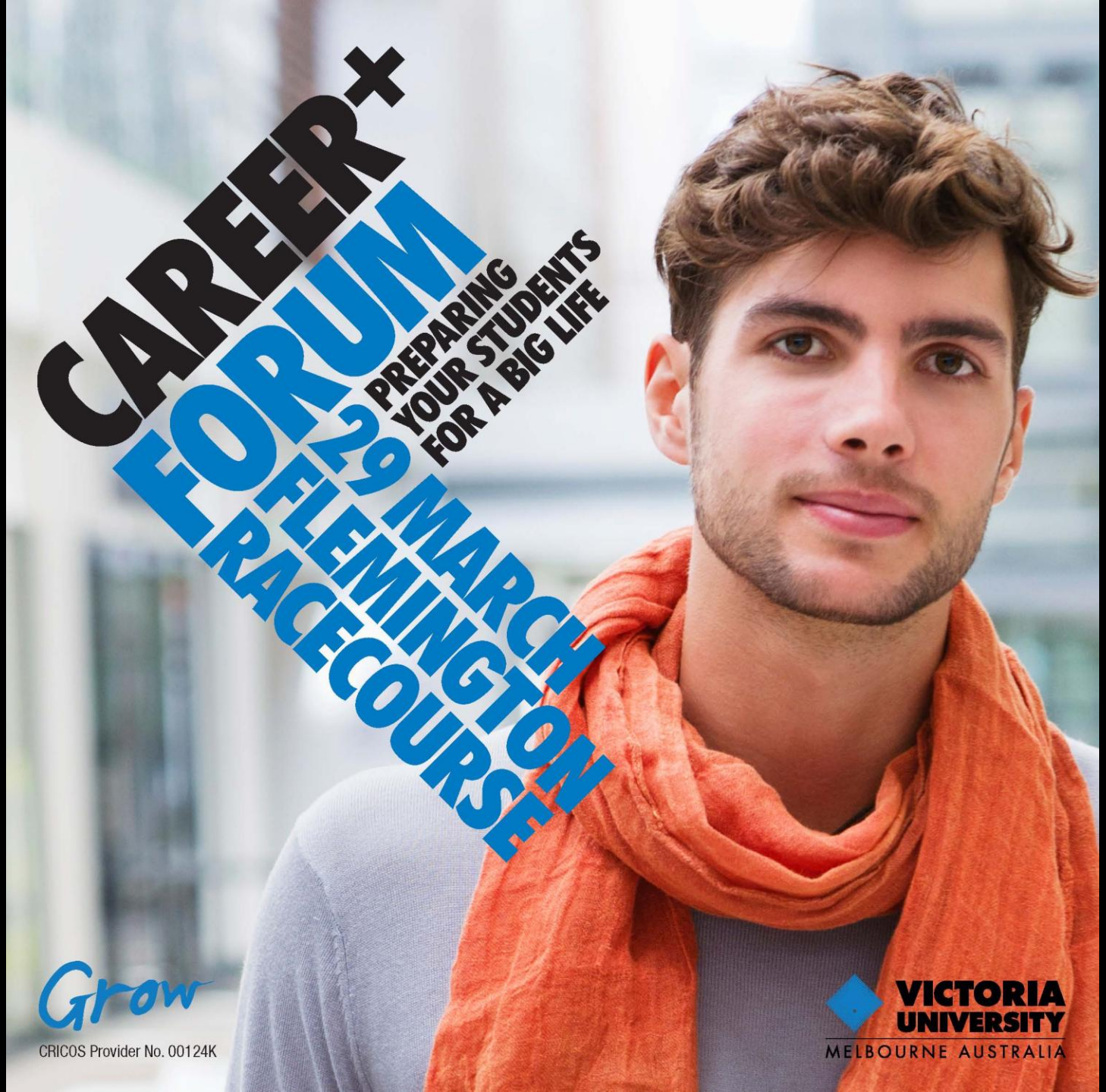
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New & Unique Engineering degrees at VU

Architectural Engineering

40991

Ian Campbell – Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Architectural Engineering 2001

Building design & construction:
Structural design
Foundation design
Wind & seismic load design

Building services systems:
Air conditioning
Water supply & waste removal
Electrical power distribution
Fire and life safety
Lighting design

Why Architectural Engineering?

The Architectural Engineering degree at Victoria University is the **first** such engineering degree to be offered in Australia and the only one at present to hold full accreditation from Engineers Australia.

Architectural Engineers have a major role in the design of sustainable buildings and building systems. The 'green building' revolution requires creative input from a range of professionals, including both architects and engineers.

The federal government's decision to put a price on carbon, will require future new buildings to demonstrate a reduced carbon total cost and force building refurbishments and renovations to similarly change in response to this 'cost'.

VU Architectural Engineering graduates are well placed for a pivotal role in this evolving process.

Ian Campbell – Course Coordinator

Why Architectural Engineering?

Introduced in 2001 at Victoria University, it has in fact existed overseas for more than 85 years in the USA. Architectural Engineering is not “Architecture”, it is the engineering discipline that works with Architects to design modern buildings and building systems.

Ian Campbell – Course Coordinator

Why Architectural Engineering?

Buildings need many 'systems' – some are never seen, only their effect is felt or experienced by occupants. The air conditioning, fire safety, lighting and structural roof support systems in the buildings depicted in these pictures are all designed by Architectural Engineers.

