REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: MAE  PROPOSED EFFECTIVE SEMESTER: Spring 2019  COLLEGE: CEAS

PROPOSED IMPROVEMENTS

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** Other: Prerequisite changes for two ME 5000 Level Courses (ME 5200, ME 5620) in the current (AY2017/2018) Undergraduate Catalogue

Title of degree, curriculum, major, minor, concentration, or certificate: Bachelor of Science, Mechanical Engineering

Existing course prefix and #: ME 5200 and ME 5620

Proposed course prefix and #: Credit hours:

Existing course title: ME 5200 - Orthopaedic Biomechanics, and ME 5620 - Application of Numerical Methods in Engineering

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: Keerthi Nagashimela  Date 3/1/2018

Chair, College Curriculum Committee

Date

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.

Change Prerequisites and Corequisites for the following two Mechanical Engineering Courses:

For ME 5200, Prerequisite: ME 3650 or AE 4630 with a grade of "B" or better, or instructor approval.
For ME 5620, Prerequisite: MATH 3740 and ME 3600 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 Undergraduate Catalog (Online), Prerequisites & Corequisites listed for the following two Mechanical Engineering courses are as follows:

For ME 5200, Prerequisite: ME 3650 or AE 4630 or instructor approval. Prerequisite courses require a grade of "C" or better.
For ME 5620, Prerequisites: MATH 3740 and ME 3600 with a grade of "C" or better, or instructor approval.

Starting from AY2016/2017, ME Program changed Prerequisites & Corequisites with a grade of "B" or better for all ME 5xxx level courses. These two courses remained the same inadvertently and should have changed at that time.

MAE Program Faculty discussed these in depth and voted that the 5000-level course requirements should be consistent in the graduate and the undergraduate catalog.

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 informal assessment of ME Program Catalog by ME Program Faculty.

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
ME 5200 - Orthopaedic Biomechanics

Current

Current methods for analysis of biomechanical systems that include bone, tendon, ligament, cartilage, and other soft tissue. Mechanics that govern biomechanical systems including beam theory, anisotropic materials, viscoelasticity, and contact. Also prosthetics, orthotics, and other medical devices.

Prerequisites & Corequisites: Prerequisite: ME 3650 or AE 4630 or instructor approval. Prerequisite courses require a grade of “C” or better.

Credits: 3 hours

Notes: Open to upperclass and graduate students.

Proposed

Current methods for analysis of biomechanical systems that include bone, tendon, ligament, cartilage, and other soft tissue. Mechanics that govern biomechanical systems including beam theory, anisotropic materials, viscoelasticity, and contact. Also prosthetics, orthotics, and other medical devices.

Prerequisites & Corequisites: Prerequisite: ME 3650 or AE 4630 with a grade of “B” or better, or instructor approval.

Credits: 3 hours

Notes: Open to upperclass and graduate students.
ME 5620 - Application of Numerical Methods in Engineering

Current

Finite difference methods for initial value and boundary value problems; 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics.

Prerequisites & Corequisites: Prerequisites: MATH 3740 and ME 3600 with a grade of “C” or better, or instructor approval.

Credits: 3 hours

Notes: Open to upperclass and graduate students.

Proposed

Finite difference methods for initial value and boundary value problems; 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics.

Prerequisites & Corequisites: Prerequisites: MATH 3740 and ME 3600 with a grade of “B” or better, or instructor approval.

Credits: 3 hours

Notes: Open to upperclass and graduate students.