

# Bachelor of Engineering (Honours) (Environmental)

NATURAL SCIENCE MINOR



Commenced in 2015 and 2016



Studying at Callaghan

This Program Plan is an enrolment guide to ensure you are on track to graduate. The courses in coloured boxes have changed for your program. Further details on the teach-out arrangements can be found in your [Program Handbook](#). If at any time you wish to vary from this program plan seek prior advice from your [Academic Program Advisor](#) to ensure you remain on track.



## Semester 1

Year 1

## Semester 2

Year 2

Year 3

Year 4

Year 5

<a href="#">CIVL1100</a> Introduction to Engineering Mechanics <b>Replaces GENG1001</b>	<a href="#">ENGG1002</a> Introduction to Engineering Computations <b>Replaces GENG1002</b>	<a href="#">MATH1110 *</a> Math for Engineering, Science and Technology 1	<a href="#">BIOL1002</a> Organisms to Ecosystems
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<a href="#">CHEM1010 **</a> Introductory Chemistry I	<a href="#">ENGG1500</a> Introduction to Professional Engineering <b>Replaces GENG1803</b>	<a href="#">MATH1120 *</a> Math for Engineering, Science and Technology 2	<a href="#">SURV1200</a> Introduction to Surveying <b>Replaces SURV1110</b>
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<a href="#">CHEM1020 **</a> Introductory Chemistry II	<a href="#">CIVL2280</a> Geomechanics 1	<a href="#">SURV3650</a> Spatial Data Systems and Remote Sensing <b>Replaces SURV2650</b>	<a href="#">ELECTIVE</a>
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<a href="#">CHEM2610</a> Environmental Chemistry I	<a href="#">CIVL2050</a> Engineering Computations and Probability	<a href="#">MATH2310</a> Calculus of Science and Engineering	<a href="#">BIOL1001</a> Molecules, Cells and Organisms
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<a href="#">CIVL2310</a> Fluid Mechanics	<a href="#">CIVL3410</a> Hydrobiological Modelling	<a href="#">DIRECTED</a>	<a href="#">ENGG4500</a> Engineering Complexity <b>Replaces PHIL3910</b>
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<a href="#">ENVS2002</a> Environmental Legislation & Planning	<a href="#">CHEE3690</a> Environ. Process Technology	<a href="#">CIVL4330</a> Hydrology	<a href="#">CIVL4591</a> Environmental Engineering Project 1
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<a href="#">ENGG3500</a> Managing Engineering Projects <b>Replaces GENG3830</b>	<a href="#">ELECTIVE</a>	<a href="#">CIVL4640 #</a> Project S1	<a href="#">DIRECTED</a>
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**Program Plan Key:** = Core = Minor = Directed = Elective  
 = Changes from 2017 onwards = Changes from 2019 onwards

To be eligible to graduate make sure you have completed 320 units (10 units = 1 course unless otherwise specified) which meet the following criteria:

- ✓ Core courses – 250 units.  
*Prior to 2021*, students could choose to complete either MATH1110 and MATH1120, *OR* MATH1210 and MATH1220. Choice of maths courses is based on your assumed knowledge. To find out which MATH course you should enrol in please see the [Enrolling in Maths information](#). More information is in your [Program Handbook](#). Note that due to course offerings it is recommended midyear commencing students take MATH1110 and MATH1120, and that you also consider the University's [Summer School](#) offerings following your first semester.  
*After 2021*, the option to do MATH1210 and MATH1220 has been removed from the program. *From 2021 onwards*: 1) if you have not yet completed MATH1210 you must complete MATH1110; and 2) if you haven't completed MATH1220 then you must complete MATH1120.
- \* CHEM courses – 20 units. Select both CHEM1010 and CHEM1020 (Callaghan) OR CHEM1110 and CHEM1120 (Ourimbah).
- # Students may choose to complete either CIVL4640 Project S1 (Semester 1) or CIVL4660 Project S2 (Semester 2), whichever best fits their program. Course content and assessment are identical.
- ✓ Minor – 30 units (10 units in Year 1 and 20 units in Year 3).
- ✓ Electives – 20 units. Visit the [Course Handbook](#) to see a list of available Electives.
- ✓ *Refer to the transition document in the [Program Handbook](#) for further information.*
- ✓ It is also a requirement that students complete a total of 12 weeks of [industrial experience](#).
- ✓ The duration of this program is 4 years full time (40 units per semester) or part time equivalent.
- ✓ The maximum time to complete this program is 10 years.



