

College of Engineering & Science

Prof Farzad Khosrowshahi – Dean

Dr Alasdair McAndrew – Director of Learning & Teaching

College of Engineering & Science

Disciplines

- ◆ Built Environment
- ◆ Engineering
- ◆ Information Technology
- ◆ Science

Courses Delivered

- ◆ Melbourne
- ◆ Sydney
- ◆ Sri Lanka
- ◆ China

Industry Partners



World Class Rankings

COLLEGE OF ENGINEERING AND SCIENCE



COMPUTER SCIENCE

RANKED 151-175

2ND IN VICTORIA
7TH IN AUSTRALIA

ENGINEERING & TECHNOLOGY

RANKED 126-150

3RD IN VICTORIA
9TH IN AUSTRALIA

Engineering

THE NEW WAY TO DO UNI

Engineering Courses

- ◆ Bachelor of Engineering (Honours) (Civil Engineering)
- ◆ Bachelor of Engineering (Honours) (Electrical and Electronic Engineering)
- ◆ Bachelor of Engineering (Honours) (Mechanical Engineering)
- ◆ Bachelor of Engineering (Honours) (Architectural Engineering)
- ◆ Masters of Engineering
- ◆ Graduate Certificate in Performance-Based Building and Fire Codes
- ◆ Graduate Diploma in Building Fire Safety



**Professor Sam
Fragomeni**
Head of Engineering

Course Structure

DURATION: 4 years or 8 Semesters (Full-time)

INTAKE: February + July

LOCATION: Footscray Park

To Obtain the Bachelor of Engineering (Honours) (DISCIPLINE), students will be required to complete a total of 384 credit points consisting of:

- ◆ 96 credit points of COMMON Core First Year studies (8 units)
- ◆ 72 credit points of COMMON Engineering studies (6 units)
- ◆ 216 credit points of Core Discipline Specific studies (18 units in chosen discipline)

Professional Accreditation and Industry Partnerships

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VU Engineering (undergraduate) Courses are accredited by Engineers Australia. Accreditation ensures academic institutions consistently meet national and international benchmarks.

Graduates of this course are assured membership of Engineers Australia as a Professional Engineer and enjoy reciprocal privileges by equivalent professional bodies overseas (Washington Accord).

Students for Student Membership (free) with Engineers Australia

Learning in the Workplace & Community (LiWC) is an important aspect of the course and students are given the opportunity to undertake their capstone project with an industry partner

Bachelor of Engineering (Honours) (Architectural Engineering)

- ◆ Real-world engineering problems through Problem-Based Learning
- ◆ Course encompasses mechanical, electrical, and fire protection
- ◆ One of the only two accredited architectural engineering programs in Australia
- ◆ Strong linkages with industry in the building structural design, building services, and construction sectors
- ◆ Graduate as an architectural engineer, building services engineer, design engineer, estimator hydraulic services engineer and structural engineer.



Architectural Engineering graduate Emma Buis back at VU as lead site engineer for new student accommodation.

Bachelor of Engineering (Honours) (Civil Engineering)

- ◆ State-of-the-art laboratories
- ◆ Internships and Graduate Positions
(>80% secure full-time employment within 3 months of graduation)
- ◆ Research rates above world standard by Excellence in Research
- ◆ Graduate as a Civil/ Construction/ Environmental/ Geotechnical Engineer, Project Manager, Project Engineer, Roads and Transport Engineer, Structural Engineer, Traffic Engineer and Water Engineer



City West Water Women in STEM Scholarship recipient, Dawt Sarum

Bachelor of Engineering (Honours) (Electrical and Electronic Engineering)

- ◆ Research rates 5-stars at 'well above world standard by Excellence in Research for Australia
- ◆ Wide Range of specialisations – telecommunications, power and sports engineering areas
- ◆ Strong expertise in power, energy and telecommunication enabling employment opportunities for our students in electrical supply, generation and telecommunications
- ◆ Graduate as an electrical engineer, electronic engineer, communications engineer, power engineer, telecommunication engineer and embedded software engineer

Bachelor of Engineering (Honours) (Mechanical Engineering)

- ◆ Focus on modelling and simulation of components, machines, processes and systems
- ◆ Work on real problems and project with workplace and community focus through Problem-Based Learning
- ◆ State-of-the-art laboratory facilities in geomechanics, hydraulics, thermodynamics and mechanics
- ◆ Graduate as a Mechanical Engineer, Design Engineer, Product Engineer, Product Innovation Engineer, Sales Engineer, Systems Engineer, Production Manager and Engineering Manager



Pooja from Kenya Victoria University Motorsport (VUM) is a student group led by Mechanical Engineering students.

