# ENGINEERING (COURSE 16-ENG)

Department of Aeronautics and Astronautics (*http://catalog.mit.edu/schools/engineering/aeronautics-astronautics/#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 | Subjects |
|---|---|
| Science Requirement | 6 |
| 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. | 8 |
| Restricted Electives in Science and Technology (REST) Requirement [can be satisfied from among 6.100A/16.C20[J] or 6.100B, 16.001, and 18.03 in the Departmental Program] | 2 |
| Laboratory Requirement (12 units) [can be satisfied by 16.405[J], 16.821, or 16.831[J] in the Departmental Program] | 1 |
| **Total GIR Subjects Required for SB Degree** | **17** |

| 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 | | Units |
|---|---|---|
| 6.100A | Introduction to Computer Science Programming in Python | 6 |
| 16.C20[J] | Introduction to Computational Science and Engineering [1] | 6 |
| or 6.100B | Introduction to Computational Thinking and Data Science | |
| 16.001 | Unified Engineering: Materials and Structures | 12 |
| 16.002 | Unified Engineering: Signals and Systems | 12 |
| 16.003 | Unified Engineering: Fluid Dynamics | 12 |
| 16.004 | Unified Engineering: Thermodynamics and Propulsion | 12 |
| 16.06 | Principles of Automatic Control | 12 |
| or 16.07 | Dynamics | |
| 18.03 | Differential Equations [2] | 12 |

| Concentration Subjects | |
|---|---|
| These electives define a concentrated area of study and must be chosen with the written approval of the AeroAstro Undergraduate Office. A minimum of 42 units of engineering topics and a minimum of 12 units of mathematics or science topics must be included in the 72 units of concentration electives. In all cases, the concentration subjects must be clearly related to the theme of the concentration. [3] | 72 |

| 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 |
| *Robotics* | | |
| 16.405[J] | Robotics: Science and Systems (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** |
| **Unrestrictive 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 6.100A Introduction to Computer Science Programming in Python and 16.C20[J] Introduction to Computational Science and Engineering counts as a REST.*

[2]  *18.032 Differential Equations is also an acceptable option.*

[3]  *Additional information about the 16-ENG program and possible concentration areas (https://aeroastro.mit.edu/undergraduate-program/curriculum-and-requirements) is available on the department's website.*