Some courses have assumed knowledge and/or requisites, please refer to the individual [Course Handbook](#).

The [Program Handbook](#) has valuable information on program structure and requirements, if you are intending on studying part time or varying from this program plan please seek prior advice from your [Academic Program Advisor](#).

See the  
next page  
for a list of  
Directed  
courses

# Bachelor of Engineering (Honours) (Environmental) - Natural Science Minor

## Directed Courses

Subject to change - Please refer to the program handbook for up to date information.

Choose **20 units** from the following Directed courses.

**BIOL2010** Biochemistry  
**BIOL2011** Fundamentals of Biology and Biochemistry  
**BIOL2050** Molecular Genetics  
**BIOL2090** Microbial Biology  
**BIOL2220** Plant Adaptation to Climate Change  
**CHEE3425** Chemical Process Safety (**Replaces CHEE2421**)  
**CHEE2695** Energy Transfer and Technologies (**Replaces CHEE2691**)  
**CHEE2825** Chemical Engineering Laboratory (**Replaces CHEE2820**)  
**CHEE2935** Resource and Energy Optimisation (**Replaces CHEE2931**)  
**CHEE2945** Particle & Resources Engineering (**Replaces CHEE2940**)  
**CHEM2310** Organic Chemistry  
**CHEM2410** Physical Chemistry  
**ENVS2001** Environmental Concepts: Energy (*Not currently offered*)  
**ENVS2004** Ecology  
**ENVS2005** Management of Australian Flora  
**ENVS2006** Ecology and Management of Wildlife  
**ENVS2008** The Sustainable Society  
**ENVS2620** Biosciences for EOHS (*Not currently offered*)  
**ENVS2710** Environmental Control Practice (*Not currently offered*)  
**GEOG2080** Cities and Regions  
**GEOG2130** Geographies of Development  
**GEOS2050** Catchment and Climate  
**GEOS2070** Climatology and Soils (*Not currently offered*)  
**GEOS2080** Earth Science Field Course  
**GEOS2200** Earth's Sedimentary Rocks & Environments (*Not currently offered*)

**BIOL3001** Advanced Laboratory Skills in Biological Sciences  
**BIOL3020** Animal Physiology, Reproduction and Development  
**BIOL3090** Molecular Biology  
**BIOL3100** Microbiology  
**CHEM3110** Instrumental Chemical Analysis  
**CHEM3210** Functional Materials  
**CHEM3310** Molecular Organic Synthesis  
**CHEM3410** Energy and Structure  
**CHEM3550** Medicinal and Biological Chemistry  
**CHEM3580** Colloids, Interfaces and Soft Matter  
**ENVS3001** Integrated Impact Assessment  
**ENVS3002** Environmental Management Perspectives  
**ENVS3003** Conservation Biology  
**ENVS3004** Ecotoxicology  
**ENVS3006** Surviving the Anthropocene: Sustainability in the 21st Century  
**ENVS3007** Environmental Remediation  
**ENVS3008** Organisational Placement in the Environmental Sector  
**ENVS3610** Environmental Impact Assessment (*Not currently offered*)  
**ENVS3750** Industrial Ecology for EOHS (*Not currently offered*)  
**GEOG3090** Society and Space  
**GEOG3300** Rethinking Development  
**GEOS3280** Global Change and the Rise of Modern Environments (*Not currently offered*)  
**GEOS3330** Tectonics (*Last offering in 2021*)

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### Directed Courses Removed from the Program in 2021

If you have not already completed these courses prior to 2021 then you choose a different Directed course in the above list:

**BIOL2020** Animal Physiology and Development

**CHEM2110** Analytical Chemistry

**CHEM2210** Inorganic Chemistry

**GEOS2170** Optical Mineralogy

**GEOS2190** Structural Geology

**BIOL3310** Plant Cell & Molecular Biology

**BIOL3330** Plant Development and Physiology

**CHEM3560** Materials Chemistry: Solids and Semiconductors

**CHEM3570** Spectroscopic Characterisation of Compounds

**GEOG3240** Globalisation: Cities, Economies

**GEOS3110** Igneous Petrology and Crustal Evolution

**GEOS3150** Basin Analysis

**GEOS3160** Energy Resources

**GEOS3170** Resource and Exploration Geology

**GEOS3260** Field Course on Carbonate Environments