

ENGINEERING AND INFRASTRUCTURE



OUR VISION

Victoria University's vision for Engineering and Infrastructure is to provide excellence in teaching and learning that is supported by innovative research that benefits industry and the broader community. We aim to prepare work-ready graduates, undertake research to support best practice in engineering and develop sustainable environmental technologies and infrastructure.

WWW.VU.EDU.AU

CRICOS Provider No. 00124K



**VICTORIA
UNIVERSITY**

**A NEW
SCHOOL OF
THOUGHT®**

EXPERTISE IN EDUCATION AND RESEARCH

HISTORY OF ENGINEERING AND INFRASTRUCTURE

Engineering and Infrastructure has a 90 year history of teaching, research, and community service in:

- building and construction
- civil and architectural engineering
- communications and information technology
- electrical and electronic engineering
- environment
- manufacturing engineering
- mechanical engineering

ENGINEERING AND INFRASTRUCTURE STRENGTHS

Engineering and Infrastructure strengths in education and research include:

- applied informatics
- architectural engineering
- biotechnology, chemistry, and ecology and environmental management, including sustainable environmental technologies
- building and construction industries
- building engineering
- building surveying
- civil engineering
- communication and sensor technologies
- electrical and electronic engineering
- mechanical engineering
- project and procurement management

ENGINEERING AND INFRASTRUCTURE STUDENTS

Approximately 70% of Engineering and Infrastructure students live in the Western region of Melbourne. Approximately 25% of local students speak languages other than English and 9% of students are located offshore.

ENGINEERING AND INFRASTRUCTURE COURSES

Engineering and Infrastructure offered 131 courses in 2009. Most courses were delivered by the following schools:

- School of Construction Industries
- School of Engineering and Electrotechnology
- School of Engineering and Science
- School of ICT and Electrotechnology
- School of Industry Skills Training
- School of Youth, VCE and Community Education Programs and Services

Other Engineering and Infrastructure courses are delivered by:

- Centre for Environmental and Safety Risk Engineering
- Faculty of Health, Engineering and Science
- School of General Education Programs and Services
- School of Sport and Science

ENGINEERING AND INFRASTRUCTURE CAREER PATHWAYS

We offer learning pathways to enable students to design their own career. Students can move from secondary school to courses at a Certificate level through to Diploma, Degree and PhD. Pathways include transitions from:

- Advanced Diploma of Building Surveying to the Bachelor of Engineering (Building Surveying)
- Advanced Diploma of Engineering (Civil and Mechanical) to the Bachelor of Engineering (Civil and Mechanical)
- Certificate IV in Residential Drafting to the Diploma of Building Design and Technology
- Various other trade qualifications and Certificate II and III courses into Diploma courses

ENGINEERING AND INFRASTRUCTURE RESEARCH

Engineering and Infrastructure undertakes research and develops sustainable environmental technologies to manage increasing and competing demands for resources. Research in this area includes:

- alternative energies
- development of advanced oxidation materials and processes for organics destruction
- effect of point source pollution on river water quality, and the development of non-point source pollution models
- efficient use of nutrients in water streams
- fire safety engineering, including fire and human behaviour
- impact of human activities on water resources and aquatic ecosystems
- lowering the energy required, and increasing water recovery from desalination
- management of water and water assets
- process modelling and plant costing
- REALM - Resource Allocation Model widely used in Australia for resource planning and management
- residuals treatment
- river water quality management
- scaling and fouling reduction of membrane systems
- social and behavioural aspects of water use
- stochastic hydrologic and climatic data generation
- stream flow forecasting for short term planning of reservoir systems
- sustainable buildings and risk engineering
- thermal distillation
- urban and rural water supply systems and flood management
- use of non-traditional water sources, such as reclaimed waste water, grey water and storm water
- viable food industries
- waste water treatment and re-use of end products
- water sensitive urban design
- wetland ecology

Engineering and Infrastructure also undertake research in communications and sensor technologies and applied informatics.

Research in communications and sensor technologies includes:

- microelectronics
- optics and photonics
- telecommunications based on future wireless communications services

Research in applied informatics includes:

- development of innovative e-technologies that can be applied to almost any industry
- web mining, data management, health informatics and e-Health service-oriented computing

This area of research is becoming increasingly important in the management of issues in the environment, health services, sport performance, tourism, law and other sectors.

ENGINEERING AND INFRASTRUCTURE INDUSTRY PARTNERS

Engineering and Infrastructure is part of an extensive network of experts committed to excellence in teaching, learning and research. These partnerships provide opportunities for learning in the workplace and have been developed around research projects that deliver real benefits to industry and the broader community.

Current industry partners include:

- Australia E-Health Research Centre
- Australian Communications Research Network
- Barwon Water
- Central Highlands Water
- City West Water
- CSIRO Cluster Program
- EXIN
- GWM Water
- ITEL
- Melbourne Water
- Microsoft
- National Networked Teletest Facility for Integrated Systems
- Relationships Australia
- South East Queensland Healthy Waterways Partnership
- Tasmania Department of Health and Human Services
- Technion
- Victorian Institute of Sport

- Western Water
- Westgate General Practice Network
- World Health Organisation

ENGINEERING AND INFRASTRUCTURE INTERNATIONAL LINKAGES

Engineering and Infrastructure has international linkages with:

- Aachen University (Germany)
- Bar Ilan University (Israel)
- Beijing University of Technology (China)
- Chinese Academy of Sciences
- Free University of Amsterdam (The Netherlands)
- Henan University (China)
- Hong Kong University
- Kings College London (UK)
- Nanyang Technological University (Singapore)
- North Glasgow College (Scotland)
- Sunway University College (Malaysia)
- University of Nice (France)
- University of Sunderland (UK)
- Yellow River Conservancy Commission (China)

ENGINEERING AND INFRASTRUCTURE FACILITIES

Victoria University's Problem Based Learning (PBL) facilities are located at the Footscray Park Campus. The PBL facility includes:

- multiple PBL studios for small group work
- PBL multifunction or common room
- soldering and experimentation laboratory

We also have facilities to undertake research and test fire behaviour. These facilities include:

1. **Cone calorimeter** – tests the reaction of materials to heat exposure.
2. **Fire test furnaces** – used to study the thermal and structural behaviour of elements of construction to enable improvements in products and structures.
3. **Experimental small-scale rigs** – model four storey building incorporating stairs, lift and service shafts that is used to study the flow of smoke through floor openings and the influence of natural roof venting and extraction.
4. **Calorimeter** – a hood that collects combustion gas via a fan to enable measurements of gas flow, temperature and gas concentration to determine the heat release rate associated with products in a fire.
5. **ISO room** – an enclosure used to test heat release rates of materials used to line structures to provide an indication as to how they might behave in a fire.
6. **Large scale burn hall** – Country Fire Authority (CFA) training facility established to conduct experimental research on fires. It consists of a three storey building incorporating a stair shaft that can be pressurised.

Other facilities include:

- A new welding and fabrication facility with modern industry equipment
- A rapid prototyping facility for the design and prototyping of computers
- State of the art computer numerical controlled machines used for training CNC programmers

CAMPUSES FOR ENGINEERING AND INFRASTRUCTURE

The majority of Engineering and Infrastructure courses are located at Footscray Park, Newport, Sunshine, Footscray Nicholson, St Albans and Werribee.

CONTACT DETAILS

Telephone 03 9919 4000
www.vu.edu.au/industry-sectors