the prevention and management of aggression; and
- Develop an understanding of mental health policy and issues related to mental health service provision.

Required Reading

Recommended Reading

Assessment
In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following:
- Demonstrate competence in skills in line with those required for a graduate nurse at beginning level, in line with the ANMC competencies (2005);
- Demonstrate safe and competent practice in line with the ANMC Competencies and Australian and New Zealand College of Mental Health Nurses Inc. Standards of Practice for Mental Health Nursing, as defined for a student at this stage of the course; and
- Demonstrate competency in conducting a Mental Health Status Examination.

Final assessment: Satisfactory / Unsatisfactory
must successfully complete each of the following: demonstration of competence in skills in line with those required for a graduate nurse at beginning level, in line with the ANCI competencies (1998); demonstrate safe and competent practice in line with the ANCI Competencies and Australian and New Zealand College of Mental Health Nurses Inc. Standards of Practice for Mental Health Nursing, as defined for a student at this stage of the course; and demonstrate competence in conducting a Mental Health Status Examination. Final assessment: Satisfactory/Unsatisfactory.

HNB3236 TRANSITION TO PROFESSIONAL PRACTICE
Campus: St Albans
Prerequisite(s): Nil.
Learning Outcomes Discuss the role of organisational and management structure in the workplace and the impact on general and psychiatric nursing services; 
Content The topics to be taught in this subject are: the health care system and various forces influencing health care delivery including health policy; organisational structures and functions; leadership; fellowship; principles of management and management of resources; organisational culture; effective communication strategies, problem solving, prioritising and decision making; quality improvement and outcomes; and consumer consultation; professional role expectation, employer and employee relationship; and development of a CV and interview techniques. Credit Transfer Arrangements (including Articulation Pathways) if applicable.
Required Reading Chang, E. and Daly, J. (2001). Transitions in nursing. Sydney: Maclellan & Petry
Assessment Presentation 30%, management case study assignment (2000 words) - 50%, development of a CV or Professional Portfolio - 20%.

HNB3237 RESEARCH PRACTICE
Campus: St Albans
Co-requisites Nil.
Learning Outcomes At the completion of this subject, the students should be able to:
• Understand the research process in relation to midwifery practice;
• Critically examine the relationship between midwifery research and improvement in health care outcomes;
• Develop an understanding of research designs and methodologies;
• Critically evaluate a piece of midwifery research;
• Understand the ethical implications of research;
• Develop a beginning knowledge in research proposal relevant to clinical practice;
• Be able to access and appraise research papers and systematic review;
• Develop the ability to appraise a systematic review of the literature on an aspect of clinical practice; and
• Understand how to utilise research to inform clinical practice.
Content Significance of research in midwifery;
• Links between midwifery education, theory and practice;
• Approaches to research process: qualitative and quantitative designs including mixed and triangulation methods;
• Classification and characteristics of exploratory, descriptive and explanatory studies;
• Steps in research process: identification of problem statement, literature review, theoretical framework, sampling, data collection and analysis using descriptive and inferential statistics;
• Ethics and research;
• Disseminating and applying midwifery research;
• Evaluating research reports;
• Appraising a systematic review of the literature;
• Utilise basic statistics for appraisal of systematic reviews, including statistical significance, chance, probability, confidence intervals, odds ratios, numbers needed to treat and pitfalls in analysis; and
• Appraising the professional application of a systematic review and meta analysis to an aspect of professional practice.

HNB3248 CLINICAL PRACTICUM 8 (ELECTIVE): CHILD, ADOLESCENT & FAMILY
Campus: St Albans
Prerequisite(s) Nursing Practice 6: Child, Adolescent & Family, Clinical Practicum 6: Child, Adolescent & Family
Content Students will undertake 140 hours of clinical practice in a range of institutional, residential or community health care settings.
Learning Outcomes On completion of this subject, students should be able to:
• Assess basic needs of children and adolescents in a variety of clinical settings;
• Plan and implement basic comprehensive nursing care specific to patients’ paediatric problems and other related needs of the child and adolescent that is appropriate for their cultural/indigenous background;
• Evaluate the effectiveness of nursing interventions;
• Participate as a member of the multidisciplinary team in a paediatric and adolescent setting;
• Develop basic clinical decision-making skills when assisting in the care of children, adolescents and their families; and
• Develop competence in basic paediatric and adolescent nursing skills in a clinical setting.
Subject Hours: 140 hours of clinical experience.

Assessment
In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following: demonstration of competence in skills in line with those required for a graduate nurse at beginning level, in line with the ANCI competencies (1998); satisfactory participation in effective practice, as defined by completion of personal learning objectives and reflective journal entries during each week of clinical placement; and demonstration of safe and competent practice in line with that required for a graduate nurse at beginning level, and in line with the ANCI competencies (1998). Final assessment: Satisfactory/Unsatisfactory.

HN3249 CLINICAL PRACTICUM 8 (ELECTIVE): HEALTH & ILLNESS IN OLDER ADULTS
Campus: St Albans
Prerequisite(s): Nursing Practice 3: Health & Illness in Older Adults, Clinical Practicum 3: Health & Illness in Older Adults.

Content
The student will undertake clinical practice and engage in reflective practice with a mentor/clinical educator.

Learning Outcomes
On completion of this subject, students will be able to:
• Analyse the impact positive aging has on the community;
• Categorise the risks associated with aging from psychological, physiological and sociological aspects;
• Demonstrate competency in assessment of the older adult congruent with the aging process and altered pathology;
• Develop individualized care plans acknowledging physical, mental, communication and cultural/indigenous considerations;
• Participate in the education of clients and significant others in the promotion of healthy aging; and
• Develop strategies for continuous improvement in the care and empowerment of the older person.

Required Reading

Recommended Reading
Subject Hours: 140 hours of clinical experience.

Assessment
In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following: Demonstration of competence in skills in line with those required for a graduate nurse at beginning level, in line with the ANCI competencies (1998); satisfactory participation in effective practice, as defined by completion of personal learning objectives and reflective journal entries during each week of clinical placement; and demonstration of safe and competent practice in line with that required for a graduate nurse at beginning level, and in line with the ANCI competencies (1998). Final assessment: Satisfactory/Unsatisfactory.

HN3250 CLINICAL PRACTICUM 9: CONSOLIDATION
Campus: St Albans
Prerequisite(s): All previous Nursing Practice and Clinical Practice subjects other than Elective subjects.

Content
Utilising experience from the previous placements, students will be expected to develop an increasingly independent role in the delivery of nursing care to clients in the chosen setting and be capable of planning, implementing and evaluating care with minimal supervision. Clinical teachers and/or preceptors will supervise students during this period of experiential learning. Clinical teachers and preceptors will use the ANCI Competencies as an assessment framework. Reflective practice will be encouraged in order to enable students to critically evaluate their clinical practice. A debriefing session once or twice a week will provide an opportunity to share and reflect on their progress with their peers.

Learning Outcomes
Learning Outcomes will vary depending on the clinical area chosen. The student will be expected to develop knowledge and skill appropriate for a graduate nurse at beginners’ level within this chosen area. This will include demonstrating the ability to take a ‘full patient load’, show appropriate clinical knowledge and decision-making skills and demonstrate clinical skills appropriate to a beginning nursing practitioner.

Required Reading
Nil.

Recommended Reading
Subject Hours Equivalent of 140 hours of clinical experience.

Assessment
In order to be awarded a satisfactory grade for this subject, the student must successfully complete each of the following: demonstration of competence in skills in line with those required for a graduate nurse at beginning level, in line with the ANCI competencies (1998); satisfactory participation in effective practice, as defined by completion of personal learning objectives and reflective journal entries during each week of clinical placement; and demonstration of safe and competent practice in line with that required for a graduate nurse at beginning level, and in line with the ANCI competencies (1998). Final assessment: Satisfactory/Unsatisfactory.
**HN3252 CLINICAL PRACTICUM 8: (ELECTIVE) ACUTE CARE**

**Campus:** St Albans  
**Prerequisites:** HNB 3105 Nursing Theory 7: Acute Care, HNB 3106 Clinical Practicum 7: Acute Care  
**Co-requisites Nil**

**Learning Outcomes**

On completion of this subject, students should be able to:

- Demonstrate the application of knowledge acquired through related theoretical and skills based subjects;
- Adapt knowledge of health assessment procedures to the individualized care requirements of clients in the acute care setting;
- Perform safe and competent nursing care in accordance with the ANCI Competencies (1998), and consistent with level of knowledge and performance required of a graduate nurse at beginning level;
- Develop individualized nursing care plans for clients acknowledging physical/mental condition, communication skills, socio-cultural or indigenous background and developmental stage;
- Apply the principles of occupational health and safety and infection control to all aspects of health care delivery;
- Apply knowledge of communication skills to all aspects of the clinical experience, and demonstrate appropriate interpersonal skills with clients, families, and healthcare personnel;
- Demonstrate knowledge of pharmacological agents such as route of administration, distribution, metabolism, common side effects and excretion;
- Apply legal and ethical principles to the holistic health care requirements of clients;
- Participate in reflective practice process through documentation, discussion and self-evaluation of learning experiences both on campus and in the clinical setting, and the relationship between these experiences;
- Critically apply relevant theoretical concepts from related areas of study in the analysis of nursing situations; and
- Participate in client education and provide information regarding the availability of community resources for persons requiring assistance on discharge or transfer.

**Content**

Utilising experience from the previous acute care placement, students will be expected to develop an increasingly independent role in the delivery of nursing care to clients in an acute medical/surgical setting and be capable of planning implementing and evaluating care with minimal supervision. Students will be supervised by clinical teachers and/or preceptors during this period of experiential learning. The ANCI Competencies will be used as an assessment framework by preceptors and clinical instructors. Reflective practice will be encouraged in order to enable students to critically evaluate their clinical practice. A debriefing session once or twice a week will provide an opportunity to share and reflect on their progress with their peers. Client-student ratios will be graduated throughout the placement and numbers will depend upon the level acuity.

**Required Reading**


**Recommended Reading**


Subject Hours Equivalent of 40 hours.

**Assessment**

Case study assignment (2000 words) - 50%. Project (2000 words.) 50%

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**HN7309 APPLIED MEDICATION MANAGEMENT**

**Campus:** St Albans  
**Prerequisites:** HNM 7114 Midwifery Studies 1: The Childbearing Journey, HNM 7202 Midwifery Practice 2: The Childbearing Journey, HNM 7203 Midwifery Studies 3: Childbearing Complications, HNM 7204 Midwifery Practice 3: Childbearing Complications  

**Learning Outcomes**

Students will be expected to:

- Develop an understanding of the general principles of pharmacology as they relate to midwifery practice;
- Have acquired a knowledge of legislation and ethical considerations pertaining to the drug administration responsibilities of midwifery;
Students will develop the necessary skills to successfully select, 36 hours comprising two hour seminar and one hour tutorial per week. On completion of this subject, students will be able to:

- Display an understanding of nursing theories.
- Identify the relationship between nursing theory, nursing practice and research.
- Develop skills in generating nursing knowledge through the process of theory analysis and development.

Content: This subject is designed to encourage students to examine critically same of the theories and ideologies that influence the development of the various kinds of knowledge. The subject also aims to enable students to generate and apply nursing knowledge through the process of theory analysis and development. Topics covered in this subject include: intellectual culture - contextual knowledge; the nature, creation and legitimation of knowledge; nursing 'knowledge'; nursing theories and their application to practice; future directions.

Required Reading


Class Contact: 36 hours per semester.

Assessment: Seminar presentation, 50%; Written paper, 50%. (2500 words)

HNN4102 ADVANCED QUANTITATIVE RESEARCH METHODS

Campus: St Albans

Prerequisites: HNR 0001 Introduction to Research Design and Methods

Co-requisites: Nil

Learning Outcomes: Students will develop necessary skills to successfully select, design, conduct, analyse and write up a small-scale quantitative research study.

Content: This subject provides a detailed examination of advanced quantitative methodologies, design and analyses as key elements of the research process, with an emphasis on the importance of experimental design and statistical decision making. The subject covers such topics as: the general linear model, analysis of variance and covariance, statistical power, multivariate designs including: multiple regression analyses, multivariate analysis of variance, and factor analysis. The subject also introduces students to the use of nonparametric data analyses and underlying reasons for choosing nonparametric over parametric statistical tests. Students will also receive practical experience in data analysis using the SPSS package, however, the focus of the course will be on the statistical analyses as a part of the total research process.

Required Reading


Class Contact: 36 hours comprising two hour seminar and one hour tutorial per week for one semester.

Assessment: Research proposal or critique (50%); (2500 words)

Data analysis project (50%). (2500 words)

HNN4103 ADVANCED QUALITATIVE RESEARCH METHODS

Campus: St Albans

Prerequisites: HNR 0001 Introduction to Research Design and Methods

Co-requisites: Nil

Learning Outcomes: Students will develop the necessary skills to successfully select, design, conduct, analyse and write up a small-scale (or pilot) qualitative research study.

Content: This subject provides students with advanced knowledge and skills in qualitative research methodologies and procedures. Topics include:

- Major paradigms and theoretical perspectives of qualitative research;
- Major qualitative research methodologies e.g. ethnography, grounded theory, phenomenology, poststructural / critical research, action research;
- Advanced skills in data collection including participant and non-participant observational strategies, individual and group interviewing techniques, and
unobtrusive strategies such as document analysis;
• Using computers in qualitative data analysis;
• Credibility and trustworthiness and ethical issues; and
• Writing up of qualitative research.


Recommended Reading

Class Contact 36 hours comprising two hour seminar and one hour tutorial per week for one semester.

Assessment Seminar paper on research design of a proposed project (50%); A written report on the process of data collection and analysis (50%). (2500 words)

HNH4200 MINOR THESIS (FULL TIME)

Campus St Albans

Prerequisites HNH4101 Inquiry into Nursing Knowledge; HNR0001 Introduction to Research Design and Methods and HNH4103 Advanced Qualitative Methods or HNH4102 Advanced Quantitative Methods

Co-requisites Nil

Learning Outcomes The student will develop the necessary skills to successfully select, design, conduct and analyse and write up a minor research thesis.

Content The minor thesis is intended to provide students with an opportunity to undertake independent inquiry into an area of personal interest and applicable to the profession of nursing. The thesis will be a research paper of not less than 10,000 words and not more than 20,000 words. It will report on independently conducted research which demonstrates a student’s ability to clearly define a problem, to undertake a detailed literature search and review the relevant theoretical and practical literature on the topic area. Good data collection, selection and analysis skills should also be demonstrated. The thesis should involve a high standard of written communication skills. The topic, which is chosen, should allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. It is intended that the topic chosen for investigation will be in consultation with an appropriate supervisor who will oversee the conduction of the research. Course regulations guiding the conduct and supervision of the research will be developed in the Course Rules and Regulations and will reflect the regulations to be developed by the Faculty Graduate Studies Research Committee.

Required Reading To be advised by lecturer.

Recommended Reading To be advised by lecturer.

Class Contact Students will meet with a supervisor on a regular basis.

Assessment A thesis of a minimum of 15,000 words and maximum of 20,000 words.

HNH4201 MINOR THESIS (PART TIME)

Campus St Albans

Prerequisites HNH4101 Inquiry into Nursing Knowledge; HNR0001 Introduction to Research Design and Methods and HNH4103 Advanced Qualitative Methods or HNH4102 Advanced Quantitative Methods

Co-requisites Nil

Learning Outcomes The student will develop the necessary skills to successfully select, design, conduct and analyse and write up a minor research thesis.

Content The minor thesis is intended to provide students with an opportunity to undertake independent inquiry into an area of personal interest and applicable to the profession of nursing. The thesis will be a research paper of not less than 10,000 words and not more than 20,000 words. It will report on independently conducted research which demonstrates a student’s ability to clearly define a problem, to undertake a detailed literature search and review the relevant theoretical and practical literature on the topic area. Good data collection, selection and analysis skills should also be demonstrated. The thesis should involve a high standard of written communication skills. The topic, which is chosen, should allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. It is intended that the topic chosen for investigation will be in consultation with an appropriate supervisor who will oversee the conduction of the research. Course regulations guiding the conduct and supervision of the research will be developed in the Course Rules and Regulations and will reflect the regulations to be developed by the Faculty Graduate Studies Research Committee.

Required Reading To be advised by lecturer.

Recommended Reading To be advised by lecturer.

Class Contact Students will meet with a supervisor on a regular basis.

Assessment A thesis of a minimum of 15,000 words and maximum of 20,000 words.

HNH3021 INDEPENDENT LEARNING UNIT

Campus St Albans

Prerequisites Nil

Co-requisites Nil

Learning Outcomes • Plan a learning contract which will act as a guide for learning strategies and activities for a particular area relating to midwifery practice;
• Develop strategies, where appropriate, to demonstrate increased expertise in a particular area of midwifery;
• Propose an outline of their topic which can be used as a basis for group presentation and discussion.

Core graduate attributes to be achieved by students are:
• The subject will assist students to identify and solve complex problems related to professional practice, selecting from strategies appropriate to the discipline and reflecting on ethical issues.
• Students will be able to recognise when information is needed, and locate, evaluate, manage and use information critically for a range of purposes.
• Students will synthesise moderately complex material and write in a range of styles at a level approximating employment entry level with guidance.
• Students will follow complex instructions and manage time with minimal guidance.
• The subject will see students apply and evaluate strategies relating to issues of social cultural diversity in professional practice, seeking information where necessary

Content The learning contract of this unit will be negotiated by the student with the academic mentor. It is anticipated that extensive pre-reading relevant to the topic area will be required in order for the student to select an appropriate topic and complete a study plan, prior to undertaking the unit.

Required Reading


Class Contact Assessment Achievement in this subject will be assessed by the development and completion of a learning contract.

HNH5101 INTERVIEW AND ASSESSMENT METHODS IN MENTAL HEALTH CONTEXTS

Campus St Albans/OHSHare

Prerequisite(s) Nil

Content Development of advanced interviewing skills with consumers and families; Development of advanced assessment skills with consumers and families; Advanced psychiatric mental status examination; Standardised assessment instruments, including consumer self-assessment; Advanced risk assessment; Concept of history taking (by the consumer) as opposed to history taking; Culturally sensitive interviewing and assessment; Recovery focused interviewing and assessment; Concept of history giving (by the consumer) as opposed to history taking; Concept of history giving (by the consumer) as opposed to history taking; Culturally sensitive interviewing and assessment; Recovery focused interviewing and assessment methods.


