

M.I.T.
Department of Aeronautics and Astronautics

**Sample Academic Pathways for Course 16 Students Entering the Major in the Fall
Term of the Junior 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 Fall term of the junior year and later enroll in the 16.405J and 16.82 or 16.83J 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 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 Engineering Thermo - can be taken in the sophomore year. Also note that Physics II GIR (co-requisite for Unified Signals) and 18.03 Differential Equations (co-requisite for Unified Structures and Unified Signals) can be taken in the sophomore year. However, a student must complete Calculus I-II and Physics I before they can enroll in Unified Structures and/or Unified Signals.

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

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>Spring Term</u>		
6.0001 Intro to Computer Sc Prog in Python (6)		
and		
6.0002 Intro to Compt'l Thinking & Data Sc (6)		
or		
6.00 Intro to Computer Programming (12)		12
8.02 Physics II (12)	PHYS	
18.02 Calculus II (12)	CALC	

HASS (12), CI-H
Term Units = 48 HASS

2. Sophomore Year

Fall Term

6.041A-6.041B Intro to Probability I-II (12)	REST	
7.012 Intro to Biology (12)	BIO	
18.03 Differential Equations (12)	REST	
Elective (6)		6
HASS-A (12)	HASS-D	
Term Units = 54		

Independent Activities Period

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

Spring Term

16.35 Real-Time Sys & Software (12)		12
16.405J Robotics: Science & Sys (12), CI-M, LAB	LAB	
HASS- (12)	HASS-S	
HASS (12), CI-H	HASS	
Term Units = 48		

3. Junior Year

Fall Term

16.001-Unified Engineering Materials & Structures (12)		12
16.002-Unified Engineering Signals & Sys (12)		12
16.400 Human Sys Engin (12)		12
HASS-H (12)	HASS-D	
Term Units = 48		

Independent Activities Period

A six-unit elective, i.e. a UROP-for-credit 6

Spring Term

16.003-Unified Engineering Fluid Dynamics (12)		12
16.004 Unified Engineering Thermodynamics (12)		12
Elective (12)		12
HASS-S (12)	HASS-D	
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)	12	
Elective (12)		12
Term Units = 48		

<u>Independent Activities Period</u>	
A six-unit elective, i.e. a UROP-for-credit	6
<u>Spring Term</u>	
16.82 Flight Vehicle Engineering (12), CI-M	
or	
16.83 Space Sys Engineering (12), CI-M	12
16.36 Communication Sys & Networks (12)	12
HASS (12)	
Term Units = 48	
TOTAL UNITS BEYOND GIRS	192

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 16.405J. 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.
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. Therefore, a student who chooses the professional area subjects listed in this roadmap would have completed the IT option. Note that the IT option is not reflected on a student's transcript or diploma.