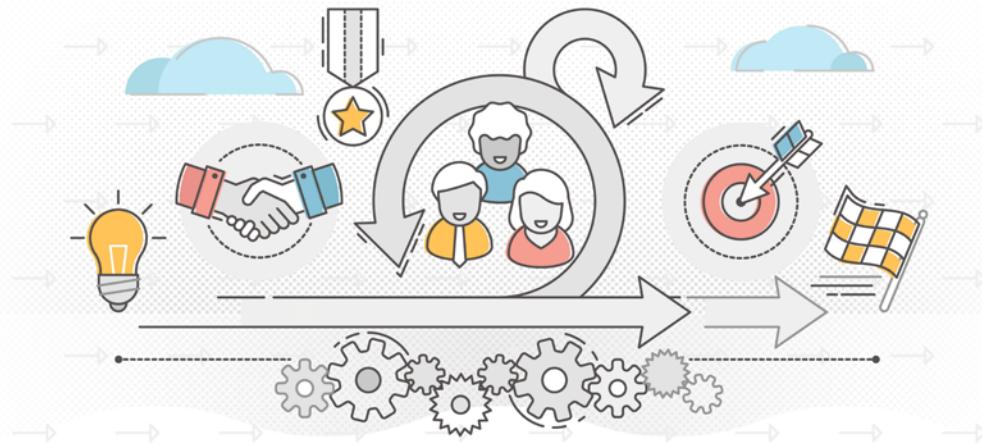


What can I do with a degree in Software Engineering?

Software 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/seng

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 Software Engineering?

Software engineering is about providing solutions to everyday problems in domains such as transportation, health, government, aerospace, agriculture, education or finance.

Software solutions may consist of millions of lines of code and integrate parts from external providers. This kind of complexity requires large teams to work together to deliver high quality solutions that are fast, reliable, secure and user friendly. Therefore, on top of programming, software engineers look after the design, accessibility and quality of software.

Software Engineers ensure a software product is developed using the right method and the right people! They do this by putting a team together that can transform users' expectations into a software that meets economic, ethical, technical and legal requirements.



AT A GLANCE

MORE

software engineers and software testers are needed in Aotearoa New Zealand*

\$95.5k

is the median yearly income in the IT industry, including jobs like software developers (web, game, mobile), network engineers or security analysts**

31%+

is the growth in software and ICT service sales from 2017 to 2019, reaching \$9.8b in 2019[†]

Software Engineering or Computer Science?

Software Engineering and Computer Science are related disciplines. Software engineering looks after the bigger picture of software development including teamwork and human aspect while computer science focuses on the technical and theoretical aspects of the overall discipline.

What skills have UC graduates gained?

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

- Teamwork and communication
- Development processes
- Problem analysis and solving
- Computational thinking
- Programming and design
- Creativity and innovation
- Adaptation to technological changes
- Technical knowledge (e.g., security, artificial intelligence, human-computer interaction)

Practical labs and projects complement lectures so students can apply the knowledge gained in their courses. This makes UC graduates highly skilled technically, great team players and employable.

Where have UC graduates been employed?

There has been an ongoing demand in Aotearoa New Zealand for IT related professionals. UC graduates have found employment with:

- Internet giants, e.g., Amazon, Apple, Atlassian, Facebook, Google, Microsoft, Mozilla
- Software development and services, e.g., Assurity, Cortexo, Databasics, Digital Fusion, Interger, Jade Software, Link Technologies, MYOB, Orion Health, Seequent, SLI systems, Tourplan, Trineo Ltd, Xero
- Telecommunications, networking and geolocation, e.g., Allied Telesis, Cisco, Tait Communications, Telogis/Verizon
- Automation, autonomous and embedded devices, and heavy industries, e.g., Caliber Design, PIP IoT, Street Automation, South Pacific Sera, Trimble
- Mobile app and game development, e.g., Carnival Labs, CerebralFix, Grinding Gear Games, Smudge Apps
- Financial and legal services, e.g., Aderant, ANZ, FIS, Kiwibank, Macquarie Group, Optiver, Westpac
- Web and cloud solutions e.g., Activate Design, Iceberg Web Development, SunGard, Wynyard Group
- Electronics manufacturers, e.g., Dynamic Controls, Harvest Electronics, Hewlett Packard, IBM
- Energy companies, e.g., Meridian Energy, Powershop NZ, Solid Energy NZ
- Grocery, e-commerce or retail sector, e.g., eStar, Foodstuffs, Trade Me Ltd, Warehouse
- Media, entertainment and marketing, e.g., E2 Digital, Vistar Media
- Government or state-owned enterprises, e.g., Inland Revenue, Metservice Agri-tech, e.g., CropLogic, Indigo Systems
- Education, e.g., Navitas, Unitec Institute of Technology, University of Canterbury

Former students have also gone on to start their own companies, e.g., Komodo Monitr, Lab3 or Vxt.

