LINCOLN UNIVERSITY
Te Whare Pūrākau
Learning, Teaching & Library

Computing and Tech Careers

What is Computing and Tech?

Two of New Zealand's key industries – Agriculture and Tourism – have been transformed almost beyond recognition by developments in the tech sector. There is growing dependence on digital systems and computing technology across commercial and business platforms.

Tasks such as crop monitoring, once completed via resource-intensive manual labour, are now largely automated thanks to reliable and agile software systems. Complicated real time planning and booking processes are now simplified for travellers and operators alike with the advent of mobile apps and live global systems. It is difficult to think of a sector that has not been impacted by the creative mind sets and technical know-how of those in the computing and tech industry, leading to efficiencies and growth on an unprecedented scale.

Computing and tech refers to the broad range of tasks involved with digital technologies. It represents the development and maintenance of systems including – but not limited to – data, software, hardware, cloud computing, communications technology, security, and internet access.

The computing and tech industry encompasses both technical and non-technical pathways. Technical pathways relate to the work involved in developing computer and tech systems, whereas non-technical pathways relate to human-centred work, and the way that people relate to and use technology.

Computing and tech in New Zealand and the world

Technology is growing its relevance and impact in every industry. New Zealand is recognised internationally as an innovative leader in the tech space. However, there is a digital skills shortage in New Zealand and around the world that is not expected to ease in the near future. It is anticipated that 4000-5000 tech roles will be created in New Zealand, every year.

Tech-related roles are on the current long-term skills shortage list. Historically, immigration has filled some of these gaps, however there needs to be a stronger domestic supply in this space to meet demand. A New Zealand Digital Skills Plan (2021) was developed by industry to address the skills gap, with a focus on career progression, creating a more diverse and inclusive industry, development of robust internship and apprenticeship opportunities, and stronger cross-industry skill development.

Technology is part of our everyday lives and global demand for tech is increasing. It is an exciting time to join the tech industry. The industry is fast-paced, with a wide variety of opportunities in existing companies, as well as in new start-ups, self-employment and entrepreneurship. Three areas of expertise have dominated job boards in the post-Covid era: IT Security, Cloud Computing, and Data.

Skills and knowledge developed by studying computing and tech

Numerous specialisations can complement other skill sets or professional backgrounds. Course work is industry-focused and there are opportunities at Lincoln University to specialise in areas as diverse as software development (programming), database management, geographic information systems, user experience, precision agriculture, fintech, and business analysis. Students learn current models and techniques that will support them to thrive at the forefront of this dynamic industry.

Employers seek well-rounded, engaged graduates with a strong work ethic. As in any sector, employers value those with a professional attitude. This includes good communication (including the ability to communicate to groups, as well as effective interpersonal and written communication), honesty, self-motivation, initiative, time management, and flexibility. The importance of these basic skills cannot be underestimated, even in voluntary or internship roles, as future job opportunities often arise from a good reputation and a varied network of contacts.

Skills and knowledge valued in computing and tech roles

Technical careers

- Problem solving
- Attention to detail
- Systematic approach OR Systems approach
- Critical thinking
- Ability to work independently
- Software engineering
- Software design, development and deployment
- Programming
- Data and database management
- Communication (incl. complex technical information)
- Geographic information systems
- Critical thinking

Human-centred careers

- Communication
- Critical thinking, analysis and problem solving
- Project management
- Self-management
- Teamwork
- IT security
- Programming languages
- Learning agility
- Interpersonal skills
- Communication (incl. complex technical information)
- Commercial awareness
- A ‘can do’ attitude
- Business analysis
- User experience

Where can computing and tech graduates find work?

While an estimated 49% of IT roles sit directly in the tech sector, places of employment for IT graduates can be found within a number of different sectors and spaces.

Places of employment for computing and technology graduates include:

- ICT and internet (e.g., Datacom, Isobar New Zealand, Seequent)
- Banking, finance and insurance (e.g., ASB, Rabobank, IAG, AMP)
- Defence and government departments (e.g., Ministry for Primary Industries (MPI), Ministry of Business, Innovation, and Employment (MBIE), Ministry of Justice (MoJ), New Zealand Police NZ Defence Forces, Government Communications Security Bureau (GCSB), NZ Security Intelligence Service, Callaghan Innovation)
- Manufacturing and primary industry (e.g., Fisher & Paykel, AFFCO, Alliance Group, Fonterra)
- Precision agriculture (Vantage, Trev, Farmsense, Farmstrong)
- Telecommunications (Spark, OneNZ, Chorus)
- Customer service solutions (e.g., Ambit, Uneeq, Imagr, AskNicely)
- Healthcare (Waitaha Canterbury, Ryman Healthcare, Pegasus Health)
- Transportation (e.g., Mainfreight, Metlink, Air New Zealand)
- Education (primary, secondary, tertiary sectors and supporting institutions such as the Ministry of Education and Unions).
- Energy and utilities (e.g., ThinkWater, Orion, Meridian Energy)
- Crown research institutes (e.g., National Institute of Water and Atmospheric Research Ltd. (NIWA), Institute of Environmental Science and Research (ESR), Scion, Landcare Research, AgResearch, GNS Science, Plant and Food Research)
- Local/ regional government (e.g., Auckland Council, Greater Wellington Regional Council, Nelson City Council)
- Private consultancy or services firms (e.g., Deloitte, PwC, Xero, Hnry, Scientific And Technical Recruitment, Datamine, Eurofins NZ Laboratory Services Ltd., AsureQuality)
- Tech industries (e.g. Lincoln Agritech, Intech Instruments Ltd., Halter, Cropsy Technologies, Partly, Trimble, Lumin)
- Self-employment
- Sales and marketing (e.g., Trade Me, The Warehouse, Zuru Toys)
- There are a large number of start-ups, small and medium-sized enterprises based in New Zealand, requiring tech support in both the establishment and maintenance stages.

