Specialisation

Mechanical Engineering

MECHAH

The Mechanical Engineering stream provides a versatile, comprehensive coverage of areas involving the conception and design of machinery and mechanical plant, the supervision of its construction, operation and maintenance, the planning and supervision of large engineering projects, and general engineering management. Due to its wide range, a number of options are provided as Technical Elective courses in the final year. These are preferentially linked to provide a direction appropriate to the needs of Australian industry and to the specific interests of students, although some flexibility is available if required. Typical fields which may be encompassed by the program include building services, computer-aided design, power generation, energy and environmental systems, gas and liquid handling, biomechanics, materials handling, control systems and transport. An emphasis is placed on the application of engineering science, development and management in these fields.
<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 Mechanical and Manufacturing 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

Bachelor of Engineering (Honours) - **BE (Hons)**
Master of Biomedical Engineering - **MBiomedE**
3768 Engineering (Honours)/Biomedical Engineering
Faculty: Faculty of Engineering
Campus: Kensington
Units of Credit: 240
Typical Duration: 5 Years
**Specialisation Structure**

Students must complete 168 UOC.

**Level 1 Core Courses**

Students must take 42 UOC of the following courses.

Note: ENGG1811 is the preferred computing course for the MECH Stream.

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

- **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
One of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP1511</td>
<td>6</td>
</tr>
<tr>
<td>Programming Fundamentals</td>
<td></td>
</tr>
<tr>
<td>COMP1911</td>
<td>6</td>
</tr>
<tr>
<td>Computing 1A</td>
<td></td>
</tr>
<tr>
<td>ENGG1811</td>
<td>6</td>
</tr>
<tr>
<td>Computing for Engineers</td>
<td></td>
</tr>
</tbody>
</table>

**Level 2 Core Courses**

Students must take 48 UOC of the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGG2400</td>
<td>6</td>
</tr>
<tr>
<td>Mechanics of Solids 1</td>
<td></td>
</tr>
<tr>
<td>ENGG2500</td>
<td>6</td>
</tr>
<tr>
<td>Fluid Mechanics for Engineers</td>
<td></td>
</tr>
<tr>
<td>MATH2089</td>
<td>6</td>
</tr>
<tr>
<td>Numerical Methods and Statistics</td>
<td></td>
</tr>
<tr>
<td>MMAN2100</td>
<td>6</td>
</tr>
<tr>
<td>Engineering Design 2</td>
<td></td>
</tr>
<tr>
<td>MMAN2130</td>
<td>6</td>
</tr>
<tr>
<td>Design and Manufacturing</td>
<td></td>
</tr>
<tr>
<td>MMAN2300</td>
<td>6</td>
</tr>
<tr>
<td>Engineering Mechanics 2</td>
<td></td>
</tr>
<tr>
<td>MMAN2700</td>
<td>6</td>
</tr>
<tr>
<td>Thermodynamics</td>
<td></td>
</tr>
</tbody>
</table>

One of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH2019</td>
<td>6</td>
</tr>
</tbody>
</table>
Level 3 Core Courses

Students must take 30 UOC of the following courses.

- **MECH3110** | 6 UOC
  Mechanical Design 1

- **MECH3610** | 6 UOC
  Advanced Thermofluids

- **MMAN3000** | 6 UOC
  Professional Engineering and Communication

- **MMAN3200** | 6 UOC
  Linear Systems and Control

- **MMAN3400** | 6 UOC
  Mechanics of Solids 2

Level 4 Core Courses

Students must take 12 UOC of thesis courses.

- **MECH4100** | 6 UOC
  Mechanical Design 2

- **MMAN4010** | 6 UOC
  Thesis A

- **MMAN4020** | 6 UOC
  Thesis B

- **MMAN4951** | 4 UOC
  Research Thesis A
Discipline Electives

Students must take at least 18 UOC of the following courses.

Students may select discipline electives from other streams within the BE(Hons) program subject to approval of the Head of School.


