The School of Electrical Engineering & Telecommunications offers a wide range of undergraduate and postgraduate study in all areas of the professions of Electrical Engineering and Telecommunications. The School's streams within the undergraduate Bachelor of Engineering (Hons) program in Electrical and Telecommunications Engineering continue to act as models for educating engineers in tomorrow's technology. Options within Electrical Engineering include: Telecommunications, Photonics, Systems and Control, Energy Systems, Microelectronics, and Signal Processing. The BE degree programs in Electrical Engineering are accredited by the Engineers Australia as meeting the requirements for admission to graduate membership.

The undergraduate curricula are being progressively revised to provide flexible training to suit the future needs of students. Individual student needs can be further met by substitution provisions within the programs.
Faculty
Faculty of Engineering

School
School of Electrical Engineering & Telecommunications

Study Level
Undergraduate

Minimum Units of Credit
168

Specialisation Type
Honours
## Available in Program(s)

Program(s) in which this honours is available

<table>
<thead>
<tr>
<th>Program</th>
<th>Code</th>
<th>Title</th>
<th>Faculty</th>
<th>Campus</th>
<th>Units of Credit</th>
<th>Typical Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Engineering (Honours) - BE (Hons)</td>
<td>3707</td>
<td>Engineering (Honours)</td>
<td>Faculty of Engineering</td>
<td>Kensington</td>
<td>192</td>
<td>4 Years</td>
</tr>
<tr>
<td>Bachelor of Engineering (Honours) - BE (Hons)</td>
<td>3768</td>
<td>Engineering (Honours)/Biomedical Engineering</td>
<td>Faculty of Engineering</td>
<td>Kensington</td>
<td>240</td>
<td>5 Years</td>
</tr>
</tbody>
</table>
Specialisation Structure

Students must complete 168 UOC.

Level 1 Core Courses

Students must take 36 UOC of the following courses.

**ENGG1000**  |  6 UOC  
Introduction to Engineering Design and Innovation

**PHYS1231**  |  6 UOC  
Higher Physics 1B

One of the following:

**MATH1131**  |  6 UOC  
Mathematics 1A

**MATH1141**  |  6 UOC  
Higher Mathematics 1A

One of the following:

**MATH1231**  |  6 UOC  
Mathematics 1B

**MATH1241**  |  6 UOC  
Higher Mathematics 1B

One of the following:

**PHYS1121**  |  6 UOC  
Physics 1A

**PHYS1131**  |  6 UOC  
Higher Physics 1A

One of the following:

**COMP1511**  |  6 UOC  
Programming Fundamentals
**Level 2 Core Courses**

Students must take 36 UOC of the following courses.

**COMP1911**  |  6 UOC  
Computing 1A

**COMP1521**  |  6 UOC  
Computer Systems Fundamentals

**ELEC1111**  |  6 UOC  
Electrical and Telecommunications Engineering

**ELEC2133**  |  6 UOC  
Analogue Electronics

**ELEC2134**  |  6 UOC  
Circuits and Signals

**ELEC2141**  |  6 UOC  
Digital Circuit Design

**ELEC2142**  |  6 UOC  
Embedded Systems Design

**MATH2069**  |  6 UOC  
Mathematics 2A

**MATH2099**  |  6 UOC  
Mathematics 2B

**Level 3 Core Courses**

Students must take 42 UOC of the following courses.

**ELEC3104**  |  6 UOC  
Digital Signal Processing
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC3105</td>
<td>6</td>
<td>Electrical Energy</td>
</tr>
<tr>
<td>ELEC3106</td>
<td>6</td>
<td>Electronics</td>
</tr>
<tr>
<td>ELEC3114</td>
<td>6</td>
<td>Control Systems</td>
</tr>
<tr>
<td>ELEC3115</td>
<td>6</td>
<td>Electromagnetic Engineering</td>
</tr>
<tr>
<td>ELEC3117</td>
<td>6</td>
<td>Electrical Engineering Design</td>
</tr>
<tr>
<td>TELE3113</td>
<td>6</td>
<td>Analogue and Digital Communications</td>
</tr>
</tbody>
</table>

**Level 4 Core Courses**

Students must take 24 UOC of the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC4122</td>
<td>6</td>
<td>Strategic Leadership and Ethics</td>
</tr>
<tr>
<td>ELEC4123</td>
<td>6</td>
<td>Electrical Design Proficiency</td>
</tr>
<tr>
<td>ELEC4951</td>
<td>4</td>
<td>Research Thesis A</td>
</tr>
<tr>
<td>ELEC4952</td>
<td>4</td>
<td>Research Thesis B</td>
</tr>
<tr>
<td>ELEC4953</td>
<td>4</td>
<td>Research Thesis C</td>
</tr>
</tbody>
</table>
**Level 1 Prescribed Electives**

Students can take up to a maximum of 12 UOC of the following courses.

