

NUS
National University
of Singapore

College of Design
and Engineering

CHEMICAL ENGINEERING





NUS Chemical Engineering

Chemical Engineers Make Molecules Do the Waltz

Why NUS Chemical Engineering?

At NUS Chemical Engineering, students build on their knowledge of the chemical, physical, biological, and mathematical sciences to marshal the reactivity and transformation of invisible molecular building blocks in clean, efficient, scalable, and economical ways. Along the way, students learn about dynamical systems, catalysis and reaction engineering, separation processes, advanced automation, and AI-driven process control.

NUS Chemical Engineering's strength lies in the core chemical engineering areas. Our faculty have expertise in chemical engineering sciences, advanced manufacturing processes, biomolecular and cellular engineering, data information

and automation systems, clean energy and water, chemical product design and many more areas.

One third of our faculty are teaching award winners and employ sound pedagogies in their teaching, providing the best learning experience for our students.

From a career perspective, the sheer breadth and depth of the discipline places our graduates squarely at the crossroads of modern technological challenges — *the future is indeed molecular!*

Career Opportunities

The career prospects of chemical engineering graduates are bright and exciting. Chemical engineers can pursue a career in many industries, including pharmaceuticals and biotechnology, foods, consumer products, semiconductors, materials, energy and chemicals. Chemical engineers, with their strong analytical and problem-solving skills, are also prized as consultants in the public and private sectors, and even play important roles in non-engineering fields like banking and finance

Our graduate employment survey over the years shows that our graduates are employed in many sectors including

- (a) Oil-related Industries and Petrochemicals,
- (b) Semiconductor/Electronic Industry,
- (c) Chemical Industry,
- (d) Pharmaceutical and Biomedical Science,
- (e) Engineering Design and Consultancy,
- (f) Research Institutes/Centers,
- (g) Government/Statutory Boards,
- (h) Educational Institutes,
- (i) Environmental/SHE Technology,
- (j) Financial Institutions etc.

About 10–15% of our graduates pursue further education, either locally or overseas. Major employers of chemical engineering graduates include Micron Semiconductor, ExxonMobil, GSK, MSD, Global Foundries to name a few.



Programme Overview

Curriculum Structure

Our programme duration is four years – students read a total of 160 units (40 courses), whereby 15 courses are from the common curriculum, 15 courses from chemical engineering and 10 courses of unrestricted electives.

The unrestricted electives space gives you the flexibility to deepen your expertise in your major (by taking specialisations and technical electives) or pursue a second major/minors or take general electives. You can also pursue a combination of the afore-mentioned options depending on your aptitude and interests.

What the Degree is About

The Chemical Engineering program teaches students about the key physical, chemical, mathematical and engineering principles that enable one to design clean, energy-efficient, sustainable and economical processes for chemical or biological transformation of naturally occurring raw materials.

Experiences and Opportunities

As part of the program, students must complete 10 units of Industrial Attachment typically over one semester.

