

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 or 7.05 General Biochemistry	12
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.