Ian Campbell – Course Coordinator

Why Architectural Engineering?

A courses for the design of modern and sustainable building systems.

Ian Campbell – Course Coordinator

Study abroad in Architectural Engineering?

3rd year students in Architectural Engineering get the opportunity to study in Architectural Engineering at the University of Nebraska, in Omaha, Nebraska. The program there is recognised as equal top of the 14 ABET accredited Architectural Engineering (USA) programs.

Study abroad - Architectural Engineering?

University of Nebraska - Architectural Engineering

Ian Campbell – Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Entry requirements?

Prerequisites: Units 3 and 4–a study score of at least 22 in English (any) and in mathematical methods (CAS) or specialist mathematics.
Selection mode: CY12: ATAR and two-stage process with a middle-band of approximately 20%. NONY12: Academic record (see institutional page).
Middle-band: Completing chemistry, physics and/or specialist mathematics=an aggregate 3 points higher per study, to a maximum 9 points. Consideration may also be given to the SEAS application and the Victoria University West + 5 scheme. Overall maximum of 15 aggregate points.
Extra requirements: There are no extra requirements.

NOTE: The above are the **same** entry requirements **for all 4 year Engineering degrees**

Ian Campbell – Course Coordinator

Streaming video

Architectural Engineering Graduate

Sian Wilmott

Ian Campbell – Course Coordinator

Architectural engineering

Victoria University offers a unique course in Architectural Engineering - the first of its kind to be offered in Australia. Our course focuses on designing building systems to support modern architecture.

Green buildings

Green buildings transcript (PDF, 28 KB)

Building services

Building services transcript (PDF, 30 KB)

Fire safety design

Fire safety design transcript (PDF, 30 KB)

Intro to the course

Course intro transcript (PDF, 29 KB)

Why I chose to study here

Why I chose to study here transcript (PDF, 31 KB)

http://www.vu.edu.au/higher-ed-and-tafe/health-engineering-and-science/engineering-and-science

New & Unique Engineering degrees at VU

Building Engineering

41011

Ian Campbell – Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Buildings do not ‘just happen’. They require meticulous planning for the use of manpower, machines and money to achieve construction safely, on time and within budget.

Building Engineering shares the first three years with Architectural Engineering, with a focus in final year on the planning and project management of building construction.

Why Building Engineering?

The Building Engineering degree at Victoria University is the **only** such engineering degree in Australia that is accredited by Engineers Australia.

Ian Campbell – Course Coordinator

New Technology degree at VU

Building Surveying

10021

Rob Burnell - Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Why Building Surveying?

Graduates find employment in the building industry where they are involved in the administration of acts, regulations, codes and standards relevant to the design, construction, occupation and maintenance of a range of building projects including residential, industrial and commercial buildings.

The first three years of the course (at Newport campus) focus on building technology and statutory control of building. Concurrent studies (at Footscray Park campus) provide students with basic professional literacy and numeracy. The final year of the course (at Footscray Park and Werribee campuses) focuses on professional practice in the areas of building design, approval and construction.

Entry requirements?

Prerequisites: Units 3 and 4–a study score of at least 22 in English (any).
Selection mode: CY12: ATAR and two-stage process with a middle-band of approximately 20%. NONY12: Academic record (see institutional page).
Middle-band: Completing one or more of mathematics (any) or science (any)=an aggregate 3 points higher per study. Consideration may also be given to the SEAS application and the Victoria University West + 5 scheme. Overall maximum of 15 aggregate points.
Extra requirements: There are no extra requirements.
Additional information: Not applicable.

Rob Burnell - Course Coordinator

New & Unique Engineering Science degree

Sports Engineering 2011

Daniel Lai – Course Coordinator

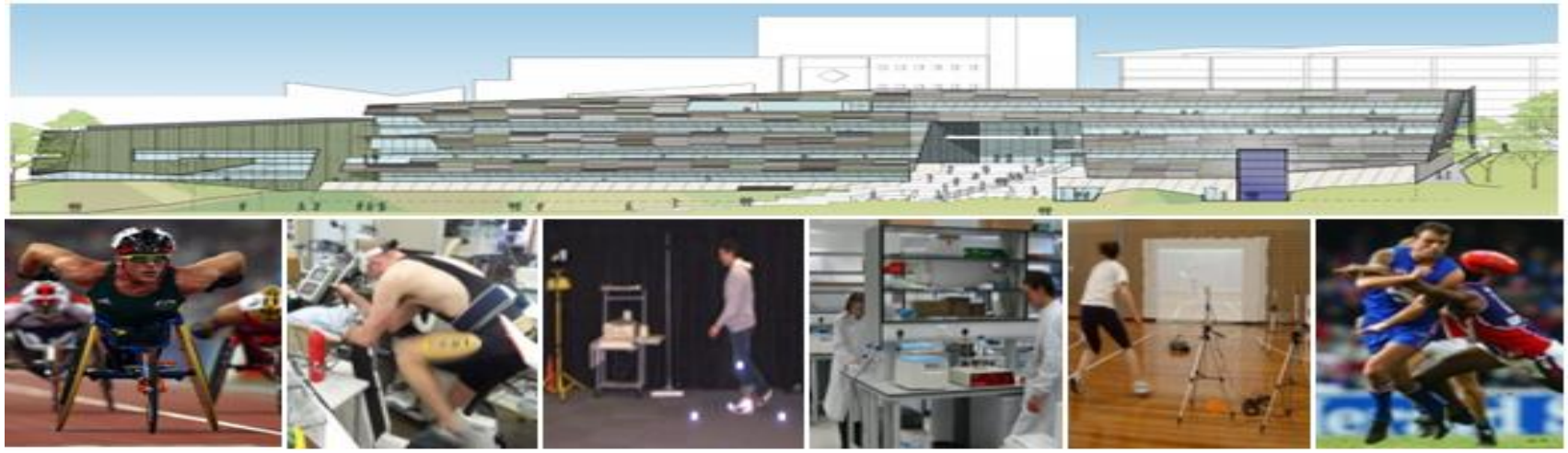
VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Where do Sports Engineers work?

