MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COURSE 16-ENG ENROLLMENT FORM/PROGRAM OF STUDY
S.B. in Engineering As Recommended by the
Department of Aeronautics and Astronautics

Students fill out this form to select a pre-defined or propose a self-designed concentration. The completed form must be submitted to the AeroAstro Undergraduate Office, Room 33-202B.

Student Name: _____Student ID: _____

2nd Major (if any) _____ Graduation Year _____ Academic Advisor _____

_____

Ia. Select a pre-defined concentration:

Aerospace Software Engineering ( ) Autonomous Systems ( ) Communications,
Embedded Systems and Networks ( ) Computational Engineering ( ) Energy ( )
Engineering Management ( ) Environment ( ) Space Exploration ( )Transportation ( )

Please explain why this concentration interests you, how your proposed curriculum complements aerospace engineering, and how it will benefit your career.

OR

Ib. Propose a self-designed concentration Please name your concentration:

_____

Please write a paragraph describing the concentration theme.

_____
_____
_____
_____
_____
_____
_____

Describe the relevance of that theme to aerospace.

_____
_____
_____
_____

II. Propose a *course plan* for your concentration. The following sections must be filled out whether a student is selecting a pre-defined or self-designed concentration.

Describe why the set of courses are collectively coherent.

_____
_____
_____
_____

For each course in the concentration, write a justification for why that course is relevant to the concentration theme.

_____
_____
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_____

Please explain how this concentration will benefit your career.

_____
_____
_____
_____

III. Guidelines for Concentrations

1. Concentrations must include at least 72 units.
2. All concentration subjects must be letter graded.
3. No concentration subject may also be counted as a GIR.

4. UROPs are not allowed as concentration subjects.
5. Freshman-level subjects, i.e. 16.00, 16.00A, may not be included.
6. Basic math and science subjects may be included only if they are prerequisites to a higher level engineering subject in the concentration or are specified within the guidelines of a pre-defined concentration; otherwise, such subjects should be taken as unrestricted electives.
7. The concentration must include at least 42 units of engineering subjects and one (higher level) math or science subject. The content must be first reviewed by a Concentration Advisor and then approved by the Undergraduate Chair.
8. Each concentration subject must have a clear relationship to the overall theme of the concentration.

In addition to General Institute Requirements (GIRs), please list courses that you are planning to take (or have taken) and indicate for each course the completion term as well as the engineering (E) or math/science (M/S) designation. Also check the *MIT Online Catalogue* for the availability of subjects, their descriptions and prerequisites. Note that you need one CI-M in the junior year and one in the senior year. A total of 198 units beyond GIRs are required and units that satisfy a GIR (LAB and REST = 36) do not count in the units beyond GIRs.

A. General Institute Requirements (17 GIRS)

***Science* (6)**

____Chemistry (3.091 or 5.11)

____Biology (7.____)

____Physics I (8.01__)

____Physics II (8.02__)

____Calculus I (18.01__)

____Calculus II (18.02__)

***HASS* (total of 8)**

	Distribution (3)	***Concentration (3-4)***
	____ _____	____ _____
	____ _____	____ _____
	____ _____	____ _____

Other HASS

____ _____

____ _____

Proposal Form_____

Completion Form _____

Note -- HASS-Distribution: Class of 2014 and beyond complete 3 HASS distribution subjects, one from each of the following categories: Arts, Humanities, and Social Sciences.

Institute Lab (1)

_____ 16.622

_____ 16.821

_____ 16.831J

REST (2)

_____ 1.00*

_____ 16.001

_____ 18.03 or 18.034

Communication (satisfied through 4 courses that can count elsewhere --1 CI-H each in freshman and sophomore years and 1 CI-M each in junior and senior years. Some students may petition SORC to take 2 CI-Ms in their senior year.)

CI-H _____ CI-H _____ (among subjects designated CI-H in the *Course Catalogue*)

CI-M _____ 16.622 _____ 16.82 _____ 16.83J _____ 16.831J

* In lieu of 1.00, the Class of 2017 or beyond takes 6.0001 Introduction to Computer Programming in Python, 6; 1/2 REST; and 6.0002 Introduction to Computational Thinking and Data Science, 6; 6.0001, 1/2 REST.

B. Departmental Requirements (198 Units Beyond GIRS)

1. Core Requirements (84 units, 24 of which fulfill Institute REST)
(Subject names are followed by credit units, and by prerequisites, if any (corequisites in italics)

Term

___ 16.001 Unified Engin I, 12, 8.02, 18.02, *18.03, 3.091 or 5.11*, REST _____

___ 16.002 Unified Engin II, 12, 8.02, 18.02, *18.03, 3.091 or 5.11* _____

___ 16.003 Unified Engin III, 12, 16.001, 16.002 _____

___ 16.004 Unified Engin IV, 12, 16.001, 16.002 _____

___ *1.00 Intro to Computers & Engin Problem Solving, 12, 18.01, REST _____

___ 18.03 Differential Equations, 12, *18.02*, REST _____
or
___ 18.034 Differential Equations, 12, *18.02*, REST _____

___ 16.06 Principles of Automatic Control, 12, 16.004 _____
or
___ 16.07 Dynamics, 12 , 16.004 _____

2. Concentration Subject Requirements (72 units)

(Please list subject #s and names, prereqs, units, term, and the engineering or math/science designation for each subject.)

Subject #	Units	Term	E or M/S

Total Units _____

* In lieu of 1.00, the Class of 2017 or beyond takes 6.0001 Introduction to Computer Programming in Python, 6; 1/2 REST; and 6.0002 Introduction to Computational Thinking and Data Science, 6; 6.0001, 1/2 REST.

E Units _____

M/S Units _____

3. Laboratory and Capstone Subject Requirements (30 units, 12 of which fulfill Institute LAB)
(Subject names are followed by credit units, and by prerequisites, if any (corequisites in italics)

Subject **Term**

One of the following two subjects:
___ 16.82 Flight Vehicle Engin, 12, permission of instructor, CIM _____

___ 16.83J Space Sys Engin, 12, permission of instructor, CIM _____

Plus one of the following three sequences:

Experimental Projects

____16.621 Experimental Projects I, 6, *16.06* or *16.07* _____

____16.622 Experimental Projects II, 12, 16.621, CIM, LAB _____

or

Flight Vehicle Development

___ 16.821 Flight Vehicle Devel, 18, permission of instructor, CIM, LAB _____

or

Space Systems Development

____ 16.831J Space Sys Devel, 18, permission of instructor, CIM, LAB _____

Note: Students are expected to complete a minimum of two concentration subjects before taking 16.82 or 16.83. Subjects 16.821 and 16.831J are offered alternate years; please see the "*Course 16 Planned Calendar for Experimental and Capstone Subjects*".

4. Unrestricted Electives (48 units)
(Please list subject #s and names, prereqs, units, and term.)

Subject # / Name	**Prereqs**	**Units**	**Term**

TOTAL UNITS (from B1-B4) =
(A minimum of 198 required)

C. Signatures and Approvals

I agree to complete all elements of the program given above: _____
(Student's Signature and Date)

Approval of Concentration Advisor: _____
(Signature and Date)

Approval of the Course 16 Undergraduate Chair: _____
(Signature and Date)

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