

MECHANICAL ENGINEERING

FACULTY OF HEALTH, ENGINEERING AND SCIENCE



MARK RANSOM – Mechanical Engineer, HATCH Associates

"I am currently working with a global engineering consultancy, HATCH Associates. The main areas of expertise that HATCH is involved in are Engineering, Consulting, Technologies, Project Management and Construction for the Mining, Metallurgy and Transportation Industries.

My role in the company has been in design, project management, site supervision and site commissioning. I have been the design engineer on several projects since the start of my employment in March of 2002, allowing me to be part of an integral team. Continual experience has led to greater responsibilities in the company, I have since been project manager on a number of projects that I have overseen the preliminary design, installation and commissioning.

The learning curve in industry has been steep, however the design skills that I learned during my course at Victoria University have provided a very stable base in which I have been able to progress my career. I have utilized much of the material studied during the course.

The personal interaction with lecturers and tutors at Victoria University has provided me with a level of professional confidence that has allowed me to converse with my fellow engineers and management, whom are of many more years experience. In my experience as an engineer, communication has been a definitive requirement. It is imperative that an engineer can provide understanding on any project related issue, be it technical, financial, time dependant and even personal to both the client and contractor and be able to liaise between the two.

The Mechanical Engineering course at Victoria University has been a considerable benefit to me on a professional and personal level. I am very appreciative to the efforts and depth of teaching at the University, and know that it will continue to assist in the progression of my career."

INTERNATIONAL STUDENTS

For specific information about entry requirements, application procedures and an updated list of courses offered to international students, visit www.vu.edu.au/international or contact Victoria University International (VUI) on 61 3 9919 1164.

HOW DO I APPLY?

Applications should be made through VTAC (unless students wish to articulate and are already enrolled wish to articulate and are already enrolled elsewhere in Victoria University):

40 Park Street, South Melbourne, 3205

Phone: 03 9690 7977 web: www.vtac.edu.au

Articulation within the University may be made by applying for Course Transfer through the School's Recruitment Officer who can be through the School's Recruitment Officer who can be contacted as indicated in further information below.

Late applications for undergraduate study in the following year close in approximately mid November of the current year. Future students should refer to the current VTAC Guide for specific closing dates.

NEED MORE INFORMATION?

Phone 03 9919 4193 contact the Course Coordinator or

Email: jun-de.li@vu.edu.au

OTHER INFORMATION

EXCHANGE PROGRAMS

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.

SCHOLARSHIPS

The School offers scholarships to commencing students with an excellent academic record and good communication skills valued at \$1,500 per annum for the first two years of any degree course offered within the school.

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CONTACT US

FACULTY OF HEALTH, ENGINEERING AND SCIENCE

PHONE: 03 9919 4516

OR

THE CENTRE FOR COMMENCING STUDENTS

VICTORIA UNIVERSITY
BALLARAT ROAD, FOOTSCRAY
PHONE: 03 9919 4110

OR

VISIT THE WEBSITE
WWW.VU.EDU.AU

CRICOS Provider No. 00124K



This publication is an information document for future students of Victoria University, every reasonable effort has been made to ensure that the information in this document is accurate, however it may be subject to change. June 2006. 10087.06.06.

BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING

COURSE CODE: EBME

VTAC CODE: 40621

WHAT IS MECHANICAL ENGINEERING?

Engineering is the profession in which knowledge of the mathematical and physical sciences is applied to develop ways to economically exploit the sources of nature for the benefit of mankind. Mechanical engineering, which began to develop as a distinctive area of engineering practice in the early part of the last century has now developed into an extremely diverse and complex profession.

Bachelor of Engineering in Mechanical Engineering program offered by the School is suitable for both men and women and emphasises achievement across the mechanical engineering discipline in concert with problem solving, design, engineering applications, innovation, management and professional responsibility.

The degree course is designed to provide the broad education required for the mechanical engineer's professional career, to ensure that the graduate is properly prepared to communicate effectively in their environment, to fully understand the role and responsibilities as a professional engineer in society and to learn new skills as technology advances.

Graduates of this course:

- would have an understanding of the broad environment in which they will operate, their responsibilities to the community, and the engineering profession and its code of ethics;
- would have good management skills and the ability to communicate effectively, both orally and in writing;
- would have a solid foundation of scientific, engineering and project management knowledge capped by specific theoretical and practical exposure to a range of discipline areas encompassed by these engineering disciplines;
- would have the ability to lead and work well in a team situation;
- are motivated to continually improve their knowledge base; and
- are immediately productive upon completion of the course and thus attractive to prospective employers.

Mechanical Engineering is concerned with bridging the gap between science and basic knowledge on the one hand, and the design and development of useful devices and processes on the other. A primary objective is to expose the student to practical engineering aspects through laboratory experimentation, industrial projects and engineering design.

The School incorporates laboratories in thermodynamics, heat transfer, air conditioning, fluid mechanics, mechanics of machines, solid mechanics, control systems, dynamics, computing, stress analysis, and materials engineering.

WHERE DO I STUDY?

This course is located at the Footscray Park Campus

WHAT'S IN IT FOR ME?

When you graduate, you will find employment opportunities in a wide area of government instrumentalities and private enterprise, such as:

- manufacturing;
- product design;
- automotive industry;
- automatic control of machines and processes;
- heating and air conditioning systems;
- condition monitoring and vibration analysis;
- fluid and thermal systems;
- computer applications – including finite element analysis, computer-aided design and simulation; and
- research and development.

Engineers Australia recognises the degree as meeting all academic requirements for corporate membership as a chartered engineer. Completion of the degree plus 12 weeks approved experience will admit to Graduate Membership of the Institution. Victoria University students are eligible for Student Membership.

HOW DOES IT WORK?

This course is offered over 4 years on a full-time basis. The entire course can be completed on a part-time basis, provided it is completed within eight years.

The course is designed to provide an educational standard and vocational skill 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.

FIRST YEAR SEMESTER ONE

Engineering Mathematics 1A

Engineering Physics 1A

Engineering Profession

Experimentation and Computing

FIRST YEAR SEMESTER TWO

Introduction to Design

Solid Mechanics 1

Engineering Physics 1C

Engineering Mathematics 1B

SECOND YEAR SEMESTER ONE

Computations and Engineering Analysis

Solid Mechanics 2

Engineering Mathematics

Thermofluids

SECOND YEAR SEMESTER TWO

Electrical Engineering

Materials and Manufacture

Engineering Design

Thermodynamics and Fluid Mechanics 1

THIRD YEAR SEMESTER ONE

Stress Analysis 1

Dynamics

Mechanical Engineering Design 1

Thermodynamics and Fluid Mechanics 2

THIRD YEAR SEMESTER TWO

Signal Analysis

Stress Analysis 2

Mechanical Vibration

Engineering Management

FOUTH YEAR SEMESTER ONE

Computational Mechanics

Engineering Project Management

Engineering Project 1

Heat Transfer & Combustion

FOUTH YEAR SEMESTER TWO

Mechanical Engineering Design 2

Engineering Project 2

Fluid Dynamics

Elective Streams

ELECTIVE STREAMS

(Approved electives from within the School of ACME)

Manufacturing Technologies & Packaging Dynamics

Advanced Mechanics

Automotive Technologies and Energy Systems

HOW DO I GET IN?

You need to have successfully completed the Victorian Certificate of Education.

Prerequisites: Units 3 and 4 Mathematical Methods or Specialist Mathematics, with a study score of at least 22 in English.

Middle Band Selection: Re-ranking based on study scores in the full range of year 12 students, with particular attention to pre-requisite studies and other science based studies. Satisfactory performance in Units 3 and 4 of Physics, Chemistry, and Biology will be taken into consideration.

Admission at Other Levels: If you transfer from other courses or have overseas or other entrance qualifications of at least equivalent standard to those listed above, you 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, you 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+.

PATHWAYS

Pathways give students the opportunity to progress to another level of study and to receive maximum credit transfer for study already taken.

As an example however, students who have completed a TAFE Associate Diploma/Diploma in Engineering and who are accepted into the Mechanical Engineering course can expect to be given credit for equivalent subjects passed in these courses.

ALTERNATIVE ENTRY

Bachelor of Engineering VTAC Code 41441 Alternative entry program for students who have:

- successfully completed year 12 with the required prerequisites, but may not have achieved the required study score in all prerequisites; or
- have not studied the required mathematics prerequisite.

All admissions are on an individual basis.

Prerequisites: Units 3 and 4 – English (any) and Mathematics (any).

Extra Requirements: Applicants accepted may be required to attend an appropriate summer bridging program or enrol in one or more subjects from the Foundation Year or undertake part or all of an appropriate TAFE program.

FOUNDATION YEAR

This is a one year full-time course for students whose VCE results or subjects were not satisfactory to gain entry into a science or engineering course, or for those who want to return to study. Subjects covered are biology, chemistry, English language and communication skills, information technology, mathematics and physics. Mathematics and English subjects are compulsory but an English test may exempt some students from English.

Successful completion of appropriate subjects will guarantee students entry to our Engineering & Science courses. Applications must be made direct to Victoria University, not through VTAC.

INDUSTRIAL EXPERIENCE

To apply for the award of a degree in Mechanical Engineering, you must ensure that you have submitted for approval evidence of having undertaken 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.