- Australian Institute of Sport
- State Institutes of Sport (VIS, NSWIS, WAIS, TIS, SASI, QAS etc.)
- Elite Sporting Organisations and Clubs (AFL, NBL, NRL etc.)
- University Sports or Engineering Related Departments
- Sporting Goods Manufacturers
- Sports Vehicle Manufacturers
- Sports Safety Products Manufacturers
- Sports Apparel Manufacturers
- Emerging Hi-Tech Sports Companies

Daniel Lai – Course Coordinator

World class facilities for Sports Engineering?



$68.5M Sport Science & Learning Commons Building

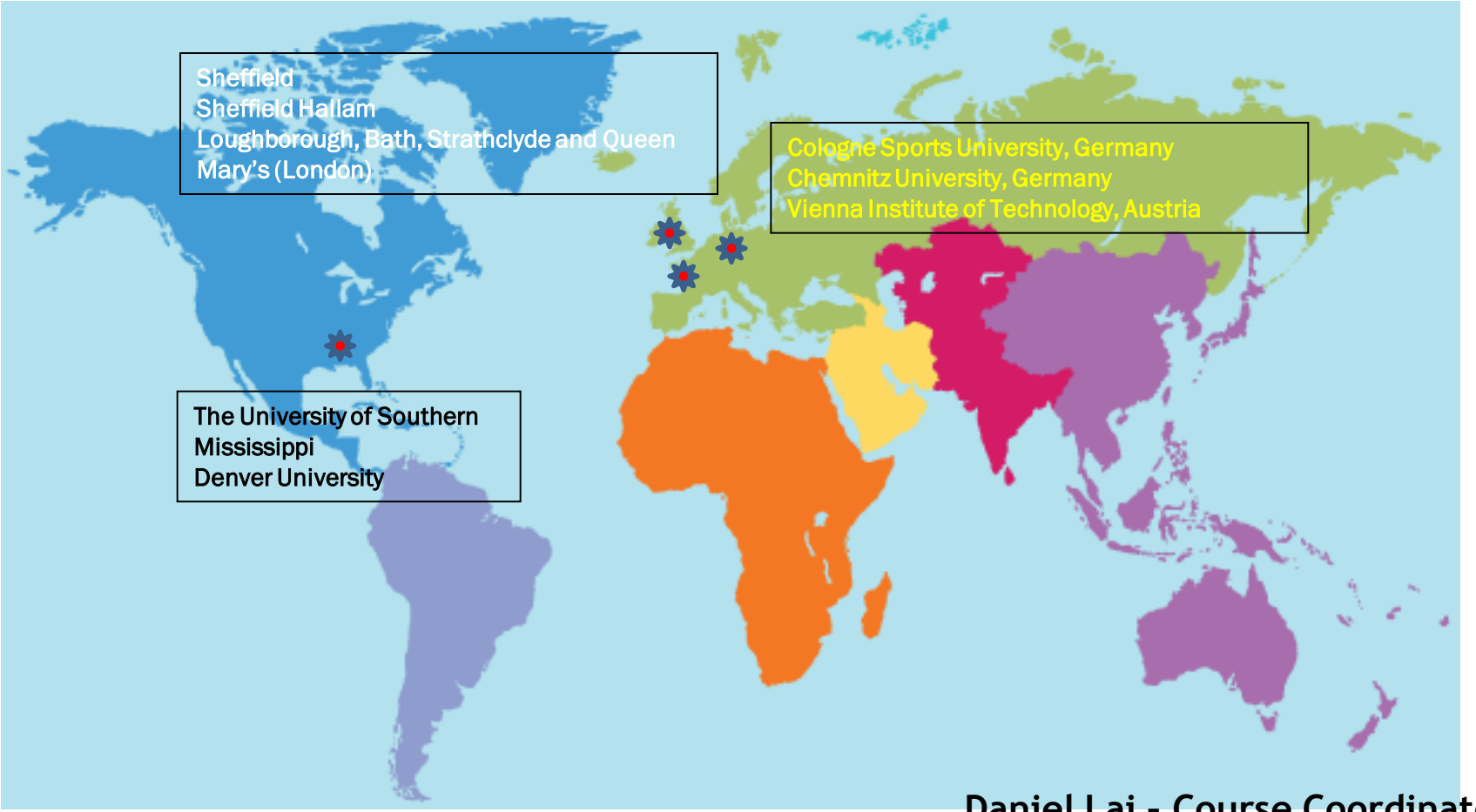
Victoria University Footscray Campus opened in Jan 2011

Daniel Lai – Course Coordinator

State of the art Mechanics, Electronics & testing labs for Sports Engineering

Daniel Lai – Course Coordinator

The world of Sports Engineering



Daniel Lai - Course Coordinator

Entry requirements?

