



UNSW Engineering

Bachelor of Engineering (Honours) (Chemical Engineering)

What do chemical engineers do?

Chemical engineers design, create and optimise the systems and equipment used in chemical, industrial, biological and environmental processes. This work produces everything from fuels and fertilisers to foods, beer and wine, to polymers, pharmaceuticals and safe drinking water. Chemical engineers also design and operate large-scale chemical process equipment and factories, and play an important role in making industries safer, more efficient and sustainable, especially in the current context of climate change.

What will your study involve?

Chemical engineers are among UNSW's most employable graduates, working in many industries. This degree not only provides students with

valuable technical skills, but also the necessary analytical and problem-solving abilities to help them work effectively as part of any team. Another key contributor to employability is the ability to apply and think about systems and processes as a whole. This degree can be studied alone or combined with a second degree.

UNSW Chemical Engineering

- UNSW Chemical Engineering is ranked 2nd in Australia (Academic Rankings of World Universities (ARWU), 2022).
- Close links with key industrial, commercial and professional organisations which allows for exciting and innovative student-led projects and industry-based projects and training
- Hands on lab-based courses in state-of-the-art labs and working on real process equipment.

Program details

Lowest Selection Rank (2023): 90

Duration: four-year embedded honours degree

Study areas: Chemical Engineering, Design of Chemical Reactions and Separations, Fluid Dynamics, Advanced Thermodynamics, Process Safety and Control, Sustainable Process Design, Humanitarian Engineering

Assumed knowledge: Mathematics Extension 1, Physics, Chemistry

Portfolio Entry: UNSW offers the Faculty of Engineering Admission Scheme (FEAS) which is a pathway for students interested in studying undergraduate engineering to support their academic results, find out more at unsw.to/feas

Accreditation

Your Bachelor of Engineering (Honours) degree is recognised globally, is accredited with Engineers Australia and the Institution of Chemical Engineers, the degree is also acknowledged by the Washington Accord, which lets you work in over 20 countries across the globe upon graduation.

Career options

Chemical engineers can pursue careers in a variety of fields including environmental management, clean energy, food and drink production, mining and minerals, oil and gas, paper and packaging, pharmaceuticals, water treatment and recycling. They're also involved in research, from a molecular level right up to full-scale industry.

Student Testimonials

"I wanted to develop a diverse skill set that would be transferable to a wide range of fields and I loved chemistry at school. But how could I apply scientific theory to the real world? When I met the students and professors, and saw the state-of-the-art facilities, I knew UNSW was the place for me."

Alex Dunn,
Chemical Engineering (Honours)



Example study plan

| | TERM 1 | | | TERM 2 | | | TERM 3 | | |
|--------|--------------------------------|---|----------------------------------|--------------------------------|-------------------------------|----------------------------|----------------------------|--|--|
| YEAR 1 | Maths 1A | Introduction to Engineering Design & Innovation | Engineering Chemistry 1A | Mathematics 1B | Computing for Engineers | Engineering Chemistry 1B | Physics 1A | Sustainable Product Engineering and Design (L1 Elective) | Engineering Maths 2E |
| YEAR 2 | Material and Energy Systems | Fluid and Particle Mechanics | Numerical Methods and Statistics | Heat and Mass Transfer | Chemical Reaction Engineering | General Education | Chemical Engineering Lab A | Advanced Thermo and Separation | Engineering Design and Professional Practice |
| YEAR 3 | Process Modelling and Analysis | Process Plant Design | Process Equipment Design | Environment and Sustainability | Process Dynamics and Control | Chemical Engineering Lab B | Industrial Training | | |
| YEAR 4 | Thesis A | Process Design Project | | Thesis B | Discipline Elective | Discipline Elective | Thesis C | Discipline Elective | General Education |

You'll be required to complete 60 days of Industrial Training throughout your degree.

This is a sample degree outline only and may be subject to change. Please refer to the UNSW Handbook for further information and relevant course codes.