CHEMICAL ENGINEERING (COURSE 10)

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

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

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Requirement</td>
<td>6</td>
</tr>
<tr>
<td>Humanities, Arts, and Social Sciences (HASS)</td>
<td>8</td>
</tr>
<tr>
<td>Requirement; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.</td>
<td></td>
</tr>
<tr>
<td>Restricted Electives in Science and Technology (REST)</td>
<td>2</td>
</tr>
<tr>
<td>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]</td>
<td></td>
</tr>
<tr>
<td>Laboratory Requirement (12 units) [can be satisfied by 5.310]</td>
<td>1</td>
</tr>
<tr>
<td>Total GIR Subjects Required for SB Degree</td>
<td>17</td>
</tr>
</tbody>
</table>

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

<table>
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<tr>
<th>Units</th>
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**Foundational Subjects**

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<th>Units</th>
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5.12 Organic Chemistry I
5.310 Laboratory Chemistry
5.60 Thermodynamics and Kinetics
10.10 Introduction to Chemical Engineering
18.03 Differential Equations

**Intermediate Subjects**

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<tr>
<th>Units</th>
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5.07[J] Biological Chemistry I
or 7.05 General Biochemistry
10.213 Chemical and Biological Engineering Thermodynamics
10.301 Fluid Mechanics
10.302 Transport Processes

Select one of the following:

<table>
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<tr>
<th>Units</th>
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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

<table>
<thead>
<tr>
<th>Units</th>
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10.32 Separation Processes
10.37 Chemical Kinetics and Reactor Design
10.490 Integrated Chemical Engineering I
10.491 Integrated Chemical Engineering II

Select two of the following:

<table>
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<tr>
<th>Units</th>
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</table>

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:

<table>
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<tr>
<th>Units</th>
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Option 1

One subject of at least nine units in Chemical Engineering

*Plus one laboratory subject from the following list:*

2.013 Engineering Systems Design (CI-M)
2.014 Engineering Systems Development (CI-M)
3.014 Materials Laboratory (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

10.702[J] Introduction to Experimental Biology and Communication (CI-M)
Unrestricted Electives

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

2 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.