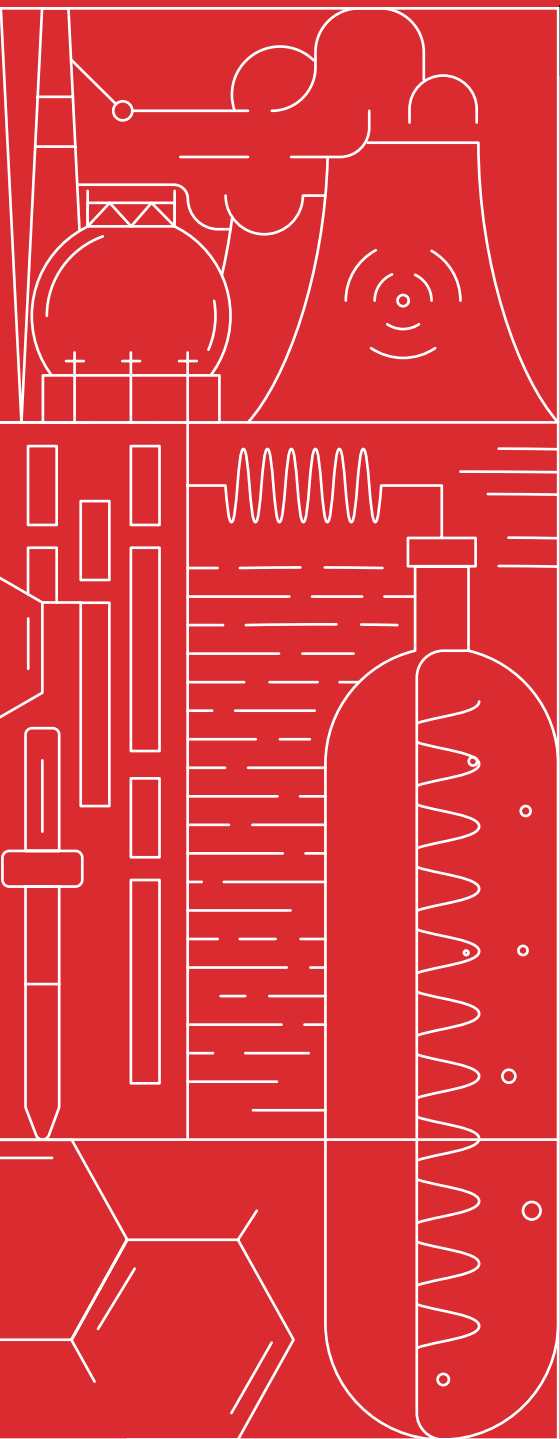
Students also have the opportunity to study abroad under the student exchange programme (SEP), summer and winter programmes, and NUS overseas colleges.

- For SEP, NUS Engineering has over 145 partner universities in 30 countries, including premier institutions, such as the University of California, University of Tokyo and Tsinghua University. Furthermore, we are the only engineering school in the world to have student exchange with Oxford University.

Projects

- B.Eng. Integrated Project: Students will embark on a final year design project or dissertation in their final year of study.
- Undergraduate Research Opportunities Programme (UROP): An individual academic research project typically taken over 2 semesters or during the special term any time after the first semester.





Profile of Current Student



Theo Rajan Terence

Bachelor of Engineering (Chemical Engineering), Class of 2025
Alumni of NUS High School of Mathematics and Science

“My education with NUS Chemical Engineering has been filled with both local and overseas opportunities to develop myself technically and holistically. For my industrial attachment, I was awarded the A*STAR Research Internship Award (ARIA) which gave me invaluable experience in research and laboratory work. This year, I had the chance to broaden my horizons and go on a full-year student exchange with Imperial College London. Besides academics, I also had the privilege to take up leadership positions in the American Institute of Chemical Engineers (AIChE) NUS Student Chapter – a great opportunity to hone my leadership skills!”

Profile of Alumni



Cheng Woon Jo

Bachelor of Engineering (Chemical Engineering), Class of 2021
Environment, Health and Safety Specialist, Abbott Manufacturing Singapore
Alumni of Hwa Chong Institution

“My Chemical Engineering education at NUS equipped me with valuable technical and transferable skills. I gained a strong foundation in mathematics and physics and observed how chemical engineering principles were applied in different industries.

From living overseas through various university programmes, I learned to adapt quickly and connect with people from different cultures. I am thankful to the professors and department staff who went the extra mile to support me in my academic journey.”



Jax Lee Jia Xing

Bachelor of Engineering (Chemical Engineering), Class of 2010
CEO of Nanolumi
Alumni of Jurong Junior College

“The chemical engineering undergraduate journey isn’t confined to mastering formulas in your discipline; it can be an expansive, cross-disciplinary expedition that could also actively incorporate an entrepreneurship mindset. Beyond the acquisition of technical competencies, it serves as a nurturing ground for fostering strong logical thinking and keeping the innovative spark. This holistic fusion of diverse disciplines isn’t solely about creating solutions; it cultivates a mindset that not only generates answers but also instills the confidence to lead pioneering innovations heavily reliant on engineering principles, thus shaping meaningful solutions across multifaceted fields that improve lives.”



Admission Requirements

Singapore-Cambridge GCE 'A' Level

A pass in H2 Mathematics or Further Mathematics.

Polytechnic Diploma

An accredited diploma.

International Baccalaureate (IB) Diploma

A pass in HL Mathematics: Analysis and Approaches.

NUS High School Diploma




A good major CAP in Mathematics.

International Qualifications

Applicants presenting international qualifications may apply with equivalent high school results.



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