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Masters of Engineering

In the latest Excellence in Research for Australia results we were rated:

- ◆ Well Above World Standard in Electrical and Electronic Engineering
- ◆ Above World Standard in Engineering Overall

You can specialise in the following areas of Engineering:

- ◆ Electrical Power
- ◆ Telecommunications

Teaching Labs

THE NEW WAY TO DO UNI

Dedicated Labs + Teaching Spaces

- ◆ Heavy Structures Lab
- ◆ Concrete Materials Lab
- ◆ Geomechanics Labs
- ◆ Hydraulics Lab
(Including wave tank and wind tunnel)
- ◆ Materials Lab
- ◆ State-of-the-art equipment
- ◆ Problem based learning and teaching spaces across 2 levels



Engineering Careers

THE NEW WAY TO DO UNI



Careers

- ◆ Work experience opportunities
- ◆ More than 80% of graduates secure full-time work within 6 months
- ◆ Wide variety of work
- ◆ Genuine contribution to community welfare
- ◆ Job satisfaction and the 'feel good' factor
- ◆ Opportunities both inside and outside work
- ◆ Ongoing work due to expanding infrastructure
- ◆ Opportunities for travel and work
- ◆ Graduating salaries for 2018 around \$77,000+



Built Environment

Associate Professor Zora Vrcelj

Built Environment Courses

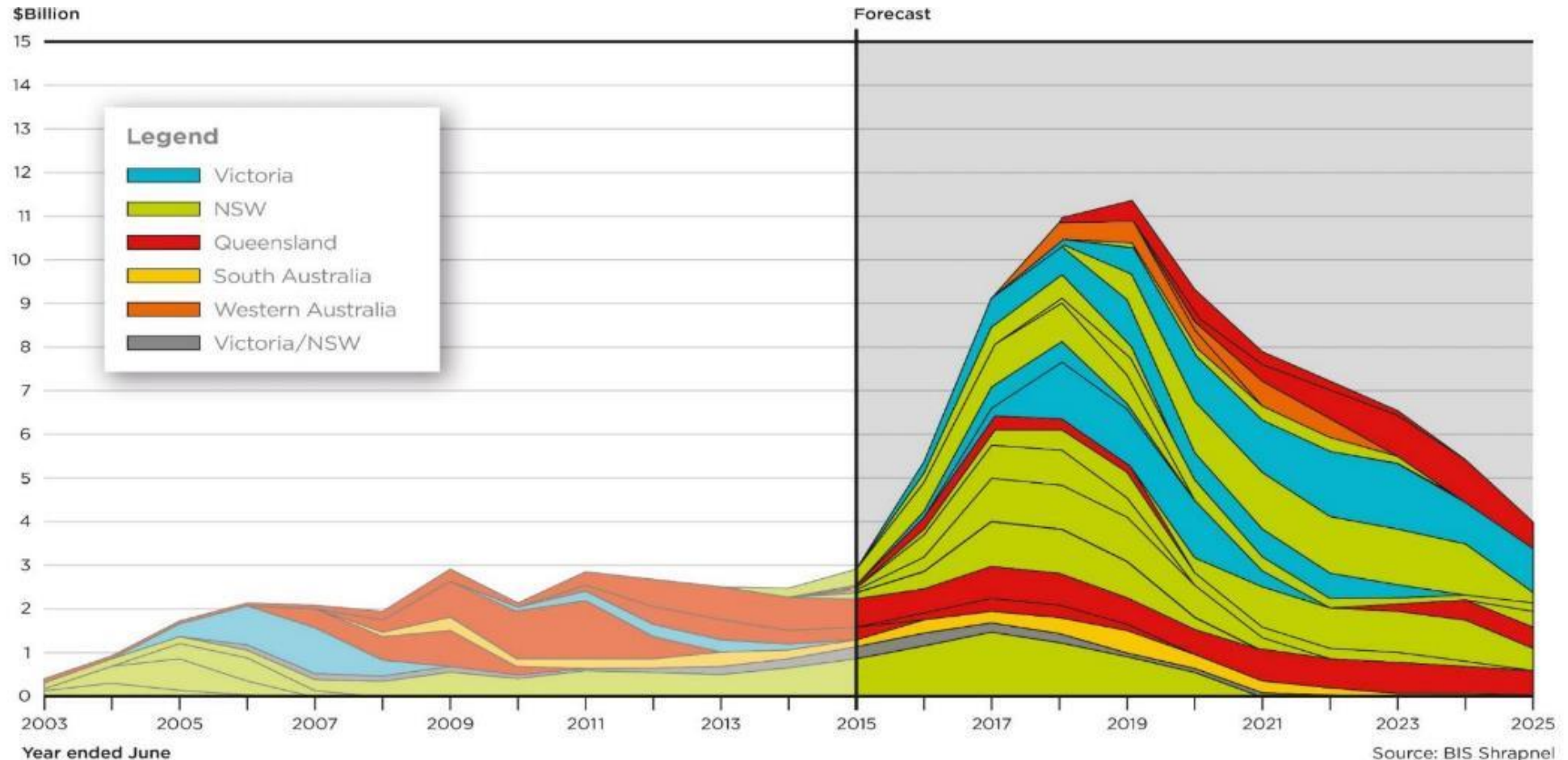
- ◆ Bachelor of Construction Management (Honours)
- ◆ Bachelor of Building Surveying
- ◆ Bachelor of Building Design
- ◆ Masters of Project Management
- ◆ Graduate Certificate in Performance Based Building & Fire Codes
- ◆ Graduate Diploma in Building Fire Safety



