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.

**CEIC2000** | **6 UOC**  
Material and Energy Systems

**CEIC2001** | **6 UOC**  
Fluid and Particle Mechanics

**CEIC2002** | **6 UOC**  
Heat and Mass Transfer

**CEIC2004** | **6 UOC**  
Industrial Chemistry for Chemical Engineers

**CEIC2005** | **6 UOC**  
Chemical Reaction Engineering

**CEIC2007** | **6 UOC**  
Chemical Engineering Lab A

**MATH2089** | **6 UOC**  
Numerical Methods and Statistics

One of the following:

**MATH2018** | **6 UOC**  
Engineering Mathematics 2D

**MATH2019** | **6 UOC**  
Engineering Mathematics 2E

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

**CEIC3000 | 6 UOC**
Process Modelling and Analysis

**CEIC3001 | 6 UOC**
Advanced Thermodynamics and Separation

**CEIC3004 | 6 UOC**
Process Equipment Design

**CEIC3005 | 6 UOC**
Process Plant Design

**CEIC3006 | 6 UOC**
Process Dynamics and Control

**CEIC3007 | 6 UOC**
Chemical Engineering Lab B

**Level 4 Core Courses**

Students must take 30 UOC of the following courses.

**CEIC4000 | 6 UOC**
Environment and Sustainability

**CEIC4001 | 12 UOC**
Process Design Project

**CEIC4951 | 4 UOC**
Research Thesis A

**CEIC4952 | 4 UOC**
Research Thesis B

**CEIC4953 | 4 UOC**
**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>Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIC1000</td>
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</tr>
<tr>
<td>COMPI521</td>
<td>6 UOC</td>
</tr>
<tr>
<td>COMPI531</td>
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<tr>
<td>CVEN1701</td>
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</tr>
<tr>
<td>ELEC1111</td>
<td>6 UOC</td>
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<tr>
<td>ENGG1100</td>
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<td>ENGG1200</td>
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<td>ENGG1400</td>
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<td>GEOS1111</td>
<td>6 UOC</td>
</tr>
<tr>
<td>GMAT1110</td>
<td>6 UOC</td>
</tr>
<tr>
<td>MATH1081</td>
<td>6 UOC</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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM2041</td>
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<tr>
<td>ELEC4445</td>
<td>6</td>
</tr>
<tr>
<td>ENGG3001</td>
<td>6</td>
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<tr>
<td>FOOD3010</td>
<td>6</td>
</tr>
<tr>
<td>FOOD8450</td>
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<tr>
<td>GSOE9111</td>
<td>6</td>
</tr>
<tr>
<td>POLY3000</td>
<td>6</td>
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</tbody>
</table>

**Practice Electives**

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

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CEIC4954</td>
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<tr>
<td>ENGG3060</td>
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<tr>
<td>ENGG4060</td>
<td>6</td>
</tr>
<tr>
<td>ENGG4102</td>
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</tbody>
</table>
**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
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Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179