

ARCHITECTURAL ENGINEERING

FACULTY OF HEALTH, ENGINEERING AND SCIENCE



BIEN (DUSTIN) LAM

Working for Bonacci Group as a structural engineer has exposed me to numerous and varied projects in the building industry, ranging from government to commercial and industrial projects.

As a structural engineer I am part of a consultant team comprising of architects, engineers and project managers, entrusted to *work together* to design and deliver projects on time and within budget.

Victoria University prepared me for the building industry by providing me with a firm knowledge in structural design, services design, project management and building codes and regulations. With this understanding, I am able to confidently communicate with the different engineering consultants, architects and builders involved with in the design and construction process of a building.

As a structural engineer, it is very rewarding to see a building grow from the ground up. A project that I am proud to be involved with is the Yarra Arts Project, which involved the design and construction of two buildings. One was the new theatre for the Melbourne Theatre Company and the second the new auditorium for the Melbourne Recital Centre.

It is an honour so early in my career, to be a contributor in the design of two of the most iconic and recognised buildings in Melbourne.

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 Architectural 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.

HOW DO I APPLY?

Applications should be made through VTAC:
40 Park Street, South Melbourne, 3205
Phone: 03 9690 7977 web: www.vtac.edu.au

NEED MORE INFORMATION?

Phone 03 9919 4257 or contact the Course Coordinator
Email: ian.campbell@vu.edu.au

OTHER INFORMATION

EXCHANGE PROGRAMS

Victoria University has exchange agreements with universities in many countries, such as Canada, United States of America, Mexico, United Kingdom, France, Italy, Netherlands, Sweden, Malta, China, Malaysia, Indonesia, Thailand, Philippines, Vietnam and Japan.

For those students who 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. Some scholarships may be available for student participating in a study abroad.

INTERNATIONAL STUDENTS

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

CONTACT US

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OR

FACULTY OF HEALTH, ENGINEERING AND SCIENCE

STUDENT ADMINISTRATION
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FAX: 03 9919 4803

OR

VISIT THE WEBSITE
WWW.VU.EDU.AU

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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. April 2009. 10086.4.09.



Photo of Eureka Tower taken by Alistair Wilson.

BACHELOR OF ENGINEERING IN ARCHITECTURAL ENGINEERING

COURSE CODE: EBAE

VTAC CODE: 40991

WHAT IS AN ARCHITECTURAL ENGINEER?

COURSE AIM

Architectural Engineering commenced in 2001 and is a new development based on the University's Building Engineering degree. It is unique in Australia to Victoria University and includes studies in Architectural history and design of buildings, air conditioning, lighting and electrical power distribution, water supply and distribution, fire and life safety systems, building structures, and building construction technology. The need for a degree in Architectural Engineering has arisen from the increasing complexity of all building systems during the past 25 years, and a greater demand for buildings and building systems that better meet their needs.

Architectural Engineering focuses on the development of planning and advanced design skills for engineered environmental services systems or building structural systems for integration with the architectural design of buildings. The course includes selected 'creative' Architecture skills in an engineering degree framework, so that graduates are better able to work closely and in harmony with architects in the design of buildings to delight both clients and end users alike. The course reflects the worldwide emergence of professional engineering societies whose role is to ensure the highest standards of design and construction of building systems are achieved.

Overseas, Architectural Engineering has been available for many years for example, for more than 75 years in the USA where today it is one of the most highly sought after Engineering degree programs.

The first two years of the course involves engineering fundamentals whilst the applied engineering subjects in the final two years of the course focus on environmental services systems or building structural systems depending on the chosen 'major', with common building project and construction management subjects. Students are able to undertake advanced design studies and computer simulation of selected environmental services systems or building structures in their final year.

The course aims to provide graduates with:

- basic knowledge and skills in mathematics and physics;
- a broad appreciation of building technology and construction techniques;
- specialised ability to design building structures in steel, concrete and timber; or
- specialised design skills in environmental services systems including lighting, electrical power, air conditioning, ventilation, water supply distribution and fire/life safety systems;
- management of people, finances and resources for building projects;
- oral and written communication skills; and
- professional awareness including social, ethical and legal responsibilities.

Architectural Engineering at Victoria University is the first and only program in Architectural Engineering in Australia to receive full accreditation from Engineers Australia.