Trends

THE NEW WAY TO DO UNI

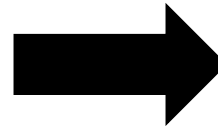
Construction Projects Australia



Build Melbourne's Future



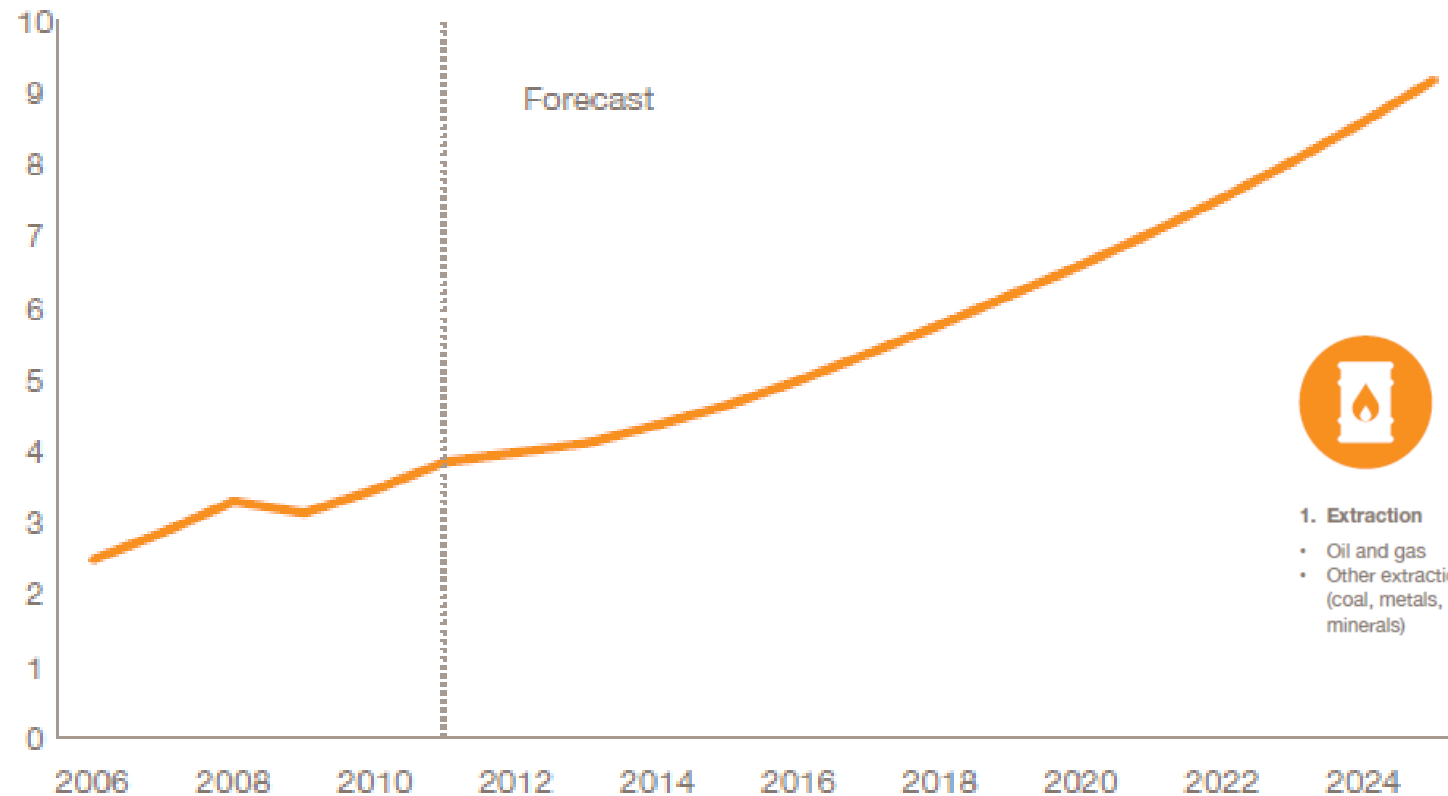
Clyde North 2010



Clyde North 2018

Global Infrastructure Spending to Reach \$9 Trillion by 2025

\$trn, current prices



Source: Oxford Economics



1. Extraction

- Oil and gas
- Other extraction (coal, metals, minerals)



2. Utilities

- Power generation
- Electricity T&D
- Gas
- Water
- Telecoms



3. Manufacturing

- Petroleum refining
- Chemical
- Heavy metals



4. Transport

- Rail
- Roads
- Airports
- Ports



5. Social

- Hospitals
- Schools

Built Environment Careers

THE NEW WAY TO DO UNI



Careers



Careers

Cadetships/ Internships

- ◆ Transurban – WGT Project
- ◆ Multiplex

Graduate Positions

- ◆ Built – Flinders St Station Renovation
- ◆ Hickory Group
- ◆ Rider Levett Bucknail (RLB)
- ◆ AECOM



Study Life at VU

THE NEW WAY TO DO UNI



What to Expect

- ◆ Open door policy
- ◆ Personal one-on-one style teaching
