REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: MAE PROPOSED EFFECTIVE SEMESTER: Spring 2018 COLLEGE: CEAS

PROPOSED IMPROVEMENTS

<table>
<thead>
<tr>
<th>Academic Program</th>
<th>Substantive Course Changes</th>
<th>Misc. Course Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ New degree*</td>
<td>☐ New course</td>
<td>☐ Title</td>
</tr>
<tr>
<td>☐ New major*</td>
<td>☐ Pre or Co-requisites</td>
<td>☐ Description (attach current &amp; proposed)</td>
</tr>
<tr>
<td>☐ New curriculum*</td>
<td>☐ Deletion (required by others)</td>
<td>☐ Deletion (not required by others)</td>
</tr>
<tr>
<td>☐ New concentration*</td>
<td>☐ Course #, different level</td>
<td>☐ Course #, same level</td>
</tr>
<tr>
<td>☐ New certificate</td>
<td>☐ Credit hours</td>
<td>☐ Variable credit</td>
</tr>
<tr>
<td>☐ New minor</td>
<td>☐ Enrollment restriction</td>
<td>☐ Credit/no credit</td>
</tr>
<tr>
<td>☐ Revised major</td>
<td>☐ Course-level restriction</td>
<td>☐ Cross-listing</td>
</tr>
<tr>
<td>☐ Revised minor</td>
<td>☐ Prefix ☐ Title and description</td>
<td>☐ COGE reapproval</td>
</tr>
<tr>
<td>☐ Admission requirements</td>
<td>☐ General education (select one)</td>
<td>☐ Other (explain**)</td>
</tr>
<tr>
<td>☐ Graduation requirements</td>
<td>☐ Not Applicable</td>
<td></td>
</tr>
<tr>
<td>☐ Deletion ☐ Transfer</td>
<td>☐ Other (explain**)</td>
<td></td>
</tr>
<tr>
<td>☐ Other (explain***)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Other: Including more subjects in the approved Aerospace Engineering Electives

Title of degree, curriculum, major, minor, concentration, or certificate: BS in Aerospace Engineering
Existing course prefix and #: Existing course title:

Proposed course title:
Existing course prerequisite & co-requisite(s):
Proposed course prerequisite(s):
Proposed course co-requisite(s):
Proposed course prerequisite(s) that can also be taken concurrently:
Is there a minimum grade for the prerequisites or corequisites?
Major/minor or classification restrictions:
For 5000 level prerequisites & corequisites: Do these apply to: (circle one) undergraduates graduates both

Specifications for University Schedule of Classes: N/A

a. Course title (maximum of 30 spaces):
b. Multi-topic course: ☐ No ☐ Yes
c. Repeatable for credit: ☐ No ☐ Yes
d. Mandatory credit/no credit: ☐ No ☐ Yes
e. Type of class and contact hours per week (check type and indicate hours as appropriate) N/A

CIP Code (Registrar's use only): 

Chair/Director: K. Naglowski Date: 2/7/17

Chair, College Curriculum Committee Date:

Dean Date: Graduate Dean: Date:

Curriculum Manager: Return to dean ☐ Date Forward to: Date:

Chair, COGE/ PEB / FS President Date:

FOR PROPOSALS REQUIRING GSC/USC REVIEW:

* ☐ Approve ☐ Disapprove Chair, GSC/USC Date:

* ☐ Approve ☐ Disapprove Provost Date:

Revised May 2007. All previous forms are obsolete and should not be used.
1. Explain briefly and clearly the proposed improvement.

The current proposal seeks to include additional subjects in the list of approved Aerospace Engineering Electives. These are as follows:

- Thermal/Fluid Science: ME 4320 Thermodynamics II
- Flight Dynamics & Control: ME4710 Motion and Control, ME 5410 Continuous System Modeling and Simulation, ME 5430 Mechanical Systems Control

2. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.)

Academic Advising Office raised concerns with the current list of Aerospace Engineering Electives for few limited number of subjects. Currently, 11 subjects are listed in the approved list, out of which only 2 subjects are at 4000 level. Pre-requisite ‘B or better’ imposed on all 5000 level courses as well as infrequent offering of these courses will put a challenge for the group of aerospace engineering students with three aerospace engineering electives curriculum (started in Fall 2017). The present proposal will add 4 more electives, out of which 2 subjects are at 4000 level.

3. Effect on other colleges, departments or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.

N/A

4. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.

N/A

5. Effects on enrolled students: Are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students’ time. If a required course will be offered during summer only, provide a rationale.

Currently enrolled students will benefit from this change for a broad range elective topics.

6. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?

N/A

7. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? How often will course(s) be offered? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)

N/A

8. General education criteria. For a general education course, indicate how this course will meet the criteria for the area or proficiency. (See the General Education Policy for descriptions of each area and proficiency and the criteria. Attach additional pages as necessary. Attach a syllabus if (a) proposing a new course, (b) requesting certification for baccalaureate-level writing, or (c) requesting reapproval of an existing course.)

N/A

9. List the learning outcomes for the proposed course or the revised or proposed major, minor, or concentration. These are the outcomes that the department will use for future assessments of the course or program.

N/A
Aerospace Engineering Electives

Students must complete a total of three elective courses from the list below.

Thermal/Fluid Science

- **AE 5200 – Advanced Aerodynamics** Credits: 3 hours
- **ME 4310 – Thermodynamics II** Credits: 3 hours
- **ME 5300 – Theoretical & Computational Fluids Mechanics** Credits: 3 hours
- **ME 5450 – Computational Fluid Dynamics I** Credits: 3 hours

Structures/Material Science

- **AE 5100 – Foundations of Structural Mechanics** Credits: 3 hours
- **ME 4570 – Experimental Solid Mechanics** Credits: 3 hours
- **ME 5610 – Finite Element Method** Credits: 3 hours
- **ME 5690 – Principles of Fatigue and Fracture** Credits: 3 hours

Flight Mechanics

- **AE 4590 – Flight Test Engineering and Design** Credits: 3 hours
- **AE 5400 – Aerospace Vehicle Dynamics** Credits: 3 hours

System/Component Design

- **ME 3650 – Machine Design** Credits: 3 hours
Aerospace Engineering Electives

Students must complete a total of three elective courses from the list below.

Thermal/Fluid Science

- AE 5200 – Advanced Aerodynamics Credits: 3 hours
- ME 4310 – Heat Transfer Credits: 3 hours
- ME 4320 – Thermodynamics II Credits: 3 hours
- ME 5300 – Theoretical & Computational Fluids Mechanics Credits: 3 hours
- ME 5450 – Computational Fluid Dynamics I Credits: 3 hours

Structures/Material Science

- AE 5100 – Foundations of Structural Mechanics Credits: 3 hours
- ME 4570 – Experimental Solid Mechanics Credits: 3 hours
- ME 5610 – Finite Element Method Credits: 3 hours
- ME 5690 – Principles of Fatigue and Fracture Credits: 3 hours

Flight Dynamics & Control

- AE 4590 – Flight Test Engineering and Design Credits: 3 hours
- AE 5400 – Aerospace Vehicle Dynamics Credits: 3 hours
- ME 4710 – Motion and Control Credits: 3 hours
- ME 5410 – Continuous System Modeling and Simulation Credits: 3 hours
- ME 5430 – Mechanical Systems Control Credits: 3 hours

System/Component Design

- ME 3650 – Machine Design Credits: 3 hours