

M.I.T.
Department of Aeronautics and Astronautics

Sample Academic Pathways for Students Entering the
Course 16 Major in the Fall of their Sophomore Year

Course 16 majors are required to complete 192 units beyond the General Institute Requirements (GIRS). The following roadmap shows the paths typically taken by a student who enters Course 16 in the Fall term of the sophomore year.

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.

In addition to the four PAS's listed in these paths, students will find a full listing of PAS's at <http://catalog.mit.edu/degree-charts/aerospace-engineering-course-16/>. As noted on the degree chart a minimum of four PAS's (48 units) is required in a minimum of 3 professional areas. 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. Note: the IT option is not a degree, nor does it appear on a student's MIT transcript or diploma.

Students are expected to 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. For capstone and laboratory subjects other than those listed in this roadmap, please also check the *Course 16 Calendar for Laboratory and Capstone Subjects* (*Insert the link to Oli's latest version FA25-SP29*).)

Program: 16 - Aerospace Engineering

Subject & Units	Institute Requirement	Units Beyond GIRS
1. First Year		
<u>Fall Term</u>		
3.091-Intro to Solid-State Chemistry (12)	CHEM	
8.01-Physics I (12)	PHYS	
18.01-Calculus I (12)	CALC	
HASS (12)	HASS	
Term Units = 48		
<u>Independent Activities Period</u>		
A six-unit elective, e.g. a UROP-for-credit		6

Spring Term

8.02-Physics II (12)	PHYS	
18.02-Calculus II (12)	CALC	
18.03-Differential Equations (12)	REST	
HASS (12) CI-H	HASS	
Term Units = 48		

2. Sophomore YearFall Term

16.001-Unified Engineering: Materials & Structures (12)	REST	
16.002-Unified Engineering: Signals & Systems (12)		12
16.09 Statistics & Probability (12)		
or		12
6.3700 Intro to Probability (12)		
HASS (12), CI-H	HASS	
Term Units = 48		

Independent Activities Period

A six-unit elective, e.g. a UROP-for-credit		6
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Spring Term

16.003-Unified Engineering: Fluid Dynamics (12)		12
16.004-Unified Engineering: Thermodynamics (12)		12
6.1000 Intro to Programming & Computer Sc (12) REST		12
or		
6.100A Intro to Computer Programming in Python (6) ½ REST		
and		
6.100B Intro to Computational Thinking & Data Sc. (6) ½ REST		
or		
16.C20J Intro to Computational Science & Engin (6) ½ REST		
HASS-A (12)	HASS	
Term Units = 48		

3. Junior YearFall Term

16.07-Dynamics (12)		12
16.400 Human Sys Engineering (12), PAS		12
Laboratory (12), CIM	LAB	
HASS (12)	HASS	
Term Units = 48		

Independent Activities Period

A six-unit elective, e.g. a UROP-for-credit		6
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Spring Term

16.06-Principles of Automatic Control (12) 12

16.36 Comm Sys & Networks (12), PAS 12

7.012 Introductory Biology (12) BIO

HASS-H (12) HASS

Term Units = 48**4. Senior Year****Fall Term**

16.410J Prin of Autonomy & Decision Making (12) 12

Design Capstone (12), CIM 12

Elective 12 12

HASS-S (12) HASS

Term Units = 48**Spring Term**

16.50 Aerospace Propulsion (12), PAS 12

Elective (12) 12

Elective (12) 12

HASS (12) HASS

Term Units = 48**TOTAL UNITS BEYOND GIRS (192) (192)****Notes:**

1. The two Institute REST requirements (24 units) can be satisfied from among 6.100A-6.100B or 6.100A-16.C20J; 6.1000; 6.3700; 16.001; and 18.03. The Institute lab requirement can be fulfilled through 16.405J, 16.811, 16.821 or 16.831J. Either of these subjects plus one of the design capstones (16.82, 16.83J, 16.85) also satisfy the CIM requirement. Units from departmental subjects that fulfill the REST and Institute 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 192 minimum unit requirement.
2. A student interested in taking capstone 16.82 or 16.83 must complete a minimum of two concentration subjects before enrolling in either of these subjects.

