What can I do with a degree in Civil Engineering?

Civil Engineering.

Career planning: what do I need to know?
Knowledge of yourself is important for career decision making. Start by looking at your personal goals, abilities, values and interests to explore study and career options that are relevant to you. Some of these may change over time, so it is important to self-reflect and evaluate your career on an ongoing basis.

What do employers look for?
Many employers look for generic skills such as communication, customer-focus, cultural awareness and teamwork. With technology and globalisation changing the nature of society, skills such as resilience, problem solving and adaptability are valuable at work as well as in life.

How can I develop these skills?
- Some skills are developed through your degree
- Extra-curricular activities can help, for example getting involved in clubs, mentoring, cultural groups, part-time work or volunteering
- Be open to professional and personal development opportunities. Whether it is undertaking an internship, overseas exchange, skills seminar, or joining an industry group — these activities will enhance your employability.

What else should I know?
The career options in this brochure are examples only and the list is not exhaustive. Some careers may require further study beyond a first degree or additional work experience. Some pathways and degrees have a recommended school background. Find more subject details at "www.canterbury.ac.nz/subjects/enci"

If this brochure does not answer your questions, talking to an expert such as a career consultant can help you to identify the next steps in your career decision making journey. "www.canterbury.ac.nz/careers"

What is Civil Engineering?
Civil engineering shapes the world that we live in. From earthquakes to megastructures, civil engineers must understand our environment and the problems which exist. They devise practical solutions that make a difference to people’s lives.

Civil engineering has had a huge impact on Aotearoa New Zealand’s past. Since the late 1800s, hydroelectric dams have been built to provide clean, renewable energy. Embankments line many major rivers to protect against flooding. Civil engineers have considered how to design buildings and foundations to withstand the effects of earthquakes, and developed safe travel routes.

In the coming decades, the world faces many important challenges. Among them, the effects of climate change and the needs of an ever-expanding world population will need new ideas. Whatever the future holds, civil engineering and civil engineers have an important role to play.
What skills have UC graduates gained?

Through their Civil Engineering degree graduates develop a valuable set of skills that are transferable to a range of careers. These skills include:

- Creativity and innovation
- Communication and teamwork
- Logical and quantitative thinking
- Problem solving and decision making
- Practical application of engineering technology and science
- Design skills and an understanding of computer design software
- Supervising, directing and organising people and projects
- Awareness of environmental considerations.

Applied learning

Students undertake 800 hours of practical work experience as part of this engineering degree, providing them with a good understanding of industry and the confidence to apply their skills in a workplace setting. Applied learning also takes place on fieldtrips and through an industry project.

Where have UC graduates been employed?

Just as there are many distinct Civil Engineering jobs, so too are there diverse types of employers. Most new graduates are employed with either:

- Contractors or
- Consultants.

For some, however, their career path lies within:

- Architectural practices
- Road surfacing firms
- Environmental contracting organisations
- Oil and utility companies
- Telecommunications businesses
- Self-employment
- Research — in business, government or universities (which usually involves teaching too).

For more examples of employers who recruit UC students and graduates go to www.canterbury.ac.nz/recruitingemployers

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**AT A GLANCE**

- **4.3%** increase in the number of engineering professionals expected by 2020*

- **$11.7t** the size of the global civil engineering market is expected to be over US$11.7 trillion by 2025**

**MORE**

- civil engineers and civil engineering technicians needed in Aotearoa New Zealand^*
What jobs and activities do graduates do?

There are many career options for graduates. In Civil Engineering roles they may undertake design, management, planning and/or building work. See some examples of jobs and activities below.

Note: Some of the jobs listed may require postgraduate study. See the ‘Further study’ section.

Civil engineer
- Consults with stakeholders on requirements
- Plans and designs structures and systems
- Analyses the strength and capacity of structures and systems

Structural engineer
- Designs and supervises the construction of structures
- Investigates and analyses the site conditions
- Refurbishes and strengthens existing structures

Environmental engineer
- Tests environmental samples for pollution
- Minimises the project’s environmental impact
- Designs waste management systems

Water engineer, water resources engineer
- Designs water-related systems eg, pipe work
- Monitors the progress of water projects
- Checks water-related systems for possible issues

Project engineer
- Manages a project plan, budget and schedule
- Supervises a project’s daily progress
- Liaises with project staff and clients

Bridge engineer
- Plans, designs and models new bridge projects
- Oversees implementation progress
- Liaises with project staff and clients

Geotechnical engineer
- Analyses geologic data and how a site will behave under pressure
- Determines an area’s suitability for construction
- Makes construction recommendations

Transportation engineer
- Designs, tests and improves transport systems and structures
- Creates plans to meet changing transportation needs and population patterns
- Researches and analyses traffic patterns

Site engineer
- Surveys and levels the building site
- Checks accuracy of construction plans/materials
- Oversees the quality of building work

Humanitarian engineer
- Applies skills to help developing communities
- Develops resource solutions with local groups
- Problem solves in challenging environments

Fire engineer
- Uses modelling software to prepare reports, specifications and drawings
- Conducts forensic engineering for insurance/legal purposes
- Designs and inspects safety systems

Entrepreneur and CEO
- Develops an idea to form their own business
- Offers their services as a consultant

Get started at www.canterbury.ac.nz/careers/Entrepreneurship/getting_started.shtml

What professional bodies can people link to?

