Engineering

Civil Engineering

Build your global future

Australia • China • India • Italy • Malaysia • South Africa
Civil engineers are some of the most highly sought after graduates in industry. As one of the most diverse areas of engineering, you can find civil engineers in a range of areas, including designing, building and managing just about everything from a major freeway or railway, to a water storage reservoir, oil rig platform, harbour facility, or environmentally friendly structure. Many civil engineers also work in the mining, oil and gas industry.

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**Making an impact**

Studying in the Department of Civil Engineering puts students amongst some of the best engineering minds in the country. It is home to the Institute of Transport Studies (ITS), Monash Centre for Water Liveability, Cooperative Research Centre for Water Sensitive Cities and Management and Prediction of Pipe Bursts (MAPPS).

The Monash Centre for Water Liveability consolidates Monash University’s research and development in advancing sustainable cities and is researching best practice methods of implementing water sensitive urban design at a government, industry and community level.

Civil engineering encompasses four major fields of activity: structural, water, transport and geotechnical engineering.

The Department of Civil Engineering also recognises the importance of a solid educational environment which responds to individual students’ needs, supporting and encouraging interaction between students and staff.

The latest education techniques, such as computer-assisted and project-based learning are applied and developed by enthusiastic teachers.

The department emphasises a balanced approach between theory and practical studies.

**What do civil engineers do?**

As a civil engineer you might:

- Design a water supply system for a new city
- Provide various alternatives to relieve traffic congestion and to solve transport problems
- Develop new ways of treating and reusing stormwater and waste water to preserve precious resources
- Manage the maintenance of the large bridges that link most cities major arterials
- Develop new ways of tackling climate change through geological sequestration of carbon dioxide
- Provide an emergency water supply, sanitation system or community housing for refugees or displaced people
- Prevent contamination of soil and ground water from industrial activities
- Design systems to control erosion in rivers and protect people from the devastation of floods
- Investigate, design, and manage the construction of a multi-storey building
- Design a new road, freeway or tunnel and manage their construction
- Develop a mathematical or physical model of river and tidal currents to investigate the viability of a new port
- Provide technical advice to a community group about developing a stormwater reuse project
- Prevent contamination of soil and ground water from industrial activities
- Develop the concept of a ‘green building’ that produces more electricity than it consumes and has a self sufficient water supply
- Interpret and organise specifications, drawings, plans, construction methods, and procedures for an innovative foundation system for unstable soils
- Work with a consortium to design an eco-tourism resort
- Run training courses for other engineers to keep them abreast of specialist skills

**Matthew Glowaski**

Bachelor of Engineering in the field of Civil Engineering (Hons) and Bachelor of Arts

Graduate Engineer, McConnell Dowell

“The common first year was a big factor for me in choosing a Monash engineering degree, as it allowed me the flexibility to decide later in my degree what area of specialisation to choose.

Also, Monash are engineering leaders when it comes to their engineering research and facilities.

What I enjoy most about engineering is the challenging nature of the job. I love the fact that my qualifications allow me to travel to beautiful and remote locations and to assist society and communities through the construction of critical infrastructure.

I think above all, my training and experience at Monash taught me to think critically and to problem solve. It taught me to look at situations from different angles, push the boundaries, and to question everything.”

**Narelle Hahn**

Bachelor of Engineering in the field of Civil Engineering (Hons) and Bachelor of Commerce.

Narelle was the 2011 recipient of the GHD Prize in Water Engineering.

Graduate Civil Engineer, Beveridge Williams.
A world of options in civil engineering

Local and international opportunities abound in private industry, government, construction engineering management, mining, marine and resort developments, property/land development and consulting firms. You might even start your own company. Recent graduates from the Department of Civil Engineering at Monash University have gone on to exciting positions in private industry with companies such as AECOM, SKM, GHD Pty Ltd, Hyder Consulting Pty Ltd and Thiess Pty Ltd.

Others have been employed by major government bodies such as VicRoads, and Melbourne Water. Others are working in international aid and development projects.

Commencing salaries for graduates of civil engineering average $58,000 plus superannuation pa, based on the results of the Association of Professional Engineers, Scientists and Managers, Australia (APESMA) Graduate Engineer Employment Survey 2011. www.apesma.asn.au

Civil engineering at Monash

Monash Engineering offers a common first year engineering program as part of the Bachelor of Engineering course, allowing students’ time to develop an understanding of the five engineering fields before choosing a discipline. At the end of first year students can apply to enter Civil Engineering, based on their academic results.

It is a four year degree if taken full time or up to eight years if taken part-time.

In addition, you automatically qualify for a degree with honours for high academic achievement throughout the course as a whole – no additional time is required. If upon completion a student achieves a final overall average of first class honours, the Faculty of Engineering guarantees a scholarship to undertake research studies after the final year of their undergraduate degree.

