Waipapa
Taumata Rau
University
of Auckland



Software Engineering

LEARN MORE

Software Engineering is integral to the foundation of virtually all sectors in today's economy, from small but powerful handheld devices to massive telecommunications networks.

Offered by our Department of Electrical, Computer, and Software Engineering, this specialisation is ideal for those who enjoy coding, analytical thinking, and working collaboratively to solve real-world problems.

Te Herenga Auaha, Faculty of Engineering and Design

HUMAN-COMPUTER INTERACTION

Effective design and usability of software systems are essential to the devices that permeate our world. You'll primarily explore interfaces between people, computers, and robots, with emphasis on human-centred design for a variety of areas such as child-computer interaction, educational or serious games, smart energy consumption, and educational and learning aids for Te Reo.

SOFTWARE DEVELOPMENT PROCESS

You will be provided with a solid foundation in the building blocks needed to design, develop, test, and maintain high quality software systems. As a preparation for real-world software development scenarios, you'll be exposed to version control, software project management, and popular software development processes including Agile and Lean methods.

TEAMWORK AND COLLABORATION

Software engineering has become a highly collaborative discipline. Our curriculum emphasises the socio-technical aspects of teamwork and coordination among developers, ensuring you acquire the collaborative and communication skills critical for success in the industry. Through group projects, real client engagements, and agile processes, you'll learn how to coordinate tasks, manage conflicts, and leverage each team member's strengths to produce innovative solutions.

MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

Data-driven decisions are at the heart of modern software solutions. You will gain a deep understanding of how to represent, process, and learn from noisy or incomplete data to create reliable and efficient decisions. To achieve this, you will address the fundamental challenges in knowledge representation, scalable machine learning, and cognitive systems, enabling you to build intelligent software agents and advanced decision-making systems. You'll also learn how to integrate machine learning and AI techniques into broader software projects.

ADVANCED SOFTWARE ENGINEERING TOPICS

Explore advanced, research-informed areas that take your skills beyond coding. You will study human-computer interaction, focusing on human-centred design for interfaces between people, AI, computers, and robots. Learn high-performance computing, covering parallel programming, Big Data processing, cloud systems, and hardware accelerators such as GPUs and FPGAs. Develop expertise in requirements engineering and software quality, ensuring software meets user needs, remains reliable, and can evolve to cope with continuous changes and increasing complexity of the modern world.