ON COMPLETION OF THE SUBJECT, STUDENTS SHOULD BE ABLE TO PERFORM:

1. Identify and apply cognitive behavioral therapy techniques in clinical practice.
2. Assess clients' physical status utilizing their understanding of the complications associated with mental illness.
3. Implement evidence-based practice through critical reflection for nursing and psychiatric practice.
4. Develop cross-cultural competence in working with children and their families.
5. Accurately assess mental disorders using evidence-based data bases.
6. Appraise a systematic review of the literature, utilizing basic statistics for appraisal of systematic reviews.

**Recommended Reading**


**Recommended Resources**

- Accessing and using evidence-based data bases; Appraising a systematic review of the literature; Utilise basic statistics for appraisal of systematic reviews.
- Developing cross-cultural competence: a guide for working with children and their families.
- Evidence-based counselling and psychological therapies: research and applications.
- Developing evidence-based practice 35% (1800-2000 words). Appraisal of a systematic review of the literature on a nominated topic 65% (2700-2900 words).

**HNMS5102 COGNITIVE BEHAVIOUR THERAPY IN SEVERE MENTAL ILLNESS**

**Campus:** St Albans/Off-Shore

**Prerequisite(s):** Nil

**Content:**
- Theoretical background of cognitive behaviour therapy.
- Principles of cognitive behaviour therapy in mental health.
- Critical analysis of the interprofessional use of cognitive behavioural therapy in severe anxiety and depression in mental health settings.
- Interprofessional application of cognitive behaviour therapy in people with severe anxiety and depression in mental health settings.
- Culturally sensitive cognitive behavioural therapy in severe anxiety and depression.
- Consumer self-determination in cognitive behavioural therapy.

**Required Reading**


**Assessment:**

**HNMS5104 FIELDWORK: MENTAL HEALTH PRACTICE**

**Campus:** St Albans/Off-Shore

**Prerequisite(s):** Nil

**Content:**
- Student will undertake 120 hours of clinical practice and engage in reflective practice with a mentor. One 3-hour introduction to the subject.

**Required Reading**


**Recommended Reading**

- New York: Guildford Press.

**Recommended Resources**

- Accessing and using evidence-based data bases; Appraising a systematic review of the literature; Utilise basic statistics for appraisal of systematic reviews.

**HNMS5103 EVIDENCE BASED PRACTICE**

**Campus:** St Albans/Off-Shore

**Prerequisite(s):** Nil

**Content:**
- Accessing and using evidence-based data bases; Appraising a systematic review of the literature; Utilise basic statistics for appraisal of systematic reviews.
- Including statistical significance, chance, probability, confidence intervals, pitfalls in analysis;
- Appraising the professional application of a meta analysis to an aspect of professional practice;
- Recovery from mental illness that enhances consumer self-determination and social connectedness;
- Culturally sensitive evidence-based professional practice.

**Required Reading**


**Recommended Reading**


**HNMS5105 ADVANCED CLINICAL & HEALTH ASSESSMENT (NURSING SPECIALISATIONS)**

**Campus:** St Albans

**Prerequisites Nil**

**Co-requisites Nil**

**Learning Outcomes**
- On completion of the subject, students should be able to perform an advanced health assessment, including:
  - utilise concepts from a range of disciplines to obtain an advanced medical history relevant to their field of practice;
  - assess clients’ physical status utilizing their understanding of the complications.
and consequences of disease processes;
- assessment of clients’ mental and psychological states on the trajectory of their disease;
- appraise the role of culture and other variables in the formation and maintenance of people’s health-related experiences, beliefs and practices;
- determine a clients’ explanatory model as an integral part of their overall assessment;
- determine where there is a lack of congruence between their own explanatory model and that of their clients;
- evaluate the impact of lifestyle factors that may impact on a person’s health, including diet, exercise, smoking, drug and alcohol use, work, leisure and sleep pattern; and
- critique emerging and potential health care literature for its application to client assessment.

**Content**

Determining congruence between client and professional Explanatory Models;
- Approaches to health assessment;
- Growth and measurement, physical examination techniques and equipment;
- Mental status assessment;
- Physical systems assessment, including the interpretation and integration of pathological results;
- Lifestyle practices and social situation assessment in relation to health needs;
- A Multicultural society — Australians of Aboriginal and non-Aboriginal heritage;
- The phenomenon of culture and maintenance of values;
- The diversity of health-related schema in Australian society; personalistic, naturalistic and biomedical; and
- The process of acculturation and partial acculturation.

Required Reading

Recommended Reading

Assessment
- 50% Workbook
- 50% Case history and presentation

**HNMS108 CLINICAL STUDIES 1 (ORTHOPAEDIC NURSING)**

**Campus**
- St Albans

**Prerequisites**
- Nil

**Co-requisites**
- Nil

**Learning Outcomes**
- At the satisfactory completion of the unit, it is expected that students will be able to:
  - Apply analytical and creative approaches to acute medical and surgical nursing practice.
  - Participate in discipline related activities to further enhance their current knowledge.
  - Apply theoretical components of nursing knowledge to enable the provision of expert care to the acutely ill person.
  - Understand the impact of illness on the acutely ill person and be able to respond using a process of holistic nursing care.

**Content**

Advanced Respiratory Management:
- Respiratory anatomy, physiology and Assessment
- Common respiratory diseases
- Oxygen therapy, humidification and pulse oximetry
- Management of Intercostal catheter and Underwater sealed drainage system
- Basic respiratory investigations
- BIPAP/CPAP
- Intubation
- Tracheostomy management
- Arterial blood gas interpretation
- Management of a complex patient
- Vital signs, including Glasgow Coma Scale and clinical markers

Required Reading

Recommended Reading

**Class Contact**
- 36 hours

Assessment
- 50% Workbook
- 50% Case history and presentation

**HNMS107 CLINICAL STUDIES 1 (MEDICAL/SURGICAL NURSING)**

**Campus**
- St Albans

**Prerequisites**
- Nil

**Co-requisites**
- Nil

**Learning Outcomes**
- On completion of this subject, it is expected that students will be able to:
  - Apply analytical and creative approaches to acute medical and surgical nursing practice.
  - Participate in discipline related activities to further enhance their current knowledge.
  - Apply theoretical components of nursing knowledge to enable the provision of expert care to the acutely ill person.
  - Understand the impact of illness on the acutely ill person and be able to respond using a process of holistic nursing care.

**Content**

Advanced Respiratory Management:
- Respiratory anatomy, physiology and Assessment
- Common respiratory diseases
- Oxygen therapy, humidification and pulse oximetry
- Management of Intercostal catheter and Underwater sealed drainage system
- Basic respiratory investigations
- BIPAP/CPAP
- Intubation
- Tracheostomy management
- Arterial blood gas interpretation
- Management of a complex patient
- Vital signs, including Glasgow Coma Scale and clinical markers

Required Reading

Recommended Reading
On completion of this subject, it is expected that students will be able to:

- Apply analytical and creative approaches to acute medical and surgical nursing
- Participate in discipline related activities to further enhance their current knowledge
- Apply theoretical components of nursing knowledge to enable the provision of expert care to the acutely ill person
- Understand the impact of illness on the acutely ill person and be able to respond using a process of holistic nursing care.

Content
Diabetes Care
- Pathophysiology of Diabetes type 1 and 2
- Oral hypoglycaemics and principles of insulin therapy
- Management of hypoglycaemia
- Long term complications of diabetes
- Diet and nutrition
- Equipment and monitoring
- Gestational diabetes

Infection control
- Ecological model of disease transmission
- Preventing infection
- Nosocomial infections
- Issues in infection control and prevention in hospitals
- Notifiable diseases
- Hand hygiene
- Communicable diseases

Wound management
- Anatomy and physiology of the skin
- Management of intact skin
- Physiology of normal wound healing
- Moist wound healing
- Product information and selection
- Pressure ulcers
- Skin tears
- Leg ulcers
- Acute surgical wounds, including dehisced wounds
- VAC dressings

Pain management
- Pathophysiology of pain
- Assessing pain
- Principles of acute pain management
- Patient controlled analgesia
- Chronic pain
- Palliative pain management.

Required Reading

OR


Recommended Reading


HNM519 CLINICAL STUDIES 1 (PAEDIATRIC NURSING)
Campus St Albans
Prerequisites Nil
Co-requisites Nil

Learning Outcomes The Unit provides students with opportunities to develop as an advanced professional practitioner in paediatric nursing, to gain awareness of accountability and responsibility for maintaining standards and excellence in paediatric nursing practice, and to further develop and extend paediatric resources, approaches and strategies to clinical decision making.

Content Topics include: perspective of paediatric nursing; human growth and development; advanced health assessment of the child and family; principles and practice of paediatric health assessment skills; pathophysiology and clinical assessment of the child/adolescent with endocrine, neurological, musculo-skeletal, respiratory, cardiovascular, gastro-intestinal, renal, oncological and plastic disorders; paediatric surgery; principles of paediatric nursing research; impact of hospitalisation on the child and family; principles of managing children and families with special needs.

Required Reading


Recommended Reading


Class Contact 36 hours per semester.
Assessment Clinical project 60% (2500 — 3000 words)
Examination 30% (oral presentation, multiple choice and short answer questions)
Clinical Journal 10% (1000 words)

Students must pass each component of the assessment, including the clinical journal, in order to pass this unit.

HNM5117 CLINICAL STUDIES 2 (MEDICAL/SURGICAL NURSING)
Campus St Albans
Prerequisites Nil
Co-requisites Nil

Learning Outcomes On completion of this subject, it is expected that students will be able to:

- Pain management
- Pathophysiology of pain
- Assessing pain
- Principles of acute pain management
- Patient controlled analgesia
- Chronic pain
- Palliative pain management.

Required Reading

OR


Recommended Reading


Class Contact 36 hours
Assessment Group presentation of Nursing Management of one acute medical or surgical condition discussed in this subject. 40%
Written examination. 60%

HNM5118 CLINICAL STUDIES 2 (ORTHOPAEDIC NURSING)
Campus St Albans
Prerequisites Nil
Co-requisites Nil

Learning Outcomes At the satisfactory completion of the unit, it is expected that students will be able to develop competence and excellence in orthopaedic nursing practice.

- Pain management
- Pathophysiology of pain
- Assessing pain
- Principles of acute pain management
- Patient controlled analgesia
- Chronic pain
- Palliative pain management.

Required Reading

OR


Recommended Reading


Class Contact 36 hours
Assessment Group presentation of Nursing Management of one acute medical or surgical condition discussed in this subject. 40%
Written examination. 60%
Learning Outcomes

The Unit provides students with opportunities: to further expand their clinical learning experience in a related area but outside their current clinical practice, to further expand their clinical learning experience to achieve expertise and skills as an advanced practitioner in paediatric nursing.

Content

Further topics include: principles of teaching and learning; management in paediatric nursing; and cultural aspects; ethical and legal responsibility; communication and pain coping mechanism and strategies in the management of distress parents, psychosocial

Required Reading


Recommended Reading


Class Contact 36 hrs per semester.

Assessment Clinical project 60% (2500 — 3000 words)

Examination 30% (oral presentation, multiple choice and short answer questions)

Clinical Journal 10% (1000 words)

Students must pass each component of the assessment, including the clinical journal, in order to pass this unit.

HNMS209 CLINICAL STUDIES 3 (CLINICAL INTERNSHIP PAEDIATRIC NURSING)

Campus St Albans

Prerequisites Nil

Co-requisites Nil

Learning Outcomes At the completion of this Unit, it is expected that students will be able to undertake significant responsibilities in the diverse role of an advanced paediatric nurse practitioner.

Content

As there are a variety of role expectations of advanced paediatric nurse practitioners, it is imperative that each student determines the clinical learning required to achieve expertise in clinical paediatric nursing. As each student’s learning experience at the time of entry to this subject is seen as unique and dynamic, this unit recognises the need for self-determination of learning modalities. Therefore the content includes: the diversity of the clinical environment in specialised paediatric nursing practice; role of the advanced paediatric nurse practitioner: leader, manager, educator, researcher, and collaborative consultant in the health care team. Further, as per contact developed by the student in collaboration with a lecturer, students are expected to spend their clinical learning experience in a related area but outside their current clinical practice, to further expand their clinical learning experience to achieve expertise and skills as an advanced practitioner in paediatric nursing.

Required Reading


Recommended Reading


Class Contact 4 hours - seminar. 32 hours clinical learning experience.

Assessment

a. Contract with supervisor : Hurdle requirement ungraded. Students are required to submit a written contract of the clinical learning experience they wish to undertake before they set out to achieve their contractual clinical learning.

b. Clinical Project: 80% (2500 – 3000 words)

c. Clinical Reflective Journal: 20% (1000 — 2000 words)
HNM5215 ADVANCED CLINICAL MEDICATION MANAGEMENT (NURSING SPECIALISATIONS)

Campus: St Albans
Prerequisites: Nil
Co-requisites: Nil

Learning Outcomes: From this subject, students should develop an advanced understanding of the therapeutic use of drug therapy with reference to their specialised area of study.

Content: Principles of pharmacotherapy, drug action - pharmacokinetics and pharmacodynamics;
- Toxicology and enzyme inhibition;
- Drug therapy for all body systems, examples: Endocrine, CNS, Gastrointestinal, Cardiovascular, Respiratory systems;
- Sedatives and hypnotics;
- Drugs for hyperlipidemia;
- Anti-inflammatory agents;
- Analgesics and antipyretics;
- Antibacterial drugs;
- Medications summarises and drug interactions;
- Assembling a treatment program;
- Medication compliance and quality use of medicines; and
- Specialty based medication.


Class Contact: 36 hours

Assessment: Examination consists of 50 multiple choice questions and short answer questions (2 hours). 50%

Case study assignment on therapeutic intervention (2500 words): 50%

HNM5217 CLINICAL STUDIES 3 (MEDICAL/SURGICAL NURSING)

Campus: St Albans
Prerequisites: Nil
Co-requisites: Nil

Learning Outcomes: On the completion of this practicum, the students should be able to:
- develop and/or enhance clinical skills introduced in theoretical subjects in a practice setting;
- develop competent clinical, professional and ethical practice at an advanced level;
- contribute and work collaboratively within the health care team and to advance knowledge generation;
- observe, and practise under the supervision of, experienced clinicians in interviewing, assessing, and managing the care of clients in an Acute care setting;
- further develop their understanding of evidence-based practice;
- expand their theoretical knowledge of learning and teaching principles, counselling techniques and communication strategies in a clinical setting;
- plan, develop, implement and evaluate client and peer educational programs;
- Work towards further developing personal skills including:
- the ability to adapt to new and challenging situations;
- assess and develop further awareness of personal strengths and weaknesses;
- critique presentation skills;
- acquire self-evaluation abilities.

Content: As there are a variety of role expectations of advanced Medical/Surgical nurse practitioners, it is imperative that each student determines the clinical learning required to achieve expertise in clinical Medical/Surgical nursing. As each student’s learning experience at the time of entry to this unit sees as unique and dynamic, this unit recognises the need for self-determination of learning modalities. Therefore the content includes: the diversity of the clinical environment in specialised Medical/Surgical nursing practice; role of the advanced Medical/Surgical nurse practitioner: leader, manager, educator, researcher, and collaborative consultant in the health care team. Further, as per contract developed by the student in collaboration with a lecturer, students are expected to spend their clinical learning experience in a related area but outside their current clinical practice, to further expand their clinical learning experience to achieve expertise and skills as an advanced practitioner in orthopaedic nursing.


Class Contact: 4 hours comprising seminar.

Assessment: a. Contract with supervisor: Hurdle requirement ungraded Students are required to submit a written contract of the clinical learning experience they wish to undertake before they set out to achieve their contractual clinical learning.

b. Clinical Project: 80% (3000 - 3500 words)

c. Clinical Reflective Journal: 20% (1000 — 1500 words)
HNM6110 NURSING AND PHILOSOPHY OF SCIENCE
Campus: St Albans
Prerequisite(s): Nil
Content: This subject provides an overview on ways in which the discipline of nursing has been influenced by various philosophies of science. In addition, it will examine changing trends in scientific methods of inquiry and their influence on nursing's epistemology.
Required Reading: To be advised by lecturer.
Subject Hours: Three hours per week for one semester comprising one two-hour lecture and one one-hour tutorial.
Assessment: Written assignment (4000 words), 70%; seminar presentation, 30%.

HNM6122 CLINICAL PROJECT
Campus: St Albans
Prerequisite(s): Nil
Content: The clinical project is the culmination of the depth and breadth of the course on Substance Abuse and is intended to allow the student to pursue his or her own area of study in the clinical or other settings. It is intended that the work of the student will be original and carried out under the guidance of a supervisor. The student will be required to choose the focus of their study, such as program evaluation, efficacy of a particular treatment modality, psychosocial or other factors relating to substance abuse. The student will present relevant aims and objectives and arrange the study placement and conduct the study under the guidance of the supervisor.
Required Reading: No required reading, as each student will explore a topic of their choosing.
Subject Hours: This subject will be taken over two semesters and the hours will be undertaken in consultation with the supervisor.
Assessment: A current literature review equivalent to 2500 words (30%) will be included and the project will be of 7500 words in length (70%).

HNM6125 SPECIALISATION CLINICAL PROJECT (FULL TIME)
Campus: St Albans
Prerequisites: Nil
Co-requisites: Nil
Learning Outcomes: Upon completion of this subject, students should be able to:
1. Critically analyse structure, process and outcome of activities in their professional healthcare practice;
2. Identify an area of personal interest to improve practice by developing a proposal to and implement change;
3. Promote the highest standard of professional healthcare practice and excellence in their specialised field of practice;
4. Demonstrate independence, autonomy, and clinical decision-making skills in a multi-disciplinary environment;
5. Promote individual commitment to, and recognition of life long learning;
6. Competently utilise available evidence for continuous practice improvement.
Content: The clinical project is the culmination of the depth and breadth of the course on the core area of study. It is intended to allow the student to pursue his or her own area of study in the clinical or other settings. The work of the student will be original and carried out under the guidance of a supervisor.
The clinical project should draw on and/or encompass:
• Advanced practical skills and techniques;
• Problem solving techniques;
• Organization and management strategies;
• Incorporation of appropriate biological and social sciences;
• Relevant research findings;
• Teaching and learning approaches.
The student will be required to choose a topic related to their professional practice. The clinical project may include program evaluation, efficacy of a particular treatment modality, psychosocial or other factors relating to certain conditions.

