Chemical Engineering

Oil refinery giants, major manufacturers of petrochemicals, specialty chemicals and pharmaceutical giants all have a strong presence in Singapore. These companies, rooted in such diverse fields, have one thing in common – they rely on chemical engineers in all aspects of their operations.

Chemical engineers are involved in the manufacture of products such as fuel, cosmetics, petrochemicals, plastics, processed foods and medicine so that we can enjoy and reap the benefits of scientific discoveries. They hold crucial responsibilities in the process industry such as running plant operations, designing reactors and process equipment, improving efficiency as well as looking into the safety and environmental aspects of processes.

This course will equip you with knowledge and skills in chemistry and analytical chemistry, and laboratory techniques so that you will be well trained to do research and testing for the Chemical and Pharmaceutical Industry. Moreover, you will be trained in chemical process technology, occupational safety and health, as well as environmental technology, so that you will be able to operate and optimise manufacturing systems that produce the products that we use every day in a safe and environmentally friendly way.

The extensive scope of this course will prepare you for higher education. Besides the National University of Singapore and Nanyang Technological University, you can also enrol in the Singapore Institute of Technology for further studies. You will have opportunities for local or overseas internships at multinational corporations and reputable institutions.

Career Opportunities

Trained to be versatile, you can conduct research or testing in laboratories, or be involved in production and technical sales in a broad range of companies in various industries. Specifically, you can embark on a rewarding career in Singapore's world-leading energy and chemical industry. Alternatively, you can consider a fulfilling career in the fast growing pharmaceutical and biotechnology industry, which produces medicines used by doctors worldwide to improve patients' quality of life.

Graduation Requirements

Cumulative Grade Point Average : min 1.0
TP Fundamentals Subjects : 40 credit units
Diploma Subjects
  Core Subjects : 71 credit units
  Elective Subjects : min 9 credit units
Total Credit Units Completed : min 120 credit units

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Entry Requirements for Singapore-Cambridge GCE O Level Qualification Holders

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

For details on GCE O Level Minimum Entry Requirements, refer to page 6.

Course Structure

TP FUNDAMENTALS (TPFun) SUBJECTS			
SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
ACS1005	Communication & Information Literacy (IComm)	1	2
ACS1006	Workplace Communication (WkComm)	1	2
ACS1007	Persuasive Communication (PComm)	1	2
AGS1002	Global Studies	1	3
AGS1003	Managing Diversity at Work*	1	3
AGS1004	Global Citizenship & Community Development*	1	3
AGS1005	Expressions of Culture*	1	3
AIN1001	Innovation & Entrepreneurship	1	2
GCC1001	Current Issues & Critical Thinking	1	2
LEA1011	Leadership: Essential Attributes & Practice 1	1	1
LEA1012	Leadership: Essential Attributes & Practice 2	1	1
LEA1013	Leadership: Essential Attributes & Practice 3	1	1
LSW1002	Sports & Wellness	1	2
MCR1001	Career Readiness 1	1	1
MCR1002	Career Readiness 2	1	1
MCR1003	Career Readiness 3	1	1
TGL1001	Guided Learning	1	3
ASI3028	Student Internship Programme	3	16

** Students must choose one of these three subjects or TGL1001 Guided Learning.*

DIPLOMA SUBJECTS – CORE SUBJECTS

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
ABM1004	Basic Microbiology	1	3
ACE1002	Thermodynamics	1	4
ACE1003	Mass & Energy Balance	1	4
ACH1008	Principles of Organic Chemistry	1	4
ACH1009	Principles of Inorganic & Physical Chemistry 1	1	4
ACH1010	Principles of Inorganic & Physical Chemistry 2	1	4
AMA1006	Engineering Mathematics 1	1	4
AMA1007	Applied Mathematics	1	3
ACE2002	Environmental Technology	2	4
ACE2009	Occupational Safety & Health	2	4
ACE2011	Unit Operations 1	2	4
ACE2012	Unit Operations 2	2	4
ACE2013	Chemical Reaction Engineering	2	4
ACE2014	Productivity Improvement	2	2
ACE2015	Process Control & Instrumentation	2	4
ACH2004	Principles of Instrumental Analysis	2	4
AMA2002	Engineering Mathematics 2	2	3
AMP3008	Major Project	3	8

DIPLOMA SUBJECTS – ELECTIVE CLUSTER SUBJECTS

Students will be required to read an Elective Cluster offered by the School and complete a minimum of 9 credit units. The Elective Cluster to be offered by the course, and the subjects under this Cluster, are summarised below.

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
Applied Chemistry			
ACE3012	Chemical & Material Testing	3	4
ACH3005	Laboratory Analysis & Management	3	5
Chemical Processing			
ACE3004	Plant Safety & Loss Prevention	3	4
ACE3013	Petrochemical Plant Processes	3	5
Pharmaceutical & Biologics Technology			
APH3014	GMP in Pharmaceuticals/ Biologics	3	4
APH3015	Biopharmaceutical Processing	3	5