ENGINEERING (COURSE 10-ENG)

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

Bachelor of Science in 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>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Requirement</td>
<td>6</td>
</tr>
<tr>
<td>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.</td>
<td>8</td>
</tr>
<tr>
<td>Restricted Electives in Science and Technology (REST) Requirement [can be satisfied by 10.301 and 18.03 in the Departmental Program]</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory Requirement (12 units) [can be satisfied by 1.106/1.107, 2.671, 3.014, 5.310, or 12.335 in the Departmental Program]</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>
<thead>
<tr>
<th>Required Subjects</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.601 Thermodynamics I</td>
<td>6</td>
</tr>
<tr>
<td>10.10 Introduction to Chemical Engineering</td>
<td>12</td>
</tr>
<tr>
<td>10.213 Chemical and Biological Engineering Thermodynamics</td>
<td>12</td>
</tr>
<tr>
<td>10.301 Fluid Mechanics</td>
<td>12</td>
</tr>
<tr>
<td>10.302 Transport Processes</td>
<td>12</td>
</tr>
<tr>
<td>10.37 Chemical Kinetics and Reactor Design</td>
<td>12</td>
</tr>
<tr>
<td>18.03 Differential Equations</td>
<td>12</td>
</tr>
<tr>
<td>Foundational Concepts</td>
<td></td>
</tr>
</tbody>
</table>


**Engineering Concentration**

These four electives define a concentrated area of study in one of the following designated concentrations: biomedical engineering, energy, environmental studies, or materials process and design.  

**Capstone**

Select one of the following options to obtain 12 units of capstone experience: Senior Thesis, Integrated Chemical Engineering or Integrated Chemical Engineering Topics modules, or Senior Project.

**Option 1**

10.THU Undergraduate Thesis

**Option 2**

*Select any combination of the following:*

10.490 Integrated Chemical Engineering

10.492A Integrated Chemical Engineering Topics I

or 10.492B Integrated Chemical Engineering Topics I

10.493 Integrated Chemical Engineering Topics II

10.494A Integrated Chemical Engineering Topics III

or 10.494B Integrated Chemical Engineering Topics III

**Option 3**

10.910 Independent Research Problem

*and select any combination of the following:*

10.492A Integrated Chemical Engineering Topics I

or 10.492B Integrated Chemical Engineering Topics I

10.493 Integrated Chemical Engineering Topics II

10.494A Integrated Chemical Engineering Topics III

or 10.494B Integrated Chemical Engineering Topics III

**Units in Major**

168-183

**Unrestricted Electives**

48

**Units in Major That Also Satisfy the GIRs**

(36)

**Total Units Beyond the GIRs Required for SB Degree**

180-195

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

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1. Subject may be of particular interest for energy concentration.

2. Subject may be of particular interest for biomedical engineering concentration.

3. Subject may be of particular interest for materials process and design concentration.

4. Subject may be of particular interest for environmental studies concentration.

5. In all cases, the electives must be chosen with the approval of the student's advisor and the department. Lists of recommended subjects for each concentration are available from the department, and additional information on current subject offerings is available on the Chemical Engineering Department website (https://cheme.mit.edu/academics/course-listing). Note that subjects that have been used to satisfy the foundational concepts may not also be counted toward the engineering concentration.

6. 10.490 may be repeated once for credit with permission of instructor.