

ELECTRONIC ENGINEERING

www.eng.waikato.ac.nz

Electronic engineering is concerned with the design, development, manufacture and application of electronic devices, circuits and systems. The ideas electronic engineers have turned into reality gave us, for example, personal computers, mobile telephones, pacemakers, radio, television, industrial control and satellite communication systems. New Zealand's electronics manufacturing industry is one of the fastest growing industries in the country. Companies are targeting niche markets, such as telecommunications, and export their products all over the world.

The programme offers papers in design and a major electronic engineering project in the fourth year of study. Extensive experience is attained in electronic laboratories. Economic and professional training elements are also included.

This specified programme has full IPENZ accreditation, making the Bachelor of Engineering a nationally and internationally recognised degree.

CONTACTS FOR THE SCHOOL OF ENGINEERING

School Administrators Mary Dalbeth / Janine Williams	Room: EG.04 Phone: 07 838 4266 / 07 838 4026 Email: engineering@waikato.ac.nz
Enrolment Contact Person & First Year Mentor Professor Janis Swan	Room: EG.04C Phone: 07 838 4049 Email: j.swan@waikato.ac.nz
Convenor Professor Jonathan Scott	Room: CD1.03 Phone: 07 838 4909 Email: scottj@waikato.ac.nz

Degrees

This specified programme is available for the Bachelor of Engineering or Bachelor of Engineering (Honours) degrees.

Electronics is available as a major subject for the Bachelor of Science or Bachelor of Science (Technology) degrees. Papers in electronics are available at all levels of study from undergraduate degrees through to postgraduate and doctoral studies.

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Programme Details

Structure of the Electronic Engineering Programme

YEAR 1	ENGG180 15 points	ENMP102 15 points	MATH101 15 points	MATH102 15 points	COMP103 15 points	ENEL111 15 points	PHYS103 15 points	*
YEAR 2	ENEL205 20 points	ENEL211 20 points	ENEL284 10 points	ENGG282 10 points	ENGG284 10 points	ENGG287 10 points	ENGG279 0 points	ENGG371 0 points
			ENEL285 10 points	ENGG283 10 points	ENGG285 10 points	ENMP215 10 points		
YEAR 3	ENEL312 20 points	ENEL317 20 points	ENEL321 20 points	ENEL324 20 points	ENEL382 20 points	ENMP282 10 points	ENGG372 0 points	ENGG379 0 points
						MATH257 10 points		
YEAR 4	ENGG381 20 points	** 20 points	** 20 points	DESIGN PROJECT ENGG482 OR ENGG492 60 points				

Work Placement – Work experience in an appropriate and approved industry or applied field (0 points).
 Design Project – A major design project (60 points).

Year 1 – Papers are worth 15 points.

- » COMP103A/B – Introduction to Computer Science 1
- » ENEL111A – Introduction to Electronics
- » 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
- » PHYS103B – Physics for Scientists and Engineers 1

*Choose a further 15 points from 100 Level Science papers (excluding COMP123, MATH165, MATH166, MATH168, PHYS100).

Recommended:

- » BIOL101B – Cellular and Molecular Biology
- » CHEM101A – Chemical Concepts
- » COMP104B/S – Introduction to Computer Science 2

Year 2 – Papers are worth 20 points unless specified.

- » ENEL205B – Analog Electronics and Circuit Analysis
- » ENEL211A – Digital Electronics
- » ENEL284B – Electricity and Magnetism (10 points)
- » ENEL285A – Quantum and Solid State Physics (10 points)
- » ENGG279B – Preparation for the Professional Workplace (0 points)
- » ENGG282B – Engineering Design (10 points)
- » ENGG283A – Linear Algebra for Engineers (10 points)
- » ENGG284B – Differential Equations for Engineers (10 points)
- » ENGG285A – Multivariable Calculus for Engineers (10 points)
- » ENGG287A – Engineering Applications (10 points)
- » ENMP215B – Manufacturing Practice (10 points)
- » ENGG371C – Engineering Work Placement 1 (0 points)

Year 3 – Papers are worth 20 points unless specified.

- » ENEL312A – Electromagnetic Waves
- » ENEL317B – Microprocessor Applications and Control
- » ENEL321B – Application Specific Integrated Circuits
- » ENEL324A – Optoelectronics
- » ENEL382B – High Speed Work Communications
- » ENGG372C – Engineering Placement 2 (0 points)
- » ENGG379C – Reflection on Professional Workplace Experience (0 points)
- » ENMP282A – Science and Engineering Management A (10 points)
- » MATH257A – Computational Mathematics (10 points)

Year 4 – Papers are worth 20 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)
- » ENGG381A – Engineering Statistics

**Choose 40 points from:

- » ENEL301A/B/C/Y – Special Topics in Electronics
- » ENEL402A – Signal and Image Processing
- » ENEL417A – Mechatronics
- » ENEL423B – Electro-optical Instrumentation
- » ENEL485B – Power Electronics
- » ENGG401 – System Control Theory[†]

[†]Not offered in 2012.

Note(s): For descriptions of individual papers refer to the following subjects: BIOL Biological Sciences; 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*.