What can I do with a degree in Mechatronics Engineering?

What is Mechatronics Engineering?

Mechatronics Engineering is the integration of electronics and intelligent control in mechanical systems. Mechatronics engineers employ skills and theories from engineering, computer science, mathematics and technology to design 'smart' products, processes and systems.

Mechatronic systems are everywhere — in manufacturing, communication, energy, transport, medicine, smart farming and gaming systems. The impact of automated systems will continue to grow, for example robots are widely used to automate manufacturing processes, and mobile machines such as Unmanned Aerial Vehicle (UAV) are currently deployed.

Mechatronics Engineering covers the micro and nano worlds. Electro-mechanical systems research and technology is growing for applications such as atom-scale microscopy and spectroscopy, big data storage, sensor technology, and many more.

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/enmt

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 skills have UC graduates gained?

Through their Mechatronics Engineering degree, graduates develop a valuable set of skills that are transferable to a range of careers, including:

- Analytical, logical and quantitative thinking
- Practical application of engineering technology and science
- Problem solving that applies to real world challenges
- Creativity and innovation
- Mechanical and computing abilities
- Broad knowledge of a range of engineering disciplines.

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 at work.

Where have UC graduates been employed?

Mechatronics engineers work in industries such as:

- Robotics
- Aerospace
- Chemical
- Defence
- Automotive
- Manufacturing industries.

Recent UC graduates have found roles in:

- Information, media and telecommunications eg, Telogis, Flightcell International
- Manufacturers eg, Dynamic Controls, Fisher & Paykel, CSR, Abiliquip, Attocube Systems
- Robotics eg, Invert Robotics
- Professional, scientific and technical services eg, Dynamic Controls, Telogis, Scott Technology, Aeronavics
- Technology development eg, Syft Technologies, Tiro Medical
- Engineering consultants eg, Controlweb Ltd, Beta Solutions
- Automation companies eg, Macro Automation, Street Automation
- Smart technologies and network companies eg, Aviat Networks, Unison Networks
- E-commerce eg, eStar
- Software companies eg, Wireless Guard, Wynyard Group
- Aviation, aeronautics and defence eg, Royal New Zealand Air Force, Altitude Aerospace
- Electricity and energy services eg, Beca, Mainpower
- Research institutes eg, Scion, Auckland UniServices
- Government eg, Ministry of Economic Development

For more examples of employers go to [www.canterbury.ac.nz/recruitingemployers](http://www.canterbury.ac.nz/recruitingemployers)
What jobs and activities do graduates do?

Mechatronics Engineering graduates are well prepared to join the technological revolution — see some examples of career options below.

Mechatronics engineer
- Designs products and processes
- Investigates and optimises the use of energy, machinery and materials
- Uses computer software to create visual plans
- Assists in testing machinery

Project engineer, project manager
- Manages project plan, times, costs, compliance
- Manages procurement, purchasing, contracts
- Liaises with project staff and clients

Avionics / flight engineer
- Manages avionic development projects
- Oversees a part’s lifecycle, from idea to launch
- Designs and tests the project prototype
- Manages workflows and issues

Patent examiner
- Researches to assess if a product is new/unique
- Maintains knowledge of laws and regulations
- Writes patent applications for new inventions
- Advises businesses, government and industry

Automation engineer
- Designs and programs high-tech computer-controlled equipment for industrial processes
- Identifies and fixes machine issues

Entrepreneur and CEO
- Develops an idea to form their own business
- Gets involved in a start-up
- Offers their services as a consultant

UC Careerhub
UC students and alumni can find details of internships, job vacancies and employability tips at [www.careerhub.canterbury.ac.nz](http://www.careerhub.canterbury.ac.nz)

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.

- Institution of Professional Engineers New Zealand [www.ipenz.org.nz](http://www.ipenz.org.nz)
- New Zealand Heavy Engineering Research Association [www.hera.co.nz](http://www.hera.co.nz)
- New Zealand Technology Industry Association [www.nztech.org.nz](http://www.nztech.org.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, faster progression rate, and advanced research capability. Advanced study can lead to a career in academia. It is important to determine which, if any, further study will help you in your future career.

Graduates can study Mechatronics Engineering at postgraduate certificate, master’s and PhD level at UC. There are also postgraduate programmes in Engineering Management, Software Engineering and Human Interface Technology. Research opportunities are available through the HitLabNZ, Wireless Research Centre, and Spatial Engineering Research Centre. For UC qualification listings visit [www.canterbury.ac.nz/courses](http://www.canterbury.ac.nz/courses)

Useful links

UC Careers, Internships & Employment [www.canterbury.ac.nz/careers](http://www.canterbury.ac.nz/careers)
UC Engineering [www.canterbury.ac.nz/engineering](http://www.canterbury.ac.nz/engineering)
Careers New Zealand [www.careers.govt.nz](http://www.careers.govt.nz)
Top 50 Graduate Employers [www.top50graduateemployers.co.nz](http://www.top50graduateemployers.co.nz)
What motivated you to pursue Mechatronics Engineering?
I was involved with RoboCup NZ throughout high school and the connections I made through robotics really inspired me to study Mechatronics Engineering. I also had a bunch of really supportive teachers and mentors; they really pushed me and opened doors to industries and opportunities I had never even thought of!

What do you enjoy about studying at UC?
The E-Week camp definitely convinced me UC was for me and that I wanted to be somewhere in the Electrical and Computer Engineering Department. The staff I met were really genuine about their passions and encouraging others into their fields. I enjoy that you can see what you learn everyday, it’s very relevant and interesting.

Any cool experiences so far?
Mechatronics first pro (second year) took a field trip to Fonterra which was pretty interesting. The university is keen for you to go out and get a job with your degree so they foster heaps of industry relations!

What are your career goals?
I would love to work for a company with a strong sense of teamwork and fostering growth. In engineering, I have only worked at Syft Technologies where both of the aforementioned points are key to the company. I’m also very sustainability minded, so eventually I would like to work for a company whose sustainability goals and mentality around using technology to help others align with my own.

How do you stay connected with your field outside of the degree?
I am a member of Women in Engineering (WIE) and Institute of Electrical and Electronics Engineers (IEEE). I really enjoy industry-related events and meeting UC alumni through these groups.

Do you have any tips for students?
Time management and curiosity have been the keys to this degree for me. If you are struggling, reach out straight away, whether it be with course work or health problems, UC and the UC CSA has a great network to help you achieve.

Read more online
Read Ailsa’s full story about her university experience and find out where Mechatronics Engineering graduates are now at www.canterbury.ac.nz/profiles

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