HNM6135 SPECIALISATION CLINICAL PROJECT (PART TIME)
Campus: St Albans
Prerequisites: Nil
Co-requisites: Nil
Learning Outcomes: Upon completion of this subject, students should be able to:
1. Critically analyse structure, process and outcome of activities in their professional healthcare practice;
2. Identify an area of personal interest to improve practice by developing a proposal to and implement change;
3. Promote the highest standard of professional healthcare practice and excellence in their specialised field of practice;
4. Demonstrate independence, autonomy, and clinical decision-making skills in a multi-disciplinary environment;
5. Promote individual commitment to, and recognition of life long learning;
6. Competently utilise available evidence for continuous practice improvement.

Content: The clinical project is the culmination of the depth and breadth of the course on the core area of study. It is intended to allow the student to pursue his or her own area of study in the clinical or other settings. The work of the student will be original and carried out under the guidance of a supervisor.


Class Contact This subject will be conducted over one or two semester depending on mode and contact hours will be negotiated in consultation with the supervisor using a learning contract.

Assessment The assessment for this subject consists of two parts:

1. A written proposal which includes a comprehensive background and justification of the clinical project: Word limit = 1000 words Mark 10%
2. A clinical project comprising an extensive relevant literature review, a proposed change for practice and a plan for implementation of change. Students are encouraged to use various media in creative ways, in the implementation of this project.

Word Limit: 9000 words or negotiated equivalent Mark 90%

HN7010 HANGING UP A SHINGLE (MONASH)
Campus St Albans
Prerequisites Nil
Co-requisites Nil.

Learning Outcomes This subject will enable you to:

• Demonstrate an ability to act in partnership with the women in the woman’s own environment;
• Explore the collaborative relationships with other professionals that midwives, in private practice, engage in to ensure safe outcomes for women in their care;
• Discuss the difficulties common to midwives when ‘running’ a small business;
• Demonstrate an understanding of the implications of isolation for midwifery practice;
• Explore strategies to facilitate the establishment of professional support and network for midwives considering private practice;
• Demonstrate an understanding of the politico-legal constraints an independent midwife in practice will experience;
• Develop practice guidelines and strategies to evaluate practice;
• Demonstrate an understanding of the need for reflective practice for the implementation of evidence informed care in private practice;
• Demonstrate midwifery competency based upon the ACMI Competency Standards for Midwives.

Core graduate attributes to be achieved by students are:

• Locate, evaluate, manage and use a range of relevant information from a critical perspective. This subject encourages students to be critical and evaluate what they read and apply knowledge to their practice roles.
• The subject teaches students how to synthesise and comment and write on a wide range of issues for midwives in private practice.
• Students will follow complex instructions and manage time with minimal guidance.
• The subject heavily reflects the role and operation of the independent midwife in private practice in Australia today. The student will apply and evaluate strategies relating to issues of social and cultural diversity related to professional practice, seeking information where necessary.

Content The subject will consist of the following 2 modules:

Module 1: Professional Issues Intensive learning (on-line learning) at Victoria University:

• Participation in the profession, professional development;
• Advanced skill development (prescribing, referral and ordering tests);
• Care of self and others in the workplace;
• Developing an evidence-informed practice.

Midwives in private practice (on-line / Victoria University):
• Visiting rights (accessing hospital services);
• Sharing knowledge and skill;
• Professional indemnity insurance;
• Quality improvement;
• Access and maintenance of equipment;
• Record keeping;
• Reporting result guidelines for practice;
• Midwives working together in private practice.

Module 2: Establishing a business: (on-line)

Learning package from a business educator includes:
• Getting started;
• Managing a business as a solo practitioner;
• Charging a fee for service;
• Financial records;
• Taxation;
• Marketing your services.

Required Reading

Class Contact This is a 56 hour theory subject undertaken on-line. It consists of two learning modules (46 hours) and a component of self-directed learning (10 hours).

Assessment There are 2 pieces of assessment for this subject: Essay (2000 words) and Commentary (1000 words).
HNM7113 FOUNDATIONS IN MIDWIFERY PRACTICE

Campus St Albans

Prerequisite(s) Nil

Content Module 1 The subject will include the following content: Functional Health Patterns, emphasis on health perception and management, clinical reasoning process, occupational health and safety, Procedural hand washing and asepsis, the complete midwifery health history and general survey, general health assessment, assessment of family health, assessment of mental health status, cultural assessment.

Module 2 Defining the role of the midwife in contemporary practice, exploring the desirable attributes of a midwife, exploring the philosophical basis underpinning the role of the midwife in contemporary midwifery practice.; being with woman, woman centeredness, working in partnership, establishing relationships with childbearing women. Explore the art of midwifery, relationship, communication, boundaries of care, midwife as primary carer, midwife’s role in collaborative practice, establishing a partnership, philosophy of care.


Students. 2nd ed. Sydney: Social Science Press.


Subject Hours 140 hours - 60 hours theory, 80 hours block clinical placement.

Assessment One 1½ hour written examination: 40%, evaluation of health assessment skills and clinical reasoning 40%, annotated bibliography on professional issues: 20%, demonstration of safe and competent practice according to this stage of the course. Competencies as defined for a student at this stage.

HNM7114 CONTINUITY OF CARE 1

Campus St Albans

Prerequisite(s) Nil

Content Students will be introduced to the Continuity of Care program in which they make contact with pregnant women in clinical venues or in the community. Students will be assisted to develop a professional midwifery practice relationship with emphasis on basic interview and history taking; reflective practice; journal writing; application of principles of communication; assessment of the woman and her baby; working with a woman giving birth; working with the woman to feed her baby; working with the woman to care for herself and her baby before and after birth; and documentation of midwifery actions and women’s attitudes and responses. Students will explore the position of contemporary midwifery practice with emphasis on: historical context; evolution of the profession of midwifery; midwifery identity: the uneasy tensions between midwifery and nursing and midwifery and medicine; role of the midwife; and models of care.

HNM7201 MIDWIFERY STUDIES 2: THE CHILDBEARING JOURNEY

Campus St Albans

Prerequisite(s) HNM7115 Midwifery Studies 1: The Childbearing Journey


Subject Hours 70 hours - 60 hours theory, 10 hours self-directed study.

Assessment Three hour examination - 60%, Essay [1500 words] - 40%.

HNM7202 MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

Campus St Albans

Prerequisite(s) HNM7115 Midwifery Studies 1: The Childbearing Journey and Co-Requisite(s) HNM7201 Midwifery Studies 2: The Childbearing Journey

Content Students will be required to work in a maternity practice setting providing midwifery care for women and families under the supervision of a clinical teacher/preceptor. Supervised midwifery practice will include: interviewing and history taking techniques; reflection in an on action; journal writing; and application of principles of communication. In partnership with the woman and under supervision: Assessment of the woman and her baby; working with a woman giving birth; working with a woman to give nourishment to her baby; working with a woman to care for herself and her baby before and after birth; and documentation of midwifery actions and women's attitudes and responses.


Subject Hours 70 hours - 60 hours theory, 10 hours self-directed study.

Assessment Three hour examination - 60%, Essay [1500 words] - 40%.

HNM7203 MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

Campus St Albans

Prerequisite(s) HNM7115 Midwifery Studies 1: The Childbearing Journey and HNM7201 Midwifery Studies 2: The Childbearing Journey

Content Pregnancy Problems: Anaemia, Blood disorders including: Rhisoimmunisation, Infections, Foetal assessment, Early pregnancy bleeding and loss, Intrauterine growth restriction

Foetal death in utero, Antepartum haemorrhage, Variations in blood pressure, Diabetes, Surgical conditions, Induction of labour

Multiple pregnancy, Malposition. Care and Assessment during pregnancy, labour and birth and after birth, Assessment for malpresentation and malposition, Conduct vaginal examination, Artificial rupture of membranes, Episiotomy and perineal care, Epideral infusions and care, Veneupuncture, Intraovenous cannulation, Intravenous therapies, Syntocinon infusion in therapy

IV antibiotics, Blood sugar monitoring, Mental Health Issues, Psychopathology of pregnancy and childbirth, Motherhood and mental illness, Assessment and management, Midwifery role

Referral and collaboration.


Subject Hours 70 hours - 60 hours theory, 10 hours self-directed study.

Assessment Three hour examination - 60%, Essay [1500 words] - 40%.

FACULTY OF HEALTH, ENGINEERING AND SCIENCE
HNM7204 MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

Campus: St Albans

Prerequisite(s): HNM7115 Midwifery Studies 1: The Childbearing Journey & HNM7201 Midwifery Studies 2: The Childbearing Journey, HNM7202 Midwifery Practice 2: The Childbearing Journey

Co-requisite(s): HNM7204 Midwifery Studies 3: Childbearing Complications

Content
In partnership with the woman and under supervision:
- Assessment of the woman and her baby; Working with a woman to give birth;
- Working with a woman to give nourishment to her baby;
- Working with a woman to care for herself and her baby before and after birth; and
- Documentation of midwifery actions and women’s attitudes and responses.

Required Reading

Learning Outcomes
- Students will be expected to:
  - With woman experiences of health care;
  - Sociopolitical factors impacting on woman health and childbirth in Australia;
  - With woman experiences of health care;
  - The relationship between gender and health; and
  - Individualised midwifery care practices.

Cultural Diversity
- Cultural safety/sensitivity;
- Aboriginality;
- With woman from diverse cultural and ethnic backgrounds;
- Spiritual differences & cultural practices; and
- Genital mutilation.

Social Diversity
- Social justice, equity and access — social class;
- Poverty and mortality;
- Homelessness;
- Physical and sexual abuse, rape, sexual assault;
- Partner abuse; and
- Chemical dependency.

Required Reading
- Campbell, S. (2000). From here to maternity: A report to the VACCHO members and the Victorian Department of Human Services about the maternity services for Aboriginal women of Victoria.
- Melbourne: La Trobe University
- Melbourne: AGPS
- Koori Health Unit. (1996). Koori health counts: Providing services to Koori women having a baby.
- Auckland: Piloting Service Projects.
- Melbourne: Department of Human Services

Recommended Reading

Class Contact
- 317 hours Block clinical placement of 208 hours
- 3 Reflective Journals: Satisfactory/Unsatisfactory

Assessment
- Practice assessment based on ACMI Competency Standards: Satisfactory/Unsatisfactory

HNM7205 MIDWIVES WRKG WITH WOMEN FROM DIV BCKGRD

Campus: St Albans

Prerequisites: HBNW - Bachelor of Midwifery (Pre-Registration)

Learning Outcomes
- Students will be expected to:
  - Develop an understanding of their own values and beliefs, and the challenge presented when working with women who are different from their selves;
  - Discuss the impact that social inequities have on being with woman during her childbearing experiences;
  - Demonstrate an understanding of social justice issues impacting on woman health in Australia;
  - Demonstrate practice that reflects cultural sensitivity and sensitivity with woman;
  - Discuss specific issues impacting on the health of being with Aboriginal woman and her baby;
  - Discuss the politics of with woman health with reference to contemporary issues;
  - Apply evidence-based knowledge to midwifery practice; and,
  - Examine with woman experiences as a recipient of health and maternity care, paying particular attention to socio-economic and cultural difference.

Content
- Knowledge self;
- Feminist and Humanistic principles in working with diversity;
- Sociopolitical factors impacting on with woman health and childbearing in Australia;
- With woman experiences of health care;

HNM7208 CONTINUITY OF CARE TWO

Campus: St Albans

Prerequisites: Nil.

Learning Outcomes
- Students will be expected to:
  - Demonstrate qualities of woman-centred midwifery practice using theoretical understandings gained in the subject the Childbearing Journey;
  - Describe working with woman in childbearing using the theoretical understandings gained in the midwifery and anatomy and physiology subjects;
  - Demonstrate evaluating skills necessary to provide woman-centred midwifery practice;
  - Recognise the importance of with woman and her social context in the provision of maternity services;
  - Demonstrate midwifery practice skills in health assessment of being with woman and her baby at various stages of pregnancy;
  - Demonstrate the ability to undertake higher level health documentation in midwifery;
  - Accurately assess, collect and record data for health profiles/histories of being with woman during childbearing;
  - Make contact with a minimum of ten women (in the clinical venue) expecting to give birth later in the year for the purpose of following through their birthing experience from early pregnancy to the first weeks after birth;
  - Apply evidence-based knowledge to midwifery practice;
  - Examine the politics of maternity services;
  - Explore contemporary issues and trends which influence midwifery practice and the role of the midwife; and
  - Discuss the professional standards and requirements informing midwifery practice.
Content Students will continue the ‘Continuity of Care’ program in which they make contact with pregnant women in clinical venues or in the community. Students will be assisted to develop a professional midwifery practice relationship with emphasis on:

- Interviewing and history taking;
- Reflection in and of action;
- Journal writing;
- Application of principles of communication;
- Assessment of the woman and her baby;
- Working with the woman to give birth;
- Working with the woman to feed her baby;
- Working with the woman to care for herself and her baby before and after birth; and
- Documentation of midwifery actions and women’s attitudes and responses.

Students will explore the position of contemporary midwifery practice with emphasis on:

- Expanding practice, primary and collaborative practice, multidisciplinary teams;
- Contemporary issues and trends in midwivies working with women; and
- Politics in present-day midwifery practice.


Class Contact 136 hours: - 16 hours theory - 120 follow through journey clinical hours.

Assessment Partnership log focusing on partnership and follow through of being with woman (10 women) including fieldwork and reflective journals: Satisfactory/ Unsatisfactory Continuity of Care report of 3000 words: Satisfactory/ Unsatisfactory

HNM7226 MIDWIFERY STUDIES 4 WOMEN'S HEALTH

Campus St Albans

Prerequisites Nil

Learning Outcomes On successful completion of this unit, students are expected to be able to:

- Describe the role of the midwife working in partnership as the provider of primary and collaborative care with women throughout the reproductive health lifespan;
- Demonstrate skill in undertaking a woman health assessment in an acute care and/or therapeutic healthcare settings;
- Demonstrate midwifery practice skill in promoting wellness, healthy lifestyle messages and routine screening programs with women in their care;
- Apply knowledge of with woman physical and psychological health in with woman experiencing reproductive and breast health concerns;
- Demonstrate understanding of specific reproductive health concerns with woman including cancer and urinary conditions;
- Develop a plan of woman-centred care with woman experiencing diagnostic and/or therapeutic procedures in an acute care setting;
- Demonstrate midwifery practice skill in the delivery of woman-centred care with woman experiencing diagnostic and/or therapeutic procedures in an acute care setting;
- Apply knowledge of discharge planning in partnership with woman experiencing short in-patient and day procedures related to reproductive and breast health concerns;
- Apply knowledge of specific reproductive and breast health concerns in evaluating woman-centred care outcomes;
- Employ reflective practice and implement evidence-informed care;
- Apply evidence-based knowledge to midwifery practice;
- Explore community resources available to support with woman with specific reproductive or breast health concerns;
- Demonstrate the ability to practice within a multidisciplinary team; and
- Document the ongoing relationship with woman they are following through in a way that reflects their own involvement and actions and the rationale for these, as well as with woman actions and attitudes and responses to midwifery actions.

Content Within a framework of working with woman in partnership, the role of the midwife providing primary and collaborative care with woman throughout the reproductive lifespan will be explored under the following subheadings:

- Undertaking a comprehensive with woman health assessment;
- Guidelines for practice and skill development;
Required Reading


HNM730 MIDWIFERY STUDIES 5 CHILDBEARING COMPLICATIONS

Campus: St Albans
Prerequisites: HNM 7115 Midwifery Studies 1: The Childbearing Journey, HNM 7203 Midwifery Studies 2: Childbearing Complications, HNM 7202 Midwifery Practice 2: The Childbearing Journey, HNM 7204 Midwifery Practice 3: Childbearing Complications

Learning Outcomes Students will be expected to:

- Utilise knowledge from anatomy and physiology applicable to being with woman experiencing a complex labour and birth and/or postpartum period;
- Examine specific medical and obstetric conditions that affect labour and birth and the postpartum period;
- Examine perinatal mental health issues and the implications for mothers, families and caregivers;
- Evaluate the implications of obstetric interventions for being with woman and midwifery practice;
- Critically examine the use of technology in midwifery and obstetric practice;
- Perform midwifery practice skills in a simulated laboratory and clinical environment;
- Demonstrate skills in the management of maternity care emergencies;
- Apply evidence-based knowledge to midwifery practice;
- Interpret the role of the midwife a member of a collaborative health-care team; and
- Explore community resources available to provide support with woman in the community.

Content: Unexpected Problems During Labour & Birth

- Preterm labour
- Inco-ordinate uterine action
- Intervention cascade
- Cord presentation and prolapse
- Foetal distress
- Primary postpartum haemorrhage
- Shoulder dystocia
- Maternal shock and collapse

Collaborative and referral role of the midwife Maternal health problems in first weeks after birth

- Breastfeeding problems
- Pyrexia
- Secondary postpartum haemorrhage
- Haematomas
- Post-caesarean section: extra care

Medical technology and procedures

- Ultrasound
- Cardiotocograph
- Epidual analgesia
- Forceps & ventouse
- Cesarean birth and care
- Assist in obstetrical intervention

Central venous pressure (CVP) monitoring

Magnesium sulphate infusion

Intravenous infusion pumps

Dynamap and blood pressure monitoring

Advanced CTG skills

Perineal suturing

Being with woman and resuscitation when sick

Recommended Reading


HNM731 MIDWIFERY PRACTICE 5 CHILDBEARING COMPLICATIONS

Campus: St Albans
Prerequisites: HNM 7115 Midwifery Studies 1: The Childbearing Journey, HNM 7203 Midwifery Studies 3: Childbearing Complications, HNM 7202 Midwifery Practice 2: The Childbearing Journey, HNM 7204 Midwifery Practice 3: Childbearing Complications

Learning Outcomes Students will be expected to:

- Develop a sense of becoming a midwife with emerging confidence and competence;
- Engender a passion for being a midwife and sharing the vision of the midwifery profession;
- Develop a consciousness of their attitudes, beliefs and values with woman and midwifery within a diverse cultural context;
- Construct an awareness of the journey of being with woman through childbearing;
- Employ strategies to work with woman in making the transition to parenthood which is viewed as an experience of growth and change;
- Integrate the knowledge and midwifery practice skills acquired from preceding subjects which inform the current stage of practice as a midwife;
- Apply evidence-based knowledge to midwifery practice;
- Critically reflect on self and practice as a midwife; and
- Implement evidence-informed care when working with woman;

Content: Utilising experience from the first and second maternity placement midwifery students will be expected to extend their practice repertoire in providing midwifery care with woman and families under the supervision of a clinical teacher/preceptor.