As they progress, students and graduates often join professional bodies or organisations relevant to their area of interest. These organisations can provide regular communications and offer the chance to network with others.

• Institution of Professional Engineers New Zealand www.ipenz.org.nz
• The Association of Consulting Engineers New Zealand Inc www.acenz.org.nz
• Structural Engineering Society New Zealand www.sesoc.org.nz
• New Zealand Society for Earthquake Engineering www.nzsee.org.nz
• Engineering Associates Registration Board NZ www.engineering-associates.org.nz
• Design Association of New Zealand www.danz.co.nz

Social media networks such as LinkedIn, Facebook and Twitter can provide avenues to keep up-to-date with industry knowledge, networking opportunities, events and job vacancies.

Why do further study and what are my options?

Postgraduate study can facilitate career benefits such as specialist skills, entry into a specific occupation, and advanced research capability. It is important to determine which, if any, further study will help you in your future career.

UC offers postgraduate programmes in Civil Engineering, Construction Management, Earthquake Engineering, Engineering Management, Fire Engineering, and Transportation Engineering. Some of these courses are run in block-mode, enabling participants to fit study around work commitments. Visit www.canterbury.ac.nz/courses

Get started at www.canterbury.ac.nz/careers/Entrepreneurship/getting_started.shtml
Sebastian Pian

Studying towards a Bachelor of Engineering with Honours in Civil Engineering
Structural Engineer Technician, Spanbild NZ Ltd, Christchurch

What does your job involve?
As this company focuses on producing engineering solutions for projects, I was tasked to calculate wind speed acting on structures for projects all around New Zealand. Besides that, I produced 3-D models for projects which required further specific adjustments and verified that they were in accordance with the standards. Working at Spanbild has allowed me to apply the knowledge that I learned from UC into actual projects and buildings.

What did you enjoy about studying at UC?
The staff at UC are generally just welcoming and lovely. I received a warm welcome on the first day I arrived in Christchurch which is partly the reason why I settled in well during my first year here.

My experiences at the University have helped me to realise that what I have been through back home in Kuching was just a small part of my life. I have never regretted my decision to be part of this eye-opening experience.

How have UC’s support services helped you?
I went to UC Careers for advice on job applications. They helped me with my résumé, cover letter and dealing with job interviews. In the end, all the sessions I attended came to be useful and I recommend people to approach them.

What are your career goals?
My goal is to work as a professional engineer with a focus on residential, commercial and industrial structures. I would like to see myself working in different parts of the world and learning different cultures’ views on Civil Engineering. In the long run, I hope that my work experience can lead me to becoming a successful developer back in my home town.

More information

UC students seeking study advice.
Department of Civil and Natural Resources Engineering
Te Rāngai Pūkaha | College of Engineering
Our graduates are making the world a better place – from the provision of safe drinking water to creating infrastructure that can withstand powerful forces. A Civil or Natural Resources degree opens doors to career opportunities around the globe and our postgraduate qualifications cater for working engineers. Speak to an Advisor about which programme will help you shape your career.

T: +64 3 369 3113
E: engdegreeadvice@canterbury.ac.nz
[www.canterbury.ac.nz/engineering/schools/cnre]

Anyone seeking careers advice.
Careers, Internships & Employment
Te Rōpū Rapuara
CIE offers intending and current students and recent graduates a wide range of services, including individual career guidance, seminars, career resources and student and graduate employment opportunities.

T: +64 3 364 3310
E: careers@canterbury.ac.nz
[www.canterbury.ac.nz/careers]
[UCCareersEmployment]

Prospective students seeking study advice.
Student Liaison
Te Rōpū Takawaenga
Student Liaison provides intending students with information about the university system in general and the courses, qualifications, support and facilities available at UC.

Ōtautahi | Christchurch
T: 0800 VARSITY (0800 827 748)
E: liaison@canterbury.ac.nz
[Te Whanganui-a-Tara | Wellington
T: 0800 VARSITY (0800 827 748) ext 93231
E: wellington@canterbury.ac.nz]

[www.canterbury.ac.nz/liaison]

Te Rāngai Pūkaha
UC ENGINEERING

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