Industrial Chemistry

Industrial Chemistry involves researching, developing and improving properties of products we use every day through the selection and design of the chemistry employed in industrial processing. 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 engineering and chemistry to design chemical processes and products 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.

**This stream is not accepting new enrolments**
Faculty
Faculty of Engineering

School
School of Chemical Engineering

Study Level
Undergraduate

Minimum Units of Credit
168

Specialisation Type
Honours
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.

**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

One of the following:
**CHEM1011 | 6 UOC**
Chemistry 1A: Atoms, Molecules and Energy
CHEM1031 | 6 UOC
Higher Chemistry 1A: Atoms, Molecules and Energy

One of the following:
CHEM1021 | 6 UOC
Chemistry 1B: Elements, Compounds and Life

CHEM1041 | 6 UOC
Higher Chemistry 1B: Elements, Compounds and Life

**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

CEIC2005 | 6 UOC
Chemical Reaction Engineering

CHEM2021 | 6 UOC
Organic Chemistry: Mechanisms and Biomolecules

CHEM2041 | 6 UOC
Analytical Chemistry: Essential Methods

MATH2089 | 6 UOC
Numerical Methods and Statistics

One of the following:
MATH2019 | 6 UOC
Engineering Mathematics 2E
Level 3 Core Courses

Students must take 30 UOC of the following courses.

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

**CHEM2031 | 6 UOC**  
Inorganic Chemistry: The Elements

**CHEM3021 | 6 UOC**  
Organic Chemistry: Modern Synthetic Strategies

**POLY3000 | 6 UOC**  
Polymer Science

One of the following:

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

**INDC3001 | 6 UOC**  
Applied Industrial Chemistry

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

**CEIC4002 | 6 UOC**  
Thesis A

**CEIC4003 | 6 UOC**
**Discipline Electives**

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

- **CEIC3005 | 6 UOC**  
  Process Plant Design

- **CEIC6004 | 6 UOC**  
  Advanced Polymers

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

- **CEIC8102 | 6 UOC**  
  Advanced Process Control

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

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

- **CEIC8341 | 6 UOC**  
  Membrane Processes

- **CEIC9002 | 12 UOC**  
  Advanced Thesis A

- **CEIC9003 | 12 UOC**  
  Advanced Thesis B

- **CHEN6701 | 6 UOC**  
  Advanced Reaction Engineering
CHEN6703 | 6 UOC
Advanced Particle Systems Engineering

CHEN6706 | 6 UOC
Advanced Transport Phenomena

FOOD3010 | 6 UOC
Food Preservation

**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

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

CHEM1031 | 6 UOC
Higher Chemistry 1A: Atoms, Molecules and Energy

CHEM1041 | 6 UOC
Higher Chemistry 1B: Elements, Compounds and Life
<table>
<thead>
<tr>
<th>Code</th>
<th>UOC</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<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>CVEN1300</td>
<td>6</td>
<td>Engineering Mechanics for Civil Engineers</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>ENGG1200</td>
<td>6</td>
<td>Undergraduate Special Projects</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></td>
</tr>
</tbody>
</table>
Discrete Mathematics

MATS1101  |  6 UOC
Engineering Materials and Chemistry

MINE1010  |  6 UOC
Mineral Resources Engineering

MMAN1300  |  6 UOC
Engineering Mechanics

PHYS1231  |  6 UOC
Higher Physics 1B

PSYC1001  |  6 UOC
Psychology 1A

PTRL1001  |  6 UOC
Introduction to Petroleum Engineering and Geology

SOLA1070  |  6 UOC
Sustainable Energy

**Discipline Electives Information Rule**

Students who complete this program in single degree mode select a further 12 UOC Discipline Electives.

**Recommended Level 1 Prescribed Elective**

- CEIC1000 Product Engineering Design (6 UOC)

**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. This requirement is attached to the course CEIC4000 - results are computed but not entered while the Industrial Training requirement is not met.

Professional Recognition

Successful completion of the BE (Hons) (Chemical Engineering) degree program is accepted by Engineers Australia and by the Royal Australian Chemical Institute as sufficient academic qualification for membership.

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.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions
© UNSW Sydney (CRICOS Provider No.: 00098G), 2019. The information contained in this Handbook is indicative only. While every effort is made to keep this information up-to-date, the University reserves the right to discontinue or vary arrangements, programs and courses at any time without notice and at its discretion. While the University will try to avoid or minimise any inconvenience, changes may also be made to programs, courses and staff after enrolment. The University may also set limits on the number of students in a course.

Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179