In partnership with woman and under supervision:

- Assessment of with woman and her baby;
- Working with woman giving birth;
- Working with woman to give nourishment to her baby;
- Working with woman to care for herself and her baby before and after birth; and
Required Reading


HNM7312 CONTINUITY OF CARE THREE

Campus St Albans

Prerequisites Nil

Learning Outcomes Students will be expected to:

• Demonstrate qualities of woman-centred midwifery practice using theoretical understandings gained in the subject the Childbearing Journey;
• Describe working with woman in using the theoretical understandings gained in the midwifery and anatomy and physiology subjects;
• Demonstrate midwifery practice skills necessary to provide woman-centred midwifery practice;
• Recognise the importance of with woman and her social context in the provision of maternity services;
• Demonstrate midwifery practice skills in health assessment of being with woman and her baby at various stages of pregnancy;
• Demonstrate the ability to undertake higher level health documentation;
• Accurately assess, collect and record data for health profiles/histories of being with woman during childbearing;
• Make contact with a minimum of ten women (in the clinical venue) expecting to give birth later in the year for the purpose of following through their birthing experience from early pregnancy to the first weeks after birth;
• Apply evidence-based knowledge to midwifery practice;
• Explore the link between theory, policy and practice issues in midwifery; and
• Discuss access and equity issues pertaining to special population.

Content Students will continue the Continuity of care program in which they form partnerships with woman during pregnancy in clinical venues. Students will be assisted to develop a professional midwifery practice relationship with emphasis on:

• Interviewing and history taking;
• Reflection in and on action;
• Journal writing;
• Application of principles of communication;
• Assessment of with woman and her baby;
• Working with woman to give birth;
• Working with woman to feed her baby;
• Working with woman to care for herself and her baby before and after birth; and
• Documentation of midwifery actions and with woman attitudes and responses.

HNM7313 MIDWIFERY STUDY 6-BABIES NEED EXTRA CARE

Campus St Albans

Prerequisites HNM7115 Midwifery Studies 1: The Childbearing Journey, HNM 7203 & HNM 7310 Midwifery Studies 3 & 5: Childbearing Complications, HNM 7202 Midwifery Practice 2: The Childbearing Journey, HNM 7204 & HNM 7311 Midwifery Practice 3 & 5: Childbearing Complications

Learning Outcomes Students will be expected to:

• Describe the development of a baby during the second half of pregnancy;
• Demonstrate understanding of the circumstances that may necessitate admission of a baby to a level two nursery;
• Evaluate the level two nursery environment and its impact upon the baby and family;
• Understand the role of the midwife within the context of the level two nursery multidisciplinary team;
• Utilise the clinical decision making process to demonstrate knowledge and understanding of the care required by the baby and the family;
• Apply evidence-based knowledge to midwifery practice;
• Demonstrate an appreciation of the family’s need for privacy, dignity and respect, as well as their right to be informed and to make decision regarding care of their baby;
• Demonstrate an understanding of reflective practice in the implementation evidence informed care for the baby and family; and
• Debate the ethico-legal issues, which arise in the care of babies with special needs.

Content

• Environment
• Growth & Development
• Level Two Nursery
• Equipment
• Personnel
• Influence upon the wellbeing of the baby
• Impact upon the family
- Role of the midwife in the team
- Circumstances That May Require Babies To Be Admitted To A Level Two Nursery
- Pre-Term
- Post-Term
- Congenital Anomalies
- Metabolic Disturbances
- Small For Gestational Age
- Chemical Dependency
- Birth Asphyxia
- Jaundice
- Anaemia
- Birth trauma

Care of the Baby
- Gestational Assessment
- Facilitation Of Growth & Development
- Oxygenation
- Elimination
- Nutrition
- Immunity
- Temperature

Care Of The Family
- Support & counselling
- Involvement in care and decision making
- Education
- Transition to parenthood

Ethico-legal Issues
- Informed consent
- Rights of the baby
- Economic challenges
- Maintenance of life support

Neonatal Emergency Transport Service
- History of the service
- Role of the service
- Referral, stabilization and retrieval

Required Reading

Recommended Reading
Ed.). Sydney: Churchill Livingstone

Class Contact
60 hours theory

Assessment
Topic test: 20% 2 hour examination: 50% Essay (1000 words): 30%

HNM7314 MIDWIFERY PRACTICE 6-BABIES NEED EXTRA CARE

CampusSt Albans
Prerequisites HNM7115 Midwifery Studies 1: The Childbearing Journey, HNM 7203 & HNM 7310 Midwifery Studies 3 & 5: Childbearing Complications, HNM 7202 Midwifery Practice 2: The Childbearing Journey, HNM 7204 & HNM 7311 Midwifery Practice 3 & 5: Childbearing Complications

Learning Outcomes
Learning Outcomes Students will be expected to:
- Demonstrate understanding of the circumstances that necessitate admission of a baby to a Level Two Nursery;
- Evaluate the environment of the nursery and implement strategies to promote the wellbeing of the baby and family;
- Develop competency within the context of the multidisciplinary Health Care team;
- Utilise a clinical decision making process to apply the necessary knowledge and understanding required to meet the needs of the baby and family in the nursery;
- Apply strategies for maintaining the families’ need for privacy, dignity and respect, as well as their right to be informed and to make decision regarding care of their baby;
- Facilitate family involvement with the care of the baby with special needs;
- Employ reflective practice and implement evidence based care for babies and their families;
- Facilitate transition of the baby and family from hospital to home;
- Apply evidence-based knowledge to midwifery practice with the sick baby;
- Document the ongoing relationship with woman and her family that the midwifery student follows through in a way that reflects their own involvement and actions and the rationale for these, as well as the families’ actions and attitudes and responses to midwifery care; and
- Follow through of a ‘sick’ baby.

Content
Neonatal Nursery Environment
**HNS5010 THEORIES OF ADDICTION**

**Campus** Footscray Park  
**Prerequisite(s)** Nil  
**Content** This subject considers a range of traditional and non-traditional theories of substance use, dependence and addiction. Definitional, physiological, pharmacological, psychological and social perspectives are examined. A variety of interventions and treatments will be considered in the context of the range of theories of substance use, dependence and addiction.  
**Required Reading** To be advised by the lecturer.  
**Assessment** One written assignment of 2,500 words (60%), and one presentation (40%).

**HNS5020 TREATMENT IN SUBSTANCE ABUSE**

**Campus** Footscray Park  
**Prerequisite(s)** Nil  
**Content** This subject considers the approaches to treatment available and the setting in which treatment occurs for the range of addictions and substance abuse problems prevalent in Australia. Traditional and non traditional medical/pharmacological interventions will be examined alongside the range of psychological, social and spiritual interventions currently in place. This subject also examines the legal and ethical context in which substance use and treatment occurs.  
**Required Reading** To be advised by the lecturer.  
**Assessment** One written assignment of 2,500 words, 60%; class presentation, 40%. 

**HNS5030 HEALTH PROMOTION/PREVENTION IN SUBSTANCE ABUSE**

**Campus** Footscray Park  
**Prerequisite(s)** Nil  
**Content** This subject considers basic principles and practices in health promotion and prevention related to substance abuse. Current models related to health promotion and prevention principles related to harm minimisation will be considered with emphasis on the impact of substance use on individuals, families and communities. Each student will contract to develop and present a health promotion/prevention program related to substance abuse.  
**Required Reading** To be advised by the lecturer.  
**Assessment** One written assignment of 2,500 words, 60%; presentation of a health education/patient education session, 40%. 

**HNS5040 THERAPEUTIC INTERVENTIONS**

**Campus** Footscray Park  
**Prerequisite(s)** Nil  
**Content** This subject considers the skills and knowledge related to therapeutic communication with clients who have drug and alcohol problems. Counselling models related to dealing clients with substance abuse problems will be addressed, with specific focus on Motivational Interviewing. This subject has an emphasis on practical competencies for the student.  
**Required Reading** To be advised by lecturer.  
**Assessment** 2500 word assignment, 60%; presentation based on core skills, 40%. 

**HSD1114 INTRODUCTION TO HEALTH ASSESSMENT STUDIES**

**Campus** St Albans  
**Prerequisites** Nil.  
**Co-requisites** Nil.  
**Learning Outcomes**  
On completion of this subject, students should be able to:  
- Demonstrate beginning health assessment skills  
- Utilise interpersonal and professional communication skills required for interviewing for health Assessment  
- Incorporate the principles of occupational health and safety to the practice of nursing health Assessment  
- Integrate the relevant cultural issues associated with the conduct of health Assessment  
- Document health assessment data clearly and accurately  
- Develop skills in tertiary study techniques.  
- Identify their learning and study needs to formulate individualised educational goals  
- Develop knowledge and understanding in advanced computer skills for tertiary study  
**Content**  
Topic content in this subject includes:  
- Comprehensive health assessment techniques  
- Professional reading, analytical and writing skills§ Academic referencing and styles of writing (APA format)  
- Library skills including accessing internet facilities for study and research purposes  
- Seminar and conference preparations, presentation techniques and skills  
**Class Contact** Equivalent of 32 hours organised according to teaching mode used.  
**Assessment** Written synopsis utilising library resources (50%) Physical examination skill testing (50%)
CENTRE FOR ENVIRONMENTAL SAFETY AND RISK ENGINEERING

Below are details of courses offered by the Centre for Environmental Safety and Risk Engineering in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

COURSES GRADUATE DIPLOMA IN BUILDING FIRE SAFETY AND RISK ENGINEERING
Course Code: EGQB

Course Objectives
The course aims to produce professionals who are familiar with fire science and technology fundamentals, who can apply rational engineering principles and techniques to identify cost-effective fire safety system designs for buildings, and will be familiar with the content and application of fire engineering design codes.

Admission Requirements
To qualify for admission to the course an applicant must have successfully completed a degree in engineering or a degree in science or building surveying. A corresponding diploma having equivalent content of the relevant technical subjects will also be considered.

A letter of recommendation and an interview may be required.

Provision will be made to enrol a limited number of students in the course who do not fully meet the required admission standards, but who have extensive relevant experience and demonstrated aptitude for high achievement. An interview will be required in this case.

Course Duration
The course is offered on a part-time basis and in block modules over two years. Students must complete 120 credit points. The maximum time period to complete the course is six years.

Course Structure

Year 1

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Year 2

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Assessment
Assessment is by a combination of written projects, assignments, submissions, laboratory work and oral presentation. Distribution of marks among each aspect of assessment is determined individually for each subject.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

MASTER OF ENGINEERING IN BUILDING FIRE SAFETY AND RISK ENGINEERING (COURSEWORK) (I)
Course Code: EMQB

The course provides opportunities for professional people to develop advanced technical skills in a specialist discipline; develop their understanding of legislation and management relevant to their employment; develop ability to plan co-ordinate and complete complex projects; apply and extend research and reporting skills and gain specialist knowledge of a topic relevant to their employment.

Admission Requirements
To qualify for admission to the course applicants are expected to have completed a Graduate Diploma in Building Fire Safety and Risk Engineering with honours average.

Course Duration
The course is offered over four years on a part-time basis or its full-time equivalent. Students must complete 192 points. Eight approved subjects of twelve credit points, each from the Graduate Diploma in Building Fire Safety and Risk Engineering, Industrial Experience of forty eight credit points, and a minor thesis/project of forty eight credit points for one semester or twenty four credit points for two semesters.

Course Structure

Year 1

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(over one semester) or
(per semester for two semesters)
Year 3
Semester One

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Semester Two

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<td>FIRE SPREAD AND FIRE SAFETY SYSTEM DESIGN PROJECT</td>
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Year 4

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<td>VQT6060</td>
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Assessment

Assessment is by a combination of written projects, assignments, submissions, laboratory work and oral presentations and by the satisfactory completion of a thesis. Distribution of marks for each aspect of the assessment is determined individually for each subject.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

GRADUATE CERTIFICATE IN PERFORMANCE-BASED BUILDING AND FIRE CODES

Course Code: ETQB

Course Objectives

The course aims to enable building surveyors and other allied professions to:

- make professional use of performance-based building codes;
- introduce the concepts and alternative acceptable frameworks for performance-based codes, with particular, but not exclusive, emphasis given to fire safety engineering design;
- provide appropriate knowledge and skills necessary for the assessment and application of performance-based and fire codes;
- develop a professional approach to performance-based codes and a recognition of when to assess designs which are within a person’s field of expertise and when to refer designs onto a more appropriately qualified assessor;
- develop an appreciation of the legal, statutory and design integrity requirements and the need for compliance of the design assumptions throughout the operational life of the building.

Admission Requirements

To qualify for admission to the course an applicant must have successfully completed a diploma in Building Surveying or an equivalent qualification and at least two years of relevant professional experience.

Candidates with other academic qualifications can be admitted to the course provided they can demonstrate an equivalent combination of additional relevant professional experience and qualification.

A letter of recommendation and an interview may be required.

Graduates of the course may be offered advanced standing in the Graduate Diploma in Building Fire Safety and Risk Engineering.

Course Duration

The course is offered on a part-time basis over one year, and is offered in block modules (four blocks of four days, spread throughout the year). Students must complete 60 credit points. The maximum time period in which to complete the course is three years.

Course Structure

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Assessment

Assessment is by a combination of assignments and examination. Distribution of marks among each aspect of assessment is determined individually for each subject.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been met.
**SUBJECTS**

Below are subject details for courses offered by the Centre for Environmental Safety and Risk Engineering in 2009. IMPORTANT NOTE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

**VQB5611 RISK ASSESSMENT AND HUMAN BEHAVIOUR**

**Campus** Werribee  
**Prerequisite(s)** Nil  
**Content** The subject introduces students to basic fire engineering design concepts through presentation of a range of fire safety evaluation methods including timeline analysis and provides students with the necessary knowledge about occupant communication and response submodels and subsystems as a basis for assessing the necessary input data for a risk assessment model. The subject covers the impact of fire on society - life and cost. Basic fire growth and spread, people behaviour and time effects. Fire statistics and statistical analysis. Probability, reliability, quality assurance and engineering economics. An introduction to risk management. NFPA fire safety concepts tree, NFPA 101 fault trees, event trees. Environmental psychology, human behaviour during emergencies, occupant characteristics. Fire cues and automatic cues, occupant responses. Behavioural response models, human information processing. Human performance; ergonomics, biomechanics and movement studies. Toxic gases, fractional incapacitating dose. Egress, evacuation calculations and models.  

**VQB5621 FIRE GROWTH, DETECTION AND EXTINGUISHMENT**

**Campus** Werribee  
**Prerequisite(s)** Nil  
**Content** The subject provides students with basic information on fire technology and explains the initiation and development of fires including an understanding and facility in the application of the range of detection systems and of manual and automatic extinguishing subsystems in terms of: mechanism of extinguishment; detection performance; component modelling; response time assessment; reliability criteria, redundancy and the effect of maintenance; performance testing. The subject covers the combustion process and the fire triangle. Heat transfer mechanism, combustion of gases and vapours and fire plumes. Combustion of liquids and solids, fire toxicity and products of combustion. Fire behaviour of materials and products and fire retardants, fire test methods. Fire initiation and development. Pre and Post flashover enclosure fires. Mathematical modelling of enclosure fires (zone and field models). Management of fire initiation and development and implications to performance design. Detection and extinguishment, principles of detection and alarm. Fire detection and alarm systems, water based extinguishment. Fire engineering design for extinguishment, system reliability. Fire brigades response and operations.  

**VQB5632 SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN**

**Campus** Werribee  
**Prerequisite(s)** Nil  

**VQB5642 PERFORMANCE CODES METHODOLOGY AND STRUCTURE**

**Campus** Werribee  
**Prerequisite(s)** Nil  
**Content** The subject introduces the student to the principles, methodology and scope of performance based codes including a conceptual framework and historical background and provides the student with an understanding of the structure of performance design and approval and background and refresher material essential to an understanding of further subjects in the course. The subject covers: Conceptual framework of performance regulations; life safety, illness and injury, health, safety and amenity and asset protection. Historical background, ISO6241, NKB, international approaches, NZ model, equivalency concept. State legislation and the model building act (administrative framework). The Performance Based Code of Australia and Australian Standards (technical framework). Process and procedural matters; legal issues, documentation, joint and several tortfeasor liability. Integrated approvals; impact of performance regulation on other approvals. Fire Code Reform Centre (FCRC) overview and submodels. Risk management and assessment, an overview. Other PBRC performance designs. Through life performance and maintenance. Essential services recognition and documentation. Quality assurance and the building permit/inspection process.  

**VQB5751 FIRE TECHNOLOGY MODELLING**

**Campus** Werribee  
**Prerequisite(s)** VQB5621 and VQB5632  
**Content** The subject provides students with an understanding of the details of modelling fire growth and spread in buildings. The subject covers development of the design fire; fire spread models; smoke movement models; atriums and large spaces; network modelling; computational fluid dynamics models; post-flashover compartment fire spread.
fire models; and model validation.


**Class Contact** Equivalent to three hours of lectures per week for thirteen weeks.

**Assessment** Four written assignments, 10%, 10%, 30% and 50%. Page limits: 10% - four pages, 30% - 12 pages, 50% - 20 pages.

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**VQB5761 FIRE SAFETY SYSTEMS MODELLING**

**Campus** Werribee

**Prerequisite(s)** VQB5611, VQB5621 and VQB5632

**Content** The subject provides students with an understanding of the details of modelling of active, and passive, building fire safety subsystems, and the details of human behaviour modelling. The subject covers detection and sprinkler operation predictions; modelling of barrier failure; structural fire safety; human behaviour modelling; suppression models; and a fire brigade intervention model.


**Class Contact** Equivalent to three hours of lectures per week for thirteen weeks.

**Assessment** Four written assignments, 10%, 10%, 30% and 50%. Page limits: 10% - four pages, 30% - 12 pages, 50% - 20 pages.

