M.I.T.
Department of Aeronautics and Astronautics

Sample Academic Pathways for Students Entering Course 16 in the Fall Term of the Junior Year and Selecting the 16-ENG Program

Course 16-ENG majors are required to complete 192-198 units beyond the General Institute Requirements (GIRs). The following roadmap shows the paths typically taken by a student who enters the program in the Fall term of their junior year. These paths take into account the fact that the student switching to Course 16 would have completed a few of the requirements in their previous major.

This roadmap assumes that all 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 - co-requisite for Unified Thermodynamics - can be taken in the sophomore year. Also note that Physics II GIR (co-requisite for Unified Signals and Systems) and 18.03 Differential Equations (co-requisite for Unified Materials and Structures and Unified Signals and Systems) can be taken in the sophomore year. However, a student must complete Calculus I-II and Physics I before they can enroll in Unified Materials and Structures and Unified Signals and Systems.

Students must discuss their individual course plan with their academic advisor as well as their 16-ENG concentration advisor. Each concentration has a list of prescribed subjects, which can be found in the document 16-ENG Program Description and Degree Requirements. Also 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. Please also refer to the Course 16 Calendar for Laboratory 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. First Year</strong></td>
<td></td>
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<tr>
<td><strong>Fall Term</strong></td>
<td></td>
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<tr>
<td>3.091 Intro to Solid-State Chem (12)</td>
<td>CHEM</td>
<td></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><strong>Spring Term</strong></td>
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<tr>
<td>6.0001 Intro to Computer Sc Prog in Python (6) ½ REST and 6.0002 Intro to Compt’l Thinking &amp; Data Sc (6) ½ REST</td>
<td>REST</td>
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<tr>
<td>or 16.0002J Intro to Computational Science &amp; Engin (6) ½ REST</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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</tbody>
</table>
2. Sophomore Year

Fall Term
Concentration Subject TBA (12) 12
18.03 Differential Equations (12) 12
HASS-A (12) HASS
Elective (12) 12

Term Units = 48

Independent Activities Period
A six-unit elective, e.g. a UROP-for-credit 6

Spring Term
Concentration Subject TBA (12) 12
7.012 Introductory Biology (12) BIO
16.405J Robotics: Science & Sys (12), CI-M, LAB LAB
HASS (12), CI-H HASS

Term Units = 48

3. Junior Year

Fall Term
Concentration Subject TBA (12) 12
16.001-Unified Engineering Materials & Structures (12) REST
16.002-Unified Engineering Signals & Sys (12) 12
HASS-H (9) HASS

Term Units = 48

Independent Activities Period
A six-unit elective, e.g. a UROP-for-credit 6

Spring Term
16.003-Unified Engineering Fluid Dynamics (12) 12
16.004 Unified Engineering Thermodynamics & Propulsion (12) 12
16.06 Prin of Automatic Control (12) 12
Note: in this case the student would need to petition the department to be allowed to take 16.06 without the completion of Fluids or Thermo.
HASS-S (12) HASS

Term Units = 48

4. Senior Year

Fall Term
Concentration Subject TBA (12) 12
Concentration Subject TBA (12) 12
HASS-S (12) HASS
Elective (12) 12

Term Units = 48
Spring Term
Concentration Subject TBA (12)  
16.82 Flight Vehicle Engineering (12), CI-M 12
or
16.83J Space Sys Engineering (12), CI-M 12
HASS (12)  
Elective (12)  
Term Units = 36

TOTAL UNITS BEYOND GIRS (192-198)  

Notes:

1. For the 16-ENG program, students take either 16.06 Principles of Automatic Control or 16.07 Dynamics. Probability & Stats (16.09 or 6.041) is not required for the 16-ENG program; however, a good number of students take 16.09 or 6.041 to satisfy the Math/Science requirement for their 16-ENG concentration.

2. The two Institute REST requirements (24 units) can be satisfied from among 6.0001-6.0002 or 6.0001-16.0002J; 6.041; 16.001; and 18.03. The Institute Lab requirement (12 units) for students choosing this roadmap is fulfilled through 16.405J. 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 to reach the minimum unit requirement of 192-198.

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