Civil Engineering

CVENAH

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.
Faculty
Faculty of Engineering

School
School of Civil and Environmental Engineering

Study Level
Undergraduate

Minimum Units of Credit
168

Specialisation Type
Honours
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.

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

- **ENGG1300** 6 UOC  
  Engineering Mechanics

- **ENGG1811** 6 UOC  
  Computing for Engineers

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
Level 2 Core Courses

Students must take 42 UOC of the following courses.

CVEN2002  |  6 UOC
Civil and Environmental Engineering Computations

CVEN2101  |  6 UOC
Engineering Construction

CVEN2303  |  6 UOC
Structural Analysis and Modelling

CVEN2401  |  6 UOC
Sustainable Transport and Highway Engineering

ENGG2400  |  6 UOC
Mechanics of Solids 1

ENGG2500  |  6 UOC
Fluid Mechanics for Engineers

One of the following:
MATH2018  |  6 UOC
Engineering Mathematics 2D

MATH2019  |  6 UOC
Engineering Mathematics 2E

Level 3 Core Courses

Students must take 48 UOC of the following courses.

CVEN3101  |  6 UOC
Engineering Operations and Control

CVEN3202  |  6 UOC
Soil Mechanics
Applied Geotechnics and Engineering Geology

Steel Structures

Concrete Structures

Water Resources Engineering

Water and Wastewater Engineering

One of the following:
Civil and Environmental Engineering Practice

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

Higher Honours Thesis A

Higher Honours Thesis B

Thesis A
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>
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<th>Course Title</th>
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<tbody>
<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>
</tr>
<tr>
<td>CVEN4300</td>
<td>6</td>
<td>Ground Improvement and Monitoring Techniques</td>
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<tr>
<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>CVEN4402</td>
<td>6</td>
<td>Sustainable Timber Engineering</td>
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<tr>
<td>CVEN4310</td>
<td>6</td>
<td>Deformation Monitoring Surveys</td>
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<tr>
<td>CVEN4402</td>
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<td>Transport Systems - Part 1: Network Analysis</td>
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<tr>
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<td>CVEN4404</td>
<td>6</td>
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<tr>
<td>CVEN4503</td>
<td>6</td>
<td>Groundwater Resource Investigation</td>
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<tr>
<td>CVEN4504</td>
<td>6</td>
<td>Advanced Water and Wastewater Treatment</td>
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<td>CVEN4701</td>
<td>6</td>
<td>Planning Sustainable Infrastructure</td>
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<tr>
<td>CVEN4703</td>
<td>6</td>
<td>Advanced Water Quality Principles</td>
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<tr>
<td>CVEN4705</td>
<td>6</td>
<td>Environmental Sustainability - Methods, Tools, Management</td>
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<tr>
<td>CVEN4800</td>
<td>6</td>
<td>Satellite Remote Sensing and Applications</td>
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<td>CVEN9405</td>
<td>6</td>
<td>Urban Transport Planning Practice</td>
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<tr>
<td>CVEN9415</td>
<td>6</td>
<td>Transport Systems Part 2</td>
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<td>CVEN9612</td>
<td>6</td>
<td>Catchment and Water Resources Modelling</td>
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<tr>
<td>CVEN9620</td>
<td>6</td>
<td>Channels, Rivers and Estuaries</td>
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<tr>
<td>CVEN9640</td>
<td>6</td>
<td>Coastal Engineering</td>
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</table>
CVEN9809 | 6 UOC
Reinforced Concrete Design

CVEN9818 | 6 UOC
Bridge Engineering

CVEN9820 | 6 UOC
Computational Structural Mechanics

CVEN9822 | 6 UOC
Steel and Composite Structures

CVEN9824 | 6 UOC
Advanced Materials Technology

CVEN9881 | 6 UOC
Hazardous Waste Management

CVEN9884 | 6 UOC
Environmental Chemical and Microbial Processes

ENGG3001 | 6 UOC
Fundamentals of Humanitarian Engineering

ENGG4060 | 6 UOC
Student Initiated Project

ENGG4102 | 6 UOC
Humanitarian Engineering Project

GMAT3220 | 6 UOC
Geospatial Information Systems

GSOE9740 | 6 UOC
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.

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<tr>
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<th>Course Name</th>
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<td>BIOS1301</td>
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<td>Ecology, Sustainability and Environmental Science</td>
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<td>CEIC1000</td>
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<td>Sustainable Product Engineering and Design</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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<tr>
<td>CHEM1031</td>
<td>6</td>
<td>Higher Chemistry 1A: Atoms, Molecules and Energy</td>
</tr>
<tr>
<td>CHEM1041</td>
<td>6</td>
<td>Higher Chemistry 1B: Elements, Compounds and Life</td>
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<tr>
<td>CHEM1811</td>
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<td>Engineering Chemistry 1A</td>
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<tr>
<td>CHEM1821</td>
<td>6</td>
<td>Engineering Chemistry 1A</td>
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</tbody>
</table>
Engineering Chemistry 1B

COMP1521 | 6 UOC
Computer Systems Fundamentals

COMP1531 | 6 UOC
Software Engineering Fundamentals

CVEN1701 | 6 UOC
Environmental Principles and Systems

ELEC1111 | 6 UOC
Electrical and Telecommunications Engineering

ENGG1100 | 6 UOC
Grand Challenges for Engineering

ENGG1200 | 6 UOC
Undergraduate Special Projects

ENGG1300 | 6 UOC
Engineering Mechanics

ENGG1400 | 6 UOC
Engineering Infrastructure Systems

GEOS1111 | 6 UOC
Fundamentals of Geology

GMAT1110 | 6 UOC
Surveying and Geospatial Engineering

MATH1081 | 6 UOC
Discrete Mathematics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATS1101</td>
<td>6</td>
<td>Engineering Materials and Chemistry</td>
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<tr>
<td>MINE1010</td>
<td>6</td>
<td>Mineral Resources Engineering</td>
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<td>PHYS1231</td>
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<td>Higher Physics 1B</td>
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<td>PSYC1001</td>
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<td>Psychology 1A</td>
</tr>
<tr>
<td>SOLA1070</td>
<td>6</td>
<td>Sustainable Energy</td>
</tr>
</tbody>
</table>

**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