ENGG3060 | 6 UOC
Maker Games

MANF6860 | 6 UOC
Strategic Manufacturing Management

MANF9400 | 6 UOC
Industrial Management

MANF9420 | 6 UOC
Operations and Supply Chain Management in Engineering

MANF9472 | 6 UOC
Production Planning and Control

MECH4305 | 6 UOC
Fundamental and Advanced Vibration Analysis

MECH4320 | 6 UOC
Engineering Mechanics 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH4620</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH4880</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH4900</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH9325</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH9420</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH9650</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH9720</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MECH9761</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MMAN4410</td>
<td>6 UOC</td>
</tr>
<tr>
<td>NAVL4140</td>
<td>6 UOC</td>
</tr>
</tbody>
</table>

**Level 1 Prescribed Electives**

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

**Note:**

- Students take ENGG1300 and ELEC1111 as Level 1 Core and are not required to
take further Level 1 electives and may choose to substitute L1 elective for higher level electives later in the program.

- 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>Course</th>
<th>UOC</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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>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>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>
</tbody>
</table>
MINE1010  |  6 UOC
Mineral Resources Engineering

PHYS1231  |  6 UOC
Higher Physics 1B

PSYC1001  |  6 UOC
Psychology 1A

SOLA1070  |  6 UOC
Sustainable Energy

**Level 1 Electives - Chemistry options**

Students without any prior Chemistry should choose CHEM1001. Other students with HSC Chemistry who wish to study Chemistry in more depth should choose CHEM1011.

**Research Thesis Rule**

- Research thesis is optional to all Undergraduate students.
- Student must seek a primary supervisor from the School of Mechanical and Manufacturing Engineering, UNSW.
- MMAN4951, MMAN4952 and MMAN4953 must be undertaken in three consecutive terms which are the final three terms of candidature.
- A student must not enrol in more than a standard full-time load involving MMAN4951, MMAN4952 and MMAN4953.
- A single thesis project is commenced in MMAN4951, proceed to MMAN4952, and completed in MMAN4953.
- MMAN4951, MMAN4952, MMAN4953 are graded courses. MMAN4951 carries 10% of the total thesis mark, MMAN4952 carries 20% of the total thesis mark, MMAN4953 carries 70% of the total thesis mark (for Honours weighting purposes).
- If a student receives a failure (FL) in MMAN4951, MMAN4952, or MMAN4953 a student cannot proceed to the next Research Thesis course and must reattempt MMAN4951, or discontinue Research Thesis.
Practical/Industry-based Thesis Rule

- Practical/Industry-based Thesis is compulsory to all Undergraduate students who do not wish to conduct Research Thesis.

- MMAN4010, MMAN4020 must be undertaken in two consecutive terms which are the final two terms of candidature.

- A student must not enrol in more than a standard full-time load involving MMAN4010 and MMAN4020.

- A single thesis project is commenced in MMAN4010 and completed in MMAN4020.

- MMAN4010 and MMAN4020 are graded course, MMAN4010 carries 25% of the total thesis mark, and MMAN4020 carries 75% of the total thesis mark (for Honours weighting purposes).

- If a student receives a failure (FL) in MMAN4010, a student cannot proceed with MMAN4020, and must reattempt MMAN4010.

- If the project is abandoned during MMAN4010 or MMAN4020, a completely new topic and project team must be chosen and the student must enrol again in both MMAN4010 and MMAN4020.

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

Thesis Arrangements

- MMAN4010 and MMAN4020 must be undertaken in two consecutive semesters which are the final two semesters of candidature.
- A student must not be enrolled in more than 24 units of credit in any semester involving MMAN4010 and MMAN4020.
- A single thesis project is commenced in MMAN4010 and completed in MMAN4020. MMAN4020 carries the mark for the thesis project.
- MMAN4010 is a graded course, carrying 25% of the total thesis mark (for Honours weighting purposes). If a student receives a failure (FL) in MMAN4010, a student cannot proceed with MMAN4020, and must reattempt MMAN4010.
- If the project is abandoned during MMAN4020, or if MMAN4020 is failed, a completely new topic must be chosen and the student must enrol again in both MMAN4010 and MMAN4020. (For BE/MBiomedE students, read BIOM5001 instead of MMAN4010 and BIOM5003 instead of MMAN4020).
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions