Course 16-ENG enrollment form/program of study

COURSE 16-ENG ENROLLMENT FORM/PROGRAM OF STUDY
S.B. in Engineering – ABET Accredited
Department of Aeronautics and Astronautics

Students fill out this form to select a pre-defined or to propose a self-designed concentration. The completed form must be submitted to the AeroAstro Undergraduate Office by the Spring term of a student's third year.

Student Name _____ Student ID_____

Double Major (if any) _____ Intended Graduation Year _____

_____ _____
Academic Advisor Concentration Advisor

_____

I. Select a pre-defined concentration:

Aerospace Software Engineering ( ) Autonomous Systems ( ) Communications, Embedded Systems and Networks ( ) Computational Engineering ( ) Computational Sustainability ( ) 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

II. Propose a self-designed concentration

Please name your concentration:

_____

A. Please write a paragraph describing the concentration theme.

_____
_____
_____
_____
_____
_____
_____

B. Describe the relevance of that theme to aerospace.

_____
_____
_____
_____

III. 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.**

A. Describe why the set of courses are collectively coherent.

_____
_____
_____
_____

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

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

C. Please explain how this concentration will benefit your career.

_____
_____
_____

IV. Guidelines for Concentrations

1. Concentrations must include a minimum of 72 units.
2. All concentration subjects must be letter graded, except in the case where a student opts for P/NR grading
3. No concentration subject may also be counted as a GIR, core, capstone, lab, or unrestricted subject.
4. UROPs are not allowed as concentration subjects.
5. First-year level subjects 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 a minimum of 42 units of engineering subjects and one (higher level) math or science subject. The content must be reviewed and approved by a Concentration Advisor.
8. Each concentration subject must have a clear relationship to the overall theme of the concentration.

In addition to the 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 192 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)**	***HASS* (total of 8)**	
	Distribution* (3)	***Concentration (3 -4)***
____Chemistry (3.091 or 5.11)	____ _____	____ _____
____Biology (7.____)	____ _____	____ _____
____Physics I (8.01__)	____ _____	
	Other HASS	**Proposal Form** _____
____Physics II (8.02__)	____ _____	**Completion Form** _____
____Calculus I (18.01__)	____ _____	
____Calculus II (18.02__)	____ _____	

* HASS-Distribution: Students complete 3 HASS distribution subjects, one from each of the following categories: Arts, Humanities, and Social Sciences.

Institute Lab (1)	**REST (2)**
_____16.405J	_____ 6.1000, 6.100A-6.100B or 6.100A-16.C20J
	_____ 16.001
_____16.811	_____ 18.03 or 18.032
_____16.821	

_____16.831J

Communication (satisfied through 4 courses that can count elsewhere --1 CI-H each in first year and second year and 1 CI-M each in third and fourth years. Due to scheduling issues, some students may petition SORC to take 2 CI-Ms in their fourth year.)

CI-H (2): _____ CI-H _____ (among subjects designated CI-H in the *Course Catalogue*)

CI-M (2): ____ 16.405J ____16.82 ____ 16.83J ____ 16.85 ____ 16.811 ____ 16.821____ 16.831J

B. Departmental Requirements (192 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 – Materials & Structures,12, 8.01, 18.01, 18.02, *16.002, 18.03;* REST _____

___ 16.002 Unified – Signals & Systems, 12, 18.01,18.02, *8.02, 16.001, 18.03 or 18.032* _____

___ 16.003 Unified – Fluid Dynamics, 12, 8.02, 18.01, 18.02, 18.03 or 18.032, *16.004* _____

___ 16.004 Unified -Thermodynamics, 12, 8.02, 18.01, 18.02, 18.03 or 18.032, *3.091 or 5.11, 16.003* _____

___ 6.1000 Intro to Programming & Computer Sc, 12, REST _____

or

___ 6.100A Intro to Computer Sci Programming in Python, 6, ½ REST _____

&

___ 6.100B Intro to Computational Thinking & Data Science, 6, 6.100A, ½ REST _____

or

___ 16.C20J Intro to Computational Science & Engin, 6, 6.100A, *8.01, 18.01,* ½ REST _____

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

or

___ 18.032 Differential Equations, 12, *18.02,* REST _____

___ 16.06 Principles of Automatic Control, 12, 16.002 _____

or

___ 16.07 Dynamics, 12, 16.001 or 16.002, 16.003 or 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 _____

E Units _____

M/S Units _____

C. Laboratory/Capstone Subjects (24 units)
(Prerequisites are italicized; coreqs are also underlined.)

One of the following subjects:
____16.82 Flight Vehicle Engin (*2 concentration subjects),* 12 _____
____16.83J Space Systems Engin (*2 concentration subjects),* 12 _____
____16.85 Design & Testing of Autonomous Vehicles, (6.4200; 16.35, 16.410 or POI, 12. _____

Plus one of the following subjects:
____ 16.405J/6.4200J Robotics: Science and Systems (*1.00 or* 6.100A & *2.003,* 6.1010, 6.1210*, or 16.06; or POI, 12* _____

____ 16.811 Propulsion Sys Prototyping & Testing for Aerospace Engineers (16.001-002-003-004), 12 _____

____16.821 Flight Vehicle Development, *POI,* 12 _____

____16.831J Space Systems Development, *POI*, 12 _____

Please see the" Course 16 Planned Calendar for Laboratory and Capstone Subjects" at
http://aeroastro.mit.edu/academics/forms-documentation/undergraduate-forms-documentation.

4. Unrestricted Electives (a minimum of 48 units). A subject that fulfills a student's GIR, core, concentration, capstone, or lab requirement cannot also count as an unrestricted elective.

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

_____ _____

_____ _____

_____ _____

TOTAL UNITS (from B1-B4) =
(A minimum of 192 units required)

C. Signatures/Approvals

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

Approval of Concentration Advisor: _____
(Print, Sign, and Date)

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

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