VCE or Equivalent Senior Secondary Certificate of Education

- Units 3 and 4–a study score of at least 24 in (any) English **AND** any Mathematics (further mathematics, mathematical methods or specialist mathematics)

- Selection mode: CY12: ATAR and two-stage process with a middle-band of approximately 20%.
- Middle-band: Completing physics and/or specialist mathematics = an aggregate 3 points higher per study

Non Y12and returning to study

- Academic record

VICTER 2013

- Units 3 and 4–a study score of at least 24 in English (any) and in one of further mathematics, mathematical methods (either) or specialist mathematics.

VTAC Code**: 40881 (CSP)**

Daniel Lai – Course Coordinator

Sports engineering science is ….

A 3 year degree involving ……
Electrical Engineering &
Mechanical Engineering &
Human Engineering …… and

A passion for engineering technology used to advance & enhance the field of sport.

Daniel Lai – Course Coordinator

New Information Technology degree at VU

Network & Systems Computing

40811

Grace Tan – Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Course highlights?

- equips students with the skills and support required to gain a graduate level position within the IT industry
- facilitates preparation for IT industry certifications (CISCO/Microsoft) in the fields of networking, databases, and systems administration.
- offers opportunities to connect with industry, **in particular the roll-out / operation of the National Broadband (fibre optic) Network [NBN]**

Grace Tan – Course Coordinator

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Last updated: June 24, 2011

SEARC

Julia Gillard welcomes NBN agreements

AAP | June 23, 2011 10:28am

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PRIME Minister Julia Gillard says a big step forward has been achieved in rolling out the national broadband network (NBN).

Ms Gillard today announced Telstra, the Commonwealth and the builder of the $35.9 billion national broadband network, NBN Co, had signed definitive agreements for the rollout of the scheme across Australia.

Telstra will receive $11 billion to decommission its copper network, shift customers to the NBN and allow access to its cable ducts.

The agreement is subject to Australian Competition and Consumer Commission and shareholder approval.

Optus has also reached an $800 million agreement with the Federal Government to move its customers to the NBN.

Ms Gillard said the agreements - which were a "big step forward" - would pave the way for a range of economic, educational and service benefits.

Grace Tan - Course Coordinator

Career prospects?

- Network & Systems Administration
- Computing & Network Support
- Systems Design & Consulting
- Systems Security Consultancy
- Database Administration
- Web-based Programming
- Business Analysis & Consulting
- IT Project Management
- Secondary Teaching

Course details?

- Commenced semester 1, 2011
- Footscray Park campus
- 3 years fulltime (part-time available)
- 25% Learning in the Workplace & Community experiences
- Strong links to industry - certification

Grace Tan – Course Coordinator

Why choose VU?

- 'industrial' strength qualification (IT degree + industry certification)
- professional membership with the **Australian Computer Society** upon graduation
- friendly, approachable staff

Industry certification

Vendor	Certificate	Units of Study
Cisco	Cisco Certified Network Associate (CCNA®)	ECB1131 Computer Network Concepts
		ECB2132 Internet Technology
		ECB2241 Wireless Networks
		ECB3244 Advanced Networks Technologies
	Cisco Certified Network Associate Security (CCNA® Security)	ECB2234 Network Security
	Cisco Certified Network Professional (CCNP®)	ECB3143 Network Management
	Cisco Certified Design Associate (CCDA®)	ECB3244 Advanced Networks Technologies
Microsoft	Microsoft Certified Technology Specialist (MCTS): .NET Framework 2.0 Web Applications	ECB 2124 Web-based Systems Development
	MCTS: Windows Server 2008 Network Infrastructure Configuration	ECB3135 Server Administration & Maintenance
	MCTS: Windows Server 2008 Active Directory Configuration	ECB 3142 Active Directory Administration
	MCTS: Windows Server Virtualization, Configuration	ECB 3215: Virtualization in Computing

Grace Tan – Course Coordinator

Entry requirements?

From VCE:

- a minimum score of 20 in English (Units 3 & 4) and
- a minimum score of 20 in ANY Maths (Units 3 & 4)
- a minimum ATAR score greater than 50

A study score of at least 25 in information technology (any) = an aggregate 1 point higher per study, to a maximum 2 points. Re-ranking based on relevant industry certifications.

From TAFE:

- A recognised Diploma in Information Technology or an Advanced Diploma in Information Technology

Grace Tan - Course Coordinator

New & Unique Science degrees at VU

Science

Specialisation

40691

Domenic Caridi – Course Coordinator

What's special about the Science Specialisation at VU?

Specialisations in:

- Biotechnology
- Chemistry
- Ecology & Environmental Management

Choice of supporting studies (sub-specialisations) giving students the flexibility to customise their learning towards current and future career demands

Industry focused with extensive hands-on experience (laboratory and field work) with modern facilities

Aim to produce 'work-ready' graduates for careers in industry, government and education (Honours and Postgraduate studies available)

Growing microbes

Arson investigation

Ecology students in the field

Domenic Caridi - Course Coordinator

What's special?