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**VQB5772 FIRE SAFETY SYSTEM DESIGN**

**Campus** Werribee

**Prerequisite(s)** Fire Safety System Design: VQB5751, VQB5761 and VQB5642.

**Content** The subject provides a description of various approaches used for the design of the safety in buildings, with particular emphasis placed on a fire safety system (FSS) performance model. The FSS model uses a risk assessment methodology to assess the risk to life safety and the expected losses, and to incorporate this risk assessment as part of the design procedure for the fire safety in buildings. The subject covers: introduction, alternative design approaches, fire engineering design code framework, risk assessment methodology, and description of a fire safety system (FSS) model and its parameters; risk to life submodel and economic submodel. Description of the various submodels comprising the FSS model—namely: fire initiation and growth submodel, smoke spread submodel, fire spread submodel, occupant communication and avoidance submodel, fire brigade submodel. In-service performance. Application of fire safety system models.


**Class Contact** Three hours of lectures per week for one semester.

**Assessment** Assessment will be made on the basis of assignments. Four assignments, each 25%. Supplementary assessment will not be available.

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**VQB5782 FIRE SPREAD AND FIRE SAFETY SYSTEM DESIGN PROJECT**

**Campus** Werribee

**Prerequisite(s)** Fire Spread and Fire Safety System Design Project. Co-requisite(s): VQB5772 Fire Safety System Design.

**Content** The first part of this subject provides an understanding of the mechanisms of and impediments to the spread of fire in buildings, and to provide a knowledge of the behaviour, analysis and design of the available subsystems for the management of fire spread. The subject covers: introduction and overview; reliability of smoke and fire management subsystems; mechanisms, timing and probability of fire spread; modelling fire spread; fire spread management subsystem; design of fire spread subsystem. In the second part of the subject Fire Safety System design project will apply knowledge gained during the course to the analysis and design of a cost-effective fire safety system for a proposed building project.


**Class Contact** Three hours of lectures per week for one semester.

**Assessment** Assessment will be on the basis of submission of required assignments and a project. Assessment of the Fire Safety System Project will be on the basis of submission of a major report. Project submission, 70%; assignments, 30%. Supplementary assessment will not be available.

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**VQT5790 INDUSTRIAL EXPERIENCE (FULL-TIME)**

**Campus** Werribee

**Prerequisite(s)** Nil

**Content** No formal content; students will be required to provide evidence of appropriate industrial experience in Australia, acceptable to the Head of the Centre.

**Required Reading** Nil

**Class Contact** No set contact hours, but a minimum of 32 hours per week of industrial experience is required for one semester.

**Assessment** Evidence of appropriate industrial experience in the form of a letter from the employer detailing the experience.

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**VQT5791 INDUSTRIAL EXPERIENCE (PART-TIME)**

**Campus** Werribee

**Prerequisite(s)** Nil

**Content** No formal content; students will be required to provide evidence of appropriate industrial experience in Australia, acceptable to the Head of the Centre.

**Required Reading** Nil

**Class Contact** No set contact hours, but a minimum of 16 hours per week of industrial experience is required for two semesters.

**Assessment** Evidence of appropriate industrial experience in the form of a letter from the employer detailing the experience.

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**VQT5792 INDUSTRIAL EXPERIENCE - PART TIME 2**

**VQT6050 BUILDING FIRE RESEARCH (FULL-TIME)**

**Campus** Werribee

**Prerequisite(s)** Students are normally expected to have completed the Graduate Diploma in Building Fire Safety and Risk Engineering with an Honours average.

**Content** The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student's ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall, where appropriate, demonstrate both the ability to develop and/or apply models to study the problem together with appropriate data selection, collection and analysis. Students will normally be supervised by an academic member of staff and by a co-supervisor external to the Centre. The external supervisor will be an academic from the University or from another institution or a practitioner.

**Required Reading** To be advised by lecturer.


**Class Contact** Regular contact will be made by arrangement with the supervisor.

**Assessment** Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology and resources required.
to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the Centre or the University and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiner’s discretion.

VQT6060 BUILDING FIRE RESEARCH (PART-TIME)
Campus: Werribee
Prerequisite(s): Students are normally expected to have completed the Graduate Diploma in Building Fire Safety and Risk Engineering with an Honours average.
Content: The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student’s ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall, where appropriate, demonstrate both the ability to develop and/or apply models to study the problem together with appropriate data selection, collection and analysis. Students will normally be supervised by an academic member of staff and by a co-supervisor external to the Centre. The external supervisor will be an academic from the University or from another institution or a practitioner.
Required Reading: To be advised by lecturer.
Class Contact: Regular contact will be made by arrangement with the supervisor.
Assessment: Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology and resources required to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the Centre or the University and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiner’s discretion.

VQT8012 RESEARCH THESIS 2 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VQT8001 RESEARCH THESIS 1 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VQT8002 RESEARCH THESIS 2 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

VQT8011 RESEARCH THESIS 1 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/
OFFICE HEALTH, ENGINEERING AND SCIENCE

Below are details of courses offered by the Centre for Office Health, Engineering and Science in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

COURSES BACHELOR OF ENGINEERING/BACHELOR OF LAWS (CONTINUING STUDENTS ONLY) (I)

Course Code: EBBL

Campus: Footscray Park.

Course Objectives:
The course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in both law and the appropriate field of engineering. The course will equip graduates to obtain employment in law, business and government, in major engineering organisations, at the Bar and elsewhere. It will improve learning by providing a fundamental framework for the application of legal and engineering concepts and ideas and their co-integration, which will ensure the students, are capable of engaging successfully in these professional areas in a commercial environment.

Course Duration:
The course is offered over six years on a full-time basis, or part-time equivalent. Each student must obtain 576 credit points through academic study to graduate.

Subject to Grade Point Average (GPA), students undertaking the Bachelor of Laws and Bachelor of Laws combined degrees may receive their award with honours. In calculating a specified grade of honours, the following points shall be attributed to Bachelor of Laws units - Pass = 5 points; Credit = 6 points; Distinction = 7 points; High Distinction = 8 points. In calculating the GPA, those Bachelor of Laws units successfully completed by the student will be ranked in order commencing with 8 point units and ending with 5 point units (if applicable). The aggregate of points attributed to the first two thirds of units so listed shall then be calculated and a grade point average determined (aggregated so calculated by the number of units being the first two thirds of units in the list).

Bachelor of Laws with 2B Honours - GPA of 7 or more and a Credit grade in the unit of study Advanced Legal Research Dissertation; Bachelor of Laws with 2A Honours - GPA of 7 or more and a Distinction grade in the unit of study Advanced Legal Research Dissertation; Bachelor of Laws with 1st Class Honours - GPA of 7.5 or more and a Distinction or better grade in the unit of study Advanced Legal Research Dissertation.

Admission Requirements:
To qualify for admission to the course an applicant must have successfully completed a course of study at year 12 level or equivalent.

In addition to satisfying the entry requirements for Australian resident students or demonstrating equivalence, overseas students must provide evidence of proficiency in the English language:

• International English Language Testing System - overall score of 6 and no individual band score less than 6.0.

Other Course Specific Notes:
Engineering Component: 288 credit points taken from an engineering specialization, with at least 48 Credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BSc degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course coordinator.

Course Structure - Compulsory Law Units of Study

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<th>Credit Point</th>
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Law Electives - Select four of the following:

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<td>BLB4146 WILLS AND THE ADMINISTRATION OF ESTATES</td>
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The course is offered over five years on a full-time basis or part-time equivalent. Each student must obtain 480 credit points through academic study to graduate.

The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements.

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<th>Specialisation Elective units of study</th>
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**BACHELOR OF ENGINEERING/BACHELOR OF ARTS (CONTINUING STUDENTS ONLY) (I)**

Course Code: EBEA

Campus: Footscray Park

Course Description

The double degree structure of the Bachelor of Engineering/Bachelor of Arts integrates education, training and research. With the increasing globalisation of industry, Australia's close proximity to Asia and the increasing reliance on technology and in particular multimedia, there is need for professionally qualified engineers to be offered the opportunity to be exposed to international studies and develop more skills in the field of multimedia communications. The course will give students access to a broad curriculum and to a program, which transcends disciplinary boundaries.

Course Objectives

The combined Bachelor of Engineering/Bachelor of Arts course will prepare professionally trained engineers to have a broader outlook than just the purely technical skills of the engineering program; enhance their professional engineering skills with LOTE and cultural studies; and produce graduates capable of performing their professional functions in culturally diverse settings.

Course Duration

The course is offered over 5 years on a full-time basis or part-time equivalent. Each student must obtain 480 credit points through academic study to graduate.

Other Course Specific Notes

Admission Requirements

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are: Units 3 and 4—a study score of at least 25 in English (any) and in mathematical methods (either) or specialist mathematics.

Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner. A preliminary interview with the Head of School concerned is advisable for such applicants.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

-  IELTS - an overall band score of 6.5, subject to individual profile, or
-  TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5.5+

Engineering Component: 288 credit points taken from an engineering specialization, with at least 48 credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BEng degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course co-ordinator.

Arts Component: 192 credit points taken from an arts specialization, with at least 48 credit points in units of study normally taken in the 2nd year of a BA degree and at least 48 credit points in units of study normally taken in the 3rd year of a BA degree. Students will generally take a selection of the units of study from one of the BA courses offered by the Faculty of Arts, Education & Human Development as advised by the course co-ordinator.

**BACHELOR OF ENGINEERING/ BACHELOR OF BUSINESS (NO INTAKE FOR 2009)**

Course Code: EEBB

Course Objectives

The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in a specialisation in business together with an appropriate field of engineering. The double degree course will equip graduates to have a broader outlook than just the purely technical skills of the engineering program; enhance their professional engineering skills with LOTE and cultural studies; and produce graduates capable of performing their professional functions in culturally diverse settings.

Course Duration

The course is offered over 5 years on a full-time basis or part-time equivalent. Each student must obtain 480 credit points through academic study to graduate.

Other Course Specific Notes

Admission Requirements

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are: Units 3 and 4—a study score of at least 25 in English (any) and in mathematical methods (either) or specialist mathematics.

Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner. A preliminary interview with the Head of School concerned is advisable for such applicants.

Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:

-  IELTS - an overall band score of 6.5, subject to individual profile, or
-  TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5.5+

Engineering Component: 288 credit points taken from an engineering specialization, with at least 48 credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BEng degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course co-ordinator.

Arts Component: 192 credit points taken from an arts specialization, with at least 48 credit points in units of study normally taken in the 2nd year of a BA degree and at least 48 credit points in units of study normally taken in the 3rd year of a BA degree. Students will generally take a selection of the units of study from one of the BA courses offered by the Faculty of Arts, Education & Human Development as advised by the course co-ordinator.

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<th>Core Business Units of Study</th>
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<td>BEE1106 BUSINESS STATISTICS</td>
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<td>BHO1171 INTRODUCTION TO MARKETING</td>
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Professional Development Business Units of Study

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Specialisation Elective units of study

7 (12 credit point) specialisation units of study taken from Bachelor of Business courses offered by the University and approved by the Course Co-ordinator.
BACHELOR OF ENGINEERING/BACHELOR OF BUSINESS E-COMMERCE (CONTINUING STUDENTS ONLY)

Course Code: EBEO

Course Objectives
The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in a specialisation in business together with an appropriate field of engineering. The double degree course will equip graduates to obtain employment in business, government, and in major engineering organizations.

Course Duration
The course is offered over five years on a full-time basis or part-time equivalent. Each student must obtain 480 credit points through academic study to graduate.

Admission Requirements
To qualify for admission to the course an applicant must have successfully completed a course of study at year 12 level or equivalent.
In addition to satisfying the entry requirements for Australian resident students or demonstrating equivalence, overseas students must provide evidence of proficiency in the English language:
• International English Language Testing System - overall band score of 6-7 subject to individual profile; or
• Test of English as a Foreign Language - score of 550, plus a Test of Written English - score of 5.

Other Course Specific Notes
Engineering Component
288 credit points taken from an engineering specialization, with at least 48 credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BEng degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course co-ordinator.

Core Business Units of Study

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Professional Development Business Units of Study

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BACHELOR OF ENGINEERING/BACHELOR OF SCIENCE (FOR CONTINUING STUDENTS ONLY) (I)

Course Code: EBSE

Course Objectives
The combined Bachelor of Engineering/Bachelor of Science course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in both science and the appropriate field of engineering. The double degree course will enable graduates to obtain employment in business and government, in major engineering organisations, private industry and elsewhere.

Course Duration
Five years of full-time study. Each student must obtain 480 credit points through academic study to graduate.

Other Course Specific Notes
Admission Requirements
The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are: Units 3 and 4—a study score of at least 25 in English (any) and in mathematical methods (either) or specialist mathematics.
Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner. A preliminary interview with the Head of School concerned is advisable for such applicants.
Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language:
• IELTS - an overall band score of 6+, subject to individual profile, or
• TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

Engineering Component
288 credit points taken from an engineering specialization, with at least 48 Credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BEng degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science.

Science Component
192 credit points taken from a science specialization, with at least 48 credit points in units of study normally taken in the 2nd year of a BSc degree and at least 48 credit points in units of study normally taken in the 3rd year of a BSc degree. Students will generally take a selection of the units of study from one of the BSc courses offered in the Faculty of Health, Engineering and Science as advised by the course coordinator.
MASTER'S QUALIFYING PROGRAM (I)
Course Code: ENMQ
Course Objectives
The Faculty of Health, Engineering and Science Masters Qualifying Program is designed to facilitate entry to coursework masters degrees for a wide range of students who lack the formal qualifications or experience for direct entry into the master by coursework degree of their choice. Note that the program:
- Does not lead to a formal qualification of the faculty;
- Is suitable for a wide range of students with varying entry qualifications;
- Is designed to prepare students for the full range of masters degrees by coursework available in the faculty;
- Has flexible entry points;
- Will be individually designed for each student;
- Can have varying lengths;
- Satisfactory completion of the program will enable a student to enter directly in to the masters course for which the qualifying program has been designed.

Admission Requirements
A wide range of selection criteria will be applied to this program to cater for the range of prior qualifications and experiences. For International students a minimum IELTS score of 6.5 is required for entry into the program. In exceptional cases a student may be considered for admission with an IELTS score of 6.0. In these cases the program advisor will take special care to ensure that the student is meeting the English language demands of the program and, if necessary, arrange for special assistance from appropriate sources within the university.

Course Structure
As indicated above, the Masters Qualifying Program is individually structured for each student undertaking the program. Upon acceptance into the program each student will be assigned a program advisor who will, with the student, work out in which areas the student requires further study and develop a program to meet those needs. This will generally comprise a selection of undergraduate and/or postgraduate subjects in the general area of their preferred Masters degree but may also include English language and research method instruction.

The length of the program will vary from student to student and may take one, two or three semesters depending on the ‘gap’ between the student’s prior experiences and qualifications and the masters course they are seeking to enter.

MASTER OF ENGINEERING AND SCIENCE, AND DOCTOR OF ENGINEERING SCIENCE (I)
Course Code: EPES
Course Objectives
Candidates who elect to take the Masters qualification will develop a detailed understanding of current trends and approaches to practical problem solving in their professional area. Successful completion of the course will equip them with the ability to engage in directed research projects in their industry and to continue to develop appropriate skills in this area.

Candidates who proceed to the Doctoral level will develop the ability to apply the work covered at the Masters level to the practical solution of specific problems of industrial significance. Successful completion of the course will give them the skills and experience to act as independent researchers or group leaders for investigations or practical importance in their professional area over the period of their professional life.

Course Structure

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Assessment
Coursework component
Assessment will be a mixture of examination, minor project, seminar presentation and peer assessment appropriate to the learning objective of each subject and the course in general. The subject presenter will be responsible for the mode of assessment for individual subjects. Assessments will be moderated by an external panel to ensure that consistently high levels of attainment are achieved by all successful students.

The coursework component will include exercises and required work embedded in the coursework component that will allow potential Masters students to be assessed for possible Doctoral level.

Research component
Assessment will be by means of professionally presented thesis or industry report. The final thesis or report will be examined by independent examiners external to the University and the candidate’s industry. Examiners will be asked to comment on students ability to:
(i) articulate a problem of significance;
(ii) develop a project design appropriate to the investigation of the problem;
(iii) select an appropriate method or methods to investigate the problem;
(iv) transform the data into a form appropriate for analysis;
(v) analyse the data and draw conclusions consistent with the findings that contribute to the answering of the research question; and
(vi) present the work in such a format that it makes an original and significant contribution to knowledge in the candidate’s field.
DOCTOR OF PHILOSOPHY
Course Codes: EPHC, EPLC (Local Students)

Campus: Various, dependent on the research field.
Course Duration: The course normally requires three years of full-time study or part-time equivalent.
Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.
Admission Requirements: Applicants should normally have completed either a Masters degree or a four year undergraduate degree with Honours or its equivalent at a high standard.
Course Structure
School of Architectural, Civil and Mechanical Engineering

CIVIL AND BUILDING STREAM
Course Code: EPHC,

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MECHANICAL STREAM
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AUSTRALIAN FOOD MARKETING CENTRE
Course Code: EPHC,

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SCHOOL OF BIOMEDICAL AND CLINICAL SCIENCES

BIOMEDICAL SCIENCES STREAM
Course Code: EPHC

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HEALTH SCIENCES STREAM
Course Code: EPHC or EPLC

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# FACULTY OF HEALTH, ENGINEERING AND SCIENCE

## SCHOOL OF COMPUTER SCIENCE AND MATHEMATICS

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**Centre for Environmental Safety and Risk Engineering**

**Course Code:** EPLC  
**Full Time**

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## SCHOOL OF ELECTRICAL ENGINEERING

**Electrical Engineering Stream**

**Course Code:** EPHEC  
**Full Time**

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**Physics Stream**

**Course Code:** EPHEC  
**Full Time**

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## School of Molecular Sciences

**Biotechnology Stream**

**Course Code:** EPHEC  
**Full Time**

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**Food Science Stream**

**Course Code:** EPHEC  
**Full Time**

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### CHEMICAL SCIENCES STREAM

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### SCHOOL OF NURSING AND MIDWIFERY

Course Code: EPHC or EPLC

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### PACKAGING AND POLYMER UNIT

Course Code: EPHC

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### TRANSPORTATION STREAM

Course Code: EPHC

#### Full Time only

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### DOCTOR OF PHILOSOPHY

Course Codes: HPIN (International Students)

#### Campus: Various, dependent on the research field.

#### Course Duration: The course normally requires four years of full-time study or part-time equivalent.

#### Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

#### Admission Requirements: Applicants should normally have completed either a Masters degree or a four year undergraduate degree with Honours or its equivalent at a high standard.