Trevor Balm

Bachelor of Engineering in the field of Civil Engineering (Hons)
Civil Engineer, Highways, AECOM

As a civil engineer in the transport industry, Trevor is responsible for a range of tasks including the design of major road networks and drainage infrastructure, conducting feasibility studies for future infrastructure projects, and assisting in project management.

"I believe that my role will provide innovative and cost effective design solutions to road infrastructure, improving the way we travel.”

Highlights of Trevor’s degree include the opportunity to apply his knowledge and technical skills to practical projects.

"I developed my problem solving skills and the ability to work in a team environment through the group assignments component of my degree, setting me up for my current role.”

For future students, “don’t be afraid to dream big, some of the best designs have come from innovative ideas.”

The Department of Civil Engineering has a vast range of highly specialised equipment for students to access, including the above CO₂ Sequestration Test Rig.
Course outline

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<tr>
<td>Level 1</td>
<td>Common first year.</td>
<td>In the first year of the course you apply your maths and science knowledge to real life problems, and understand the interaction between engineering and society. You will develop skills in communication, report writing, teamwork, quality and ethics.</td>
<td>Contact the Faculty of Engineering for a copy of our Undergraduate Programs brochure: Phone: +61 3 9905 3404 or visit our Future Students website and download a copy online: <a href="http://www.eng.monash.edu/prospective/ug">www.eng.monash.edu/prospective/ug</a></td>
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<tr>
<td>Level 2</td>
<td>Specialisation in civil engineering begins.</td>
<td>Project-based learning to link theory to practical applications. Units are taught around major group projects in the areas of structures, transport, water and geomechanics. The project based approach continues into later levels.</td>
<td>For more detailed information about the Bachelor of Engineering degree in the field of Civil Engineering, including details about double degrees and credit transfer possibilities, contact the course administration officer: Ms Irene Sgouras Phone: +61 3 9905 4971 Email: <a href="mailto:irene.sgouras@monash.edu">irene.sgouras@monash.edu</a></td>
</tr>
<tr>
<td>Level 3</td>
<td>Development of core professional skills.</td>
<td>Management, engineering investigation, transport engineering, structures, water and geomechanics units continue.</td>
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<tr>
<td>Level 4</td>
<td>Opportunity to specialise in one of the four civil engineering disciplines.</td>
<td>Independent research project, a unit on civil engineering practice, and specialised electives from the Department of Civil Engineering.</td>
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Twelve weeks of vacation employment undertaken during the course completes the degree.

Prerequisites

The prerequisites for entry to the Bachelor of Engineering are:

**Domestic applicants**

VCE Year 12, Units 3 and 4 – a study score of at least 30 in ESL, or at least 25 in English (any), at least 25 in Mathematical Methods (CAS), and at least 25 in one of either Chemistry or Physics.

**International applicants**

A qualification equivalent to the Australian VCE Year Twelve and the required prerequisite subjects. Please refer to the following course finder link for further details: [www.monash.edu/study/coursefinder](http://www.monash.edu/study/coursefinder)

Double your opportunities

In double degree programs, the units from each faculty are mixed in each year of study, allowing you to gain two degrees in five or six years.

Civil Engineering may be combined with a number of complementary disciplines, allowing you to enhance your educational experience and career options.

Why not combine a language through a double degree in arts? Or gain a business advantage with a double degree in commerce or law?

Double degrees are available with:

- Bachelor of Architectural Design
- Bachelor of Arts
- Bachelor of Biomedical
- Bachelor of Commerce
- Bachelor of Laws
- Bachelor of Science

Course recognition

All of the civil engineering programs offered by Monash University are fully accredited with Engineers Australia.

Australia is a signatory to the Washington Accord, enabling Monash University engineering graduates to work in any country in the world which is also a signatory, without needing to re-qualify.

Enquiries

Contact the Faculty of Engineering for a copy of our Undergraduate Programs brochure:

Phone: +61 3 9905 3404 or visit our Future Students website and download a copy online: [www.eng.monash.edu/prospective/ug](http://www.eng.monash.edu/prospective/ug)

For more detailed information about the Bachelor of Engineering degree in the field of Civil Engineering, including details about double degrees and credit transfer possibilities, contact the course administration officer:

Ms Irene Sgouras

Phone: +61 3 9905 4971

Email: irene.sgouras@monash.edu

Anna Lintern

**Bachelor of Engineering in the field of Civil Engineering (Hons) and Bachelor of Arts**

PhD Student, Monash University

Anna is currently a PhD student at Monash University, working on modelling the historical change in the water quality of floods. Anna hopes her research will find solutions to societal problems such as flood damage and public health risks due to poor water quality.

“My current research will allow us to better understand the impact that humans have had on water quality and inform the development of effective catchment management strategies.”

“The best part of my research experience has been the freedom to pursue my interests in both civil engineering and history, thus utilising the skills I developed in both my engineering and arts undergraduate degrees.”

The information in this brochure was correct at the time of publication (July 2012) Monash University reserves the right to alter this information should the need arise. You should always check with the relevant Faculty office when considering a course.

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