BIOTECHNOLOGY

Explores the frontiers in Biotechnology and develops expertise in genetic engineering, microbiology and cell biology. Research disciplines include medical, environmental and agricultural biotechnology.

CHEMISTRY

Analytical chemistry focussed with studies in forensic chemistry and extensive hands-on training on state-of-the-art analytical instrumentation. Industry placement program with over 20 industry partners.

ECOLOGY & ENVIRONMENTAL MANAGEMENT

Extensive field work in terrestrial, marine and freshwater environments. Interaction with endangered habitats and species.

Domenic Caridi – Course Coordinator

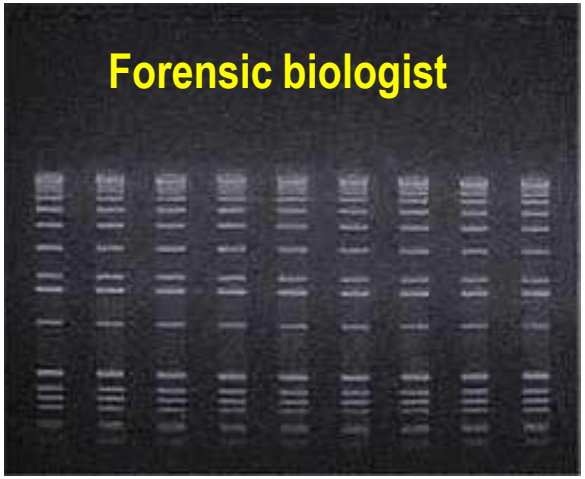
What's special?

Domenic Caridi - Course Coordinator

Career prospects?

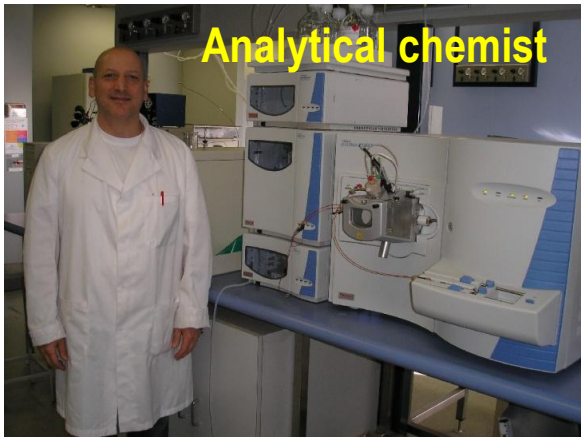
Biotechnology

Scientific research (e.g. government/university/hospital laboratories), forensic science (e.g. DNA profiling), industrial biotechnology (e.g. Biofuels)



Chemistry

Analytical chemist (government & commercial), forensic chemistry, industrial chemicals



Ecology & Environmental Management

Landcare/bushcare coordinator, environmental manager, restoration ecologist.

Domenic Caridi – Course Coordinator

Career prospects?

Biotechnology

Using biological cells and their components to solve medical, environmental and agricultural problems. Careers in medical and pharmaceutical research, forensic science, agriculture and aquaculture, the food and beverage industry and education

Chemistry: can work in the following industries

Agricultural chemicals, brewing and wine, chemical analysis, cosmetics, dairy, environmental science and water, food, forensics, horticulture, industrial chemicals, materials and polymers, petrochemicals, pharmaceutical, scientific sales, state and federal governments

Ecology & Environmental Management

Landcare/coordinator, environmental officer and/or planner, restoration ecology and land management officer. Marine and freshwater ecosystems management officer, environmental educator, botanist/zoologist/ecologist, and ecological and resource assessor

Entry requirements?

VCE: units 3 & 4: a study score of at least 20 in English (any) and in Mathematics (any)
middle band: Completing Biology, Chemistry, Environmental Science, Physics or Specialist Mathematics = an aggregate 3 points higher per study, to a maximum of 9 points.

Domenic Caridi – Course Coordinator

Core Engineering degrees at VU

Civil

Engineering

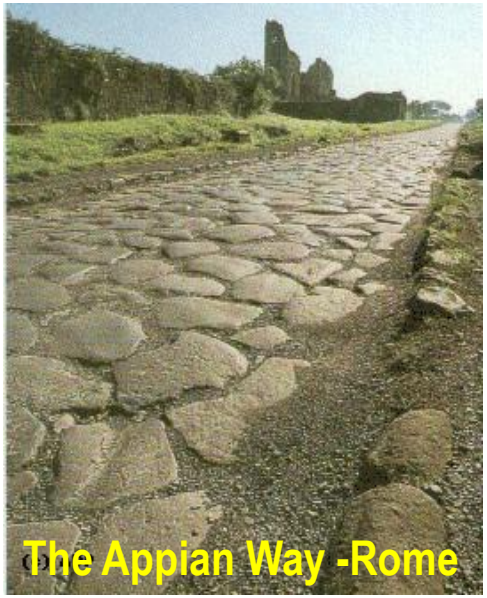
40951

Sam Fragomeni – Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

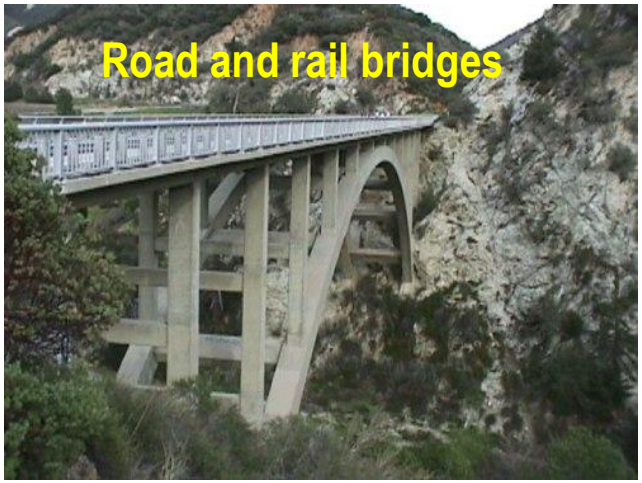
Why Civil Engineering ?

