AEROSPACE ENGINEERING (COURSE 16)

Department of Aeronautics and Astronautics (http://catalog.mit.edu/schools/engineering/aeronautics-astronautics/#undergraduatetext)

Bachelor of Science in Aerospace 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>Science Requirement</th>
<th>Humanities, Arts, and Social Sciences (HASS)</th>
<th>Restricted Electives in Science and Technology (REST) Requirement</th>
<th>Laboratory Requirement</th>
<th>Total GIR Subjects Required for SB Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>1</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.

Departmental Core

<table>
<thead>
<tr>
<th>Units</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.100A</td>
<td>Introduction to Computer Science Programming in Python</td>
</tr>
<tr>
<td>16.C20[J]</td>
<td>Introduction to Computational Science and Engineering</td>
</tr>
<tr>
<td>or 6.100B</td>
<td>Introduction to Computational Thinking and Data Science</td>
</tr>
<tr>
<td>16.001</td>
<td>Unified Engineering: Materials and Structures</td>
</tr>
<tr>
<td>16.002</td>
<td>Unified Engineering: Signals and Systems</td>
</tr>
<tr>
<td>16.003</td>
<td>Unified Engineering: Fluid Dynamics</td>
</tr>
<tr>
<td>16.004</td>
<td>Unified Engineering: Thermodynamics and Propulsion</td>
</tr>
<tr>
<td>16.06</td>
<td>Principles of Automatic Control</td>
</tr>
<tr>
<td>16.07</td>
<td>Dynamics</td>
</tr>
<tr>
<td>16.09</td>
<td>Statistics and Probability or 6.3700 Introduction to Probability</td>
</tr>
<tr>
<td>18.03</td>
<td>Differential Equations</td>
</tr>
</tbody>
</table>

Professional Area Subjects
Select four subjects from at least three professional areas. 48

Fluid Mechanics
16.100 Aerodynamics

Materials and Structures
16.20 Structural Mechanics

Propulsion
16.50 Aerospace Propulsion

Computational Tools
16.90 Computational Modeling and Data Analysis in Aerospace Engineering

Estimation and Control
16.30 Feedback Control Systems

Computer Systems
6.2050 Digital Systems Laboratory
16.35 Real-Time Systems and Software

Communications Systems
16.36 Communication Systems and Networks

Humans and Automation
16.400 Human Systems Engineering

Laboratory and Capstone Subjects
Select one of the following: 12
16.82 Flight Vehicle Engineering (CI-M)
16.83[J] Space Systems Engineering (CI-M)

Select one of the following: 12-18

Flight Vehicle Development:
16.821 Flight Vehicle Development (CI-M)

Space Systems Development:
16.831[J] Space Systems Development (CI-M)

Units in Major
180-186

Unrestricted Electives
48
Units in Major That Also Satisfy the GIRs
(36)

Total Units Beyond the GIRs Required for SB Degree
192-198

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.
Combination of 6.100A Introduction to Computer Science Programming in Python and 16.C20 Introduction to Computational Science and Engineering or 6.100B Introduction to Computational Thinking and Data Science counts as a REST.

18.032 Differential Equations is also an acceptable option.

For students who wish to complete an option in aerospace information technology, 36 of the 48 units must come from subjects other than 16.100, 16.20, 16.50, or 16.90.