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: ______________________

Class Year  Academic Advisor  Concentration Advisor

Ia. 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.

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

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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.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

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 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 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 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 192-198 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)**

<table>
<thead>
<tr>
<th>Science (6)</th>
<th>HASS (total of 8)</th>
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<tbody>
<tr>
<td></td>
<td>Distribution* (3)</td>
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<tr>
<td>___Chemistry (3.091 or 5.11)</td>
<td>___ ______________</td>
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<tr>
<td>_<strong>Biology (7.</strong>__)</td>
<td>___ ______________</td>
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<tr>
<td>_<strong>Physics I (8.01</strong> )</td>
<td>___ ______________</td>
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<tr>
<td>_<strong>Physics II (8.02</strong> )</td>
<td>___ ______________</td>
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<tr>
<td>_<strong>Calculus I (18.01</strong> )</td>
<td>___ ______________</td>
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<tr>
<td>_<strong>Calculus II (18.02</strong> )</td>
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* HASS-Distribution: Students complete 3 HASS distribution subjects, one from each of the following categories: Arts, Humanities, and Social Sciences.

<table>
<thead>
<tr>
<th>Institute Lab (1)</th>
<th>REST (2)</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>___16.405J</td>
<td>___ 6.0001-6.0002</td>
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<tr>
<td>___16.622</td>
<td>___ 16.001</td>
</tr>
<tr>
<td>___ 16.821</td>
<td>___ 18.03 or 18.032</td>
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<tr>
<td>___ 16.831J</td>
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*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. Due to scheduling issues, some students will need to petition SORC to take 2 CI-Ms in their senior year.)

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


B. Departmental Requirements (192-198 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 – Materials & Structures, 12, 8.01, 18.02, 16.002, 18.03, REST
   ____
   ___ 16.002 Unified – Signals & Systems, 12, 18.02, 8.02, 16.001, 18.03
   ____
   ___ 16.003 Unified – Fluid Dynamics, 12, 8.02, 18.02, 18.03, 16.004
   ____
   ___ 16.004 Unified -Thermodynamics, 12, 8.02, 18.02, 18.03, 3.091/5.11, 16.003
   ____
   ___ 6.0001 Intro to Computer Sci Programming in Python, 6, ½ REST
   ____
   ___ 6.0002 Intro to Computational Thinking & Data Science, 6, 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, 16.003 or 16.004
   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
   ________________________________________________
   ________________________________________________
   ________________________________________________
   ________________________________________________
   ________________________________________________
3. Laboratory and Capstone Subject Requirements (24-30 units, 12 of which fulfill the Institute Lab. Subject names are followed by credit units, and by prerequisites, if any (co-requisites are in italics).

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term</th>
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<tbody>
<tr>
<td>One of the following two subjects:</td>
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<tr>
<td>___ 16.82 Flight Vehicle Engin, 12, 2 Conc Subjects, CIM</td>
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<tr>
<td>___ 16.83J/12.43J Space Sys Engin, 12, 2 Conc Subjects, CIM</td>
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<td>Plus one of the following sequences:</td>
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<td>Robotics</td>
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<td>___ 16.405J/6.141J Robotics: Science &amp; Systems, 12, 1.00 or 6.0001, 2.003, 6.006, 6.009, or 16.06, or permission of instructor</td>
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<tr>
<td>Experimental Projects</td>
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<td>___ 16.621 Experimental Projects I, 6, 16.06 or 16.07</td>
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<tr>
<td>___ 16.622 Experimental Projects II, 12, 16.621, CIM, LAB</td>
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<tr>
<td>Flight Vehicle Development</td>
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<tr>
<td>___ 16.821 Flight Vehicle Devel, 18, permission of instructor, CIM, LAB</td>
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<tr>
<td>Space Systems Development</td>
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<td>___ 16.831J/12.431J Space Sys Devel, 18, permission of instructor, CIM, LAB</td>
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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 Laboratory and Capstone Subjects”.

4. Unrestricted Electives (48 units)
(Please list subject #s and names, prereqs, units, and term.)
<table>
<thead>
<tr>
<th>Subject # / Name</th>
<th>Prereqs</th>
<th>Units</th>
<th>Term</th>
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TOTAL UNITS (from B1-B4) =
(A minimum of 192-198 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 Office: _____________________________
(Signature and Date)

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