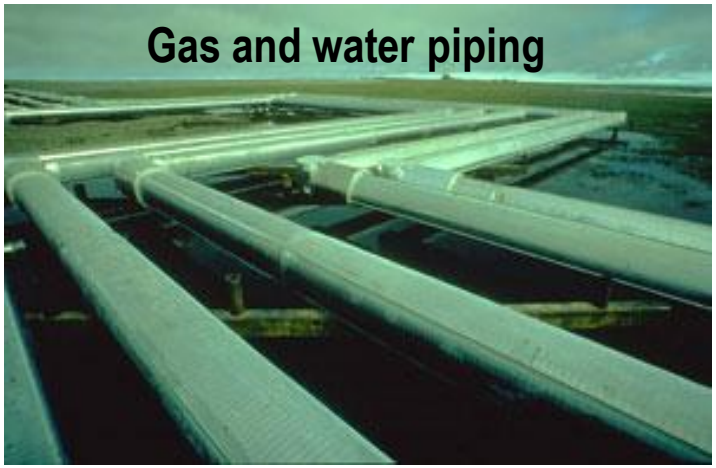
Civil Engineering is the oldest Engineering profession. The Latin word "Ingenium" meant an "ingenious device" and was applied to the design of weapons of war from about 200AD. This evolved to "Ingeniator" ie: one who design ingenious devices to the current (French) word "Ingenieur" which we use today in English as …… "Engineer". Civil Engineering is the profession for the design and construction major infrastructure projects



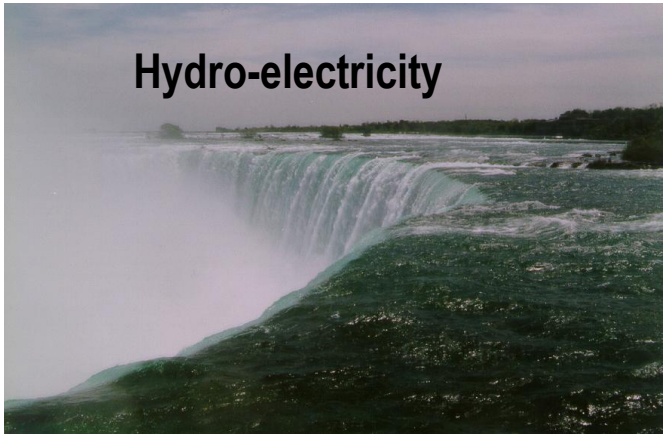
Sam Fragomeni – Course Coordinator

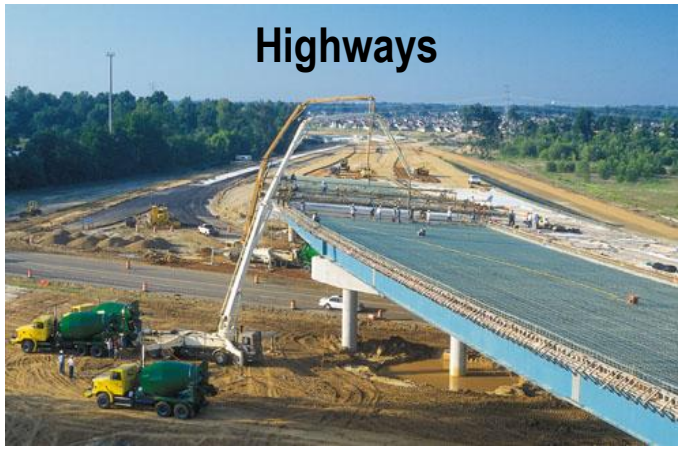
Why Civil Engineering ?





Why Civil Engineering ?





Core Engineering degrees at VU

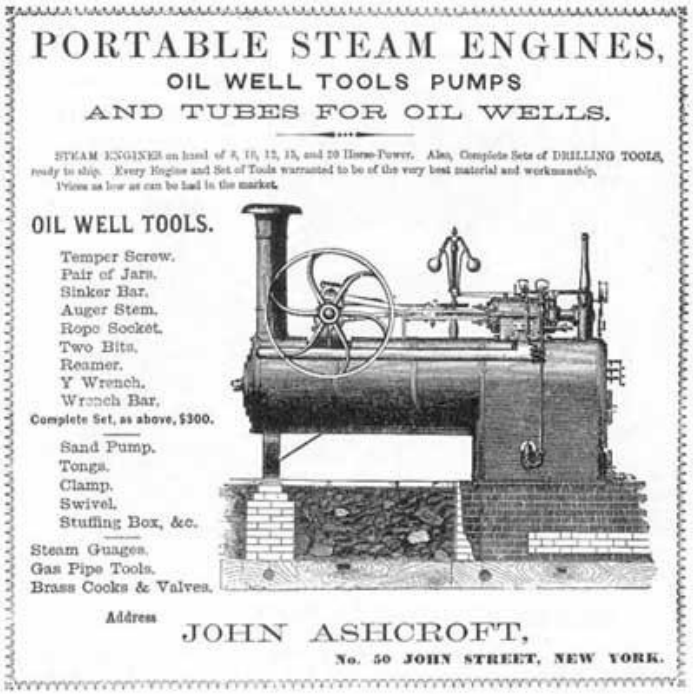
Mechanical Engineering

40621

Kevin Hunt – Course Coordinator

Why Mechanical Engineering ?

