Civil Engineering
CVENAH | 168 Units of Credit

Overview

Civil Engineering is responsible for projects that enhance the overall quality of life. Civil engineers design, construct, manage, operate and maintain the infrastructure that supports modern society including buildings, bridges, roads and highways, tunnels, airfields, dams, ports and harbours, railways, new mines, water supply and sewerage schemes, irrigation systems and flood mitigation works. The profession is very broad and affords opportunities for involvement in many specialist activities.

In the final year of the Civil Engineering program students may choose electives in structural engineering, geotechnical engineering, transport engineering, water engineering or engineering construction and management. This program can be taken on a four-year full-time basis, or on a part-time basis subject to the approval of the Head of School. Intending part-time students are advised that all courses are offered only in the daytime.

A detailed program structure can be found on the School website, which includes suggested scheduling of courses by semester. While some courses are given twice a year, many courses are given only once a year. In addition, courses may have prerequisites and exclusions. Thus students should plan their enrolments appropriately.
<table>
<thead>
<tr>
<th><strong>Faculty</strong></th>
<th>Faculty of Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School</strong></td>
<td>School of Civil and Environmental Engineering</td>
</tr>
<tr>
<td><strong>Study Level</strong></td>
<td>Undergraduate</td>
</tr>
<tr>
<td><strong>Minimum Units of Credit</strong></td>
<td>168</td>
</tr>
<tr>
<td><strong>Specialisation Type</strong></td>
<td>Honours</td>
</tr>
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</table>
Available in Program(s)

Program(s) in which this honours is available

Bachelor of Engineering (Honours) - BE (Hons)

3707 Engineering (Honours)
Faculty: Faculty of Engineering
Campus: Kensington
Units of Credit: 192
Typical Duration: 4 Years
**Specialisation Structure**

Students must complete 168 UOC.

**Level 1 Core Courses**

Students must take 36 UOC of the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGG1000</td>
<td>6 UOC</td>
</tr>
<tr>
<td>ENGG1300</td>
<td>6 UOC</td>
</tr>
<tr>
<td>ENGG1811</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MATH1131</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MATH1141</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MATH1231</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MATH1241</td>
<td>6 UOC</td>
</tr>
<tr>
<td>PHYS1121</td>
<td>6 UOC</td>
</tr>
<tr>
<td>PHYS1131</td>
<td>6 UOC</td>
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**Description**
- **ENGG1000**: Introduction to Engineering Design and Innovation
- **ENGG1300**: Engineering Mechanics
- **ENGG1811**: Computing for Engineers
- **MATH1131**: Mathematics 1A
- **MATH1141**: Higher Mathematics 1A
- **MATH1231**: Mathematics 1B
- **MATH1241**: Higher Mathematics 1B
- **PHYS1121**: Physics 1A
- **PHYS1131**: Higher Physics 1A
## Level 2 Core Courses

Students must take 42 UOC of the following courses.

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<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
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</thead>
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<tr>
<td>CVEN2002</td>
<td>6</td>
<td>Civil and Environmental Engineering Computations</td>
</tr>
<tr>
<td>CVEN2101</td>
<td>6</td>
<td>Engineering Construction</td>
</tr>
<tr>
<td>CVEN2303</td>
<td>6</td>
<td>Structural Analysis and Modelling</td>
</tr>
<tr>
<td>CVEN2401</td>
<td>6</td>
<td>Sustainable Transport and Highway Engineering</td>
</tr>
<tr>
<td>ENGG2400</td>
<td>6</td>
<td>Mechanics of Solids 1</td>
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<tr>
<td>ENGG2500</td>
<td>6</td>
<td>Fluid Mechanics for Engineers</td>
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</table>

One of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Course Title</th>
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<tbody>
<tr>
<td>MATH2018</td>
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<td>Engineering Mathematics 2D</td>
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<tr>
<td>MATH2019</td>
<td>6</td>
<td>Engineering Mathematics 2E</td>
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## Level 3 Core Courses

Students must take 48 UOC of the following courses.

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<tr>
<td>CVEN3101</td>
<td>6</td>
<td>Engineering Operations and Control</td>
</tr>
<tr>
<td>CVEN3202</td>
<td>6</td>
<td>Soil Mechanics</td>
</tr>
</tbody>
</table>
CVEN3203 | 6 UOC
Applied Geotechnics and Engineering Geology

CVEN3303 | 6 UOC
Steel Structures

CVEN3304 | 6 UOC
Concrete Structures

CVEN3501 | 6 UOC
Water Resources Engineering

CVEN3502 | 6 UOC
Water and Wastewater Engineering

One of the following:
CVEN3031 | 6 UOC
Civil and Environmental Engineering Practice

ENGG3001 | 6 UOC
Fundamentals of Humanitarian Engineering

**Thesis Courses**

Students must take at least 12 UOC, up to a maximum of 24 UOC of the following courses.

Note: School approval is required to take the alternative thesis options
CVEN4951/4952/4953 or CVEN4032/4033

CVEN4032 | 12 UOC
Higher Honours Thesis A

CVEN4033 | 12 UOC
Higher Honours Thesis B

CVEN4050 | 6 UOC
Thesis A
CVEN4051 | 6 UOC
Thesis B

CVEN4951 | 4 UOC
Research Thesis A

CVEN4952 | 4 UOC
Research Thesis B

CVEN4953 | 4 UOC
Research Thesis C

**Discipline Electives**

Students must take at least 6 UOC, up to a maximum of 18 UOC of the following courses.

Note: Students who take CVEN4951 Research Thesis A must take CVEN4701 Planning Sustainable Infrastructure, CVEN4002 Design Practice A or CVEN4003 Design Practice B as one of their discipline electives.

CODE2170 | 6 UOC
Building Information Modelling

CVEN4002 | 6 UOC
Design Practice A

CVEN4003 | 6 UOC
Design Practice B

CVEN4101 | 6 UOC
Problem Solving for Engineers

CVEN4102 | 6 UOC
Operations and Projects

CVEN4103 | 6 UOC
<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>CVEN4104</td>
<td>6</td>
<td>Engineering Contracts</td>
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<tr>
<td>CVEN4201</td>
<td>6</td>
<td>Sustainability in Construction</td>
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<tr>
<td>CVEN4202</td>
<td>6</td>
<td>Rock and Slope Engineering</td>
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<tr>
<td>CVEN4203</td>
<td>6</td>
<td>Advanced Topics in Geotechnical Engineering</td>
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<tr>
<td>CVEN4204</td>
<td>6</td>
<td>Geomechanics</td>
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<tr>
<td>CVEN4300</td>
<td>6</td>
<td>Ground Improvement and Monitoring Techniques</td>
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<td>CVEN4301</td>
<td>6</td>
<td>Structures Practicum</td>
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<tr>
<td>CVEN4308</td>
<td>6</td>
<td>Advanced Concrete Structures</td>
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<tr>
<td>CVEN4309</td>
<td>6</td>
<td>Structural Dynamics</td>
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<tr>
<td>CVEN4310</td>
<td>6</td>
<td>Deformation Monitoring Surveys</td>
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<td>CVEN4402</td>
<td>6</td>
<td>Transport Systems - Part 1: Network Analysis</td>
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<td>CVEN4404</td>
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<td>Fundamentals of Traffic Engineering</td>
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<tr>
<td>CVEN4503</td>
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<tr>
<td>Groundwater Resource Investigation</td>
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<tr>
<td>CVEN4504</td>
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<td>CVEN4701</td>
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<td>Planning Sustainable Infrastructure</td>
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<td>CVEN4703</td>
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<td>Advanced Water Quality Principles</td>
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<td>Satellite Remote Sensing and Applications</td>
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<td>CVEN9620</td>
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<td>Channels, Rivers and Estuaries</td>
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<td>CVEN9818</td>
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<td>CVEN9820</td>
<td>6</td>
<td>Computational Structural Mechanics</td>
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<tr>
<td>CVEN9822</td>
<td>6</td>
<td>Steel and Composite Structures</td>
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<tr>
<td>CVEN9824</td>
<td>6</td>
<td>Advanced Materials Technology</td>
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<tr>
<td>CVEN9881</td>
<td>6</td>
<td>Hazardous Waste Management</td>
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<tr>
<td>CVEN9884</td>
<td>6</td>
<td>Environmental Chemical and Microbial Processes</td>
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<tr>
<td>ENGG3001</td>
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<td>Fundamentals of Humanitarian Engineering</td>
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<tr>
<td>ENGG4060</td>
<td>6</td>
<td>Student Initiated Project</td>
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<tr>
<td>ENGG4102</td>
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## Level 1 Prescribed Electives

Students must take at least 12 UOC of the following courses.

NOTE: CHEM1031 and CHEM1041 will only be available to students enrolled in a program which has a Chemistry major.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Name</th>
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<td>BABS1201</td>
<td>6</td>
<td>Molecules, Cells and Genes</td>
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<tr>
<td>BIOM1010</td>
<td>6</td>
<td>Engineering in Medicine and Biology</td>
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<tr>
<td>BIOS1301</td>
<td>6</td>
<td>Ecology, Sustainability and Environmental Science</td>
</tr>
<tr>
<td>CEIC1000</td>
<td>6</td>
<td>Sustainable Product Engineering and Design</td>
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<tr>
<td>CHEM1011</td>
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<td>Chemistry 1A: Atoms, Molecules and Energy</td>
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<td>CHEM1021</td>
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<td>Chemistry 1B: Elements, Compounds and Life</td>
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<td>Higher Chemistry 1A: Atoms, Molecules and Energy</td>
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<td>Higher Chemistry 1B: Elements, Compounds and Life</td>
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<td>CHEM1811</td>
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<td>COMP1521</td>
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<td>ELEC1111</td>
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<td>Electrical and Telecommunications Engineering</td>
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<td>Grand Challenges for Engineering</td>
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<td>Undergraduate Special Projects</td>
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<tr>
<td>Surveying and Geospatial Engineering</td>
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<td>MATH1081</td>
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<tr>
<td>Discrete Mathematics</td>
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</table>
MATS1101 | 6 UOC
Engineering Materials and Chemistry

MINE1010 | 6 UOC
Mineral Resources Engineering

PHYS1231 | 6 UOC
Higher Physics 1B

PSYC1001 | 6 UOC
Psychology 1A

SOLA1070 | 6 UOC
Sustainable Energy

Enrolment Disclaimer

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also 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.
Additional Information

Day to day administration of the stream is conducted through the School of Civil & Environmental Engineering to which enquiries should be directed.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions
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Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179