

# What can I do with a degree in Natural Resources Engineering?

# Natural Resources 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/ennr](http://www.canterbury.ac.nz/subjects/ennr)

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](http://www.canterbury.ac.nz/careers)

## What is Natural Resources Engineering?

Natural resources engineering is an increasingly important form of engineering focused on longevity and sustainability. Natural resources engineers work with nature to help enhance and benefit society while using available resources in a sustainable manner. They apply physical and social sciences to help them understand the overall ecological impact when designing and constructing life-enhancing facilities. They ensure our environment is effectively protected and preserved for the future.

Natural resources engineering can be differentiated from environmental engineering as it works to integrate design into nature and natural eco systems.

UC is the only university in Aotearoa New Zealand that offers a Natural Resources Engineering degree programme.



## AT A GLANCE

84%

of Aotearoa New Zealand's electricity generation is derived from renewable sources\*

76%

of Natural Resource Engineering graduates were in their ideal employment or working in a step in the right direction\*

## What skills have UC graduates gained?

Through their Natural Resources Engineering degree graduates gain a skillset that includes:

- Engineering design
- Creativity and innovation
- Ecological, hydrological, biological and social science knowledge
- Awareness of environmental, ethical, cultural and legal considerations
- Logical and quantitative thinking
- Problem solving and decision making
- Ability to apply technology and science.

### Applied learning

Students undertake 800 hours of practical work experience as part of this degree. This provides you with industry understanding and the confidence to apply your skills. Learning and networking also take place during fieldtrips and an industry project.

## Where have UC graduates been employed?

UC-trained natural resources engineers have been employed in a number of organisations such as:

- Professional engineering consultancies eg, Aurecon, Pattle Delamore Partners, Beca, Morphum Environmental, Stantec, Jacobs, Opus International, AECOM, GHD, Tonkin

& Taylor, Calibre, Good Earth Matters, Cardno, LDE Ltd, ENGEO Ltd, Golder Associates, Index Engineering

- Government bodies eg, Ministry for the Environment, Environmental Protection Authority, Department of Conservation, Waikato Regional Council, Environment Canterbury, Auckland Regional Council
- Primary industry companies
- Engineering contractors eg, Fulton Hogan, Watercare, McConnell Dowell, Downer, CityCare
- Energy companies eg, Meridian Energy, Enercon Ltd, Woodside Energy
- Transport eg, Kiwirail, NZ Transport Agency
- Research institutes eg, National Institute of Water and Atmospheric Research, Landcare Research.

Due to their ability to manage a range of environmental applications, graduates can be found in diverse rural and urban industries, from the defence force to product innovation.

### Natural resources engineers may specialise in:

- Pollution management and treatment
- Water resources and irrigation
- Renewable energy
- Land and water conservation
- Geotechnical engineering
- River catchment management
- Urban and community planning
- Public health engineering
- Waste management and recovery.

\* 2017, 2018, 2019 Graduate Destinations Surveys combined  
 \* MBIE Energy in New Zealand 2019 report

## What jobs and activities do graduates do?

Natural Resources Engineering graduates are employed in a number of jobs — see some examples below.

*Note: Some of the jobs listed may require postgraduate study. See the 'Further study' section.*

### Natural resources engineer

- Maximises the use of natural resources
- Designs plans for land, water, and sustainable energy development
- Assesses environmental impacts
- Future proofs infrastructure for climate change

### Environmental engineer

- Tests environmental samples for pollution
- Investigates any legislative concerns
- Minimises the project's environmental impact
- Designs waste management systems

### Water engineer, water resources engineer

- Designs water-related systems eg, pipe work, irrigation systems
- Monitors the progress of water projects
- Checks water-related systems for issues

### Ecological engineer

- Develops prevention strategies for pollution and erosion
- Examines the impacts on ecological systems
- Designs sustainable infrastructure that benefits both the ecosystem and people

### Waste management expert

- Develops and applies safe procedures for disposing of hazardous waste material
- Designs waste management systems
- Trains staff to manage waste materials

### Geotechnical engineer

- Studies soil and rock materials, and the technology that builds in, on, and with them

