Sample academic pathways for Course 16 students entering major in **fall of junior** year

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Sample Academic Pathways for Students Entering the
Course 16 Major in the Fall of Junior 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 their junior year. These paths take into account the fact that the student switching to Course 16 would have completed some of the requirements in their previous major and also have the prerequisites for the subjects listed for these paths.

In addition, 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. Notes on Unified pre- and co-requisites: 1) a student must complete Calculus I-II and Physics I before they can enroll in Unified Materials and Structures and in Unified Signals and Systems; 2) Physics II is a co-requisite for Unified Signals and Systems while 18.03 Differential Equations is a co-requisite for both Unified Materials and Structures and Unified Signals and Systems; 3) Chemistry is a co-requisite for Unified Thermodynamics.

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. 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 link to Oli's latest version FA25-SP29).)*

Program 16 – Aerospace Engineering

Subject & Units	Institute Requirement	Units Beyond GIRS

1. **First Year**

Fall Term

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

Spring Term
6.1000 Intro to Prog and Computer Sc (12) REST REST
or
6.100A Intro to Computer Sc Prog in Python (6) ½ REST
and
6.100B Intro to Compt'l Thinking & Data Sc (6) ½ REST
or
16.C20 J Intro to Computational Science & Engin (6) ½ REST
8.02 Physics II (12) \ PHYS
18.02 Calculus II (12) CALC
HASS (12) CI-H HASS
Term Units = 48

2. **Sophomore Year**

Fall Term
2.001 Mechanics & Materials (12) REST REST
2.003J Dynamics & Control I (12) REST 12
16.410J Prin of Autonomy & Decision Making (12) PAS 12
HASS-A (12) HASS
Term Units = 48

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

Spring Term
6.3700 Intro to Probability (12) REST 12
18.03 Differential Equations (12) REST 12
Elective (12) 12
HASS (12), CI-H HASS
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-H (12)
Total Units: 48

Spring Term
16.003-Unified Engineering Fluid Dynamics (12) 12
16.004 Unified Engineering Thermodynamics & Propulsion (12) 12
16.06 Principles of Automatic Control (12) 12
HASS (12) HASS
Term Units = 48

4. Senior Year

Fall Term		
7.012 Introductory Biology (12)	BIO	
16.07-Dynamics (12)		12
16.100-Aerodynamics (12), PAS		12
Laboratory (12), CIM	LAB	
HASS-S (12)	HASS	
Term Units = 60		
Independent Activities Period		
A six-unit elective, e.g., UROP-for-credit, special topic, etc.		6
Spring Term		
16.36 Communication Sys & Networks (12)		12
16.50-Aerospace Propulsion		12
Design Capstone (12), CI-M		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.