The Surveying stream is full time and extends over four years. This stream aims to prepare a graduate for a broad range of career opportunities in the various branches of Surveying and the numerous Spatial Information disciplines. To this end the stream covers general scientific and IT principles, as well as specialised Surveying and Spatial Information topics. Specialisation is provided for through the provision of elective courses offered in the third and fourth years of the program and the choice of a targeted final year thesis project often aligned with an external industry partner.

The degree of BE in Surveying is recognised by the Board of Surveying and Spatial Information of New South Wales as meeting the requirements for entry as a candidate to become a Registered Surveyor. The degree is also recognised by the Institution of Surveyors, New South Wales, the Spatial Sciences Institute and Engineers Australia, for admission as corporate members.

Suggestions for course sequences consistent with timetabling and availability can be found on the School website. The timing of the general education courses and elective courses may be modified to optimize the student's choice of courses. 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.

The day to day administration of the stream is conducted through the School of Civil & Environmental Engineering, to which inquiries should be directed.
<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>
</tbody>
</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.

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

**ENGG1811 | 6 UOC**
Computing for Engineers

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

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.

CVEN2002 | 6 UOC
Civil and Environmental Engineering Computations

ENGG2500 | 6 UOC
Fluid Mechanics for Engineers

GMAT2120 | 6 UOC
Surveying and Geospatial Technology

GMAT2500 | 6 UOC
Surveying Computations A

GMAT2550 | 6 UOC
Surveying Computations B

GMAT2700 | 6 UOC
Foundations of Geodesy & Geospatial Ref Frames

One of the following:
CVEN2401 | 6 UOC
Sustainable Transport and Highway Engineering

CVEN3202 | 6 UOC
Soil Mechanics

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN3101</td>
<td>6</td>
<td>Engineering Operations and Control</td>
</tr>
<tr>
<td>CVEN3501</td>
<td>6</td>
<td>Water Resources Engineering</td>
</tr>
<tr>
<td>GMAT3100</td>
<td>6</td>
<td>Surveying Applications and Design</td>
</tr>
<tr>
<td>GMAT3150</td>
<td>6</td>
<td>Surveying Field Projects</td>
</tr>
<tr>
<td>GMAT3220</td>
<td>6</td>
<td>Geospatial Information Systems</td>
</tr>
<tr>
<td>GMAT3420</td>
<td>6</td>
<td>Cadastral Surveying and Land Law</td>
</tr>
<tr>
<td>GMAT3500</td>
<td>6</td>
<td>Remote Sensing and Photogrammetry</td>
</tr>
<tr>
<td>GMAT3700</td>
<td>6</td>
<td>Geodetic Positioning and Applications</td>
</tr>
</tbody>
</table>

**Level 4 Core Courses**

Students must take 18 UOC of the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN4050</td>
<td>6</td>
<td>Thesis A</td>
</tr>
<tr>
<td>CVEN4051</td>
<td>6</td>
<td>Thesis B</td>
</tr>
<tr>
<td>CVEN4951</td>
<td>4</td>
<td>Research Thesis A</td>
</tr>
</tbody>
</table>
Students must take at least 6 UOC of the following courses. Students who wish to take any courses outside of this list need to get approval from the Program Authority.

**CVEN4800** | 6 UOC  
Satellite Remote Sensing and Applications

**ENGG3001** | 6 UOC  
Fundamentals of Humanitarian Engineering

**ENGG4060** | 6 UOC  
Student Initiated Project

**ENGG4102** | 6 UOC  
Humanitarian Engineering Project

**GEOS3911** | 6 UOC  
Environmental Impact Assessment

**GMAT4220** | 6 UOC  
Geospatial Information Science

**GMAT4400** | 6 UOC  
Land Management Project

**GMAT4450** | 6 UOC
Land Management and Development Project 2

GMAT4900  |  6 UOC
Principles of GPS Positioning

GMAT9600  |  6 UOC
Principles of Remote Sensing

MINE2010  |  6 UOC
Mining Project Development

**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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<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>
</tr>
<tr>
<td>CHEM1811</td>
<td>6</td>
<td>Engineering Chemistry 1A</td>
</tr>
<tr>
<td>CHEM1821</td>
<td>6</td>
<td>Engineering Chemistry 1B</td>
</tr>
<tr>
<td>COMP1521</td>
<td>6</td>
<td>Computer Systems Fundamentals</td>
</tr>
<tr>
<td>COMP1531</td>
<td>6</td>
<td>Software Engineering Fundamentals</td>
</tr>
<tr>
<td>CVEN1701</td>
<td>6</td>
<td>Environmental Principles and Systems</td>
</tr>
<tr>
<td>ELEC1111</td>
<td>6</td>
<td>Electrical and Telecommunications Engineering</td>
</tr>
<tr>
<td>ENGG1100</td>
<td>6</td>
<td>Grand Challenges for Engineering</td>
</tr>
<tr>
<td>ENGG1200</td>
<td>6</td>
<td>Undergraduate Special Projects</td>
</tr>
<tr>
<td>ENGG1300</td>
<td>6</td>
<td>Engineering Mechanics</td>
</tr>
<tr>
<td>ENGG1400</td>
<td>6</td>
<td>Engineering Infrastructure Systems</td>
</tr>
</tbody>
</table>
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

**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.
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