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.
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
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
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<td>CVEN4051</td>
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<td>CVEN4951</td>
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<td>CVEN4952</td>
<td>4</td>
<td>Research Thesis B</td>
</tr>
<tr>
<td>CVEN4953</td>
<td>4</td>
<td>Research Thesis C</td>
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**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.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>CODE2170</td>
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<td>Building Information Modelling</td>
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<td>CVEN4002</td>
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<td>Design Practice A</td>
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<td>CVEN4003</td>
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<td>Design Practice B</td>
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<tr>
<td>CVEN4101</td>
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<td>Problem Solving for Engineers</td>
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<tr>
<td>CVEN4102</td>
<td>6</td>
<td>Operations and Projects</td>
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<tr>
<td>CVEN4103</td>
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<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>CVEN4207</td>
<td>6</td>
<td>Ground Improvement and Monitoring Techniques</td>
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<tr>
<td>CVEN4300</td>
<td>6</td>
<td>Structures Practicum</td>
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<td>CVEN4301</td>
<td>6</td>
<td>Advanced Concrete Structures</td>
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<td>CVEN4308</td>
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<td>Structural Dynamics</td>
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<td>CVEN4309</td>
<td>6</td>
<td>Sustainable Timber Engineering</td>
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<td>CVEN4310</td>
<td>6</td>
<td>Deformation Monitoring Surveys</td>
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<tr>
<td>CVEN4402</td>
<td>6</td>
<td>Transport Systems - Part 1: Network Analysis</td>
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CVEN4404  |  6 UOC
Fundamentals of Traffic Engineering

CVEN4503  |  6 UOC
Groundwater Resource Investigation

CVEN4504  |  6 UOC
Advanced Water and Wastewater Treatment

CVEN4701  |  6 UOC
Planning Sustainable Infrastructure

CVEN4703  |  6 UOC
Advanced Water Quality Principles

CVEN4705  |  6 UOC
Environmental Sustainability - Methods, Tools, Management

CVEN4800  |  6 UOC
Satellite Remote Sensing and Applications

CVEN9405  |  6 UOC
Urban Transport Planning Practice

CVEN9415  |  6 UOC
Transport Systems Part 2

CVEN9612  |  6 UOC
Catchment and Water Resources Modelling

CVEN9620  |  6 UOC
Channels, Rivers and Estuaries

CVEN9640  |  6 UOC
Coastal Engineering
<table>
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<tr>
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<tr>
<td>CVEN9809</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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<td>CVEN9822</td>
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<td>Steel and Composite Structures</td>
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<td>CVEN9824</td>
<td>6</td>
<td>Advanced Materials Technology</td>
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<tr>
<td>CVEN9881</td>
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<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>
<td>6</td>
<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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<td>ENGG4102</td>
<td>6</td>
<td>Humanitarian Engineering Project</td>
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<tr>
<td>GMAT3220</td>
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<td>Geospatial Information Systems</td>
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<td>GSOE9740</td>
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</table>
# 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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<thead>
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<td>BABS1201</td>
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<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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<td>BIOS1301</td>
<td>6</td>
<td>Ecology, Sustainability and Environmental Science</td>
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<td>CEIC1000</td>
<td>6</td>
<td>Sustainable Product Engineering and Design</td>
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<tr>
<td>CHEM1011</td>
<td>6</td>
<td>Chemistry 1A: Atoms, Molecules and Energy</td>
</tr>
<tr>
<td>CHEM1021</td>
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<td>Chemistry 1B: Elements, Compounds and Life</td>
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<td>CHEM1031</td>
<td>6</td>
<td>Higher Chemistry 1A: Atoms, Molecules and Energy</td>
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<tr>
<td>CHEM1041</td>
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<td>Higher Chemistry 1B: Elements, Compounds and Life</td>
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<tr>
<td>CHEM1811</td>
<td>6</td>
<td>Engineering Chemistry 1A</td>
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<tr>
<td>CHEM1821</td>
<td>6</td>
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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
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<td>PSYC1001</td>
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<td>SOLA1070</td>
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</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