Chemical Engineering involves researching, developing and improving properties of products we use every day through the selection of raw materials, the design of chemical processes, and improving the conditions for production. It's about taking projects from inception as a research proposal, through product development and on to commercialisation and manufacture. You'll learn how to apply your knowledge in chemical engineering and chemistry to optimise complex chemical processes in environmental management, general industry and services like water delivery. You'll master the entire process, extrapolating small scale, laboratory chemistry into large, industrial scale production. To get work ready, you'll apply these skills through 60 days of approved industry training.
<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 Chemical 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.

- **CHEM1811**  |  6 UOC  
  Engineering Chemistry 1A

- **CHEM1821**  |  6 UOC  
  Engineering Chemistry 1B

- **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

**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>CEIC2000</td>
<td>6</td>
</tr>
<tr>
<td>CEIC2001</td>
<td>6</td>
</tr>
<tr>
<td>CEIC2002</td>
<td>6</td>
</tr>
<tr>
<td>CEIC2004</td>
<td>6</td>
</tr>
<tr>
<td>CEIC2005</td>
<td>6</td>
</tr>
<tr>
<td>CEIC2007</td>
<td>6</td>
</tr>
<tr>
<td>MATH2089</td>
<td>6</td>
</tr>
</tbody>
</table>

One of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH2018</td>
<td>6</td>
</tr>
<tr>
<td>MATH2019</td>
<td>6</td>
</tr>
</tbody>
</table>

**Level 3 Core Courses**
Students must take 36 UOC of the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIC3000</td>
<td>6 UOC</td>
<td>Process Modelling and Analysis</td>
</tr>
<tr>
<td>CEIC3001</td>
<td>6 UOC</td>
<td>Advanced Thermodynamics and Separation</td>
</tr>
<tr>
<td>CEIC3004</td>
<td>6 UOC</td>
<td>Process Equipment Design</td>
</tr>
<tr>
<td>CEIC3005</td>
<td>6 UOC</td>
<td>Process Plant Design</td>
</tr>
<tr>
<td>CEIC3006</td>
<td>6 UOC</td>
<td>Process Dynamics and Control</td>
</tr>
<tr>
<td>CEIC3007</td>
<td>6 UOC</td>
<td>Chemical Engineering Lab B</td>
</tr>
</tbody>
</table>

**Level 4 Core Courses**

Students must take 30 UOC of the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIC4000</td>
<td>6 UOC</td>
<td>Environment and Sustainability</td>
</tr>
<tr>
<td>CEIC4001</td>
<td>12 UOC</td>
<td>Process Design Project</td>
</tr>
<tr>
<td>CEIC4951</td>
<td>4 UOC</td>
<td>Research Thesis A</td>
</tr>
<tr>
<td>CEIC4952</td>
<td>4 UOC</td>
<td>Research Thesis B</td>
</tr>
<tr>
<td>CEIC4953</td>
<td>4 UOC</td>
<td></td>
</tr>
</tbody>
</table>
Discipline (Depth) Electives

Students must take at least 6 UOC, up to a maximum of 12 UOC of the following courses.

CEIC6004  |  6 UOC
Advanced Polymers

CEIC6711  |  6 UOC
Complex Fluids Microstructure and Rheology

CEIC8102  |  6 UOC
Advanced Process Control

CHEN6701  |  6 UOC
Advanced Reaction Engineering

CHEN6703  |  6 UOC
Advanced Particle Systems Engineering

CHEN6706  |  6 UOC
Advanced Transport Phenomena

Level 1 Prescribed Electives

Students must take at least 6 UOC of the following courses.

BABS1201  |  6 UOC
Molecules, Cells and Genes

BIOM1010  |  6 UOC
Engineering in Medicine and Biology

BIOS1301  |  6 UOC
Ecology, Sustainability and Environmental Science
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIC1000</td>
<td>6</td>
<td>Sustainable Product Engineering and Design</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>
<tr>
<td>GEOS1111</td>
<td>6</td>
<td>Fundamentals of Geology</td>
</tr>
<tr>
<td>GMAT1110</td>
<td>6</td>
<td>Surveying and Geospatial Engineering</td>
</tr>
<tr>
<td>MATH1081</td>
<td>6</td>
<td>Discrete Mathematics</td>
</tr>
</tbody>
</table>
As a part of the CEICAH stream, students are required to select one elective from the Disciplinary Electives (Depth) list given above. Students studying a single degree in chemical engineering are required to select another two disciplinary electives, one from the Disciplinary Electives (Breadth) list and the remaining from either the Depth, Breadth, or Practice lists.

**Breadth Electives**

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

- **CEIC6005**  |  6 UOC  
  Fuel and Energy

- **CEIC8204**  |  6 UOC  
  Topics in Business Management in Chemical Engineering

- **CEIC8330**  |  6 UOC  
  Process Engineering in the Petroleum Industry

- **CEIC8341**  |  6 UOC  
  Membrane Processes
CHEM2041  |  6 UOC  
Analytical Chemistry: Essential Methods  

ELEC4445  |  6 UOC  
Entrepreneurial Engineering  

ENGG3001  |  6 UOC  
Fundamentals of Humanitarian Engineering  

FOOD3010  |  6 UOC  
Food Preservation  

FOOD8450  |  6 UOC  
Advanced Food Engineering  

GSOE9111  |  6 UOC  
Energy Storage  

POLY3000  |  6 UOC  
Polymer Science  

**Practice Electives**  
Students can take up to a maximum of 6 UOC of the following courses.  

CEIC4954  |  6 UOC  
Research Thesis Extension  

ENGG3060  |  6 UOC  
Maker Games  

ENGG4060  |  6 UOC  
Student Initiated Project  

ENGG4102  |  6 UOC
Humanitarian Engineering Project

**Recommended Level 1 Elective**

The suggested Level 1 Elective for this stream is,

- CEIC1000 Product Engineering Design (6 UOC)

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**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

Industrial Experience Requirements

Students are required to complete a minimum of 60 days of Industrial Training.

Further Requirements

Students are expected to possess a calculator having exponential capabilities, however, more advanced calculators and personal computers, will be found useful.

Students of both Chemical Engineering and Industrial Chemistry are advised to have a copy of Perry J H Ed. Chemical Engineers Handbook 6th Ed. McGraw-Hill. This book is used extensively for most courses and units.

Professional Recognition

Successful completion of the BE (Hons) (Chemical Engineering) degree program is accepted by the Institution of Chemical Engineers and by Engineers Australia as sufficient academic qualification for membership.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions