Sample academic pathways for students entering Course 16-ENG in **fall of junior** year (pdf)

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Department of Aeronautics and Astronautics
16-ENG Bachelor of Science in Engineering

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

Course 16-ENG majors are required to complete a minimum of 192 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 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.

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

Program 16-ENG

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 Programming & Computer Sc (12)		REST
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		
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		
18.03 Differential Equations (12), REST	REST	
(Potential) Concentration Subject (12)		12
Elective (12)		12
HASS-A (12)	HASS	
Term Units = 48		
Independent Activities Period		
A six-unit elective, e.g. a UROP-for-credit		6
Spring Term		
7.012 Introductory Biology (12)	BIO	
(Potential) Concentration Subject (12)		12
Laboratory (12), CI-M	LAB	
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
Concentration Subject (12)		12
HASS-H (12)	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 Principles of Automatic Control (12)		12
HASS-S (12)	HASS	
Term Units = 48		

4. Senior Year

Fall Term	
Concentration Subject (12)	12
Concentration Subject (12)	12
Elective (12)	12

HASS-S (12)	HASS	
Term Units = 48		
Spring Term		
Design Capstone (12), CI-M		12
Concentration Subject (12)		12
Elective (12)		12
HASS (12)	HASS	
Term Units = 48		
TOTAL UNITS BEYOND GIRS (192)		**192**

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 6.3700) is not required for the 16-ENG program; however, students have the option of taking 16.09 or 6.3700 to satisfy the 16-ENG math/science requirement.
2. 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.
3. 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.

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