Engineering (Civil Eng w Arch) (Honours)

3635

This innovative program extends the current Civil Engineering bachelor degree by the inclusion of a stream of courses in Architecture from the Faculty of the Built Environment. Civil Engineers essentially engineer and manage the infrastructure of our built environment 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 Civil Engineering with Architecture program provides for an appreciation of architectural principles and an understanding of both the architect's role in construction and the interaction between architects and engineers. The ultimate aim is to help students become conceptual thinkers, inspired by beautiful creations to build even better ones, to develop an appreciation for beauty with the mathematical ability to challenge the traditional boundaries of structural design. Students graduating from this degree will be well qualified to collaborate with architects and other professionals in the built environment to produce integrated and sustainable design. Creativity and inventiveness are the key attributes of this program.

In the final year of the program students may elect to major 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.
**Faculty**
Faculty of Engineering

**Campus**
Kensington

**Study Level**
Undergraduate

**Typical duration**
4 Years

**Delivery Mode**
Face-to-face

**Intake Period**
Term 1

**Academic Calendar**
3+ Calendar

**Minimum Units of Credit**
192

**Award type**
Bachelors Honours

**Award(s)**
Bachelor of Engineering (Honours) - BE (Hons)

**UAC Code**
425450

**CRICOS Code**
059439D
Program Structure

Students must complete 192 UOC as a standalone program.

The program requires students to complete:

1. 192 UOC plus at least 60 days of approved Industrial Training experience
2. At least 48 UOC Disciplinary Knowledge and Enquiry-based Courses
3. 30-42UOC Introductory Knowledge core courses
4. At least 12 UOC of elective courses
5. The balance of the program to consist of Foundation Disciplinary Knowledge Courses
6. At least 6 UOC of Engineering and Technical Management core (Foundational Disciplinary or Disciplinary Level)

The design rules above ensure students in the program meet the requirements for research-based learning requirement. Students will develop skills in undertaking enquiry-based learning within the mandated minimum 24 UOC of enquiry-based learning and will plan and execute supervised thesis research projects as part of the final year thesis courses.

Level 1 Core Courses

Students must take 42 UOC of the following courses.

ARCH1080 | 6 UOC
Introduction to Architecture and Enabling Skills

ARCH1121 | 6 UOC
Architectural History and Theory 1

ENGG1000 | 6 UOC
Introduction to Engineering Design and Innovation

ENGG1300 | 6 UOC
Engineering Mechanics

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 48 UOC of the following courses.

ARCH1101 | 6 UOC
Architectural Design Studio 1

ARCH1142 | 6 UOC
Architectural Communications

CVEN2002 | 6 UOC
Civil and Environmental Engineering Computations

CVEN2101 | 6 UOC
Engineering Construction

CVEN2303 | 6 UOC
Structural Analysis and Modelling

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.

**ARCH1102 | 6 UOC**
Architectural Design Studio 2

**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
Level 4 Core Courses

Students must take at least 24 UOC, up to a maximum of 36 UOC of the following courses. Note School approval is required to undertake the alternate thesis options (CVEN4032/4033 or CVEN4951/4952/4953).

ARCH1201 | 6 UOC
Architectural Design Studio 3

CVEN4032 | 12 UOC
Higher Honours Thesis A

CVEN4033 | 12 UOC
Higher Honours Thesis B

CVEN4050 | 6 UOC
Thesis A

CVEN4051 | 6 UOC
Thesis B

CVEN4701 | 6 UOC
Planning Sustainable Infrastructure

CVEN4951 | 4 UOC
Research Thesis A

CVEN4952 | 4 UOC
Research Thesis B

CVEN4953 | 4 UOC
Research Thesis C
Built Environment Electives

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

**ARCH1201**  |  6 UOC  
Architectural Design Studio 3

**ARCH1222**  |  6 UOC  
Architectural History and Theory 2

**ARCH1322**  |  6 UOC  
Architectural History and Theory 3

**CODE1110**  |  6 UOC  
Computational Design Theory 1

**CODE1150**  |  6 UOC  
Computational Design I (Fundamentals)

**CODE1231**  |  6 UOC  
Ubiquitous Cities

**CODE2120**  |  6 UOC  
Building Data

**CODE2121**  |  6 UOC  
Computational Design 3 (Advanced)

Civil Engineering Level 4 Discipline Electives

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

**CVEN3401**  |  6 UOC  
Sustainable Transport and Highway Engineering

**CVEN4002**  |  6 UOC  
Design Practice A
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4003</td>
<td>6</td>
</tr>
</tbody>
</table>
| Design Practice B