### SCHOOL OF ARCHITECTURAL, CIVIL AND MECHANICAL ENGINEERING

#### CIVIL AND BUILDING STREAM

Course Code: HPIN

#### Full Time

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#### MECHANICAL STREAM

Course Code: HPIN

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**Course Code:** HPIN

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### School of Biomedical and Clinical Sciences

**Biomedical Sciences Stream**

**Course Code:** HPIN

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### School of Electrical Engineering

**Electrical Engineering Stream**

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**School of Molecular Sciences**

**Biotechnology Stream**

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**Food Science Stream**

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**Chemical Sciences Stream**

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**School of Nursing and Midwifery**

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**Packaging and Polymer Unit**

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TRANSPORTATION STREAM

Course Code: HPIN

Full Time only

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Location Footscray Park, St. Albans, Werribee

Course Duration 3 years

Course Objectives
Graduates from this course should be able to:
- locate, manage and use scientific information efficiently and effectively;
- solve scientific problems effectively in a range of settings including industry and community;
- exhibit high levels of numeracy skills in a range of scientific settings;
- communicate effectively in spoken and written forms on a range of scientific and mathematical topics to professional and community groups;
- apply an evidence-based research approach to a chosen area of science;
- respond with social and cultural awareness within local and global environments;
- work autonomously and collaboratively as a professional in both industry and community settings.

Admission Requirements
Eligibility Requirements To qualify for admission to the course, applicants must have: Admission requirements Science - Specialisation Prerequisites:
- Units 3 and 4-a study score of at least 25 in English (any) and in mathematics (any). Middle band: Completing biology, chemistry, food and technology, physics or specialist mathematics = an aggregate 3 points higher per study, to a maximum of 9 points. Education - Science Education Pre-requisites: Units 3 and 4-a study score of at least 25 in English (any) and in mathematics (any). Extra requirements: Interview (some applicants only). SUCCESSFUL APPLICANTS Working with Children Check: students must complete a Working with Children Check prior to undertaking teaching placements.

Alternative entry Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences that would enable them to successfully undertake the course, will be considered for admission. Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course. Applicants over the age of 21 years on the 1st January for the commencing academic year are eligible to apply for consideration under Mature Age entry. Applicants who consider that their capacity to qualify under normal entry provisions has been limited through disadvantage, for example, illness, disability, financial hardship or isolation, are eligible to apply for consideration as a disadvantaged person. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course. Students who successfully complete the VU alternative entry or foundations studies courses will be offered access into the SBGG degree.

Course Structure

Year 1

Biotechnology
Semester 1

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Chemistry

Semester 1

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Semester 2

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### Biotechnology

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341
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### Electives: Students are not restricted in their choice of electives and will be encouraged to select from other streams.

### Biochemistry

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### BACHELOR OF SCIENCE/BACHELOR OF PSYCHOLOGY DOUBLE DEGREE (I)

**Course Code:** SBSP  
**CRICOS No:** 047051A

**Course Objective**  
The overall objective of the combined Bachelor of Science/Bachelor of Psychology is to provide graduates with an excellent knowledge of human physiological and psychological function together with highly developed skills in critical analysis, social research methods and communication. The psychology units in this degree comprise an approved sequence for registration with the Australian Psychological Society for entry into a fourth year program. Students will be equipped to enter careers in counselling, health promotion, laboratory science or as crime scene officers. With further study, students will be equipped for employment as clinical psychologists or medical research scientists.

**Course Duration**  
The course is offered over four years on a full-time basis or part-time equivalent.

**Course Structure**  
Course structure for Psychology/Biomedical Sciences

#### Year 1

**Semester 1**

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**Semester 2**

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### Year 2

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*Alternative Biomedical Sciences units below may be substituted for Chemistry for Biological Sciences A and B subject to the approval of the course co-ordinator

#### Year 3

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Psychology Elective = to 12 credit points

#### Year 4

**Semester 1**

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**Semester 2**

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One 3rd Year Biomedical Science Unit - 12 credit points  
Two x Psychology Elective = 12 credit points each

### Third year Biomedical Science units

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**MASTER OF SCIENCE (RESEARCH)**

Course Code: SRHC, SRLC, SROT

Course Structure

Australian Food Marketing Centre

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School of Biomedical and Clinical Sciences

Biomedical Sciences Stream

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School of Molecular Sciences

Biotechnology Stream

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Chemical Sciences Stream

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Food Science Stream

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School of Computer Science and Mathematics

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Coursework Programs

The School offers a range of coursework programs at postgraduate level:

- Graduate Diplomas in:
  - Computer Science
  - Computer and Mathematical Sciences
  - Multimedia Information Networking
  - Software Engineering
- Master of Science in:
  - Computer Science
  - Computer and Mathematical Sciences
  - Software Engineering
SUBJECTS

Below are subject details for courses offered by the Office Health, Engineering and Science in 2009. IMPORTANT NOTE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

HES0001 DIRECTED STUDIES 1A
Campus All campuses of the university where appropriate physical resources are available
Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled
Co-requisites
Learning Outcomes Upon completion of this unit of study students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.
Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.
Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 12 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.
Recommended Reading As above.
Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.
Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0002 DIRECTED STUDIES 1B
Campus A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.
Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled
Co-requisites
Learning Outcomes Upon completion of this unit of study students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.
Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.
Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 12 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.
Recommended Reading As above.
Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.
Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0003 DIRECTED STUDIES 1C
Campus All campuses of the university where appropriate physical resources are available
Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled
Co-requisites
Learning Outcomes Upon completion of this unit of study students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.
Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.
Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.
Recommended Reading Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.
Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0004 DIRECTED STUDIES 1D
Campus All campuses of the university where appropriate physical resources are available
Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled
Co-requisites
Learning Outcomes Upon completion of this unit of study students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.
Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.
Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.
Recommended Reading Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.
Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment
Upon completion of this unit of study students will be able:

Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Recommended Reading
Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

A series of regularly reported assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

**HES0007 DIRECTED STUDIES 2C**

Campus All campuses of the university where appropriate physical resources are available

Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Co-requisites

Learning Outcomes Upon completion of this unit of study students will be able:

- to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study
- to locate the relevant underpinning theory in references available to them
- to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a 2nd year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Recommended Reading
Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

**HES0008 DIRECTED STUDIES 2D**

Campus All campuses of the university where appropriate physical resources are available

Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Co-requisites

Learning Outcomes Upon completion of this unit of study students will be able:

- to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study
- to locate the relevant underpinning theory in references available to them
- to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a 2nd year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Recommended Reading
Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

**HES0009 DIRECTED STUDIES 3A**

Campus All campuses of the university where appropriate physical resources are available

Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to
Upon completion of this unit of study students will be able:

Co-requisites

Learning Outcomes Upon completion of this unit of study students will be able:

- to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study
- to locate the relevant underpinning theory in references available to them
- to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Recommended Reading

Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0010 DIRECTED STUDIES 3B

Campus All campuses of the university where appropriate physical resources are available

Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Co-requisites

Learning Outcomes Upon completion of this unit of study students will be able:

- to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study
- to locate the relevant underpinning theory in references available to them
- to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Recommended Reading

Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0012 DIRECTED STUDIES 3D

Campus All campuses of the university where appropriate physical resources are available

Prerequisites Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Co-requisites

Learning Outcomes Upon completion of this unit of study students will be able:

- to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study
- to locate the relevant underpinning theory in references available to them
- to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Content A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Required Reading The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for other, 6 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Recommended Reading

Class Contact Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Assessment A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

JCBO101 BIOLOGY 1

Campus Footscray Park

Prerequisites Nil

Co-requisites

Learning Outcomes

Content Biological Organisation, Macromolecules and Functional Group Chemistry (structure and form), Functioning Cells and organisation, Microscopy, Animal vs Plant Cell Structure, Endomembrane System, Organelles, Mitochondria vs Chloroplasts, Nitrates/Phosphates, Membranes: Fluid Mosaic Model, Passive Movement Across Membranes, Active Movement Across Membranes, Endo/Exo cytos, Cellular Energetics: Oxidative Respiration; Energy Releasing Pathways and energy metabolism. Cell signalling and cell junctions; Structure and Function of the animal body, tissue types, organs and organ system, regulating body temperature and homeostasis, protection support and movement, epithelial covering, skeletal system, Neural Signalling; Sensory reception, Basic brain functions and parts, muscle contraction.
Extension Studies and associated exams and problem based inquiry/assignments are worth 18%. There will be three class tests worth 4% each. End of semester general exam (3 hours) is worth 55%. General exam and practical component must be passed for successful completion of subject.

**JCB0112 CHEMISTRY 2**

**Campus** Footscray Park

**Prerequisites** JCB0111 Chemistry 1 or equivalent

**Content** Thermochemistry: Enthalpy and calorimetry, heat capacities, Hess’s Law, Standard Enthalpies of formation, Extension Studies: Automotive Chemistry. And the combustion engine


Organic Chemistry and Mechanisms: Further Organic synthesis and reaction types. Carbohydrates, lipids and Protein Chemistry. Enzymatic chemical reactions focusing on an enantioselectivity and optical rotation. Extension Studies is Further mechanisms, including, reactions at the alpha carbon. Electrophilic Aromatic substitution, Effects of substituents on reactivity, radical chemistry and reactions of the main functional groups.

Extension Studies in Analysis: MS (Theory and application) -mass number identification and identification of main fragments (fragmentation mechanisms) -use in conjunction with NMR and IR –GC (Theory and application) — Operation and theory regarding retention times and separation. Quantitative applications. Column types, usage and installation, understanding programming for analysis, detector systems (FID and ECD). Head space analysis and its application in forensics. GC/MS Hands on use and determining the effects of temp, pressure, length and type of column on retention times and base line separation. Column instillation and programming of ramping programs.

**Required Reading**


**Assessment**

Class Contact: 96 hours over the general semester accounts for a mixture of tutorials, laboratory classes and workshops. Additional 28 hours account for Extension Studies and their associated tutorials, problem based research projects and practicals.
Office Health, Engineering and Science

JCM0101 INFORMATION TECHNOLOGY 1
Campus Footscray Park
Prerequisites Nil.

Content Journal Databases; Literature Searching and accessing using the Internet. Learning and utilizing, WebCT, PowerPoint, Excel, Introduction to ChemDraw, DreamWeaver or alternative web development tool. Introductory Robotic Programming.

Required Reading

Recommended Reading

Class Contact 52 hours over the semester accounts for a mixture of lectures, tutorials and computer classes.
Assessment A combination of assignments/presentation in each of the 4 areas chosen (25% each) contributes to overall mark which accumulates to 100%.

JCM0102 INFORMATION TECHNOLOGY 2
Campus Footscray Park
Prerequisites Co-requisites JCM0101 Information Technology 1; or equivalent

Content Journal Databases; Literature Searching and accessing using the Internet. Learning and utilizing, WebCT, PowerPoint, Excel, Introduction to ChemDraw, DreamWeaver or alternative web development tool. Introductory Robotic Programming.

Required Reading Drawing GraphPad Prism or SIGMA PLOT. ChemDraw Pro, Introduction to MathWork’s MATLAB, Thomson ResearchSoft’s EndNote, Cameracast Director, Robotic Programming, MDSolids, Adobe Premier or alternative media authoring program. Students must complete four units to be eligible to complete JCM0102.

Below is a guideline as to the units required for particular study pathways:

Engaging: Introduction to MathWork’s MATLAB, MDSolids, GraphPad Prism or SIGMA PLOT, Thomson ResearchSoft’s EndNote. Science/Health Science: Macromedia Director, GraphPad Prism or SIGMA PLOT, ChemDraw, Thomson ResearchSoft’s EndNote.

Recommended Reading

Class Contact 52 hours over the semester accounts for a mixture of lectures, tutorials and computer classes.
Assessment A combination of assignments/presentation in each of the 4 areas chosen (25% each) contributes to overall mark which accumulates to 100%.

JCM0112 MATHEMATICS 1
Campus Footscray Park
Prerequisites Nil.

Content Numeracy: Advance Arithmetic and Fractions; Ratios, Percentages and Proportions; SI Units and Scientific Notations. Mathematical Notation: Number Systems (Reals, Integers, etc); Domain and Range; Continuity; Functions and Relations; Basic Set Theory; Boolean Algebra.

Algebra: Basic Algebra; Binomial Expansion Theorem; Indices and Logarithms and their application to Science/Engineering Graphing for Engineers: Linear Equations; Conic Sections; Trigonometric Functions.

Graphing for Scientists: Linear Equations; Quadratic Equations; Trigonometric Functions.

Introductory Calculus: Limits; Differentiation; Anti-Differentiation and Integration.

Applications involving Calculus: Tangents and Normal Lines; Approximation; Curve Sketching (Cubic Functions); Maximum/Minimum Problems; Rates of Change.

Students must complete four units to be eligible to complete JCM0112. Below is a guideline as to the units required for particular study pathways:

Engineering: Algebra, Graphing for Engineers, Introductory Calculus, Applications involving Calculus.


Required Reading Nil.


Class Contact 72 hours over the semester accounts for a mixture of lectures, tutorials and laboratory classes.

Assessment There will be three class tests worth 10% each. End of semester exam (3 hours) is worth 70%.

JCM0113 MATHEMATICS 2
Campus Footscray Park
Prerequisites JCM0112 Mathematics 1

Co-requisites


Required Reading Nil.


Class Contact 72 hours over the semester accounts for a mixture of lectures, tutorials and laboratory classes.

Assessment There will be three class tests worth 10% each. End of semester exam (3 hours) is worth 70%.

JHL0110 ENGLISH LANGUAGE AND COMMUNICATIONS SKILLS
Campus Footscray Park
Prerequisites Nil.

Co-requisites

Content Communications skills that encompass synthesis, summarising, referencing, report writing, literature review writing and essay writing are developed primarily but not exclusively through a scientific context. Presenting ideas and concepts in ways other than in the written and verbal form will be examined and developed as will aspects of science journalism and science media. Debating and communicating with and for a variety of audiences will be developed as will presentations skills for academic purposes. Students will be engaged in teaching and communicating science to Primary/Secondary school students via the Professor Science show, producing science resources for teachers, parents and students alike. Students will also be engaged in two of several possible projects that are problem based and/or community based that will further enhance their communication skills.

Required Reading


Class Contact 62 hours over the semester accounts for a mixture of tutorials, workshops and computer classes.

Assessment Exam comprises 50%, Problem based/Community based Projects comprise 20%, Assignments comprise 15%, Professor Science Show comprises 15%.

All aspects of the course are required to be passed.

JSP0102 PHYSICS 1
Campus Footscray Park
Prerequisites Nil.

Co-requisites

Content Measurement: Significant Figures, Scientific Notation, Standards of measurement; Unit Conversion, Dimensional Analysis. One-Dimensional Kinematics Position, Distance and Displacement; Average Speed and Velocity; Acceleration; Motion with constant acceleration; Applications of the Equations of Motion; Free Falling Objects Vectors: Scalars; Vector Components; Adding and Subtracting vectors; Position, Displacement, Velocity, and Acceleration Vectors, Relative Motion. Two Dimensional Kinematics: Motions in Two Dimensions, Introduction to Projectile Motion, Launch angles. Newton’s Laws of Motion, Force and Mass; the three laws of motion; Forces in two dimensions. Frictional Forces, Strings and Springs; Translational Equilibrium, Circular Motion, Work and Kinetic Energy: Work done by constant force, Kinetic energy and work, work done by variable forces, power. Potential Energy and
Conservative forces: potential energy and work, conservation of mechanical energy.

Linear momentum and collisions: Momentum and Newton’s second Law, impulse, conservation of linear momentum, inelastic collisions, elastic collisions, centre of mass. Introductory statics. Rotational energy, Moment of Inertia, Torque (to be expanded upon alongside physics 2).

Required Reading
Recommended Reading


Class Contact
92 hours over the general semester accounts for a mixture of tutorials, laboratory classes and problem based work shops.

Assessment
Three small class tests are worth 5% each. End of semester exam (3 hours) is worth 50%. Problem and Project Bases Projects and associated assignments and presentations are 35%. End of semester exam and all problem based projects must be passed to secure a pass in this subject.

RBT8001 RESEARCH THESIS 1 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBT8002 RESEARCH THESIS - SEM 2 (FULL-TIME)
Campus Werribee
Prerequisite(s) Eligibility for entry to a Master of Science or Doctor of Philosophy program.

RBT8011 RESEARCH THESIS 1 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

RBT8012 RESEARCH THESIS - SEM 2 (PART-TIME)
Campus Werribee
Prerequisite(s) Eligibility for entry to a Master of Science or Doctor of Philosophy program.

REM8001 RESEARCH THESIS 1 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

REM8002 RESEARCH THESIS 2 FULL TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

REM8011 RESEARCH THESIS 1 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

REM8012 RESEARCH THESIS 2 PART TIME
This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/
REP1000 DIRECTED STUDIES IN PHYSICS

Campus

Prerequisites: There are no prerequisites for this subject but Year 11 or equivalent physics background is preferred.

Co-requisites: Nil

Learning Outcomes: To introduce students to the principles and techniques of physics and their applicability. It is principally designed for students who do not have a strong physics background or those who do not intend to major in physics or the allied sciences. Alternatively, it can be used by students seeking a basic knowledge and understanding of physics with a view to examining whether they wish to study physics further. The detailed curriculum for an individual student, or a group of students with a common background, will depend on their prior studies in the area and the purpose to which they wish to put the subject. The detailed content will, therefore, vary but will, in general, be taught at a level equivalent to a standard first year physics subject in a technological degree.

Content: A selection of topics from the following:
- Kinematics and Mechanics
- Thermodynamics
- Electricity and Magnetism
- Electronics
- Optics
- Wave Motion and Sound
- Quantum Physics
- Nuclear Physics

Required Reading: Giancoli, D.C., Physics for Scientists and Engineers with Modern Physics 3rd Edition Prentice Hall or equivalent.

Recommended Reading

Class Contact: Equivalent to 36 hours per semester of lecture/tutorial/demonstration and laboratory experiences per semester. Assessments: series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for a first year physics subject in a technological degree.

SAF2101 SAFETY

Campus: Footscray Park

Prerequisites: Nil.