- ◆ Supportive and understanding staff

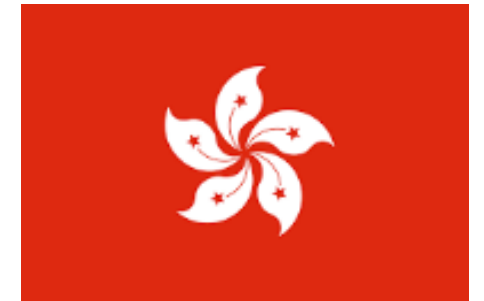
Uni life is more than studying!

- ◆ Travel, NCP Study Tours + VU Academy
- ◆ Short Courses
- ◆ Clubs and Societies



NEW COLOMBO PLAN

Connect to Australia's future - study in the region



VU ACADEMY
For Social Change and Leadership
◆ VICTORIA UNIVERSITY



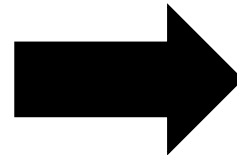
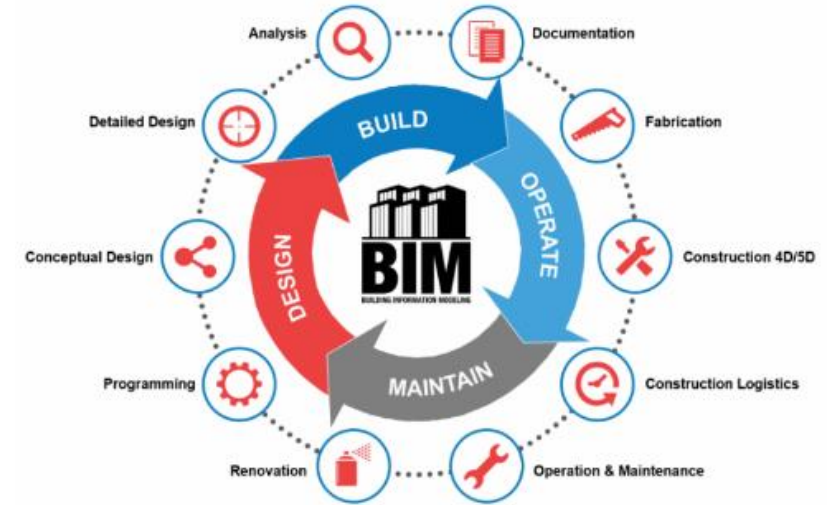
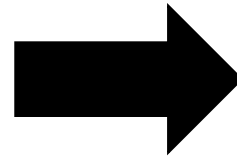
Bachelor of Construction Management

Graduate with a career as a:

- ◆ Construction Manager
- ◆ Project Manager
- ◆ Quantity Surveyor
- ◆ Estimator
- ◆ Contract Administrator
- ◆ Facility Manager
- ◆ Property Developer
- ◆ Building Contractor



Transition Process



Success Stories

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Success Stories

Most of our Graduates are employed in the industry prior to graduating

Industry collaborations with Transurban, various local councils, Think Brick Australia, Built, WestKon etc

