



THE UNIVERSITY OF
MELBOURNE

Melbourne School
of Engineering



CIVIL ENGINEERING CAREER PATHWAYS

➤ For more information, visit
eng.unimelb.edu.au

CIVIL ENGINEERING AT MELBOURNE

Civil engineers plan, design and construct the built environment, providing essential services and infrastructure in a range of areas such as: water resources, geotechnical engineering, transportation, town planning, construction and structural engineering.

The Melbourne School of Engineering is the leading provider of engineering and IT education in Australia,* and ranked 25th in the world for Civil and Structural Engineering.#

Our professional Master of Engineering program is the first graduate program in Australia to offer accreditation from Engineers Australia and EUR-ACE®, enabling graduates to

practice as engineers in Australia, Europe, the US, Singapore, Japan, and more.

The Master of Engineering (Civil) provides depth, breadth and flexibility to a curriculum taught by world-class educators, access to industry based learning opportunities, and a generous program of scholarships.

Our civil engineering programs include:

- » [Master of Engineering \(Civil\)](#)
- » [Master of Engineering \(Civil with Business\)](#)
- » [Master of Philosophy \(Engineering\)](#)
- » [Doctor of Philosophy \(Engineering\)](#)

Construct a real-world career

Master of Engineering (Civil) graduate William Thay chose to make the switch to engineering, after studying and working in pharmacy.

“I wanted to become an engineer because the world is on the brink of great change, where the expertise of engineers will be needed to make life more sustainable.”

William became interested in construction, during some projects he worked on, while at university.

“I found the projects and assignments were very practical and a lot of things we worked on were actually happening in industry. I worked on a project that the City of Melbourne were also working on, providing me with invaluable realworld insight into project management.”

William has now secured a role in construction management with national construction company ProBuild.

William Thay

Construction Management Graduate
ProBuild



Specialisations

Civil Engineers specialise in a variety of areas including:

- » **Airport Engineering:** prepare designs for airports, hangars and control towers.
- » **Geotechnical/Soil Engineering:** inspect proposed construction sites to work out soil and foundation conditions by conducting drilling and sampling programs. Duties may include preparing specifications of soil mixtures for use in roads, embankments and other construction.
- » **Harbour Engineering:** design and supervise the construction of harbour facilities such as breakwaters, navigation aids, navigation channels, jetties, wharves, heavy-duty pavement surfaces, cargo sheds and bulk handling plants for grain, ore and other cargo.
- » **Highway Engineering:** analyse population and growth statistics and traffic patterns and volume to project future requirements. Duties may include designing efficient and safe traffic systems, studying roadway and embankment design, the geometry of highway interchanges and the maintenance of facilities such as culverts and overpasses.
- » **Hydraulic/Water Resources Engineering:** design and supervise construction, and advise on the operation, maintenance and repair of water resource facilities such as dams, aqueducts, hydro-electric plants, and water supply, drainage and sewerage systems.
- » **Irrigation/Drainage Engineering:** test, measure and analyse the characteristics of soil, such as salinity, water table level, areas of subnormal plant growth, soil type and surface profile.

*No. 1 in Australia; No.28 in the world. QS World University Rankings by Subject 2017. #QS World University Rankings by Subject 2017.



- » **Engineering for Local Government:** administer and supervise the design, construction and maintenance of projects such as roads, drainage systems, pedestrian and cycle facilities, bridges, buildings, recreation grounds, parks, waste disposal and water treatment schemes within a local government area.
- » **Materials and Testing Engineering:** research, test and evaluate the quality or suitability of materials and products such as asphalt, concrete, steel, cement, timber and plastics, taking into account factors such as stresses and strains, estimated load, water pressures, wind resistance and temperature fluctuations related to projects.
- » **Pipeline Engineering:** design proposals for pipelines and pipeline equipment, facilities and structures in consultation with petroleum and mechanical engineers.
- » **Railway Engineering:** study design proposals and advise on the construction, maintenance and repair of railway systems including tracks, terminals and yards.
- » **Structural Engineering:** design the framework of buildings, towers, bridges, water treatment structures, tunnels and other structures to ensure strength and rigidity.

Job Outlook

Engineering professionals are in demand, not only in Australia, but across the globe. With a rapidly growing population, the need for engineers will become more critical than ever to ensure our cities have adequate transport, power, water, telecommunications and healthcare.

Students are advised to begin building their employability skills whilst at University, to give themselves the best start to their careers. Visit the University Careers Service to find out more: careers.unimelb.edu.au

For more information about the job outlook for this sector, please visit the Australian Government's Employment Projections and Job Outlook website: joboutlook.gov.au

For information about salaries, see: graduateopportunities.com

Sectors & Employers

CHEMICAL ENGINEERING SECTORS & INDUSTRIES		EXAMPLES OF EMPLOYERS	
Construction	Manufacturing	AECOM	Golder Associates
Consulting	Mining	Arup	CIMIC Group
Geotechnical Engineering	Oil and Gas	Lend Lease Infrastructure	Parsons Brinckerhoff
Government Departments & Agencies	Transportation	Beca	VicRoads
	Utilities	Coffey	WorleyParsons
	Water Resources Engineering	GHD	SKM
			Thiess

Career Progression

GRADUATE	3-5 YEARS EXPERIENCE	10 YEARS
Graduate Civil Engineer	Civil Works Inspector	Engineering Manager
Draftsperson – Civil Engineering	Local Government Drainage Engineer	Senior Civil Engineer
Technical Officer	Asset Engineer	Technical Director
Graduate Surveyor	Local Government Traffic Engineer	Construction Supervisor
Graduate Safety Officer	Civil Engineering Quantity Surveyor	Engineering Project
Graduate Project Engineer	Senior Civil Estimator	Site Superintendent



Alternative Careers

An engineering degree at the University of Melbourne gives you a solid technical and design foundation combined with strong analytical, problem solving and communication skills valued across a range of industries. Other areas our graduates have moved into include:

- » Management consulting
- » Finance, economics and banking
- » Business analysis
- » Project management
- » Technical sales, marketing and communications
- » Intellectual property management
- » Technical writing
- » Government and policy

Careers in Research

If you are passionate about a field of electrical engineering and would like to advance your research skills, enrolling in a graduate research degree could be a great option for you. Graduate research enhances your ability to problem solve, think autonomously and creatively, and analyse. Careers in research are diverse and may include:

- » academic positions at universities;
- » policy-making or research positions at public sector organisations;
- » private sector research and development projects;
- » self-employed consulting positions on technical or policy issues in your area of expertise.

Employability Services and Industry Links

Students undertaking our programs have access to a range of employability services, and benefit from a curriculum that offers excellent opportunities to connect with industry through:

- » an elective internship subject
- » student projects partnered with industry
- » guest lectures led by industry leaders and experts
- » site visits hosted by key organisations
- » industry networking events
- » career panels featuring industry representatives
- » career question drop-in service
- » an online jobs and internships portal



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