Co-requisites: Nil.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:
1. Recognise the scientific concepts that relate to the mechanical, physical, chemical, biological and psychological hazards;
2. Identify the fundamental ways of establishing and maintaining safety programs, and risk management.

Content: This unit gives an overview of the safety person's knowledge, skills and abilities. It links the common hazards with their risks and the ways of safety interventions involve many inter-disciplines such as law, hygiene monitoring and management, toxicology, human factors, epidemiology, and organisational behaviour. The nature of safety in various fields will be examined in the contexts of both historical and current administrative and technical requirements. Classification of hazards is linked with foundation science topics and risk interventions with specialist areas to minimise or prevent harm or damage. Protection and emergency procedures will also be covered in this unit.


Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and practical workshops.

Assessment: Assignments (50%); Tests (20%); Reports (30%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

SAF2203 RISK ASSESSMENT

Campus: Footscray Park

Prerequisites: SAF2101 Safety, SAF2102 Safety, Health and Wellness; or equivalents.

Co-requisites: Nil.

Learning Outcomes: On successful completion of this unit, students are expected to be able to:
1. Use available resources to plan sampling strategies, in order to measure for conditions and contaminant.

Content: This unit covers the methods for sampling and monitoring stressors in environments. Topics will focus on the design of studies to assess the levels of exposure to risk determinants and risk factors. These determinants or factors can lead to a range of adverse outcomes from the perception of discomfort to the levels...
of irreversible adverse events, which includes fatality. Analysis of contaminants or conditions associated with these outcomes will be examined in the context of their suitability in giving valid and reliable information on the quantitative and qualitative values of risks.


Class Contact Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials and practical classes.

Assessment Topic questions (30%); Assignment: workplace cases (40%); Tutorial participation evidenced contributions from readings (15%); Tests (15%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

SAF2204 SAFETY PRACTICE
Campus Footscray Park
Prerequisites SAF2101 Safety or SAF2202 Safety, Health and Wellness; or equivalents.
Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Identify and discuss prevention and protection strategies, including those outlined in legislation, statutes and policies;
2. Identify processes to rehabilitate and restore function from harm or damage arising from exposure to specific risks.

Content Course lectures cover management, project management, insurance, rehabilitation, assessing the social benefits of risk reduction. The major part of this unit involves case studies to analyse many of the skills that are required for managing and facilitating safety, health wellness and welfare. Analysis of a case study concerning rehabilitation and restoration is also part of this unit. The practical component within this unit requires students to link topics covered in safety units with quality management to minimise risk, and to optimise perceptions of personal security, which improves productivity and cost efficiency.


Class Contact Thirty-six (36) hours or equivalent for one semester comprising lectures, practical workshops and problem-based projects.

Assessment Tests (25%); Assignments (35%); Reports (40%). In order to obtain a pass or higher in the graded unit, normally all components of assessment must be passed.

SAF3105 SAFETY SCIENCE
Campus Footscray Park
Prerequisites SAF2203 Risk Assessment; or equivalent.
Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Locate and use information that relates to the safe assessment of new materials;
2. Use information that relates to the estimate of risk with current exposures.

Content This unit shows the roles of toxicology in the risk assessment of new substances or process and epidemiology in the risk assessment of current exposures to substances and conditions. The unit covers the design of studies that add towards knowledge used to determine whether substances or materials should either be discontinued or not allowed to proceed to an initial production stage, or whether they can be permitted to be used but with specific interventions to reduce risk. Toxicology topics include descriptions of mechanisms of action, distribution and elimination of some specific substances. The unit describes how certain molecular, biological and clinical parameters are applied in the overall process of assessing a new substance or process. For substances and conditions that are currently used, the discipline of epidemiology gives designs to assess and test associations with causative agents or beneficial exposures (treatments) that may have adverse outcomes in general populations. The process for designing risk interventions to improve public safety is set within the linking of agents with harm, injury or disease in specific environments.


Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures, practical workshops and project-based projects.

Assessment Tests (20%); One written report (80%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

SAF3106 SAFETY HUMAN FACTORS
Campus Footscray Park
Prerequisites SAF2203 Risk Assessment; or equivalent.
Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Locate and use information for evaluating human factors;
2. Apply ergonomic methodologies in order to report an improving performance in specific environments.

Content This unit shows the role of ergonomics or human factors in safety. It covers approaches and methods that are applied to product design and evaluation, assessment and design of the work, analysis of tasks or activities, analysis and evaluation of systems, as well as analysis of human factors in incidents that are used to prevent further injury.


Class Contact Forty-eight (48) hours or equivalent for one semester comprising lectures, practical workshops and problem-based projects.

Assessment Tests (25%); Essays (30%); Reports (45%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

**SAF3107 RISK MANAGEMENT**

**Campus** Footscray Park

Prerequisites SAF2102 Safety Health and Wellness; or equivalent.

Co-requisites Nil.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Examine bias in risk communication;
2. Prepare risk assessments;
3. Evaluate the process of setting public strategies for risk reduction.

**Content** The terms of risk analysis are specifically defined to show that risk is a process of risk assessment as well as risk management. For risk management, the risk aversion and risk assessment need to be qualified as being distinct from risk assessments that are more quantified. Societal considerations and expectations when reducing the consequences of exposures to hazards. Definitions and levels of analysis are specifically examined in this text.


**Class Contact** Thirty-six (36) hours or equivalent delivered online for one semester comprising lectures and tutorials.

**Assessment** Tutorial topic questions (20%); Progressive assignments (20% each; total 80%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

**SED1101 COMMUNITY BASED GENERAL SCIENCE 1**

**Campus** Footscray Park

Prerequisites Nil.

Co-requisites Nil.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Work effectively in settings of social and cultural diversity;
2. Explain, report on, build their knowledge upon and convey the major concepts outlined in each of the subject areas to both peer-based and socially and culturally diverse audiences;
3. Apply the skills and knowledge acquired in this unit so as to best communicate science to socially and culturally diverse audiences;
4. Critically examine how to best pass on science-based material to socially and culturally diverse audiences without sacrificing science content;
5. Apply knowledge, skills and values which will allow them to reflect on the best ways to communicate effectively general science, to socially and culturally diverse audiences whilst themselves maintaining a more advanced understanding of the subject area;
6. Develop projects and evaluate their impact and ability to pass on scientific content and inquiry to socially and culturally diverse audiences;
7. Further develop fundamental laboratory skills that are associated with projects aimed and set within socially and culturally diverse settings;
8. Further develop skills in collecting and appropriately recording data;
9. Further develop learning strategies for the successful understanding, application and communicating of science-based content to socially and culturally diverse audiences;
10. Further develop skills in scientific method and utilising them to best serve projects designed to serve culturally diverse audiences;
11. Recognise the need for, locate and critically analyse scientific data gathered by the student and reported in literature in project areas that share similar aims;
12. Further extend competency in literacy and numeracy;
13. Recognise the need for, and locate and critically analyse ways of, conveying scientific content to a socially and culturally diverse audience;
14. Critically assess the quality of past studies and experiences within the scope of the level of study;
15. Recognise that an interplay between science content and the communication of science is dependant on a number of factors that include cultural and that these factors be noted, understood, absorbed and utilised to their best effect in the learning, communicating and educational process of the student;
16. Utilise knowledge gained from individuals within a defined setting, practical component, theory and past studies to better understand science concepts and to solve problems associated with them and the communication of science content;
17. Recognise possible limitations and working around them when deciding how to implement the communication of science and projects within settings that are socially and culturally diverse;
18. Recognise that a range of written scientific formats aimed at various audiences are an essential requirement of a communicator of science;
19. Best establish a process of learning how to learn and educational empowerment;
20. Produce portfolios incorporating assignments and laboratory reports in a range of formats, all of which tie into settings that are both socially and culturally diverse;
21. Communicate orally with peers and various other audiences through presentations, discussions and debates;
22. Come to a realisation that the understanding of differing social and cultural settings and those who inhabit them and means of affecting them is a strength, empowering one's education, providing unique preparation for future educational and vocational outcomes.

**Content** This unit provides students with a working knowledge of scientific concepts in biology, earth sciences, physics and chemistry and opportunities to communicate knowledge of those concepts to socially and culturally diverse audiences via projects. Topics will be selected from science and associated areas, including earth materials (plate tectonics, elements of the earth), the atmosphere (moisture, clouds, precipitation), projectile motion, trigonometry, and fireworks. Students will be involved in the consultation, design, production, implementation, dissemination and evaluation of their own projects in order to experience the complexities of different socially and culturally diverse communities and improve communication skills within those groups.


**Class Contact** Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and placements.

**Assessment** Projects: portfolios and presentations (50%); One written examination (50%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

**SED1202 COMMUNITY BASED GENERAL SCIENCE 2**

**Campus** Footscray Park

Prerequisites Nil.

Co-requisites Nil.

**Learning Outcomes** On successful completion of this unit, students are expected to be able to:

1. Individually and collaboratively, explain, report on, build upon knowledge and...
On successful completion of this unit, students are expected to be able to:

1. Decide upon a planned detailed response and an implementation of the response(s) in solving problems associated with science-based community projects;
2. Decide upon response procedures and an implementation of responses in areas beyond the scope of the project where autonomous, collaborative, varying social and culturally diverse situations may apply;
3. Alter and re-coordinate response procedures if required;
4. Establish codes of conduct that are amenable to adoption by others to expedite the problem solving process;
5. Mentor in the process of science-based problem solving;
6. Establish and be well versed in the link between research and the problem-solving process and to make this link accessible and knowledgeable to others;
7. Identify the limitations in the problem-solving process and work around them;
8. Tie together parties in a collaborative response and allow for independent work to best meet the requirements of the problem and its solving;
9. Develop a means of predicting and preventing future possible lapses in the problem-solving process;
10. Critically examine how to best communicate science based material inbuilt into problem-based scenarios to a variety of audiences without diminishing science content;
11. Apply knowledge, skills and values that allow reflection on the best ways to communicate problem solving science to a variety of audiences and simultaneously maintain and build upon the student’s more advanced understanding of the subject matter;
12. Further enhance laboratory skills and work effectively in collaborative laboratory work;
13. Further enhance skills in collecting and appropriately recording data;
14. Further develop learning strategies for the successful understanding, application and communicating of science-based content within collaborative and autonomous frameworks;
15. Further develop skills in preparing succinct laboratory reports in correct scientific styles and formats;
16. Recognise the need for, and locate and critically analyse scientific data;
17. Recognise the need for, locate and critically analyse ways of conveying scientific content to an audience and to be able to critically assess the quality of past studies and experiences in the areas of scientific study;
18. Produce portfolios incorporating assignments and laboratory reports in a range of formats that are collaboratively and autonomously produced;
19. Verbally communicate science with peers and community groups and individuals through presentations, discussions and debates.

Content
This unit develops student’s abilities to work effectively both autonomously and collaboratively as a means to further develop knowledge, skills, literacy competency, attitudes, and attributes in the understanding, interpretation, communication and promotion of science within the community. The unit provides students with a background in general science (taking in aspects of physics, chemistry, biology and earth sciences), and requires that students produce and implement community-based projects that integrate this science background. Science areas include chemiluminescence, polymers, electricity, magnetism, gases in the atmosphere, fermentation and combustion science. Students will develop a science troup to produce and perform general and subject science demonstrations or shows and resource materials for the primary and secondary education sectors.

Required Reading

Recommended Reading

FACULTY OF HEALTH, ENGINEERING AND SCIENCE

SED2103 COMMUNITY BASED GENERAL SCIENCE 3

Prerequisites SED1101 Community Based General Science 1 or SED1202 Community Based General Science 2; or equivalents.

Co-requisites Nil.

Learning Outcomes
On successful completion of this unit, students are expected to be able to:

1. Decide upon a planned detailed response and an implementation of the response(s) in solving problems associated with science-based community projects;
2. Decide upon response procedures and an implementation of responses in areas beyond the scope of the project where autonomous, collaborative, varying social and culturally diverse situations may apply;
3. Alter and re-coordinate response procedures if required;
4. Establish codes of conduct that are amenable to adoption by others to expedite the problem solving process;
5. Mentor in the process of science-based problem solving;
6. Establish and be well versed in the link between research and the problem-solving process and to make this link accessible and knowledgeable to others;
7. Identify the limitations in the problem-solving process and work around them;
8. Tie together parties in a collaborative response and allow for independent work to best meet the requirements of the problem and its solving;
9. Develop a means of predicting and preventing future possible lapses in the problem-solving process;
10. Critically examine how to best communicate science based material inbuilt into problem-based scenarios to a variety of audiences without diminishing science content;
11. Apply knowledge, skills and values that allow reflection on the best ways to communicate problem solving science to a variety of audiences and simultaneously maintain and build upon a more advanced understanding of the subject matter;
12. Utilise and communicate unit content in the science problem-based project and evaluate its success;
13. Further enhance laboratory skills and its application to problem solving;
14. Further enhance skills in collecting and appropriately recording data;
15. Further develop learning strategies for the successful understanding, application and communicating of problem-based science;
16. Further enhance skills when preparing a succinct laboratory report in scientific method format and detailing the problem solving process;
17. Recognise the need for, locate and critically analyse scientific data;
18. Recognise the need for, locate and critically analyse ways of conveying scientific content to an audience;
19. Critically assess the quality of past studies and experiences in specified areas of science;
20. Facilitate constructive interplay between science content and the communication of science as a means of more effectively dispersing science content and inspiring and affecting the students understanding of the science areas undertaken;
21. Recognise that the various written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for community-based audiences, are of variable scientific merit;
22. Identify a range of written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for a community-based audience and recognise that the writings may be of variable scientific merit;
23. Produce portfolios incorporating assignments and laboratory reports in a range of formats that are collaboratively and autonomously produced and outline key areas in the problem solving approach;
24. Communicate orally with peers and community groups and individuals through presentations, discussions and debates in the context of science content.

Content
This unit develops the student’s problem solving skills and literacy competency as applied to science content and science-based community initiatives and projects. Students will be provided with a background in science concepts (in aspects of physics, chemistry, biology and earth sciences), upon which students will produce resources, including multimedia, and implement community-based projects and professional development workshops for primary and secondary school educators. Topics in this unit will include bio-fuels, collaborative properties, sound, hydroponics, cell cultures, anthocyanins pigments and applications of chromatography.

Required Reading

Recommended Reading
Learning Outcomes

On successful completion of this unit, students are expected to be able to:
1. Locate, evaluate, manage and utilise information pertinent to the planning, construction, running and evaluating of a science-based community-based project(s) or initiatives;
2. Use information that provides for enquiry by the project’s audience and participants;
3. Establish ways and means that effectively ensure that unit content is utilised in a way that will benefit the student, the audience and the project(s)/initiatives;
4. Develop editing processes that take into account the needs of the audience;
5. Develop, maintain and re-create ways of communicating science-based ideas to an audience that has vastly differing science backgrounds;
6. Develop portfolios that simultaneously incorporate aspects of science communication, ensuring that information contained within, including reflective pieces, are significant resources to aid future projects for themselves and others;
7. Predict the limitations and work around them when establishing project partnerships;
8. Communicate science ideas and content visually and orally within a limited timeframe and critically examine the stated goals and impact of the communication;
9. Work collaboratively with other professionals in establishing, running and evaluating the science based community project;
10. Develop a values system that serves the community well in accessing science based knowledge;
11. Further build upon a more advanced understanding of subject material;
12. Continue to enhance laboratory skills;
13. Continue to enhance skills in collecting and appropriately recording data;
14. Continue to develop learning strategies;
15. Continue to enhance skills in researching and preparing succinct laboratory reports in scientific method format;
16. Continue to enhance an understanding in science concepts;
17. Further competency in literacy and numeracy;
18. Monitor the critical analysis of scientific data;
19. Recognise the need for, locate and critically analyse ways of conveying scientific content to an audience and to be able to critically assess the quality of past studies and experiences in specific science areas;
20. Facilitate constructive interplay between science content and the communication of science as a means of more effectively dispersing science and inspiring it into the community;
21. Identify a range of written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for a community-based audience and recognise that the writings may be of variable scientific merit;
22. Be engaging in the approach to science content and with the community in the transference of the material.

Content

This unit further develops literacy levels and abilities to locate, evaluate, and use scientific and science based information and research effectively in an effort to develop, run and evaluate a science-based community oriented project/program/initiative that benefits educationally both the student and the community. The unit focuses on providing students with a background in science concepts in physics, chemistry, biology and earth sciences, and in particular in saponification and detergents, alginates and chitins, holography, Archimedes’s Principles, photography and other science based areas. Students are then required to produce and implement community-based projects that integrate the science background. Students will be required to develop and deliver a continuing science-based project within a secondary level setting in a science-based competition or a science-based club within an organisation.
original reports, reflective writing and writing for a community-based audience and recognise that the writings may be of variable scientific merit; 22. Extend the role of the citizen through science and science education.

Content This unit continues the development of the student’s science content and develops in students, the professional communications role through the use of science-based projects within the community. Students learn to effectively communicate as a science scholar and citizen by improving their background in science concepts in physics, chemistry, biology and earth sciences, in particular in principles of archaeology, waterway analysis, fuel cells, solar energy, wine production and analysis, phytoremediation/salinity and nitrogen fixation. Students will be required to develop and deliver a continuing science-based project within a primary or secondary level setting, where their role will be as a visiting scientist-in-training.


Class Contact Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and problem-based projects.

Assessment Projects: portfolios and presentations (50%); One written examination (50%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

SED3206 COMMUNITY BASED GENERAL SCIENCE 6

Campus Footscray Park

Prerequisites At least two Community Based General Science units; or equivalents.

Co-requisites Nil.

Learning Outcomes On successful completion of this unit, students are expected to be able to:
1. Identify their role as scientists and science communicators within the community;
2. Establish protocols and communication tools that foster and facilitate effective and professional transfer of science information in various forms and formats and through contacts, the articulation of science concepts, research skills, writing skills for specific audiences, intuitive learning practices and problem solving skills;
3. Discuss the importance of their role in the community and identify their professional role and commitment to the community as a citizen and communicator of facts, ideas and ideals generally but not exclusively from the discipline of science;
4. Project-manage community science-based educational initiatives.

Content This unit maintains and extends core attributes previously introduced and developed in the units Community Based General Science 1-5 and culminates in a significant science-based community project developed over the semester. The unit provides students with a background in science concepts (taking in aspects of physics, chemistry, biology and earth sciences), so that students can develop, implement and evaluate community-based projects that integrate this background. Students will be required to establish, promote, expand and maintain a science fair at a junior secondary level, and mentor and assist students in the design and production of group or individual science projects to be showcased at an end-of-year science fair. Students will continue to promote science to the wider community.


