CHEMICAL ENGINEERING (COURSE 10)

Department of Chemical Engineering (*http://catalog.mit.edu/schools/engineering/chemical-engineering/#undergraduatetext*)

Bachelor of Science in Chemical Engineering

General Institute Requirements (GIRs)

The General Institute Requirements include a Communication Requirement that is integrated into both the HASS Requirement and the requirements of each major; see details below.

Summary of Subject Requirements	Subjects
Science Requirement	6
Humanities, Arts, and Social Sciences (HASS) Requirement; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.	8
Restricted Electives in Science and Technology (REST) Requirement [can be satisfied from among 5.12, 5.07[J] or 7.05, 5.60, 10.301, and 18.03 in the Departmental Program]	2
Laboratory Requirement (12 units) [can be satisfied by 5.310]	1
Total GIR Subjects Required for SB Degree	**17**

Physical Education Requirement
Swimming requirement, plus four physical education courses for eight points.

Departmental Program

Choose at least two subjects in the major that are designated as communication-intensive (CI-M) to fulfill the Communication Requirement.

Required Subjects		Units
Foundational Subjects		
5.12	Organic Chemistry I	12
5.310	Laboratory Chemistry	12
5.60	Thermodynamics and Kinetics	12
10.10	Introduction to Chemical Engineering	12
18.03	Differential Equations [1]	12
Intermediate Subjects		
5.07[J]	Biological Chemistry I	12
or 7.05	General Biochemistry	
10.213	Chemical and Biological Engineering Thermodynamics	12
10.301	Fluid Mechanics	12
10.302	Transport Processes	12
Select one of the following: [2]		15
10.26	Chemical Engineering Projects Laboratory (CI-M)	
10.27	Energy Engineering Projects Laboratory (CI-M)	
10.28	Chemical-Biological Engineering Laboratory (CI-M)	
10.29	Biological Engineering Projects Laboratory (CI-M)	
Advanced Subjects		
10.32	Separation Processes	6
10.37	Chemical Kinetics and Reactor Design	9
10.490	Integrated Chemical Engineering I	8
10.491	Integrated Chemical Engineering II	8
Select two of the following:		8
10.492	Integrated Chemical Engineering Topics I	
10.493	Integrated Chemical Engineering Topics II	
10.494	Integrated Chemical Engineering Topics III	
Restricted Electives		
Select one of the following options:		21-24
Option 1 [2]		
One subject of at least nine units in Chemical Engineering [3]		
Plus one laboratory subject from the following list: [4]		
2.013	Engineering Systems Design (CI-M)	
2.014	Engineering Systems Development (CI-M)	
3.014	Materials Laboratory (CI-M)	
6.152[J]	Micro/Nano Processing Technology (CI-M)	
10.26	Chemical Engineering Projects Laboratory (CI-M)	
10.27	Energy Engineering Projects Laboratory (CI-M)	
10.28	Chemical-Biological Engineering Laboratory (CI-M)	
10.29	Biological Engineering Projects Laboratory (CI-M)	
10.467	Polymer Science Laboratory (CI-M)	
Option 2		
Select one six-unit subject in Chemical Engineering [3]		
10.702[J]	Introduction to Experimental Biology and Communication (CI-M)	

Units in Major	183-186
Unrestricted Electives	48
Units in Major That Also Satisfy the GIRs	(36)
Total Units Beyond the GIRs Required for SB Degree	195-198

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.

[1] *18.032 Differential Equations is also an acceptable option.*

[2] *One of 10.26, 10.27, 10.28, or 10.29 must be taken as a departmental requirement and cannot also be used to satisfy the laboratory requirement within restricted electives.*

[3] *Graduate subjects may not be used as restricted electives. In addition, the following undergraduate subjects may not be used as restricted electives: 10.04 A Philosophical History of Energy, 10.792[J] Global Operations Leadership Seminar, 10.806 Management in Engineering, 10.910 and 10.911 Independent Research Problem, 10.UR and 10.URG Undergraduate Research, and 10.THU Undergraduate Thesis.*

[4] *Combination of 5.361 Expression and Purification of Enzyme Mutants, 5.362 Kinetics of Enzyme Inhibition, and 5.363 Organic Structure Determination is also an acceptable option and satisfies one CI-M.*