

SOFTWARE ENGINEERING

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Software Engineers design the software that we increasingly rely on. Industrial robots, mobile phones, cars, trains, planes, DVD players, washing machines, computer games, energy networks, security systems – all these are driven by software. And that software must be reliable and flexible, usable and cost-effective – after all, we now depend absolutely on these devices. Building that kind of software requires a software engineer.

Companies in New Zealand and overseas are looking for software engineering graduates, and skilled software developers are in high demand throughout the IT sector, particularly in industries such as security technology, transport and logistics, agriculture and forestry services, internet applications, as well as virtual reality and entertainment. This specified programme has full IPENZ accreditation, making the Bachelor of Engineering a nationally and internationally recognised degree.

CONTACTS FOR SOFTWARE ENGINEERING

Software Engineering is administered by the Faculty of Computing & Mathematical Sciences.

Faculty of Computing & Mathematical Sciences

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Degrees

Software Engineering is a specified programme for the Bachelor of Engineering or Bachelor of Engineering (Honours) degrees.

Our BE in Software Engineering is a four-year degree that starts with programming and basic engineering ideas in the first year, progresses through more advanced design and programming techniques in the second year, then branches out into a wide variety of design and implementation challenges in the third and fourth years. You'll also study professional ethics, marketing and engineering management.

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Programme Details

General Structure of the Software Engineering Programme								
YEAR 1	COMP103 15 points	COMP104 15 points	MATH101 15 points	MATH102 15 points	ENGG180 15 points	ENMP102 15 points	ELECTIVE * 15 points	ELECTIVE * 15 points
	COMP241 10 points	COMP219 20 points	ENMP282 10 points	COMP235 20 points	COMP242 10 points	ENGG282 10 points	ENGG371 0 points	
COMP200 10 points	ENGG283 10 points		COMP202 10 points		ENGG284 10 points			
YEAR 3	COMP314 20 points	COMP317 20 points	COMP340 20 points	COMP325 20 points	ENGG381 20 points	ELECTIVE ** 20 points	ENGG372 0 points	
YEAR 4	COMP438 or COMP439 15 points	COMP452 or COMP454 15 points	COMP4XX *** 15 points	COMP4XX *** 15 points	DESIGN PROJECT ENGG482 OR ENGG492 60 points			
<input type="checkbox"/> Work Placement – Work experience in an appropriate and approved industry or applied field (0 points). <input type="checkbox"/> Design Project – A major design project (60 points) is undertaken in Year 4.								

Year 1 – Papers are worth 15 points.

- » COMP103A/B – Introduction to Computer Science 1
- » COMP104B/S – Introduction to Computer Science 2
- » ENGG180A – Foundations of Engineering
- » ENMP102B – Introduction to Materials Science and Engineering
- » MATH101A/B/C/D – Introduction to Calculus
- » MATH102A/B/C/D – Introduction to Algebra

*Choose a further 30 points from:

- » CHEM101A – Chemical Concepts
- » ENEL111A – Introduction to Electronics
- » PHYS103B – Physics for Scientists and Engineers 1
- » STAT121A/S – Introduction to Statistical Methods

Year 2 – Papers are worth 20 points unless specified.

- » COMP200A – Computer Systems (10 points)
- » COMP202B – Computer Communications (10 points)
- » COMP219A – Database Practice & Experience
- » COMP235B – Logic and Computation
- » COMP241A – Software Engineering Development (10 points)
- » COMP242B – Software Engineering Process (10 points)
- » ENGG279B – Preparation for Professional Workplace (0 points)
- » ENGG282B – Engineering Design (10 points)
- » ENGG283A – Linear Algebra for Engineers (10 points)
- » ENGG284B – Differential Equations for Engineers (10 points)
- » ENMP282A – Science and Technology Management 1 (10 points)
- » ENGG371C – Engineering Placement 1 (0 points)

Year 3 – Papers are worth 20 points unless specified.

- » COMP314B – Software Engineering Project
- » COMP317A – Design and Analysis of Algorithms
- » COMP325B – Introduction to Human-Computer Interaction
- » COMP340A – Reasoning about Programs
- » ENGG372C – Engineering Placement 2 (0 points)
- » ENGG379A – Reflection on Professional Workplace Experience (0 points)
- » ENGG381A – Engineering Statistics

**Choose a further 20 points from:

- » COMP301B – Operating Systems
- » COMP311B – Computer Systems Architecture
- » COMP312A – Communications and Systems Software
- » COMP313A – Programming Languages

Year 4 – Papers are worth 15 points unless specified.

- » (BE) ENGG482A/B/C/Y – Engineering Design and Management Project (60 points) or
- » (BE(Hons)) ENGG492A/B/C/Y – Honours Research and Management Project (60 points)

Choose one of:

- » COMP438B – Topics in Human-Computer Interaction†
- » COMP439B – Usability Engineering

Choose one of:

- » COMP452A – Model Checking
- » COMP454B – Specification Language and Models

***Choose 30 points from 400 Level Computer Science papers. Recommended:

- » COMP401B – Topics in Operating Systems
- » COMP413A – Computer Networks
- » COMP414B – Advanced Communications
- » COMP438B – Topics in Human-Computer Interaction†
- » COMP439B – Usability Engineering
- » COMP440B – Agile Methods
- » COMP452A – Model Checking
- » COMP453A – Extremely Parallel Programming
- » COMP454B – Specification Languages and Models

Note(s): For descriptions of individual papers refer to the following subjects: CHEM Chemistry; ENEL Electronics; ENGG Engineering; ENMP Materials & Processing; PHYS Physics. For descriptions of papers with subject codes COMP, MATH or STATS, refer to the **Computing & Mathematical Sciences Handbook** or the **University Calendar**.