Internship opportunities for VU students

Graduates



Annelyse Carter

- ◆ Assistant Project Manager
- ◆ AECON
- ◆ Final year student (2019)



Travis Sheen

- ◆ CM Cadet
- ◆ Multiples
- ◆ Final year student 2019



Nick Cibiras

- ◆ CM Cadet
- ◆ Built
- ◆ Last year graduate (2018)

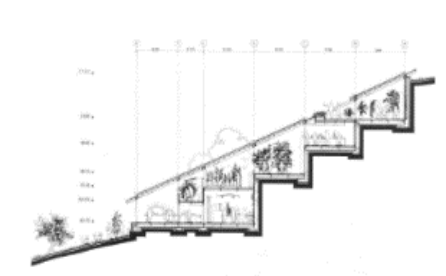
Bachelor of Building Surveying

- ◆ Average age of Building Surveyors in Australia is over 50
- ◆ Two levels of Building Surveyor Registration:
 - Building Surveyor (Limited)
 - Building Surveyor (Unlimited)

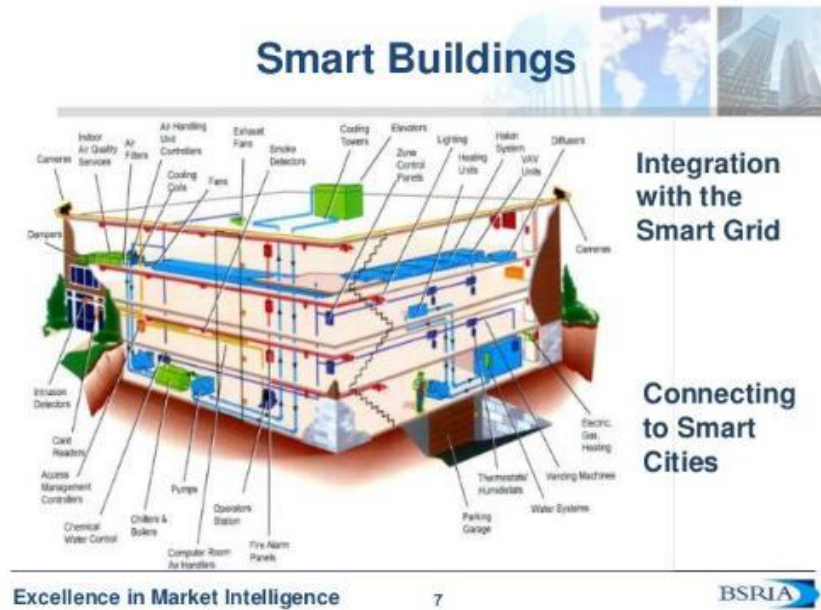


Bachelor of Building Design

- ◆ Sustainable green buildings
- ◆ Environmental and green design in the era of global climate change, air pollution, deforestation and drought
- ◆ 3D modeling and data visualization with IT technology