Computing and tech job titles

- Academic Lecturer
- Agile Coach
- Analyst Programmer
- Application Support
- Business Analyst
- Change Manager
- Computer Programmer
- Computer Systems Engineer
- Consultant
- Customer Success/ Client Relationship Manager
- Data Analyst
- Data Scientist
- Database Administrator
- Database Developer
- Front End Developer
- Full Stack/ Back End Developer
- Game Developer
- Hardware Engineer
- Helpdesk/ IT Support
- Information Security Analyst
- IT Trainer
- Management (C-Suite, IT, Operations, Service Delivery, Service Desk, Software)
- Network Administrator
- Network and Systems Engineer
- Network Architect
- Organisation and Methods Analyst
- Penetration Tester
- Product Owner/ Manager
- Programme Manager
- Project Coordinator/ Manager
- Quality Assurance Engineer
- Scrum Master
- Security Analyst
- Security Engineer
- Software and Applications Programmer
- Sales Account Manager
- Software Developer
- Software Engineer
- Solutions Architect
- Systems Administrator
- Systems Analyst
- Systems Integration
- Technical Writer
- Telecommunications Network Engineer
- Test Analyst
- Test Engineer
- UX - User Experience Designer
- Web Developer

Pay Rate Indications: full time equivalent (FTE) $NZ per annum[1]

Most starting salaries for graduates of bachelor degrees fall between 50,000 - 70,000. Entry level jobs are stepping stones to roles with increased responsibilities and remuneration. Your employability is enhanced by all of your life experiences, be they employment related, or the transferable skills and competencies gained from community involvement, volunteer work, or previous work or study - all of which can grow competency, expand networks, and demonstrate enthusiasm to future employers.

Job title	Indicative rate
Data Analyst	90,000 - 170,000
Data Scientist	55,000 - 108,000
IT Manager	100,000 - 350,000
Test Analyst	80,000 - 200,000
Network Administrator	80,000 - 140,000
Penetration Tester	80,000 - 200,000
Business Analyst	115,000 - 160,000
User Experience Designer	100,000 - 175,000
Scrum Master	120,000 - 200,000
Game Developer	60,000 - 100,000
IT Helpdesk/ Support Tech	60,000 - 120,000
Security Analyst	120,000 - 500,000
Cyber Security Consultant	120,000 - 500,000
Software Developer	110,000 - 160,000
Systems Administrator	85,000 - 145,000
IT Architect	140,000 - 200,000

[1] Rates sourced from SEEK, MBIE, Careers NZ, Universities NZ, PayScale, PQOS survey data

Computing and tech tasks

There are two distinct pathways within the computing and tech sector, with a diverse range of job titles and responsibilities sitting in each area. The following section outlines the specific tasks that can fall within each pathway to provide clarity for individuals who are broadly interested in a career in computing and tech.

a) Graduate Software Developer

Software Developers conceive of, design, build, and maintain computer programmes and underlying operating systems. They test out new software and make improvements to meet user needs and communicate technical information.

- Ensure computer systems operate correctly
- Write coded programs, and produce original coded content
- Proactive troubleshooting and customer service
- Execute testing and debugging activities
- Systems analysis and engineering
- Ongoing program maintenance and upgrades
- Quality assurance to meet customer expectations
- Full integration of all aspects of a website (visual, content, and technical) through to finished production

b) Business Analyst

Business Analysts act as a bridge between technical teams and their internal and external customers. They gather technical and non-technical information to define business problems, make robust recommendations, and ensure solutions meet business requirements.

- Stakeholder management, data modelling, and knowledge of IT
- Analyse large amounts of data, and other business processes to form ideas and fix problems
- Communicate ideas in an expressive way that is easy for the receiver to understand
- Come up with solutions to an organisation's problems
- Technical development and delivery
- Deliver training and instruction
- Review, audit, write, interpret technical specifications
- Assess and develop design specifications for programs
- Development of technical plans and associated costings
- Project management

Job tasks are role-specific, so the above is an indication only. For more information on roles, registered Lincoln University students can search LU Career Centre (online) for job titles similar to those they are interested in. Job descriptions, including tasks and skills required, are often available..

Industry bodies

Membership of an industry specific body enhances the professional status of graduates. By joining a professional body, employees can research career options, access training and events, and network and collaborate with industry colleagues at all levels.

Examples of computing and technology industry bodies include:

IT Professionals New Zealand
https://itp.nz/

New Zealand Technology Industry Association (NZTech)
https://nztech.org.nz/

Canterbury Tech Cluster
https://canterburytech.nz/
(*this is a branch of the New Zealand Technology Industry Association and is a good local option for students to join*)

Find out more:

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