Sample Academic Pathways for Course 16 Students Entering the Major in the Spring Term of the Sophomore Year

Course 16 majors are required to complete 192-198 units beyond the GIRS. The following roadmap shows the paths typically taken by students who enter Course 16 in the Spring term of the sophomore year and later enroll in the 16.62x and 16.82 or 16.83 lab/capstone sequences. Students who wish to complete an option in aerospace information technology will follow the same paths, but they must take at least three (36 units) of the four (48 units) required professional subjects in subjects other than 16.100, 16.20, 16.50, or 16.90. Several other options are available in the Course 16 lab/capstone and professional area subjects. Please check the MIT Course Catalogue (http://student.mit.edu/catalog/index.cgi).

This roadmap assumes that most non-HASS GIRs are taken in the first year. That does not need to be the case; for example, the Biology GIR can be delayed to the junior or senior year and the Chemistry GIR can be taken concurrently with 16.004 Unified Thermodynamics. The Math and Physics GIRs are prerequisites for Unified Engineering, and must therefore be taken before starting the Course 16 degree program. A sophomore who has completed Calculus I-II, Physics I-II and 18.03 or 18.034 would be eligible to take Unified Fluid Dynamics and Unified Thermodynamics in their Spring term.

Students must discuss their individual course plan with their academic advisor and consult the current MIT Course Catalogue (http://student.mit.edu/catalog/index.cgi) for up-to-date information on degree requirements, course prerequisites, and the terms in which courses are offered. Also check the Course 16 Calendar for Experimental and Capstone Subjects.

Program 16 - Aerospace Engineering

<table>
<thead>
<tr>
<th>Subject &amp; Units</th>
<th>Institute Requirement</th>
<th>Units Beyond GIRS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Freshman Year</strong></td>
<td></td>
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<tr>
<td>Fall Term</td>
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<tr>
<td>3.091 Intro to Solid-State Chemistry (12)</td>
<td>CHEM</td>
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<tr>
<td>8.01-Physics I (12)</td>
<td>PHYS</td>
<td></td>
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<tr>
<td>18.01-Calculus I (12)</td>
<td>CALC</td>
<td></td>
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<tr>
<td>HASS (12)</td>
<td>HASS</td>
<td></td>
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<tr>
<td><strong>Term Units = 48</strong></td>
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<tr>
<td>Spring Term</td>
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<tr>
<td>8.02-Physics II (12)</td>
<td>PHYS</td>
<td></td>
</tr>
<tr>
<td>18.02-Calculus II (12)</td>
<td>CALC</td>
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<tr>
<td>HASS (12)</td>
<td>HASS</td>
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<tr>
<td>HASS (12), CI-H</td>
<td>HASS</td>
<td></td>
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<tr>
<td><strong>Term Units = 48</strong></td>
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2. Sophomore Year

<table>
<thead>
<tr>
<th>Subject &amp; Units</th>
<th>Institute Requirement</th>
<th>Units Beyond GIRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Term</td>
<td></td>
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<tr>
<td>6.0001 Intro to Computer Programming in Python (6)</td>
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<td>and</td>
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<tr>
<td>6.0002 Intro to Computational Thinking &amp; Data Sc. (6)</td>
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<td>or</td>
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</tbody>
</table>
6.00 Intro to Computer Programming (12)
7.012 Introductory Biology (12) BIO
18.03 Differential Equations (12) REST
HASS-D (12) HASS

**Term Units = 48**

**Independent Activities Period**
A six-unit elective, i.e. UROP-for-credit 6

**Spring Term**
16.09 Statistics & Probability (12) 12
or
6.041A-6.041B Intro to Probability I-II (12) 12
Elective (12) 12
HASS (12) HASS
HASS-D (12), CI-H HASS-D

**Term Units = 48**

3. **Junior Year**

**Fall Term**
16.001 Unified Engineering Materials & Structures (12), REST 12
16.002 Unified Engineering Signals & Sys (12) 12
16.400 Human Sys Engineering (12), PAS 12
HASS-D (12) HASS-D

**Term Units = 48**

**Independent Activities Period**
A six-unit elective, i.e. UROP-for-credit 6

**Spring Term**
16.003 Unified Engineering Fluid Dynamics (12) 12
16.004 Unified Engineering Thermodynamics (12) 12
16.621 Experimental Projects I (6) 6
Elective (6) 6
HASS (12) HASS

**Term Units = 48**

4. **Senior Year**

**Fall Term**
16.06 Principles of Automatic Control (12) 12
16.07 Dynamics (12) 12
16.100 Aerodynamics (12), PAS 12
16.622 Experimental Projects II (12) LAB

**Term Units = 48**

**Independent Activities Period**
A six-unit elective, i.e. UROP-for-credit 6
Spring Term
16.20 Structural Mechanics (12), PAS 12
16.82 Flight Vehicle Engineering (12), CIM
or
16.83J Space Systems Engineering (12), CI-M 12
16.90-Computational Modeling & Data Analysis (12), PAS 12
Elective (12) 12

TOTAL UNITS BEYOND GIRS 198

Notes:

1. The two Institute REST requirements (24 units) can be satisfied from among 6.0001-6.0002 or 6.00, 18.03 or 18.034, and 16.001. The Institute Lab requirement (12 units) for students choosing this roadmap is fulfilled through 16.622. Units from departmental subjects that fulfill the REST and Lab requirements do not count in units beyond GIRS. Students must fill the 36-unit gap in their departmental program by taking additional electives.

2. A student interested in taking capstone 16.82 or 16.83 must complete a minimum of two professional area subjects before enrolling in either capstone.

3. Students take a minimum of four professional subjects (48 units) in three different areas. As mentioned earlier, students interested in doing the option in aerospace information technology also take 48 units, 36 of which must come from subjects other than 16.100, 16.20, 16.50, 16.90. This IT option is not reflected on a student’s transcript or diploma.