Cities of the future



Study Tours

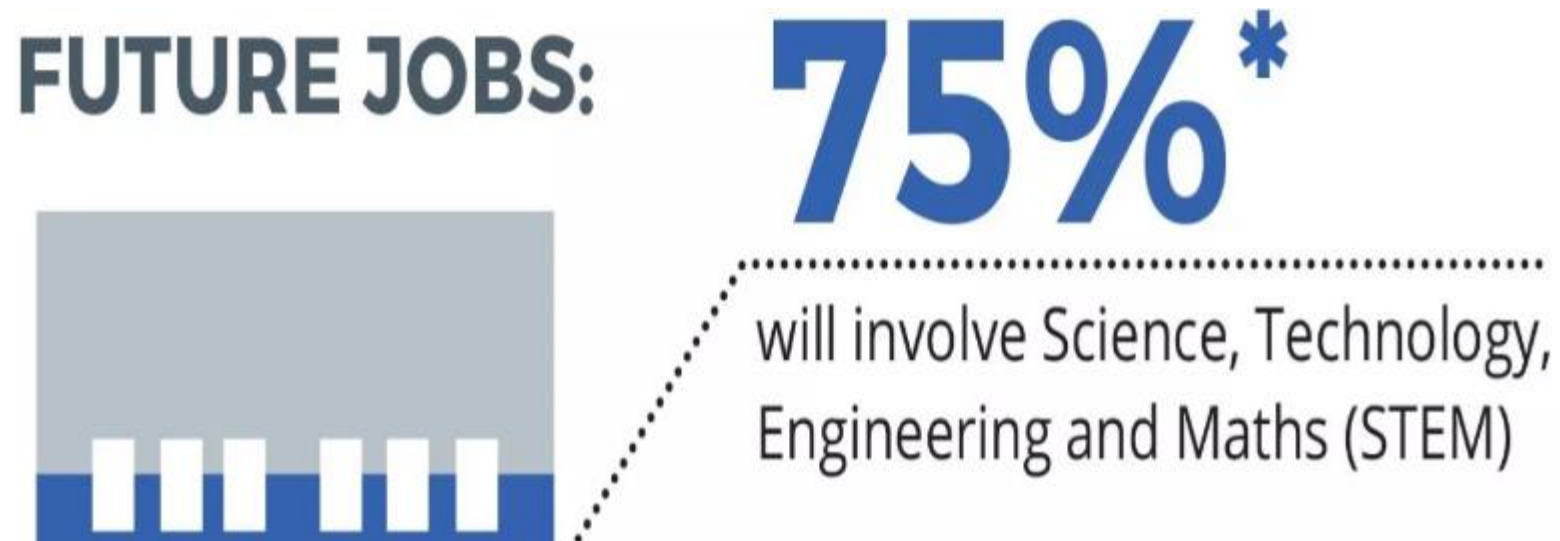


Science

**Dr Joshua Johnson – Head of Discipline & Course Chair,
Science Discipline, College of Engineering and Science**

Trends

Employers need STEM literate University Graduates



Science Careers

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Careers

Ecology and Environment Manager

As a Life Scientist you could help protect the environment by fighting issues like climate change



Biotechnology

Lab scientists and chemists needed in biopharma, biotechnology, medicine and molecular biology



Finance and Sales/ Data Analysts

Companies need math competent graduates in business, finance and accounting to make use of big data



Careers

Innovation and Sustainability Sector

Scientists needed to develop new technologies and sustainable practices for a better future



Education

Education is Victoria's largest export industry. Providers need science graduates to train the next scientists



Bachelor of Science

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Majors

The College of Engineering and Science offers two majors in the Bachelor of Science Degree

- ◆ Ecology and Environmental Management
- ◆ Biotechnology



Ecology and Environmental Management

- ◆ Australian Animals and Plants
- ◆ Australian Landscapes and Biota
- ◆ Fundamentals of Ecology
- ◆ Conservation, Sustainability and Genetics
- ◆ Marine and Freshwater Ecology
- ◆ Environmental Rehabilitation



Biotechnology

- ◆ Cell and Molecular Biology
- ◆ Molecular Genetics
- ◆ Microbiology and Immunity
- ◆ Biochemistry
- ◆ Clinical Genetics and Cellular basis of Disease
- ◆ Immunology
- ◆ Applied Research Projects



Minors

VU also offers these minors as part of the Bachelor of Science Degree:

- ◆ Environmental Science
- ◆ Ecology and Environmental Management
- ◆ Cell Biology/ Microbiology
- ◆ Analytical Chemistry
- ◆ Mathematics/ Statistics
- ◆ Tourism and Aboriginal Sustainability
- ◆ The Entrepreneurial Mindset

Science in Block Model

Science in Block Model



Science in Block Model



Lecturers with expertise in Ecology and Environmental Management



Dr Rowan Ploz

- ◆ VU Environmental Science Lecturer
- ◆ Radio-tracking large mammals to study their spatial ecology



Dr Christine Connelly

- ◆ VU Environmental Science Lecturer
- ◆ Studying woodland birds

Lecturers with expertise in Biotechnology



Dr Domenico Caridi

- ◆ VU Chemistry Senior Lecturer
- ◆ Conducting experiments in analytical chemistry



Dr Thomas Yeager

- ◆ VU Biotechnology Senior Lecturer
- ◆ Supervising students

Career and Industry Links

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Career and Industry Links

Ecology and Environmental Management

- ◆ Landcare/ Bushcare
- ◆ Environmental Planning
- ◆ Restoration ecology and land management
- ◆ Marine and freshwater ecosystem management
- ◆ Environmental education
- ◆ Ecological and resource assessment.

