UNSW Engineering

Bachelor of Engineering (Honours) (Chemical Product Engineering)

What do chemical product engineers do?

Chemical product engineers identify customer needs and create innovative products that meet those needs. They create new materials, processes, and technologies in industries producing pharmaceuticals, cosmetics, biomedical devices, and advanced materials. As a product engineer, you can develop products people use in everyday life, designing new shampoos, paints, or foods to be sustainable, environmentally friendly, affordable, and high performance.

Chemical Product Engineering is based on a new frontier for chemical engineers, with a strong emphasis on product design and development. Its potential uses are practically unlimited in industrial and scientific fields. As a product engineer your success is measured by the ability to develop innovative solutions, affordably apply new discoveries in chemistry and chemical engineering, and deliver novel products for the future.

What will your study involve?

This degree focuses on product design and development in a collaborative and innovative culture. You'll build on study of chemistry, physics, engineering, and economics to create commercial products in fields spanning the pharmaceuticals, cosmetics, agricultural and food industries. The degree ensures that graduates can meet rapidly changing customer demands for new materials, products, and ingredients in the global marketplace.

UNSW Chemical Product Engineering

- UNSW Chemical Engineering is ranked 2nd in Australia (Academic Ranking of World Universities (ARWU), 2023).
- Close links with key industrial, commercial and professional organisations providing unique student led projects and industry based training.
- Hands on lab based courses in state of the art labs using real process equipment.
- Product design Thesis projects developing actual product prototypes along with viable commercial intellectual property strategies.

Program details

Lowest Selection Rank (2024): 90

Duration: Four-year embedded honours degree

Study areas: Chemical Product Design, Chemical Reaction and Separation Engineering, Organic and Inorganic Chemistry, Advanced Thermodynamics, Polymer Science, Sustainability, Entrepreneurship and Innovation Management and Patenting.

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, its accredited with Engineers Australia, and is also acknowledged by the Washington Accord, which lets you work in over 20 countries across the globe upon graduation

Career options

This broad degree opens doors to many different industries including energy, materials science, fine chemicals, pharmaceuticals, health, cosmetics, household care, food, the environment and electronics.

With a strong foundation in chemical process engineering, the product design element of this degree will give you a valuable employability edge. The ability to design and take a product to market is a highly sought after skill among employers.

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)	Analytical Chemistry
YEAR 2	Material and Energy Systems	Fluid and Particle Mechanics	Numerical Methods and Statistics	Heat and Mass Transfer	Chemical Reaction Engineering	Organic Chemistry: Mechanisms & Biomolecules	Inorganic Chemistry: The Elements	Advanced Thermodyna-mics and Separation	Engineering Design & Professional Practice
YEAR 3	Engineering Maths 2E	Organic Chemistry: Synthetic strategies	General Education	Polymer Technology	General Education	Discipline Elective	Industrial Training		
YEAR 4	Product Design Project Thesis A	Complex Fluids and Rheology	Discipline Elective	Product Design Project Thesis B	Entrepreneurship and the Innovation Cycle	Discipline Elective	Discipline Elective	Environment and Sustainability	

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.