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4101</td>
<td>6</td>
</tr>
</tbody>
</table>
| Problem Solving for Engineers

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4102</td>
<td>6</td>
</tr>
</tbody>
</table>
| Operations and Projects

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4103</td>
<td>6</td>
</tr>
</tbody>
</table>
| Engineering Contracts

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4104</td>
<td>6</td>
</tr>
</tbody>
</table>
| Sustainability in Construction

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4201</td>
<td>6</td>
</tr>
</tbody>
</table>
| Rock and Slope Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4202</td>
<td>6</td>
</tr>
</tbody>
</table>
| Advanced Topics in Geotechnical Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4204</td>
<td>6</td>
</tr>
</tbody>
</table>
| Ground Improvement and Monitoring Techniques

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4300</td>
<td>6</td>
</tr>
</tbody>
</table>
| Structures Practicum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4301</td>
<td>6</td>
</tr>
</tbody>
</table>
| Advanced Concrete Structures

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4305</td>
<td>6</td>
</tr>
</tbody>
</table>
| Advanced Materials Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4307</td>
<td>6</td>
</tr>
</tbody>
</table>
| Steel and Composite Structures
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4308</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Structural Dynamics</td>
<td></td>
</tr>
<tr>
<td>CVEN4401</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Urban Transport Planning</td>
<td></td>
</tr>
<tr>
<td>CVEN4402</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Transport Systems - Part 1: Network Analysis</td>
<td></td>
</tr>
<tr>
<td>CVEN4403</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Transport Systems - Part 2: Queuing Theory</td>
<td></td>
</tr>
<tr>
<td>CVEN4404</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Fundamentals of Traffic Engineering</td>
<td></td>
</tr>
<tr>
<td>CVEN4501</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Catchment Modelling and Water Resources Management</td>
<td></td>
</tr>
<tr>
<td>CVEN4502</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Coastal Engineering</td>
<td></td>
</tr>
<tr>
<td>CVEN4503</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Groundwater Resource Investigation</td>
<td></td>
</tr>
<tr>
<td>CVEN4504</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Advanced Water and Wastewater Treatment</td>
<td></td>
</tr>
<tr>
<td>CVEN4505</td>
<td>6 UOC</td>
</tr>
<tr>
<td>River Engineering</td>
<td></td>
</tr>
<tr>
<td>CVEN4701</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Planning Sustainable Infrastructure</td>
<td></td>
</tr>
<tr>
<td>CVEN4703</td>
<td>6 UOC</td>
</tr>
<tr>
<td>Advanced Water Quality Principles</td>
<td></td>
</tr>
</tbody>
</table>
**Level 1 Engineering Electives**

Students must take at least 6 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.

<table>
<thead>
<tr>
<th>Code</th>
<th>UOC</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGG3001</td>
<td>6</td>
<td>Fundamentals of Humanitarian Engineering</td>
</tr>
<tr>
<td>BABS1201</td>
<td>6</td>
<td>Molecules, Cells and Genes</td>
</tr>
<tr>
<td>BIOM1010</td>
<td>6</td>
<td>Engineering in Medicine and Biology</td>
</tr>
<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>
</tr>
<tr>
<td>CEIC1001</td>
<td>6</td>
<td>Engineering Chemistry</td>
</tr>
<tr>
<td>CHEM1011</td>
<td>6</td>
<td>Chemistry 1A: Atoms, Molecules and Energy</td>
</tr>
<tr>
<td>CHEM1021</td>
<td>6</td>
<td>Chemistry 1B: Elements, Compounds and Life</td>
</tr>
<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></td>
</tr>
</tbody>
</table>
Higher Chemistry 1B: Elements, Compounds and Life