Industry Links

- ◆ Royal Botanic Gardens, Parks Victoria
- ◆ Zoos Australia, Victorian National Parks Association
- ◆ 'Friends Of' local conservation groups
- ◆ Landcare Australia, Fisheries Victoria
- ◆ Bureau of Meteorology, Bush Heritage



Career and Industry Links

Biotechnology

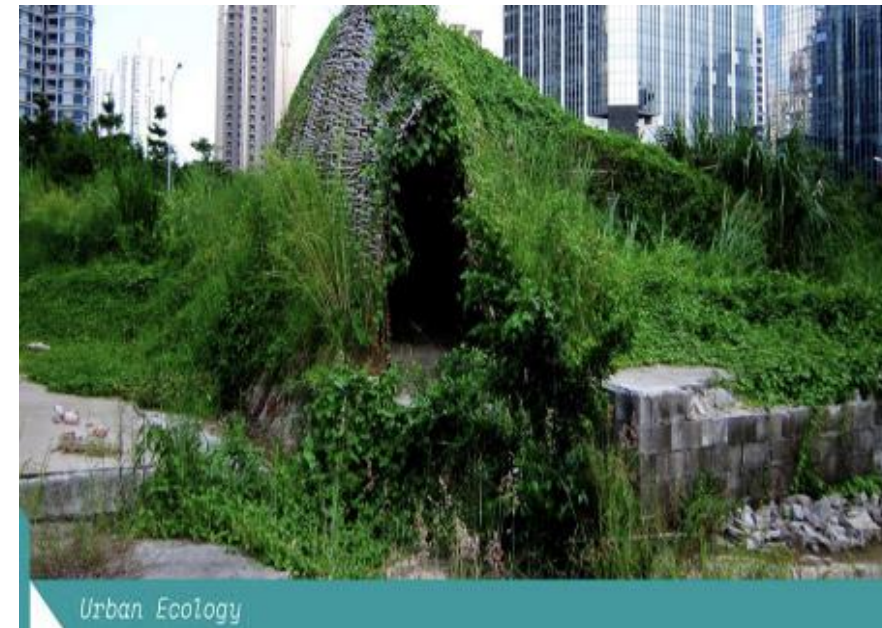
- ◆ Medical and Pharmaceutical Research
- ◆ Forensic Science
- ◆ Agriculture and Aquaculture
- ◆ The Food and Beverage Industry
- ◆ Biology Education

Industry Links

- ◆ Final year research project
- ◆ Links to authentic research projects in and outside VU
- ◆ Biomedical, Chemistry, environmental Science research
- ◆ Industry-based projects: NMI, CUB, CSL, National Herbarium, City West Water
- ◆ Industry standard labs and modern equipment



VU Science: A Pathway to a Strong Industry and Life Science Sector



Information Technology

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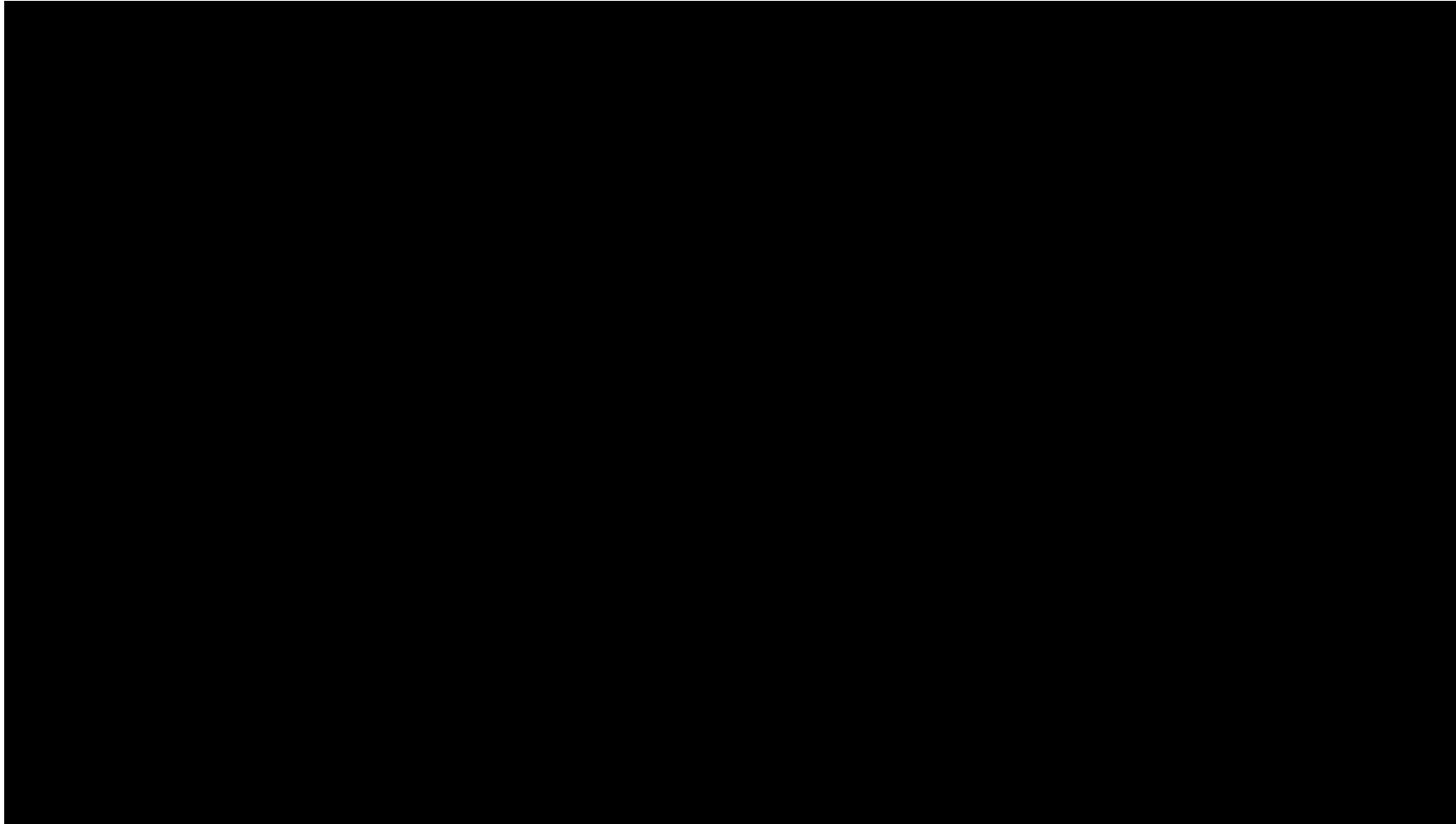
Information Technology @VU

