Chemical Product Engineering involves researching, developing and improving the properties of the products that we use every day through the selection and design of the materials that are used. Product engineers work on the fluids that you use in your everyday life, including chemicals (cosmetics, pharmaceuticals, shampoos, paints, glues), foods, and drinks. As a product engineer, you will learn to take consumer needs and turn them into technical requirements, finding the right combinations of chemicals to deliver those properties and then developing the product and strategies for commercialisation and manufacture. You will learn how to apply your knowledge of engineering and chemistry to design complex chemical products for the pharmaceutical, consumer products and food industries. You'll master the entire development process, testing out ideas for products and extrapolating small scale, laboratory chemistry into large, industrial scale production. In the final year Product Design Project, you will work with industry partners to develop a new consumer product up to the point where it could be patented and commercialised. To get work ready, you'll apply these skills through 60 days of approved industry training.

The courses listed below have to be completed to finish the degree, but the order in which they are taken is important and you need to follow advice on this. Many courses are offered only once per year and others have pre-requisites or exclusions which govern the order in which they can be taken. Both of these things can have a big impact on enrolment planning if poor choices of course combinations are made. You are strongly encouraged to consult the School website and follow the recommended course sequence linked here.

The timing of the general education courses and elective courses may be modified to optimise your choice of courses. It is your responsibility to plan your enrolment appropriately. Assistance is available from the School of Chemical Engineering Student Office, should you require it.
<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
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

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:
**Level 2 Core Courses**

Students must take 54 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

CEIC2005  |  6 UOC  
Chemical Reaction Engineering

CHEM2021  |  6 UOC  
Organic Chemistry: Mechanisms and Biomolecules

CHEM2031  |  6 UOC  
Inorganic Chemistry: The Elements

CHEM2041  |  6 UOC  
Analytical Chemistry: Essential Methods

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 24 UOC of the following courses.

CEIC3001  |  6 UOC
Advanced Thermodynamics and Separation

CEIC3005  |  6 UOC
Process Plant Design

CHEM3021  |  6 UOC
Organic Chemistry: Modern Synthetic Strategies

POLY3000  |  6 UOC
Polymer Science

**Level 4 Core Courses**

Students must take 30 UOC of the following courses.

CEIC4000  |  6 UOC
Environment and Sustainability

CEIC4007  |  6 UOC
Product Design Project Thesis A

CEIC4008  |  6 UOC
Product Design Project Thesis B

CEIC6711  |  6 UOC
Complex Fluids Microstructure and Rheology
One of the following:

CEIC8204 | 6 UOC
Topics in Business Management in Chemical Engineering

ELEC4445 | 6 UOC
Entrepreneurial Engineering

**Discipline Electives**

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

CEIC4951 | 4 UOC
Research Thesis A

CEIC4952 | 4 UOC
Research Thesis B

CEIC4953 | 4 UOC
Research Thesis C

CEIC4954 | 6 UOC
Research Thesis Extension

CEIC6005 | 6 UOC
Fuel and Energy

CEIC8105 | 6 UOC
Advanced Polymer Science and Research

CEIC8330 | 6 UOC
Process Engineering in the Petroleum Industry

CEIC8341 | 6 UOC
Membrane Processes

CHEN6701 | 6 UOC
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEN6703</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Reaction Engineering</td>
<td></td>
</tr>
<tr>
<td>ENGG3001</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Particle Systems Engineering</td>
<td></td>
</tr>
<tr>
<td>ENGG3060</td>
<td>6</td>
</tr>
<tr>
<td>Fundamentals of Humanitarian Engineering</td>
<td></td>
</tr>
<tr>
<td>ENGG4060</td>
<td>6</td>
</tr>
<tr>
<td>Maker Games</td>
<td></td>
</tr>
<tr>
<td>ENGG4102</td>
<td>6</td>
</tr>
<tr>
<td>Student Initiated Project</td>
<td></td>
</tr>
<tr>
<td>ENGG4102</td>
<td>6</td>
</tr>
<tr>
<td>Humanitarian Engineering Project</td>
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<tr>
<td>FOOD8450</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Food Engineering</td>
<td></td>
</tr>
<tr>
<td>GSOE9111</td>
<td>6</td>
</tr>
<tr>
<td>Energy Storage</td>
<td></td>
</tr>
</tbody>
</table>

**Level 1 Electives**

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>BABS1201</td>
<td>6</td>
</tr>
<tr>
<td>Molecules, Cells and Genes</td>
<td></td>
</tr>
<tr>
<td>BIOM1010</td>
<td>6</td>
</tr>
<tr>
<td>Engineering in Medicine and Biology</td>
<td></td>
</tr>
<tr>
<td>BIOS1301</td>
<td>6</td>
</tr>
<tr>
<td>Ecology, Sustainability and Environmental Science</td>
<td></td>
</tr>
</tbody>
</table>
CEIC1000  |  6 UOC
Sustainable Product Engineering and Design

COMP1521  |  6 UOC
Computer Systems Fundamentals

COMP1531  |  6 UOC
Software Engineering Fundamentals

CVEN1701  |  6 UOC
Environmental Principles and Systems

ELEC1111  |  6 UOC
Electrical and Telecommunications Engineering

ENGG1100  |  6 UOC
Grand Challenges for Engineering

ENGG1200  |  6 UOC
Undergraduate Special Projects

ENGG1300  |  6 UOC
Engineering Mechanics

ENGG1400  |  6 UOC
Engineering Infrastructure Systems

GEOS1111  |  6 UOC
Fundamentals of Geology

GEOS3321  |  6 UOC
Fundamentals of Petroleum Geology

GMAT1110  |  6 UOC
Surveying and Geospatial Engineering
<table>
<thead>
<tr>
<th>Course Code</th>
<th>UOC</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH1081</td>
<td>6</td>
<td>Discrete Mathematics</td>
</tr>
<tr>
<td>MATS1101</td>
<td>6</td>
<td>Engineering Materials and Chemistry</td>
</tr>
<tr>
<td>MINE1010</td>
<td>6</td>
<td>Mineral Resources Engineering</td>
</tr>
<tr>
<td>PHYS1231</td>
<td>6</td>
<td>Higher Physics 1B</td>
</tr>
<tr>
<td>PSYC1001</td>
<td>6</td>
<td>Psychology 1A</td>
</tr>
<tr>
<td>SOLA1070</td>
<td>6</td>
<td>Sustainable Energy</td>
</tr>
</tbody>
</table>

**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 Chemical Product Engineering 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.

Professional Recognition

UNSW is seeking provisional accreditation for this stream with Engineers Australia.
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