**COMP1921 | 6 UOC**  
Computing 1B

**CVEN1701 | 6 UOC**  
Environmental Principles and Systems

**ELEC1111 | 6 UOC**  
Electrical and Telecommunications Engineering

**ENGG1100 | 6 UOC**  
Grand Challenges for Engineering

**ENGG1300 | 6 UOC**  
Engineering Mechanics

**GEOS1111 | 6 UOC**  
Fundamentals of Geology

**GMAT1110 | 6 UOC**  
Surveying and Geospatial Engineering

**MATH1081 | 6 UOC**  
Discrete Mathematics

**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

**Level 3 Engineering Maturity Requirement**

Students must have completed 72 UOC before taking any of the following courses.

any level 3 course

**Level 4 Engineering Maturity Requirement**

Students must have completed 102 UOC before taking any of the following courses.

any level 4 course

**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.
Program Requirements

Progression Requirements

Students must show cause not to be excluded from the program (but allowed to transfer to the BEngSc program) if they have any of the following:

Two fails in any given core course

After half or more of the program attempted (more than 96UOC), 50% or more of program courses have been failed

Prior to the final 48 UOC of the program (144 UOC or more of the program completed), a WAM of less than 50%

For more information on university policy on progression requirements please visit Academic Progression.
Pathways

Post Graduate

Doctor of Philosophy - PhD
1630 Civil & Environmental Eng

Faculty: Faculty of Engineering
Campus: Kensington
Units of Credit: 144
Typical Duration: 3 to 4 Years

Read More

Graduate Diploma of Engineering Science - GradDipEngSc
5341 Engineering Science

Faculty: Faculty of Engineering
Campus: Kensington
Units of Credit: 48
Typical Duration: 1 Years

Read More

Master of Engineering Science - MEngSc
8338 Engineering Science

Faculty: Faculty of Engineering
Campus: Kensington
Units of Credit: 96
Typical Duration: 2 Years

Read More
Professional Outcomes

Accreditations

Professional institutes that offer accreditation on completion of this program:

- Engineers Australia

Professional Recognition

Graduates are eligible to apply for corporate membership of the Institution of Engineers Australia. Substantial or complete recognition is accorded to the BE programs by overseas engineering institutions.

Career Opportunities

Structural engineering consultant working for construction and contracting companies, government organisations, airport and harbour authorities, financial consultancies.
Recognition of Achievement

University Medal

The University Medal is awarded to recognise outstanding academic performance by a bachelor degree student in line with the University Medal Policy and University Medal Procedure.

Honours Classes

Award of Class of Honours

- Class 1: WAM of at least 80 and Thesis Mark of at least 65
- Class 2 Division 1: WAM of at least 75 and Thesis Mark of at least 65
- Class 2 Division 2: WAM of at least 65 and Thesis Mark of at least 65

Honours WAM

Courses will be weighted according to the following:

- General Education: 1
- Level 1 Courses: 1
- Level 2 Courses: 2
- Level 3 Courses: 3
- Level 4 Courses: 4

First attempt counts and Honours WAM to be calculated to one decimal place.

See Additional Information below for further details.
Additional Information

Marking of written report

Thesis marks should be provided by the two assessors independently, without collusion or knowledge of the other mark.

- For any mark difference less than or equal to 10 marks, the unweighted average.
- For any mark difference of 11-15 marks, the Thesis Coordinator discusses with the two markers about why they gave their marks and assists the two markers to come to an agreement on a final mark.
- For any mark difference greater than 15 marks, and third assessor must be used. An unweighted average of the three marks will be used.
- If the situation arises that one mark is invalid, the Thesis Coordinator has the discretion to eliminate that mark and average the other two (if they fail within the 10 mark difference).
Program Fees

At UNSW fees are generally charged at course level and therefore dependent upon individual enrolment and other factors such as student's residency status. For generic information on fees and additional expenses of UNSW programs, click on one of the following:

Domestic Students
Commonwealth Supported Students
International Students
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions