CHEMICAL ENGINEERING

Programme Brochure
Chemical Engineering involves the transformation of molecules and materials from nature, including living matter, into a vast diversity of products that drive our modern lives, from medicines and cosmetic products to fuels and computer chips. You name it, we do it! The ability to engineer molecular transformation places chemical engineers at the very frontier of modern technology in developing solutions for global challenges ranging from climate change to clean energy, air and water.

In Chemical Engineering, you build on your 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, you learn about dynamical systems, heat and mass transport, molecular thermodynamics, catalysis and reaction engineering, advanced automation and AI/data-driven process control. From a career perspective, the sheer breadth and depth of the discipline places you squarely at the crossroads of modern technological challenges - the future is indeed molecular!
As a chemical engineer, you can pursue a career in several 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.

**Pharmaceuticals and Biotechnology**

Singapore is a global biomedical and pharmaceutical manufacturing hub, where revolutionary new therapies are developed and manufactured for life-threatening diseases like diabetes and cancer.

**Energy and Chemicals**

Singapore is home to more than a hundred leading multinationals engaged in refining and chemical manufacturing, and is one of the top ten exporters of refined oil products in Asia.

**Semiconductors**

The manufacture of state-of-art computer and memory chips involves chemical engineering processes and operations, including photolithography, reactive etching and vapor deposition. The semiconductor industry is one of the largest industries in the Singaporean manufacturing sector.

**Cosmetics and Consumer Products**

Most cosmetic and consumer products involve the formulation of molecular ingredients using chemical engineering operations. Singapore houses a thriving innovation ecosystem in this sector, with intense R&D and manufacturing activity involving both multinationals and start-up companies.
## ADMISSIONS REQUIREMENTS

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore-Cambridge ‘A’ Levels</td>
<td>H2 Mathematics, H2 Physics* and H2 Chemistry</td>
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<tr>
<td>International Baccalaureate Diploma</td>
<td>HL Mathematics, HL Physics* and HL Chemistry</td>
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* Students without H1 or H2 Physics need to have O Level Physics or equivalent and will be required to take Physics bridging modules.

# Students without HL Physics need to have SL Physics or O Level Physics or equivalent and will be required to take Physics bridging modules.

Applicants presenting accredited diplomas from a polytechnic in Singapore may also apply. For polytechnic and NUS High School graduates, as well as other qualifications, scan the QR code for more details.