WHERE DO I STUDY?

This course is located at the Footscray Park Campus.

WHAT'S IN IT FOR ME?

When you graduate, you will be qualified having advanced design skills from a course unique in Australasia to Victoria University for careers in:

- Building and systems design and evaluation;
- Building renovation and refurbishment;
- Computer aided design and drawing;
- Construction documentation;
- Construction planning and supervision;
- Cost estimating and project feasibility planning;
- Advanced environmental services system design;
- Energy audits and conservation studies;
- Engineering consultation and investigations;
- Facilities management and programming;
- Interior lighting design;
- Project management;
- Risk assessment for building insurance;
- Structural design of modern buildings; and
- Simulation of environmental services system performance.

As a graduate, you can apply to be a member of these professional associations:

- Engineers Australia; and
- Australian Institute of Building.

HOW DOES IT WORK?

This course is 4 years full time normally with 20 hours of class contact per week. The course includes many examples of current building projects together with teaching input from practicing Engineers, Architects and other professionals in industry. In the third and fourth years of the program, alternate streams of specialization in services or structures may be chosen.

FIRST YEAR SEMESTER ONE

Engineering Profession

Experimentation and Computing

Engineering Physics 1A.

Engineering Mathematics 1A.

FIRST YEAR SEMESTER TWO

Introduction to Design

Solid Mechanics 1

Engineering Physics 1C

Engineering Mathematics 1B

SECOND YEAR SEMESTER ONE

Architectural History & Design

Solid Mechanics 2

Thermofluids 1

Engineering Materials

SECOND YEAR SEMESTER TWO

Electrical Power Systems 1

Building Materials & Construction

Hydraulics

Engineering Design

SERVICES STREAM MAJOR

THIRD YEAR SEMESTER ONE

Electrical Power Systems 2

HVAC Systems 1

Building Construction & Legislation 1.

Environmentally Sustainable Design 1

THIRD YEAR SEMESTER TWO

Environmentally Sustainable Design 2

HVAC Systems 2

Hydraulic Services Systems

Engineering Management.

FOURTH YEAR SEMESTER ONE

Engineering Project 1

Architectural Lighting & Communications Systems

Engineering Project Management

Building Quantities & Costs

HVAC Systems 3

FOURTH YEAR SEMESTER TWO

Engineering Project 2

Environmentally Sustainable Design 3

Building Fire Safety Systems

Building Construction & Legislation 2

Building Systems Design & Construction

STRUCTURES STREAM MAJOR

THIRD YEAR SEMESTER ONE

Geomechanics

Structural Analysis

Building Construction & Legislation 1

Environmentally Sustainable Design 1

THIRD YEAR SEMESTER TWO

Geotechnical Engineering

Structural Design

Hydraulic Services Systems

Engineering Management

FOURTH YEAR SEMESTER ONE

Engineering Project 1

Structural Engineering Analysis & Design 1

Engineering Project Management

Building Quantities & Costs

Structural Dynamics

FOURTH YEAR SEMESTER TWO

Engineering Project 2

Structural Engineering Analysis & Design 2

Building Fire Safety Systems

Building Construction & Legislation 2

Building Systems Design & Construction

PROBLEM BASED LEARNING (PBL)

In 2006, Problem Based Learning (PBL) was formally introduced into the course. PBL creates the opportunity for students to form a holistic consideration of problems which are not only technical in nature but also exercise the students generic skills and encourages students to become independent learners, and self reflective about professional communication processes and practices. In this mode of subject delivery, students will drive their learning by working in small teams guided by an academic staff mentor.

HOW DO I GET IN?

You need to have successfully completed the VCE including a study score of at least 22 in English, and either *Mathematical Methods* or *Specialist Mathematics* at unit 3 and 4 level.

You should apply under the University's alternative categories of entry, including continuing difficulties during schooling, Aboriginal and Torres Strait Islanders or mature age (over 21) Future students should refer to the VTAC Guide for specific closing dates.

PATHWAYS

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

If you have completed a TAFE Associate Diploma/Diploma in Building Construction and Design or a Diploma in Engineering, and are accepted into the Architectural Engineering course, you can expect to be given credit for equivalent subjects passed.

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.