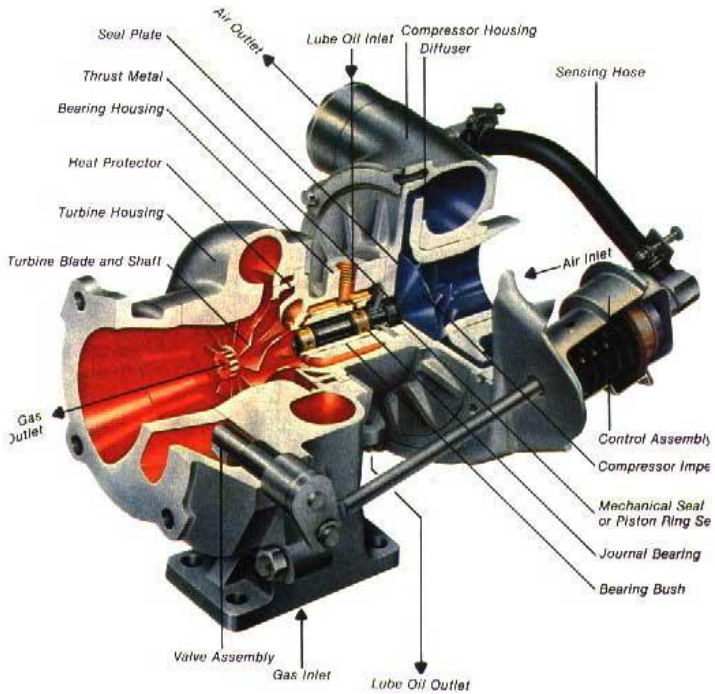
Mechanical Engineering as we know it today commenced around the time of the industrial revolution in Europe although – arguably – even Leonardo da Vinci's designs were the forerunner of the machines we associate today with Mechanical Engineering.



Kevin Hunt – Course Coordinator

Why Mechanical Engineering ?

Machines of every shape and size are the specialisation today of Mechanical Engineering.



Engine turbo-charger for passenger car

Kevin Hunt – Course Coordinator

Why Mechanical Engineering ?

Kevin Hunt – Course Coordinator

The Formula SAE Project at VU in Mechanical Engineering

Kevin Hunt – Course Coordinator

The Formula SAE Project

Design, manufacture and race testing of a performance vehicle, by final year students

Kevin Hunt – Course Coordinator

The Formula SAE Project

VICTORIA UNIVERSITY
MOTORSPORT

"Team VU" from (two) past seasons

Kevin Hunt – Course Coordinator

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Core Engineering degrees at VU

Electrical & Electronic Engineering

40781

Andrew Cramond – Course Coordinator

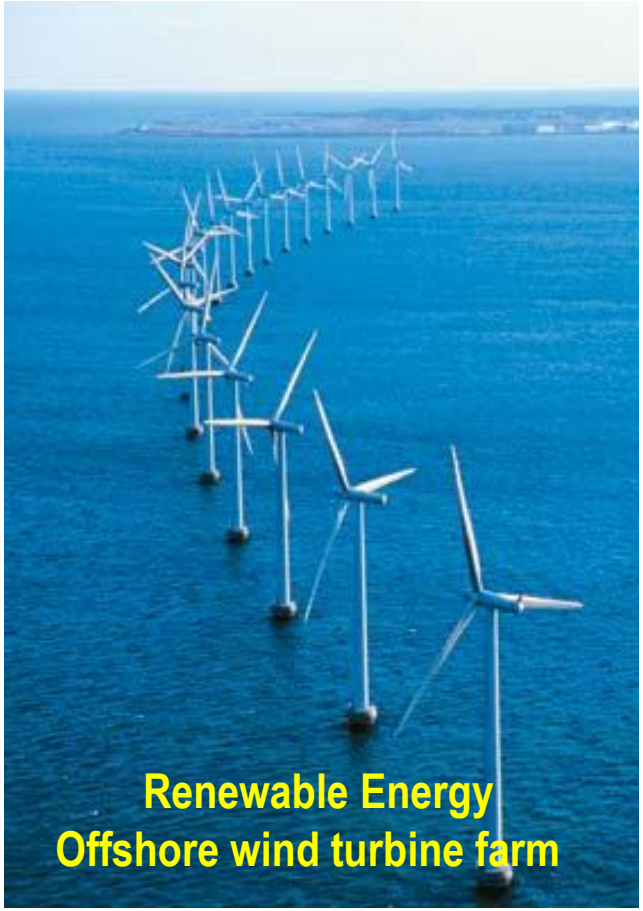
VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Why Electrical Engineering ?