Note:
- Students choosing the recommended ELEC1111 and COMP1521 Year 1 electives will gain two Level 3/Level 4 Electives later in the program.
- CHEM1031 and CHEM1041 will only be available to students enrolled in a program which has a Chemistry major.

**BABS1201**  |  6 UOC  
Molecules, Cells and Genes

**BIOM1010**  |  6 UOC  
Engineering in Medicine and Biology

**BIOS1301**  |  6 UOC  
Ecology, Sustainability and Environmental Science

**CEIC1000**  |  6 UOC  
Sustainable Product Engineering and Design

**CHEM1011**  |  6 UOC  
Chemistry 1A: Atoms, Molecules and Energy

**CHEM1021**  |  6 UOC  
Chemistry 1B: Elements, Compounds and Life

**CHEM1031**  |  6 UOC  
Higher Chemistry 1A: Atoms, Molecules and Energy

**CHEM1041**  |  6 UOC  
Higher Chemistry 1B: Elements, Compounds and Life

**CHEM1811**  |  6 UOC  
Engineering Chemistry 1A
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM1821</td>
<td>6</td>
<td>Engineering Chemistry 1B</td>
</tr>
<tr>
<td>COMP1521</td>
<td>6</td>
<td>Computer Systems Fundamentals</td>
</tr>
<tr>
<td>COMP1531</td>
<td>6</td>
<td>Software Engineering Fundamentals</td>
</tr>
<tr>
<td>CVEN1701</td>
<td>6</td>
<td>Environmental Principles and Systems</td>
</tr>
<tr>
<td>ELEC1111</td>
<td>6</td>
<td>Electrical and Telecommunications Engineering</td>
</tr>
<tr>
<td>ENGG1100</td>
<td>6</td>
<td>Grand Challenges for Engineering</td>
</tr>
<tr>
<td>ENGG1200</td>
<td>6</td>
<td>Undergraduate Special Projects</td>
</tr>
<tr>
<td>ENGG1300</td>
<td>6</td>
<td>Engineering Mechanics</td>
</tr>
<tr>
<td>ENGG1400</td>
<td>6</td>
<td>Engineering Infrastructure Systems</td>
</tr>
<tr>
<td>GEOS1111</td>
<td>6</td>
<td>Fundamentals of Geology</td>
</tr>
<tr>
<td>GMAT1110</td>
<td>6</td>
<td>Surveying and Geospatial Engineering</td>
</tr>
<tr>
<td>MATH1081</td>
<td>6</td>
<td>Discrete Mathematics</td>
</tr>
<tr>
<td>Course</td>
<td>UOC</td>
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</tr>
<tr>
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<td>-----</td>
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<tr>
<td>MATS1101</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Engineering Materials and Chemistry</td>
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<td></td>
</tr>
<tr>
<td>MINE1010</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Mineral Resources Engineering</td>
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<td></td>
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<tr>
<td>PHYS1231</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Higher Physics 1B</td>
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<tr>
<td>PSYC1001</td>
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<tr>
<td>Psychology 1A</td>
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<tr>
<td>SOLA1070</td>
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<tr>
<td>Sustainable Energy</td>
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</table>

**Level 3 Electives**

Students can take up to a maximum of 6 UOC of the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>UOC</th>
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</thead>
<tbody>
<tr>
<td>COMP3211</td>
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<tr>
<td>Computer Architecture</td>
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</tr>
<tr>
<td>COMP3231</td>
<td>6</td>
</tr>
<tr>
<td>Operating Systems</td>
<td></td>
</tr>
<tr>
<td>ELEC3145</td>
<td>6</td>
</tr>
<tr>
<td>Real Time Instrumentation</td>
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<tr>
<td>ELEC3705</td>
<td>6</td>
</tr>
<tr>
<td>Fundamentals of Quantum Engineering</td>
<td></td>
</tr>
<tr>
<td>ENGG3060</td>
<td>6</td>
</tr>
<tr>
<td>Maker Games</td>
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</tr>
<tr>
<td>MATH3101</td>
<td>6</td>
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<tr>
<td>Code</td>
<td>UOC</td>
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</tr>
<tr>
<td>MATH3121</td>
<td>6</td>
</tr>
<tr>
<td>MATH3161</td>
<td>6</td>
</tr>
<tr>
<td>MATH3201</td>
<td>6</td>
</tr>
<tr>
<td>MATH3261</td>
<td>6</td>
</tr>
<tr>
<td>MATH3411</td>
<td>6</td>
</tr>
<tr>
<td>TELE3118</td>
<td>6</td>
</tr>
<tr>
<td>TELE3119</td>
<td>6</td>
</tr>
<tr>
<td>TELE3119</td>
<td>6</td>
</tr>
</tbody>
</table>

