

REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: MAE PROPOSED EFFECTIVE SEMESTER: Fall 2015 COLLEGE: CEAS

PROPOSED IMPROVEMENTS

Academic Program

- ☐ New degree*
☐ New major*
☐ New curriculum*
☐ New concentration*
☐ New certificate
☐ New minor
☐ Revised major
☐ Revised minor
☐ Admission requirements
☐ Graduation requirements
☐ Deletion ☐ Transfer
☒ Other (explain**)

Substantive Course Changes

- ☐ New course
☒ Pre or Co-requisites
☐ Deletion (required by others)
☐ Course #, different level
☐ Credit hours
☐ Enrollment restriction
☐ Course-level restriction
☐ Prefix ☐ Title and description
 (attach current & proposed)
☐ General education (select one)

Misc. Course Changes

- ☐ Title
☐ Description (attach current & proposed)
☐ Deletion (not required by others)
☐ Course #, same level
☐ Variable credit
☐ Credit/no credit
☐ Cross-listing
☐ COGE reapproval
☐ Other (explain**)

Not Applicable

** Other: Change the offering from fall to spring

Title of degree, curriculum, major, minor, concentration, or certificate: Aerospace Engineering (From Aeronautical Engineering)

Existing course prefix and #: AE4630 Proposed course prefix and #: AE4630 Credit hours:

Existing course title: AE 4630 - Aircraft Structural Design

Proposed course title:

Existing course prerequisite & co-requisite(s): ME 3650

Proposed course prerequisite(s) ME 2570

If there are multiple prerequisites, connect with "and" or "or". To remove prerequisites, enter "none."

Proposed course co-requisite(s)

If there are multiple corequisites, they are always joined by "and."

Proposed course prerequisite(s) that can also be taken concurrently:

Is there a minimum grade for the prerequisites or corequisites?

The default grades are D for undergraduates and C for graduates.

Major/minor or classification restrictions:

This course restricted to majors in aerospace engineering. (AEGJ)

For 5000 level prerequisites & corequisites: Do these apply to: (circle one) undergraduates graduates both

Specifications for University Schedule of Classes:

a. Course title (maximum of 30 spaces):

b. Multi-topic course: ☐ No ☐ Yesc. Repeatable for credit: ☐ No ☐ Yesd. Mandatory credit/no credit: ☐ No ☐ Yes

e. Type of class and contact hours per week (check type and indicate hours as appropriate)

1. ☐ Lecture
 2. ☐ Lab or discussion
 3. ☐ Lecture/lab/discussion
 4. ☐ Seminar or ☐ studio
 5. ☐ Independent study
 6. ☐ Supervision or practicum

CIP Code (Registrar's use only):

Chair/Director

Date 10/7/2014

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

1. Explain briefly and clearly the proposed improvement.

The course prerequisite changes from ME3650 to ME2570. Content will be slightly altered with the addition of the new (approved) advanced course AE5100. This course will be taught in the spring instead of the fall.

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

This is a slight reconfiguration of the AE structural mechanics curriculum. ME3650 will be an elective instead of a required course, thus, not all AE students will have ME3650. Some of the course content previously offered in ME3650 (small portions of which focused on structural mechanics) will be reviewed in the revised AE4630. In that sense, the course content will be shifted slightly "forward". To make room for the "earlier" content, the more "advanced" content from AE4630 may be moved into the advanced (elective) course AE5100.

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.

None expected

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

This change is part of a major revision to the AE undergraduate curriculum. The reconfigured curriculum will allow more electives in AE.

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.

As the changeover occurs, one class of students will be affected. The principal effect for this class is additional review of some materials from ME3650 in AE4630. Further, the change of semester will adversely affect one class of students if (and only if) students fail the course. That group of failing students, if it exists, will need to wait one additional semester for the opportunity to retake the class. Students will be warned of this risk. If this changeover affects a large number of students adversely, the department may consider an additional offering in the fall or summer semesters.

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?

The reconfigured structural mechanics course sequence will have an additional advanced structural mechanics course (Foundations of Structural Mechanics) at the graduate level which will give our AE MS grad students essential skills. The market demand for this MS AE program is expected to be high. The curricular effect on the undergraduate program is minor and has no expected adverse effect on undergraduate program market demand.

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.)

The additional course, AE5100, is already an approved and required course for the AE MS program. Thus, the department teaching resources will be shifted slightly but not increased.

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.)

The course is not a general education course

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.

The overall structural mechanics ABET learning outcomes have not changed. Individual topics will be slightly revised. A finalized distribution of the topics in the two course sequence (AE4630 and AE5100) will be established during the first offerings of these revised courses. The course descriptions will be updated if warranted.

10. Describe how this curriculum change is a response to assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities.

The change is the second in a series of changes to provide more electives to AE undergraduate students. This series of changes is a direct result of department assessment of the needs of the students and the program.

11. (Undergraduate proposals only) Describe, in detail, how this curriculum change affects transfer articulation for Michigan community colleges. For course changes, include detail on necessary changes to transfer articulation from Michigan community college courses. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section.

The change should have no affect on transfer students from community colleges. It is from the upper level AE curriculum; these students transfer in at a lower level.

AE 4630 – Aircraft Structural Design

The current catalog description is:

Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints.

Prerequisites & Corequisites: Prerequisite: ME 3650

Credits: 4 hours

Restrictions: This course restricted to majors in aeronautical engineering.

When Offered: Fall

The proposed catalog description is:

Structural design of aircraft and spacecraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints.

Prerequisites & Corequisites: Prerequisite: ME 2570

Credits: 4 hours

Restrictions: This course is restricted to majors in aerospace engineering.

When Offered: Spring