Class Contact Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and problem-based projects.

Assessment One community-based science project: portfolio and presentation (peer assessment: 50%; external assessment: 50%) (100%). In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

VD81000 FOUNDATIONS OF KNOWLEDGE IN ENGINEERING & SCIENCE

Campus Footscray Park, Hong Kong, Beijing.

Prerequisite(s) Nil.

Content The subject introduces students to concepts and procedures associated with sources of knowledge. In particular, it considers empiricism, which attempts to describe, explain and make predictions based on observations of the real world. It will deal with the collection of valid and appropriate data relevant to specific research questions, and will explore, at an advanced level, a range of qualitative and quantitative methodologies.

Required Reading Dependent on students area of professional expertise.

Recommended Reading Nil.

Class Contact Three hours per week for one semester or equivalent.

Assessment Examination (3 hour), 50%; Individual Research Project and presentation, 25%; Group Research Project and presentation, 25%.

VD81110 STRATEGY AND INNOVATION IN ENGINEERING & SCIENCE

Campus Footscray Park, Hong Kong, Beijing.

Prerequisite(s) Nil.

Content Leading engineers and scientists use strategic decision making to find innovative solutions to current problems, to clarify conflicting priorities and evaluate new opportunities and to streamline and focus research activities. The subject is designed to examine current issues associated with key facets of strategy and innovation, including the strategic decision making process, information technology support and approaches to innovation adoption.

Required Reading Dependent on students area of professional expertise.

Recommended Reading Nil.

Class Contact Three hours per week for one semester or equivalent.

Assessment Examination (3 hour), 50%; Individual Research Project and presentation, 25%; Group Research Project and presentation, 25%.

VD81120 PROJECT AND PERFORMANCE MANAGEMENT

Campus Footscray Park, Hong Kong, Beijing.

Prerequisite(s) Nil.

Content Project and performance management combines the study of the planning, co-ordination and completion of complex projects with the scientific study and application of knowledge concerning the measurement of performance, its use in decision making and demonstrating accountability. The subject is designed to examine current issues associated with key facets of project and performance management and the role of the professional engineer and scientist in project and performance management. Focus will be on the legal, ethical and cost effectiveness of major technological research projects.

Required Reading Dependent on students area of professional expertise.

Recommended Reading Nil.

Class Contact Three hours per week for one semester or equivalent.

Assessment Examination (3 hour), 50%; Individual Research Project and presentation, 25%; Group Research Project and presentation, 25%.

VD82000 PROFESSIONAL STUDIES 1 IN ENGINEERING & SCIENCE

Campus Footscray Park, Hong Kong, Beijing.

Prerequisite(s) VD81000 Foundations of Knowledge in Engineering & Science, VD81110 Strategy and Innovation in Engineering & Science.

Content The subject introduces students to concepts and procedures associated with sources of knowledge in their field of expertise. In particular, it considers empiricism, which attempts to describe, explain and make predictions based on observations of the real world. It will deal with the collection of valid and appropriate data relevant to specific research questions in their field of expertise, and will explore, at an advanced level, a range of qualitative and quantitative methodologies.

Required Reading Dependent on students area of professional expertise.
VD88210 PROFESSIONAL STUDIES 2 IN ENGINEERING & SCIENCE
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): VDS8100 Foundations of Knowledge in Engineering & Science, VDS8110 Strategy and Innovation in Engineering & Science.
Content: The subject introduces students to concepts and procedures associated with sources of knowledge in their field of expertise. In particular, it considers empiricism, which attempts to describe, explain and make predictions based on observations of the real world. It will deal with the collection of valid and appropriate data relevant to specific research questions in their field of expertise, and will explore, at an advanced level, a range of qualitative and quantitative methodologies.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Three hours per week for one semester or equivalent.
Assessment: Examination (3 hour), 50%; Individual Research Project and presentation, 25%; Group Research Project and presentation, 25%.

VD88220 RESEARCH PROPOSAL PREPARATION AND WRITING
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): VDS8120 Project and Performance Management.
Content: The subject introduces students to the issues involved in the production of research in technological fields. It will enhance knowledge, personal skills and competencies in conducting research in the broad engineering and science setting.
Topics include: conceptualisation of research problems; theoretical formulation and contextualisation, problems and pitfalls in research development, analysis of past research, operationalisation of research problems to test hypotheses, measurement and levels of measurement, procedures for data collection, analysis and presentation, report writing and dissemination of research findings. It is an activity based subject that includes the appointment of a provisional supervisor and the production of a research proposal.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Three hours per week for one semester or equivalent.
Assessment: Presentation of the research proposal at a peer review seminar 100%.

VD88300 ENGS8D DISSERTATION
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): Completion of coursework component of EngScD.
Content: The uncovering of new knowledge either by the discovery of new facts, the formulation of theories or the innovative reinterpretation of known data and established ideas. The final thesis is expected to be well written and to reveal an independence of thought and approach, a deep knowledge of the field of study and to have made a significant original contribution to knowledge.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Not applicable.
Assessment: Dissertation (approximately 60,000 words), 100%.

VD88315 RESEARCH PROJECT B
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): Completion of coursework component of EngScD.
Content: Students under supervision are expected to analyse and report on data or information collected during the research phase, and to explore the implications of the study for theory and practice in some aspect of engineering and science.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Not applicable.
Assessment: Research Project (approximately 30,000 words), 100%.

VD88316 RESEARCH PROJECT C
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): Completion of coursework component of EngScD.
Content: Students under supervision are expected to analyse and report on data or information collected during the research phase, and to explore the implications of the study for theory and practice in some aspect of engineering and science.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Not applicable.
Assessment: Research Project (approximately 25,000 words), 100%.

VD88320 RESEARCH PAPER A
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): Completion of coursework component of EngScD.
Content: The paper will report on independently conducted research that demonstrates the students ability to clearly define and conclude an engineering and science problem.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Not applicable.
Assessment: Research Paper (approximately 15,000 words), 100%.

VD88325 RESEARCH PAPER B
Campus: Footscray Park, Hong Kong, Beijing.
Prerequisite(s): Completion of coursework component of EngScD.
Content: The paper will report on independently conducted research that demonstrates the students ability to clearly define and conclude an engineering and science problem.
Required Reading: Dependent on students area of professional expertise.
Recommended Reading: Nil.
Class Contact: Not applicable.
Assessment: Research Paper (approximately 15,000 words), 100%.
PACKAGING AND POLYMER RESEARCH UNIT

Below are details of courses offered by the Centre for Packaging and Polymer Research Unit in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

SUBJECTS

Below are details of courses offered by the Centre for Packaging and Polymer Research Unit in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

VPM5000 INTERMODAL FREIGHT MARKETS - DYNAMICS AND STRUCTURE

Campus Werribee
Prerequisite(s) Nil
Content This subject is concerned with the way in which rapidly restructuring logistics and freight handling systems are impacting on the efficiency and effectiveness of service providers in integrated and intermodal freight markets. It focuses particularly on developing concepts, skills and techniques that will assist transport professionals and managers in intermodal freight handling firms not only to understand the economic and competitive drivers in the market place but also how to define their corporate ‘product’ and the way in which they do business. The subject meshes principles with practice and is developed within a framework or a detailed understanding of the Australian freight industry and its operations and practice, and it is informed also by extensive experience in Southeast Asian and Pacific Rim countries, in the United States and in Europe.

Required Reading Course Handbook provided to each student.

Class Contact Forty five hours of block mode teaching.
Assessment Case study and seminar presentation, 10%; Syndicate group project, 40%; Research report, 50%.

VPM5001 INTEGRATING INTERMODAL FREIGHT SYSTEMS

Campus Werribee
Prerequisite(s) VPM5000 Intermodal Freight Markets - Dynamics and Structure
Content This subject focuses on the need to create seamlessness in transport services and operations that span complex networks involving different modes and many interface points - depots, terminals, warehouses, ports, for example. It recognises that intermodal efficiency may not be easily achieved, and that action may be required on many fronts - including operational capacity matching, alliance formation, information and e-Business streamlining, rationalising chain structures; eliminating market structure inefficiency and harmonising policies and policy frameworks. Particular attention is paid to capacity measurement, provision and adjustment in freight networks; to efficiency costs and pricing frameworks; to ways and means of achieving efficient chain and supply chain structures; and to overcoming policy and regulatory constraints. This subject draws heavily not only on the Australian freight industry but also on international experience.

Required Reading Course Handbook provided to each student.

Class Contact Forty five hours of block mode teaching.
Assessment Case study and seminar presentation, 10%; Syndicate group project, 40%; Research report, 50%.

VPM5002 DEFINING STRATEGIES FOR INTERMODAL FREIGHT SYSTEMS

Campus Werribee
Prerequisite(s) Nil
Content This subject builds on the concepts, skills and techniques developed in VPM5000 and VPM5001. In those subjects students examined the nature of the intermodal freight market and the role of the intermodal service provider in it; and the ways and means of managing to achieve seamless and efficient operations. In this subject the guiding questions are strategic ones and focus on positioning the firm for the future. More particularly, the subject develops a strong understanding of the notion of strategy and of an adequate conceptual framework within which to define strategies. It also outlines some quite specific attributes of strategy for intermodal firms and for the effective achievement of integrated freight networks. This subject draws heavily not only on the Australian freight industry but also on international experience.


Class Contact Forty five hours of block mode teaching.
Assessment Case study and seminar presentation, 10%; Syndicate group project, 40%; Research report, 50%.

VPM5003 ADVANCED CHAIN SYSTEMS MANAGEMENT

Campus Werribee
Prerequisite(s) Nil
Content This subject focuses on managing firms in chain systems to achieve fully integrated, rather than highly segmented and atomistic chains. It is concerned with ways and means of trading off system efficiency and costs in such a way as to deliver maximum customer value under varying economic and policy scenarios. This unit will add further to the students’ understanding of process mapping, the design of static and dynamic KPs and dynamic modelling solutions for efficient chains.

Required Reading Current available text book - student to be advised.

Class Contact Teaching for each unit is over a five day block.

Assessment A seminar paper, 10%; Group syndicate work, 40%; Research report, 50%.

**VPM5004 FINANCIAL AND INVESTMENT PLANNING IN CHAIN SYSTEMS MANAGEMENT**

Campus Werribee

Prerequisite(s) Nil

Content Third party service providers, like other firms, must understand the relationship between the costs of investments and the use of capital and the benefits of investment. The timing of investments, cost-price relationships and the risks associated with investment are of exceptional importance to business success. This unit focuses on these issues and introduces students to concepts, financial modelling and technique for developing investment scenarios.

Required Reading Current available text book - student to be advised.


Class Contact Teaching for each unit is over a five day block.

Assessment A seminar paper, 10%; Group syndicate work, 40%; Research report, 50%.

**VPM5005 STRATEGY, STRATEGIC OPTIONS AND BUSINESS SUCCESS IN CHAIN SYSTEMS MANAGEMENT**

Campus Werribee

Prerequisite(s) Nil

Content Rapid and continuing changes in complex intermodal and chain systems are resulting in significantly increased competitive pressures for third party service provider firms. What strategic options are available to stakeholder firms? And on what basis can the traditional ‘transport provider’ firms achieve sustained business success? This unit examines in depth the basis for business success and examines particularly the nature of market and supply chain power and draws on current research into real-world examples to provide guidance for stakeholder firms.

Required Reading Current available text book - student to be advised.


Class Contact Teaching for each unit is over a five day block.

Assessment A seminar paper, 10%; Group syndicate work, 40%; Research report, 50%.

**VPM5006 BLK FRGT MRKT AND SUPPLY CHAIN: DYN AND STR**

**VPM5007 MANAGING BULK SUPPLY CHAINS**

**VPM5008 DEFINING STRATEGIES FOR BULK FREIGHT SYS**

**VPM6000 MINOR THESIS**

**VPP8002 RESEARCH THESIS 2 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/

**VPP8011 RESEARCH THESIS 1 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/

**VPP8012 RESEARCH THESIS 2 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/

**VPT8001 RESEARCH THESIS 1 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/

**VPT8002 RESEARCH THESIS 2 FULL TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/

**VPT8011 RESEARCH THESIS 1 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/

**VPT8012 RESEARCH THESIS 2 PART TIME**

This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfferforPostgraduateResearch/PolicyProcessesandGuidelines/
CONTINUING EDUCATION

Below are details of courses offered by the Continuing Education in 2009. This information is also available online on the University’s searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to International students are marked with the (I) symbol.

COURSES BRIDGING COURSE (DIVISION 2 NURSES)

Course Code: HSVN

Degree preparation for Division 2 Nurses

Course Objectives

The aim of this non-award course is to prepare Division 2 Registered Nurses who have completed the 12-month TAFE course for entry into the Bachelor of Nursing Course. Students who have successfully completed the entire Bridging course will proceed into the Bachelor of Nursing (Pre-Registration) course.

Course Duration

This course will be offered over a 4-week period during the Summer School.

Admission Requirements

Current Registration as a Division 2 registered nurse (or eligibility for registration) with the Nurses Board of Victoria.

Course Structure

Course Code: HSVN

<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Point</th>
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<td>HUMAN BIOSCIENCE B</td>
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CERTIFICATE IN FOUNDATION STUDIES ENGINEERING AND SCIENCE

Course Code: JCF5

Philosophy and Aims of the Course

Many students are interested in science, health science, computing and/or engineering but have reservations about some of the fundamental study areas that define these disciplines. For various reasons, study areas such as chemistry, physics and mathematics are regarded as unapproachable.

To remedy this situation, the Faculty of Health, Engineering and Science provides a year-long Foundation Studies program.

The Foundation Studies has been designed to:

- strengthen a student’s understanding of these ‘difficult’ study areas;
- endeavour to develop a student’s confidence in these study areas; and
- foster an intellectual vigour in tackling both further future tertiary courses and areas of employment that are built upon these study areas.

Upon successful completion of the Foundation Studies program prerequisite subjects, students are guaranteed entry into courses operated by the Engineering and Science areas and access to a considerable number of courses run by the Health Science area within the Faculty. Access to Double degree programs run by the Faculty can also be accessed, however distinction marks across pre requisite subjects is required to access such programs.

Course Description

In general, the Foundation Studies program aims to provide an opportunity for students:

(i) who have not studied science and mathematics at Year 12 level;
(ii) who have studied basic science and mathematics at Year 12 level but did not achieve appropriate study scores to enable them to satisfy the entrance requirements for courses in the Faculty of Science, Engineering and Technology;
(iii) whose recent educational results have not been at the level of which they are capable of performing;
(iv) who are returning to study after some years away from formal education; or
(v) who wish to change direction in their education.

To make certain that students receive a concerted education that will fulfill the entry requirements of the tertiary system whilst taking into consideration the educational background of the students, the majority of the foundation study areas are streamed. Different streams can be undertaken for different subjects if required.

These streams; beginners, intermediate and advanced; offered by the Foundation Studies program reflect and accommodate the broad cross-section of the educational backgrounds of students.

Studies Streams

Beginners Stream

The beginners stream is designed for students that would like to pursue a tertiary qualification in a science, computing or an engineering discipline but:

- have had no prior contact with these disciplines; or
- have previously experienced learning difficulties in the study of these disciplines.

The beginners stream is specifically designed to introduce students to the fundamental principles that underpin the disciplines of science and engineering; to provide students with the ability to recognise, utilise and interpret these principles; to prepare students for their further tertiary education and most importantly foster a process of sustained learning and research.

Recognising the possible lack of confidence and/or trepidation brought about by the unfamiliarity of these study areas, students within this stream will be provided with extensive tuition in small classes over extended semesters. The beginners stream will commence in March and conclude in early February of the following year. Upon successful completion of prerequisite subject areas, students will gain guaranteed entry into one of the undergraduate courses offered by the Faculty of Science, Engineering and Technology.

Intermediate Stream

The intermediate stream is designed for students that would like to pursue a tertiary qualification in a science, computing or an engineering discipline but have not been successful in completing or meeting the pass requirements of related subject areas previously undertaken.

The intermediate level will run over two semesters, each of which will run for 16 weeks and will commence in March and conclude in December of the same year.

Advanced Stream

Students enrolled into the advanced stream of a particular subject will undertake an accelerated program. If all the topic areas within the study area(s) over Semester One are successfully completed a student may be eligible to enter a first-year undergraduate course or first-year undergraduate core subjects within the Faculty in Semester Two.

Choice of Stream

Suitability of entry into any of these streams will be assessed upon completion of an entrance test and an interview. Students that have not previously attempted study areas that parallel those they wish to undertake at foundation level may opt not to sit for the test and enter the beginners stream.
Each stream will be timetabled so as to allow students upon consultation with Foundation Studies staff to move into an alternate stream over the duration of the course.

Study Areas Choices

The following study areas are offered as part of Foundation Studies: Biology, Chemistry, English Language and Communication Skills, IT, Mathematics for Scientists, Mathematics for Engineers and Physics.

Students will generally enrol in four subject areas. Fewer subjects may be undertaken. This will be determined by considering the students previous academic record, the results of the grading tests and via interview with the student. A choice of either a mathematics for scientists or engineers typically must be undertaken by all students.

Course Duration

The course is a year-long course although transfer to other courses is possible as a subject transfers following semester one. Semester One is undertaken over 17 weeks and Semester Two over 16 weeks. Beginners students may require to undertake a further session in early February of the following year for approximately seven weeks.

Course Location

All study areas will be taught at the University’s Footscray Park campus

Course Fee

Students who fit under the Federal Government Guidelines of disadvantage are HECS exempt with respect to the Foundation Studies program.

Application Procedures

Application to Foundation Studies is via direct application. Students will need to fill out an undergraduate application form available from Student Admissions, phone on (03) 9919 2286 or download from the website www.vu.edu.au/admissions. Alternatively the form can be accessed at www.vu.edu.au/foundationstudies.

Further information regarding the Foundation Studies program can be obtained from the Faculty Office.

Subjects
ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the Elders, families and bands of the Wurundjeri tribe of the Kulin Nation who were the
habitants of University land for many centuries. We acknowledge that the land on which we meet was the place
of age-old ceremonies of celebration, initiation and renewal, and that the Kulin Nation people’s living culture had
and has a unique role in the life of this region.