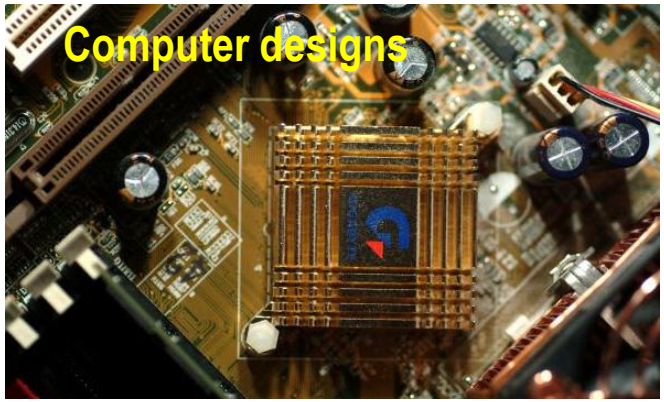
The ‘bionic ear’ device (cochlear implant) developed in Melbourne

Andrew Cramond – Course Coordinator

Why Electrical Engineering ?



Telephony



Andrew Cramond – Course Coordinator

Why Electrical Engineering ?

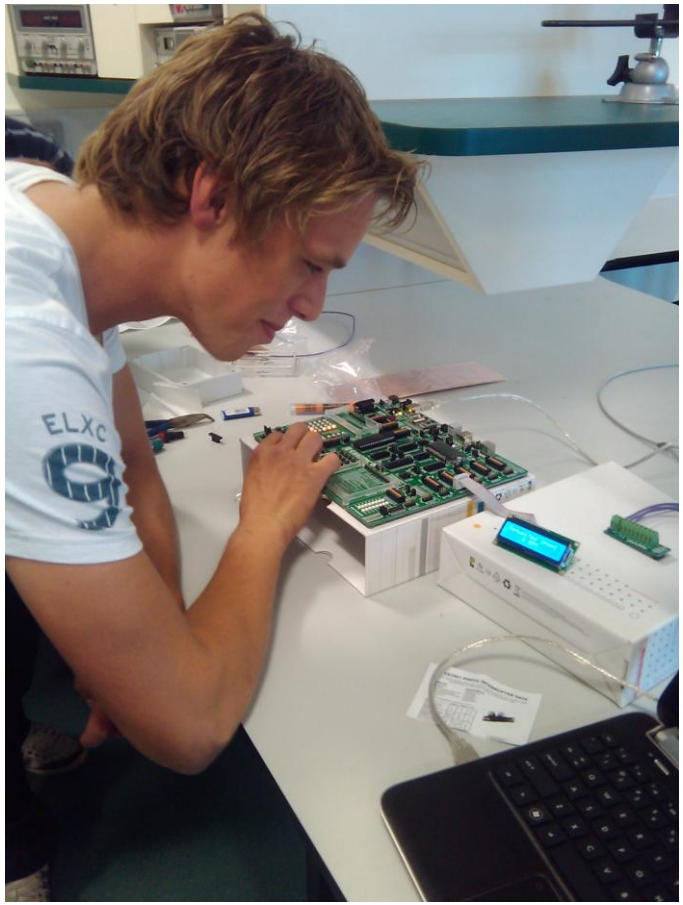
Course Aim

Strong theoretical & practical training equips graduates to:

- be responsible for electricity generation and distribution
- design complex electronic equipment
- manage large industrial manufacturing plants
- research and develop new energy sources
- design and manage communications infrastructure (telephones, radio, TV,internet)

Careers in

- communications engineering
- power engineering
- microelectronics engineering
- embedded systems



Andrew Cramond – Course Coordinator

Alternative Entry (Engineering) at VU

Alternative Entry

41441

Entry requirements?

Alternative entry program for students who have successfully completed year 12 with the required engineering prerequisites, but may not have achieved the required study score in all prerequisites or have not studied the required mathematics prerequisite. This course is not available to NONY12 applicants, and all admissions are on an individual basis.

Prerequisites: Units 3 and 4–English (any) and mathematics (any).
Selection mode: ATAR, interview. See Extra requirements for specifics.
Middle-band: Not applicable.
Extra requirements: Interview (some applicants only): Details will be provided by telephone or mail to the applicants required to attend.

SUCCESSFUL APPLICANTS
Applicants accepted may be required to attend an appropriate summer bridging program or enrol in one or more units from the Foundation Year or undertake part or all of an appropriate VET program. Telephone (03) 9919 4516.

Relevance of PBL approach?

The “PBL” approach to the teaching of undergraduate, 4 year, Engineering degrees focuses on a staged approach to learning :-

Years 1 & 2

“Problem” based learning – emphasis on learning to define problems needing solutions and to source knowledge and skills to achieve outcomes. Learning to work in groups is a feature. Academic staff are facilitators to assist in process. Reduced emphasis on formal exams.

Years 2 & 3

“Project” based learning – emphasis on using case studies of actual Engineering projects sourced from industry. Working in groups is required.

Year 4

“Practice” based learning – emphasis on working with industry partners spending periods of time external to the University. Working with external groups is encouraged.

PBL Engineering studios (supporting this learning approach)

Small group study spaces

$5 million spent upgrading facilities

Thank you!

Ian Campbell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