Key Facts

- ◆ **301 – 350** in Computer Science and Information Technology in QS WU Rankings by Subject
- ◆ Computer Science and Information Technology ranked **2nd in Victoria and 9th in Australia** by the Times Higher Education World University Rankings (Top 2% of universities worldwide)



Information Technology @VU



IT Courses

THE NEW WAY TO DO UNI



Bachelor of Information Technology + Bachelor of Information Technology (Professional)



- ◆ Major in Web and Mobile Application Development OR Network and System Computing
- ◆ NBIT is accredited by ACS



Hao Shi

- ◆ Course Chair for Bachelor of Information Technology



Khandakar Ahmed

- ◆ Course Chair for Bachelor of Information Technology (Professional)

Bachelor of Information Technology

- ◆ **Majors:** Web and Mobile Application Development OR Network and System Computing
- ◆ **Duration:** 3 years (6 semesters)
- ◆ **Location:** Footscray Park Campus
- ◆ **Delivery Mode:** On campus
- ◆ **Fee Type:** Domestic and International
- ◆ **Entry Requirements:** Units 3 and 4: A study score of at least 25 in English (EAL) or at least 20 in English other than ELA; and a study score of at least 20 in any Mathematics

Bachelor of Information Technology Professional

Course Structure:

- ◆ 3.5 years
- ◆ 2 Years in NBIT course
- ◆ 1 Year Internship
- ◆ .5 Years in NBIP
- ◆ University and IT discipline support students for Industry Placement. Partner career agent provides discounted placement offers to students. Students work in any discipline based research projects as paid interns.

Entry Requirements:

- ◆ Must complete 2 years of NBIT, no direct entry to NBIP
- ◆ Designed for high achieving NBIT students

Focus and Expertise

Focus of our courses

- ◆ Cyber Security
- ◆ Cloud Computing
- ◆ Data Analysis
- ◆ Networking
- ◆ Software Development
- ◆ Research

Focus: Artificial Intelligence & Data Analytics

Application: Health Care & Smart Environments

Expertise of our courses

- ◆ Software Engineering
- ◆ Software Testing
- ◆ Sensor Networks
- ◆ Data Mining
- ◆ Cyber Security
- ◆ Social Network Analytics
- ◆ Image Processing
- ◆ People Tracking
- ◆ Mobile Technology
- ◆ Intelligent Software Agents
- ◆ Smart Homes
- ◆ Amazon Cloud
- ◆ Microsoft Hyper-V Virtualisation
- ◆ Wordpress CMS
- ◆ R Data Analytics
- ◆ Cisco Routing and Switching
- ◆ Cisco wireless
- ◆ Cognitive Modelling

Graduate Success Stories

Christine Soriano

- ◆ Through seizing practical experience during her studies, and professional opportunities since, she landed her dream job at Google.
- ◆ Christine worked at Google in Seattle, US as an interaction designer for 6 years
- ◆ “It’s hard not to be excited as you have the chance to meet and learn from so many talented people. It’s an inspiring environment and challenges you to be the best that you can be.”
- ◆ Today she is working at Facebook, Seattle