**Level 4 Electives**

Students who have chosen ELEC1111 and COMP1521 as Year 1 electives may take up to 12 UOC of courses below from the following areas: Microelectronics, Energy Systems, Signal Processing, Systems and Control, Business Administration, Data and Mobile Communications and Photonics

<table>
<thead>
<tr>
<th>Code</th>
<th>UOC</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC4445</td>
<td>6</td>
<td>Entrepreneurial Engineering</td>
</tr>
<tr>
<td>ELEC4601</td>
<td>6</td>
<td>Digital and Embedded Systems Design</td>
</tr>
<tr>
<td>ELEC4602</td>
<td>6</td>
<td>Trusted Networks</td>
</tr>
<tr>
<td>Course Code</td>
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<tr>
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<tr>
<td>ELEC4603</td>
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<tr>
<td>Solid State Electronics</td>
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<tr>
<td>ELEC4604</td>
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<td>Radio Frequency Electronics</td>
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<tr>
<td>ELEC4605</td>
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<td></td>
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<tr>
<td>Quantum Devices and Computers</td>
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<tr>
<td>ELEC4611</td>
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</tr>
<tr>
<td>Power System Equipment</td>
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<tr>
<td>ELEC4612</td>
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<tr>
<td>Power System Analysis</td>
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<tr>
<td>ELEC4613</td>
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<tr>
<td>Electrical Drive Systems</td>
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<tr>
<td>ELEC4614</td>
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<tr>
<td>Power Electronics</td>
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<tr>
<td>ELEC4617</td>
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</tr>
<tr>
<td>Power System Protection</td>
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<tr>
<td>ELEC4621</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Advanced Digital Signal Processing</td>
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<tr>
<td>ELEC4622</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Multimedia Signal Processing</td>
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<tr>
<td>ELEC4623</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Biomedical Instrumentation, Measurement and Design</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ELEC4631 | 6 UOC
Continuous - Time Control System Design

ELEC4632 | 6 UOC
Computer Control Systems

ELEC4633 | 6 UOC
Real-Time Engineering

PHTN4661 | 6 UOC
Optical Circuits and Fibres

PHTN4662 | 6 UOC
Photonic Networks

TELE4642 | 6 UOC
Network Performance

TELE4651 | 6 UOC
Wireless Communication Technologies

TELE4652 | 6 UOC
Mobile and Satellite Communications Systems

TELE4653 | 6 UOC
Digital Modulation and Coding

Computing (COMP) Courses

- Students taking COMP1911 may be required to complete a bridging course before enrolling in COMP1521.
- Students wishing to take further computing after 1st year should take both COMP1511 and COMP1521.
- Students in 3785 BE(Hons)/BSc(Computer Science) dual degree should take COMP1521 as one of their Year 1 electives.
Industrial Training

Students undertake 60 days of industrial training.

Recommended Level 1 Prescribed Elective

- COMP1521 Computer Systems Fundamentals (6 UOC)
- ELEC1111 Electrical and Telecommunications Engineering (6 UOC)

Enrolment Disclaimer

You are responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements. Do not assume that because you have enrolled in a course that the course will be credited towards your program.
Additional Information

Industrial Experience Requirements

All students are required to undertake mandatory industrial training. Each student is personally responsible for arranging and completing the full 60 days compulsory industrial training prescribed as part of the requirements for the award of the degree. Industrial training should be concurrent with enrolment and is best accumulated in the summer recesses at the end of the second and third years of the program, but it must be completed before graduating. Industrial training should be in the area of engineering design and/or project work, but limited credit may be given for work of a non-engineering nature. It is preferable that all 60 days be completed with one or two organisations. Students should, in general, work with professional engineers and take an active part in their work in the design of equipment, solving of engineering problems, or any other work that is relevant to the profession of Engineering.

Students are required to submit a written report on their industry placements, typically 2000-3000 words, describing the organisation of the Company, summarising the work done and the training received. The report must be accompanied by certification of their industrial placement by a senior company representative.

Industrial Training will be assessed as a compulsory part of the course ELEC4122 Strategic Leadership and Ethics. Students must complete the industrial training requirement in order to receive a completed assessment for this course, but the industrial training assessment does not affect the mark received for ELEC4122.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions