

Degree Requirements of MSc (Chemical Engineering) **(for cohorts AY2020/2021 and onwards)**

The graduation requirements include obtaining a minimum Grade Point Average (GPA) of 3.0 (equivalent to an average of Grade B-) for the best 40 units. Of the 40 Units, at least 32 units must be from Group 1 list of courses. The remaining units may be from Group 1, Group 2 or any courses from the graduate levels in the same or other disciplines as approved by the Department.

Courses in Group 1 are in several specialised areas of chemical engineering while those in Group 2 consist of selected courses from other Master of Science programmes in the College of Design and Engineering.

Group 1

CN5010	Mathematical & Computing Methods for Chemical Engineers
CN5020	Advanced Reaction Engineering
CN5030	Advanced Chemical Engineering Thermodynamics
CN5040	Advanced Transport Phenomena
CN5050	Advanced Separation Processes
CN5111	Optimization of Chemical Processes ^{#+}
CN5111B	Process Optimization with Industrial Applications
CN5112	Introduction to Electrochemical Systems
CN5131	Colloids and Surfaces
CN5150	Principles of Polymer Science and Engineering
CN5160	Advanced Topics in Catalysis
CN5161	Polymer Processing Engineering
CN5162	Advanced Polymeric Materials
CN5172	Biochemical Engineering [#]
CN5173	Downstream Processing of Biochemical & Pharmaceutical Products [#]
CN5181	Computer Aided Chemical Engineering ⁺
CN5190	Hydrogen Energy and Technology [#]
CN5191	Project Engineering ^{#+}
CN5192	Future Fuel Options: Prospects and Technologies
CN5193	Instrumental Methods of Analysis
CN5194	Carbon Capture Sequestration and Utilization [#]
CN5195	Biomass and Energy
CN5203	Circular Economy in the Chemical Industry [#]
CN5204	Green Chemical Process and Technology [#]
CN5215	Atomistic Modelling of Molecules and Materials ^{#+} (<i>crosslist with MLE5215</i>)
CN5216	Electronic Materials and Energy Technologies ^{#+}
CN5220	Colloidal Science and Soft Matter Engineering – <i>coming in Sem 2, AY2023/2024</i>
CN5222	Pharmaceuticals and Fine Chemicals [#]
CN5246	Catalysis Science and Engineering [#]
CN5251	Membrane Science and Technology [#]
CN5252	Molecular and Computational Tools for Biotechnology
CN5277	Molecular Engineering of Advanced Drug Delivery Systems [#]
CN5371	Special Topics in Biochemical Engineering and Bioseparations
CN5391	Selected Topics in Advanced Chemical Engineering – I
CN5392	Selected Topics in Advanced Chemical Engineering – II
CN5401	Contemporary Topics in Advanced Chemical Engineering (2 units)
CN5432	Fundamentals and Applications of Porous Materials
CN5555	Chemical Engineering Project ⁺ (8 units)
CN5566	Chemical Engineering Industrial Practice ⁺ (8 units)

Group 2

ESE5202	Air Pollution Control Technology
ESE5602	Environmental Management Systems
MT5912	Frugal Innovation
MT5913	TechLaunch – Experiential Entrepreneurship
MT5920	Enterprise Development
SH5201	Process Hazard Analysis
SH5202	Quantified Risk Analysis
SH5204	Industrial Safety Engineering

Note: All courses listed are worth 4 units each except for CN5401 Contemporary Topics in Advanced Chemical Engineering (2 units), CN5555 Chemical Engineering Project (8 units) and CN5566 Chemical Engineering Industrial Practice (8 units).

** Not all courses listed above are necessarily available in any one year, and new courses may be made available from time to time.*

Courses that are also offered to BEng (Chem Eng) undergraduate students

+ 100% Continuous Assessment; no final exam