- Analyses geologic data and how a site will behave under pressure to determine an area's suitability for construction
- Writes reports and makes recommendations

### Humanitarian engineer

- Applies expertise to empower and support disadvantaged communities
- Develops solutions with local groups to ensure access to vital resources eg, clean water, energy
- Problem solves in challenging environments

### Sustainability engineer / advisor / analyst

- Promotes sustainability initiatives
- Manages water, power and waste practices
- Identifies opportunities for efficiency and cost reduction

### Project engineer

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

### 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](http://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.

- Engineers for Social Responsibility [www.esr.org.nz](http://www.esr.org.nz)
- Environment Institute of Australia and New Zealand [www.eianz.org](http://www.eianz.org)
- Waiora Aotearoa | Water New Zealand [www.waternz.org.nz](http://www.waternz.org.nz)
- New Zealand Hydrological Society [www.hydrologynz.org.nz](http://www.hydrologynz.org.nz)
- Engineering New Zealand [www.engineeringnz.org](http://www.engineeringnz.org)

UC hosts industry and Engineering New Zealand events which can help students make industry connections.

Having a professional presence on social media networks such as [www.linkedin.com](http://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, higher starting salary, faster progression rate, and advanced research capability. It is important to determine which, if any, further study will help you in your future career.

UC offers further study in Civil Engineering, Water Resource Management, Ecology, Renewable Energy, Engineering Management, and Environmental Science. A master's or PhD allows you to research and specialise. [www.canterbury.ac.nz/courses](http://www.canterbury.ac.nz/courses)



## Useful links

- Te Rōpū Rapuara UC Careers [www.canterbury.ac.nz/careers](http://www.canterbury.ac.nz/careers)
- Careers New Zealand [www.careers.govt.nz](http://www.careers.govt.nz)
- Engineers Without Borders [www.ewb.org.nz](http://www.ewb.org.nz)

## Jane



Bachelor of Engineering with Honours in  
Natural Resources Engineering  
Studying towards a PhD in Civil Engineering

### Why did you choose Engineering?

At high school I really had to push myself to get results in physics and calculus. However, I really enjoyed the challenge, so I decided this was the area I wanted to get into at university. Engineering seemed like the obvious choice as the industry is constantly evolving. I chose Natural Resources as my specialisation since environmental science has always been close to my heart.

### What did you enjoy about it?

Engineering covers such a broad range of subject areas, with a range of real-world applications. I have had a lot of chances to learn outside the lecture theatre: on fieldtrips, labs and site visits. The academic staff are all really excited about what they do, which motivates students to do their best, push their boundaries and find the field which gets them excited.

### You went on exchange – how was that?

I took part in an exchange to Aarhus University, Denmark. This was an experience I absolutely recommend to other students. I learnt a lot when considering a different country's perspective on engineering, but the most important part was the people I met, the places I was able to travel to and the personal growth it allowed.

### What graduate job did you get?

I landed a great job working with a range of talented and interesting people as a Water Resources Engineer at Pattle Delamore Partners Ltd. As far as the university-to-work transition went, I couldn't have been happier with how studying at UC prepared me for working in industry.

### What useful skills did you leave uni with?

The toolbox of skills I graduated with enabled me to get involved with fascinating environmental projects right from the start. There are a lot of technical skills I picked up at university that I've been thankful for, and all those group assignment experiences are invaluable when it comes to working on real-world projects.

## 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](http://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](mailto:engdegreeadvice@canterbury.ac.nz)

[www.canterbury.ac.nz/engineering/schools/cnre](http://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](mailto:careers@canterbury.ac.nz)

[www.canterbury.ac.nz/careers](http://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](mailto:liaison@canterbury.ac.nz)

Tāmaki Makaurau | Auckland

T: 0800 UCAUCK

E: [auckland@canterbury.ac.nz](mailto:auckland@canterbury.ac.nz)

Te Whanganui-a-Tara | Wellington

T: 0800 VARSITY (0800 827 748)

E: [wellington@canterbury.ac.nz](mailto:wellington@canterbury.ac.nz)

[www.canterbury.ac.nz/liaison](http://www.canterbury.ac.nz/liaison)

