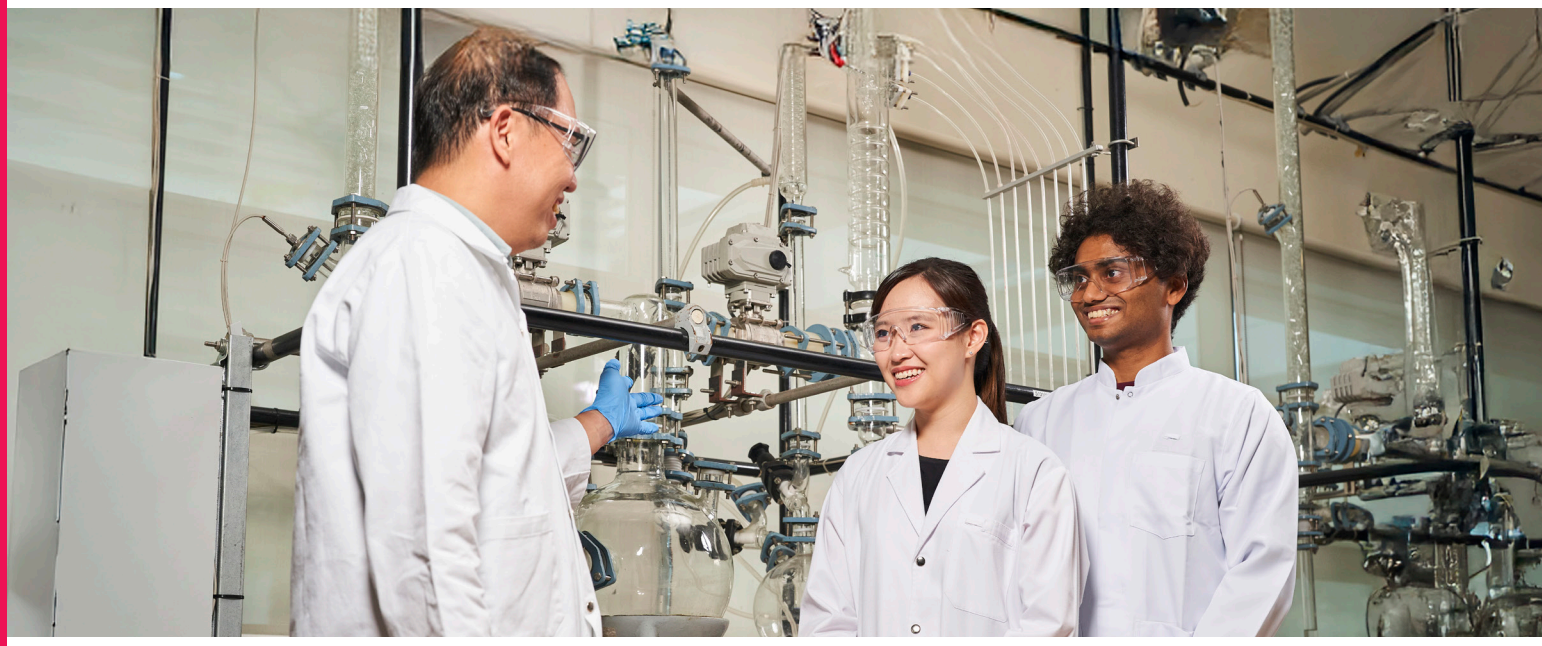
NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Chemistry, Chemical Engineering and Biotechnology
College of Engineering • College of Science

Master of Science in CHEMICAL ENGINEERING



The **Master of Science in Chemical Engineering (MScCE)** equips students with advanced knowledge in process design, reaction engineering, and sustainable technologies. Designed for aspiring industry leaders and innovators, the programme bridges engineering fundamentals with future-focused areas like clean energy, pharmaceutical engineering, and catalysis for a greener, more efficient world.

Learn More:

Scan the QR code for more information

Programme Features

Learn advanced chemical process design, reaction engineering, thermodynamics and catalysis. Expand your skills in process simulation, sustainability and renewable energy. The flexible structure offers interdisciplinary training to prepare you for emerging industries like pharmaceuticals, clean technology and the circular economy.

What Is In It For Me?

- **Core Focus**: Design, optimise, and operate chemical and process plants
- **Interdisciplinary**: Explore pharmaceuticals, catalysis, energy, and sustainability
- **Industry-ready**: Apply skills in low carbon tech, food, and circular economy
- **Flexible Format**: Evening and hybrid classes available
- **Career Boost**: Equip for leadership in R&D, clean tech, and innovation

Programme Structure

Duration: 1 – 2 Years
Mode: Coursework Based, Evening Classes
Format: In-person & Online Hybrid
Intake: August 2026

Career Prospect

Public Sector:

- NEA, PUB, EMA – Process modelling, emission control, renewable energy systems
- MOM, SCDF – Safety engineering, hazard & risk simulation, industrial emergency planning
- A*STAR & Research Institutes – Low-carbon technologies, catalysis, sustainable process innovation
- MOE, Polytechnics & Universities – Research & teaching in chemical/process engineering

Private Sector:

- Energy & Chemicals (Shell, ExxonMobil, BASF, Evonik) – Refining, petrochemicals, process optimisation
- Pharmaceuticals (Pfizer, Novartis, GSK, Sanofi) – Drug manufacturing, scale-up, quality assurance
- Semiconductors & Materials (Micron, REC, 3M) – Specialty chemicals, materials R&D, clean technology
- Sustainability & Renewables (Neste, Keppel, Sembcorp) – Green fuels, carbon capture, circular economy
- Startups & Biotech – AI-driven process design, advanced materials, clean tech innovation

Admission Requirements

- Bachelor's degree with minimum Honours (Distinction) or equivalent from a reputable university; majoring in Chemistry, Chemical Engineering, Bioengineering or related fields
- TOEFL ≥ 85 / IELTS ≥ 6.0
  (if your university first degree was not taught in the English language)

Graduation Requirements

- Complete a minimum of 30 AUs
- A minimum CGPA of 2.5

Tuition Fees

- AY26-27: S$ 51,012 (incl. 9% sales tax)
- The course is charged on a per-trimester basis according to the number of AUs taken, at a rate of ~SGD 1,700 per AU for AY26/27.

Contact Us

Email: cceb-mscce@ntu.edu.sg

COURSE PROGRAMME

Core Modules

CH6230	Advanced Reaction Engineering
CH6240	Advanced Chemical Engineering Thermodynamics
CH6250	Advanced Mathematical Methods for Chemical Engineering
CH6265	Industrial Case Studies

Energy and Sustainability Specialisation

CH6241	Catalyst Design and Development
CM6861	Advanced Topics in Environmental Sciences and Sustainable Development
CH6400	Electrochemistry and Electrocatalysis
CH6410	Nanocatalysis

Process Systems Engineering Specialisation

CH6310	Chemical Process Simulation & Technoeconomic Analysis
CH6260	Advanced Process Control
CH6490	Process Design, Optimisation and Supply Chain
BG6013	Data Analytics for Biomedical Applications

Pharmaceutical and Fine Chemical Manufacturing Specialisation

CH6270	Sustainable Pharmaceutical Technology
CH6280	Formulation of Active Pharmaceutical Ingredients
CM6862	Advanced Analytical & Manufacturing Techniques in the Pharmaceutical Industry
BG6011	Microfluidics and Lab-On-Chip for Chemical & Biomedical Applications

Food Science and Technology Specialisation

CH7108	Analytical Techniques and Food Safety
CH7109	Human Nutrition – Food Structure, Metabolism, Digestion & Health
CH7110	International Food Regulation – Impact of Marketing, Nutrition, Environment, & Public Health
CH7112	Introduction to Food Toxicology & Risk Assessment

Unrestricted Elective Courses

BG6025	Professional Internship
CH6300	MSc. Research (6AU)
CH6209	Engineering Businesses Decision Tools
CH6202	Project Management for Engineers
CH6320	Industrial Safety & Operational Excellence

*All courses are of 3 Academic Units (3 AUs) unless stated otherwise