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>Subjects</th>
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</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 from among 6.111, 16.405[J], 16.622, 16.821, or 16.831[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.

Departmental Core

<table>
<thead>
<tr>
<th>Units</th>
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<tbody>
<tr>
<td>6.00 Introduction to Computer Science and Programming</td>
</tr>
<tr>
<td>16.001 Unified Engineering: Materials and Structures</td>
</tr>
<tr>
<td>16.002 Unified Engineering: Signals and Systems</td>
</tr>
<tr>
<td>16.003 Unified Engineering: Fluid Dynamics</td>
</tr>
<tr>
<td>16.004 Unified Engineering: Thermodynamics</td>
</tr>
<tr>
<td>16.06 Principles of Automatic Control</td>
</tr>
<tr>
<td>16.07 Dynamics</td>
</tr>
<tr>
<td>18.03 Differential Equations</td>
</tr>
<tr>
<td>Select one of the following:</td>
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<tr>
<td>16.09 Statistics and Probability</td>
</tr>
<tr>
<td>6.041A Introduction to Probability I</td>
</tr>
<tr>
<td>&amp; 6.041B Introduction to Probability II</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
- 6.111 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 three 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.