Environmental Engineering

CVENBH

The School of Civil and Environmental Engineering offers a four year honours degree stream leading to a Bachelor of Engineering (Hons) in Environmental Engineering professionally accredited by Engineers Australia. Flexibility and choice are maintained throughout the entire structure by providing many elective courses.

Environmental engineers are concerned with the environmental impact of engineering activities. They apply their broad knowledge of engineering and environmental processes in identifying environmental problems and in developing effective solutions to them. They also coordinate the activities of specialist groups such as biologists, ecologists and geologists within major projects. The discipline of environmental engineering embraces parts of civil engineering, with emphasis on management, systems design, water, geotechnical and transport engineering, together with aspects of chemical engineering, applied and biological sciences and environmental studies.

This stream 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 stream 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 42 UOC of the following courses.

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

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

**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

One of the following:
Level 2 Core Courses

Students must take 36 UOC of the following courses.

- **CEIC2009** 6 UOC
  Material and Energy Balances in the Chemical Process Industry

- **CVEN2002** 6 UOC
  Civil and Environmental Engineering Computations

- **CVEN2402** 6 UOC
  Transport Engineering and Environmental Sustainability

- **CVEN2701** 6 UOC
  Water and Atmospheric Chemistry

- **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

CVEN3501  |  6 UOC
Water Resources Engineering

CVEN3502  |  6 UOC
Water and Wastewater Engineering

CVEN3701  |  6 UOC
Environmental Frameworks, Law and Economics

CVEN3702  |  6 UOC
Solid Wastes and Contaminant Transport

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

ENGG3001  |  6 UOC
Fundamentals of Humanitarian Engineering

**Level 4 Core Courses**

Students must take 6 UOC of the following courses.

CVEN4701  |  6 UOC
Planning Sustainable Infrastructure

**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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4032</td>
<td>12</td>
</tr>
<tr>
<td>Higher Honours Thesis A</td>
<td></td>
</tr>
<tr>
<td>CVEN4033</td>
<td>12</td>
</tr>
<tr>
<td>Higher Honours Thesis B</td>
<td></td>
</tr>
<tr>
<td>CVEN4050</td>
<td>6</td>
</tr>
<tr>
<td>Thesis A</td>
<td></td>
</tr>
<tr>
<td>CVEN4051</td>
<td>6</td>
</tr>
<tr>
<td>Thesis B</td>
<td></td>
</tr>
<tr>
<td>CVEN4951</td>
<td>4</td>
</tr>
<tr>
<td>Research Thesis A</td>
<td></td>
</tr>
<tr>
<td>CVEN4952</td>
<td>4</td>
</tr>
<tr>
<td>Research Thesis B</td>
<td></td>
</tr>
<tr>
<td>CVEN4953</td>
<td>4</td>
</tr>
<tr>
<td>Research Thesis C</td>
<td></td>
</tr>
</tbody>
</table>

**Discipline Electives**

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4002</td>
<td>6</td>
</tr>
<tr>
<td>Design Practice A</td>
<td></td>
</tr>
<tr>
<td>CVEN4003</td>
<td>6</td>
</tr>
<tr>
<td>Design Practice B</td>
<td></td>
</tr>
<tr>
<td>CVEN4101</td>
<td>6</td>
</tr>
<tr>
<td>Problem Solving for Engineers</td>
<td></td>
</tr>
<tr>
<td>CVEN4102</td>
<td>6</td>
</tr>
</tbody>
</table>
Operations and Projects

CVEN4103  |  6 UOC
Engineering Contracts

CVEN4104  |  6 UOC
Sustainability in Construction

CVEN4201  |  6 UOC
Rock and Slope Engineering

CVEN4202  |  6 UOC
Advanced Topics in Geotechnical Engineering

CVEN4203  |  6 UOC
Geomechanics

CVEN4204  |  6 UOC
Ground Improvement and Monitoring Techniques

CVEN4300  |  6 UOC
Structures Practicum

CVEN4402  |  6 UOC
Transport Systems - Part 1: Network Analysis

CVEN4404  |  6 UOC
Fundamentals of Traffic Engineering

CVEN4503  |  6 UOC
Groundwater Resource Investigation

CVEN4507  |  6 UOC
Advanced Water Engineering
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4701</td>
<td>6</td>
<td>Planning Sustainable Infrastructure</td>
</tr>
<tr>
<td>CVEN4703</td>
<td>6</td>
<td>Advanced Water Quality Principles</td>
</tr>
<tr>
<td>CVEN4800</td>
<td>6</td>
<td>Satellite Remote Sensing and Applications</td>
</tr>
<tr>
<td>CVEN9405</td>
<td>6</td>
<td>Urban Transport Planning Practice</td>
</tr>
<tr>
<td>CVEN9415</td>
<td>6</td>
<td>Transport Systems Part 2</td>
</tr>
<tr>
<td>CVEN9612</td>
<td>6</td>
<td>Catchment and Water Resources Modelling</td>
</tr>
<tr>
<td>CVEN9620</td>
<td>6</td>
<td>Channels, Rivers and Estuaries</td>
</tr>
<tr>
<td>CVEN9640</td>
<td>6</td>
<td>Coastal Engineering</td>
</tr>
<tr>
<td>CVEN9881</td>
<td>6</td>
<td>Hazardous Waste Management</td>
</tr>
<tr>
<td>CVEN9884</td>
<td>6</td>
<td>Environmental Chemical and Microbial Processes</td>
</tr>
<tr>
<td>ENGG3001</td>
<td>6</td>
<td>Fundamentals of Humanitarian Engineering</td>
</tr>
<tr>
<td>GMAT9600</td>
<td>6</td>
<td>Principles of Remote Sensing</td>
</tr>
</tbody>
</table>
Level 1 Prescribed Electives

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

ENGG1300 excludes CVEN1300, MINE1300, and MMAN1300. 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

CHEM1821 | 6 UOC  
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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMAT1110</td>
<td>6</td>
</tr>
<tr>
<td>Surveying and Geospatial Engineering</td>
<td></td>
</tr>
<tr>
<td>MATH1081</td>
<td>6</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATS1101</td>
<td>6</td>
</tr>
<tr>
<td>Engineering Materials and Chemistry</td>
<td></td>
</tr>
<tr>
<td>MINE1010</td>
<td>6</td>
</tr>
<tr>
<td>Mineral Resources Engineering</td>
<td></td>
</tr>
<tr>
<td>PHYS1231</td>
<td>6</td>
</tr>
<tr>
<td>Higher Physics 1B</td>
<td></td>
</tr>
<tr>
<td>PSYC1001</td>
<td>6</td>
</tr>
<tr>
<td>Psychology 1A</td>
<td></td>
</tr>
<tr>
<td>SOLA1070</td>
<td>6</td>
</tr>
<tr>
<td>Sustainable Energy</td>
<td></td>
</tr>
</tbody>
</table>

**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

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
© UNSW Sydney (CRICOS Provider No.: 00098G), 2019. The information contained in this Handbook is indicative only. While every effort is made to keep this information up-to-date, the University reserves the right to discontinue or vary arrangements, programs and courses at any time without notice and at its discretion. While the University will try to avoid or minimise any inconvenience, changes may also be made to programs, courses and staff after enrolment. The University may also set limits on the number of students in a course.

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