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.

<table>
<thead>
<tr>
<th>Summary of Subject Requirements</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 from among 6.00, 6.041A/6.041B, 16.001, and 18.03 in the Departmental Program]</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory Requirement (12 units) [can be satisfied by 6.111, 16.405[J], 16.622, 16.821, or 18.831[J] 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.

<table>
<thead>
<tr>
<th>Departmental Core</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.00</td>
<td>Introduction to Computer Science and Programming</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</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>18.03</td>
<td>Differential Equations</td>
</tr>
</tbody>
</table>

Select one of the following:

- 16.09 Statistics and Probability
- 6.041A Introduction to Probability I
- 6.041B and Introduction to Probability II

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
- 6.111 Introductory 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
- 16.410 Principles of Autonomy and Decision Making

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 sequences: 12-18

- Experimental Projects:
  - 16.621 Experimental Projects I
  - 16.622 Experimental Projects II (CI-M)
- 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.

1 Combination of 6.0001 Introduction to Computer Science Programming in Python and 6.0002 Introduction to Computational Thinking and Data Science is also an acceptable option.

2 18.032 Differential Equations is also an acceptable option.

3 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.