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

** Source: AbsolutelT, "Tech Remuneration Report" 2020.

† Source Tatauranga Aotearoa / Stats NZ.

What jobs and activities do graduates do?

Software Engineering graduates are employed in a wide variety of jobs — see some examples below.

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

Software engineer (or back-end developer)

- focus on the business-side of (web-based) software solutions
- transform customer expectations to high-quality programs
- build prototypes to demonstrate the feasibility or economic viability of a software
- test and maintain existing software

Web / mobile developer (or front-end developer)

- design both pleasant and usable screens to capture or present information
- work on accessibility problems (i.e. how to make software systems usable by visually impaired or elderly persons)

Game developer

- develop (successive versions of) a game from story boards
- work on various aspects of game development such as the graphics or engine (environment)
- apply cutting edge technologies and methods to develop, test and roll out games

Infrastructure and security engineer

- look after the infrastructure aspects of IT systems
- design, deploy and maintain the computing machines, network devices and security procedures
- monitor in real time the state of a network

Software tester

- develop strategies and plans to test software extensively
- work with security engineer to improve software reliability and resilience

Software architect

- make design, technical and strategic decisions for complex software systems
- ensure high quality standards are followed for software development

Business intelligence and analyst

- apply mathematical and analysis skills to make sense of lots of data
- help the business take informed decisions regarding infrastructure or marketing aspects of software systems.

IT consultant

- solve complex or highly specialised problems on a fixed-time basis in other companies
- estimate the cost of implementing a particular technical or business solution

Project manager / Scrum master

- Coordinate a team of developers that works on a software product
- Ensure the work done is of high quality and meets the customers' needs
- Look after all members of a team professionally and humanly

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.

- IT Professionals New Zealand www.itp.nz



- New Zealand Information and Communication Technologies Group www.digital.govt.nz
- Software Innovation New Zealand www.softwareinnovation.nz
- Association for Computing Machinery www.acm.org

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.

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Why do further study and what are my options?

Postgraduate study can facilitate many 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.

Computer Science graduates are able to progress their studies from honours through to PhD level.

www.canterbury.ac.nz/courses

Useful links

Te Rōpū Rapuara UC Careers www.canterbury.ac.nz/careers

Careers New Zealand www.careers.govt.nz

Canterbury Tech Cluster www.canterburytech.nz/

Sarah



Bachelor of Engineering with Honours in
Software Engineering
Software Engineer at Trimble Inc.

How did your subject choice come about?

I was enrolled in Civil Engineering when I took an elective paper in programming. I didn't really know what coding was, but I found it fascinating! That led me to changing my whole degree to Software Engineering instead.

Favourite part of your degree?

The fact that there's more than one way to get things done! Software engineering is so open to the imagination. As technology advances, things are getting better and faster, and new solutions are always coming up. It's a constantly changing field.

Did you find your studies relevant in a real job setting?

Absolutely. My studies have taught me a way of thinking – how to approach a problem and different ways you can tackle it. It's something you can always draw on no matter how the industry evolves

Have you joined any clubs?

Yes, I was vice president of WITSoc, the Women in Tech Society. Women are a minority in tech, so it's great to have a club that provides us with support and social opportunities. We threw a free coffee time every week, host cocktail events and also run seminars on CV building and interview skills. It's about building connections with each other, and industry.

In your words, UC has been...

Challenging. But I feel like a much better person for it. Being at UC has built my compassion and intelligence. It's been incredible.

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/get-started/why-uc/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.

Department of Computer Science and Software Engineering

The Department has a strong global reputation and courses that are benchmarked against international standards. Staff are active researchers, with collectively one of the best records of research publications in the Pacific region.

Our graduates are in strong demand. Come and see us about your study goals and future plans.

T: +64 3 369 2777

E: enquiries@cosc.canterbury.ac.nz

www.canterbury.ac.nz/engineering/schools/csse

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

