

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, bicultural competence, 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 Engineers are entrusted to achieve a sustainable world and raise the global quality of life. They tackle challenges of the 21st century such as climate change and inequality, creating earthquake-resilient communities, and ensuring clean water for future generations.

Civil engineers are; planners, designers, constructors, and operators of the built environment, and the infrastructure we depend on like buildings, bridges, transportation, drinking water and wastewater systems. They are kaitiaki (stewards of our natural environment), innovators and integrators of ideas, and managers of risk and uncertainty.

Civil engineers work in interdisciplinary teams and with communities, including mana whenua, to come up with cutting-edge and creative approaches to solve the complex and large-scale challenges we face.



AT A GLANCE

94%

of civil engineering graduates were employed in either their ideal employment or a step in the right direction*

\$11.7t+

is the estimated size of the global civil engineering market by the year 2025**

MORE

civil engineers & civil engineering technicians needed in Aotearoa New Zealand[^]

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).

* 2017, 2018, 2019 Graduate Destination Survey combined

** Global Market Insights, October 2016

[^] Immigration New Zealand's 2019 long-term skill shortage list www.skillshortages.immigration.govt.nz

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 & self-employment

Entrepreneurship and innovation are an increasing part of the working landscape. Through generating a business idea, or getting involved in a start-up/business venture, you have the potential to create a work opportunity that aligns with your knowledge, skills, values and risk profile. To get started on how to establish, run and grow a new business, go to Te Pokapū Rakahinonga, Centre for Entrepreneurship at the University of Canterbury www.canterbury.ac.nz/uce

What professional organisations can I engage with?

Connecting with professional bodies and organisations can help you to establish professional networks and learn more about

different career options in your area of interest. Gaining valuable insight into a profession can assist in making informed career decisions.

- 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

Having a professional presence on social media networks such as www.linkedin.com and Facebook can help you to keep up to date with important industry developments and trends, networking opportunities, events and job vacancies. Following relevant professional bodies, organisations, companies and thought leaders is a great way to gain a deeper awareness of the industries that interest you. Social media presents an opportunity to build and enhance networks as well as to display your involvement in projects and any academic successes.

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

Useful links

- Te Rōpū Rapuara UC Careers www.canterbury.ac.nz/careers
- Careers New Zealand www.careers.govt.nz



Sebastian



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.

Read more online

Read more stories about our students' university experiences online. UC alumni make a difference in varied ways around the globe. To find out where graduates are now visit www.canterbury.ac.nz/getstarted/whyuc/student-profiles

The information in this brochure was correct at the time of print but is subject to change.

More information

UC students seeking study advice.

Te Tari Pūhanga Metarahi, Rawa Taiao
Department of Civil and Natural Resources
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.

Te Rōpū Rapuara | UC Careers

UC 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 3 369 0303

E: careers@canterbury.ac.nz

www.canterbury.ac.nz/careers

Prospective students seeking study advice.

Te Rōpū Takawaenga | Student Liaison

The liaison team provide advice to future students who are starting their degree for the first time. They can assist with information on degrees, scholarships, accommodation, and other aspects of university life. We have offices in Christchurch, Auckland and Wellington.

Ōtautahi | Christchurch

T: 0800 VARSITY (0800 827 748)

E: liaison@canterbury.ac.nz

Tāmaki Makaurau | Auckland

T: 0800 UCAUCK

E: auckland@canterbury.ac.nz

Te Whanganui-a-Tara | Wellington

T: 0800 VARSITY (0800 827 748)

E: wellington@canterbury.ac.nz

www.canterbury.ac.nz/liaison

