REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: MAE  PROPOSED EFFECTIVE SEMESTER: Spring 2019  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
☐ Course #, different level
☐ Credit hours
☐ Enrollment restriction
☐ Course-level restriction
☐ Prefix ☐ Title and description
☐ General education (select one)
☐ Not Applicable
☐ Other (explain**)

Misc. Course Changes
☐ Title
☐ Description (attach current & proposed)
☐ Course #, same level
☐ Variable credit
☐ Credit/no credit
☐ Cross-listing
☐ COGE reapproval
☐ Other (explain**)

** Other: Prerequisite changes for all AE 5000 Level Courses (AE 5100, AE 5200, AE 5400 & AE 5760) in the current (AY2017/2018) Graduate Catalogue

Title of degree, curriculum, major, minor, concentration, or certificate: Master of Science, Aerospace Engineering

Existing course prefix and #: AE 5100, AE5200, AE5400, AE5760 Proposed course prefix and #: Credit hours:


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?
YES.

Major/minor or classification restrictions:
List the Banner 4 character codes and whether they should be included or excluded.

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 ☐ 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)

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 K. Majahil Date 3/1/18

Chair, College Curriculum Committee

Dean Date: Graduate Dean: Date

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

Chair, COGE/ PEB / FS President

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.

Add Prerequisites and Corequisites for the following four Aerospace Engineering Courses:

For AE 5100, Prerequisite: AE 4630 with a grade of "B" or better; or instructor approval
For AE 5200, Prerequisite: AE 3710 with a grade of "B" or better, or instructor approval
For AE 5400, Prerequisite: ME 2580 & ME 3600 with a grade of "B" or better, or instructor approval
For AE 5760, Prerequisite: AT 4760 with a grade of "B" or better, or instructor approval

Specific changes to be made on the Catalog is attached to this proposal.

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

On AY2017/2018 Graduate Catalog (Online), there are NO Prerequisites & Corequisites listed for the following four Aerospace Engineering courses:

AE 5100 – Foundation of Structural Mechanics,
AE 5200 – Advanced Aerodynamics,
AE 5400 – Aerospace Vehicle Dynamics,
AE 5760 – Advanced and Electric Propulsion Systems

On the other hand, on AY2017/2018 Undergraduate Catalog (Online), it lists as follows:

For AE 5100, Prerequisite: AE 4630 with a grade of "C" or better; or graduate standing.
For AE 5200, Prerequisite: AE 3710 with a grade of "C" or better, or instructor approval; or graduate standing.
For AE 5400, None
For AE 5760, Prerequisite: AT 4760 with a grade of "C" or better, or instructor approval; or graduate standing.

This discrepancy between Undergraduate and Graduate Catalog on the same courses potentially misleading the students when enrolling in these courses.

MAE Faculty discussed these in depth at the department meeting and voted that the same requirements should be made on prerequisite and corequisite in both Undergraduate and Graduate Catalog.

For Undergraduate Catalog to be consistent with Graduate Catalog, a separate proposal to change in Undergraduate Catalog is accompanied with this proposal.

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.

Not Applicable

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

Not Applicable

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.

There is no effect on enrolled student or program conflicts from these changes.

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?

Not Applicable
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.)

There is no effect on the departmental resources

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.)

Not Applicable

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.

Not Applicable

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.

This is a result of recommendation made by College Curriculum Committee in Fall 2017

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.

Not Applicable
AE 5100 - Foundations of Structural Mechanics

Current


Credits: 3 hours

Notes: Open to upperclass and graduate students.

Proposed


Prerequisites & Corequisites: Prerequisite: AE 4630 with a grade of "B" or better, or instructor Approval.

Credits: 3 hours

Notes: Open to graduate students.
AE 5200 - Advanced Aerodynamics

Current

Fundamental mathematical skills in vector analysis and perturbation methods. Theoretical studies of thin airfoils, finite wings, wing-body and vorticities. Low and high Reynolds aerodynamics. Boundary layer and viscous flow control. High lift aerodynamics. V/STOL and UAV Aerodynamics.

Credits: 3 hours

Notes: Open to upperclass and graduate students

Proposed

Fundamental mathematical skills in vector analysis and perturbation methods. Theoretical studies of thin airfoils, finite wings, wing-body and vorticities. Low and high Reynolds aerodynamics. Boundary layer and viscous flow control. High lift aerodynamics. V/STOL and UAV Aerodynamics.

Prerequisites & Corequisites: Prerequisite: AE 3710 with a grade of “B” or better, or instructor approval.

Credits: 3 hours

Notes: Open to graduate students.
AE 5400 - Aerospace Vehicle Dynamics

**Current**


**Credits:** 3 hours

**Notes:** Open to upperclass and graduate students.

**Proposed**


**Credits:** 3 hours

**Prerequisites & Corequisites:** Prerequisite: ME 2580 and ME 3600 with a grade of "B" or better, or instructor approval.

**Notes:** Open to graduate students.
AE 5760 - Advanced and Electric Propulsion Systems

Current

Introduction to electric propulsion with an overview of electricity and magnetism, atomic physics, non-equilibrium flows and electrothermal, electromagnetic, and electrostatic electric propulsion systems. Brief introduction to other types of advanced propulsion methods.

Credits: 3 hours

Notes: Open to upperclass and graduate students.

Proposed

Introduction to electric propulsion with an overview of electricity and magnetism, atomic physics, non-equilibrium flows and electrothermal, electromagnetic, and electrostatic electric propulsion systems. Brief introduction to other types of advanced propulsion methods.

Credits: 3 hours

Prerequisites & Corequisites: Prerequisite: AE 4760 with a grade of "B" or better, or instructor approval.

Notes: Open to upperclass and graduate students.