CEAS-17-12 MAE

REQUEST TO COLLEGE CURRICULUM COMMITTEE FOR CURRICULAR IMPROVEMENTS

DEPARTMENT: MAE **PROPOSED EFFECTIVE SEMESTER:** Fall 2017 **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) Not Applicable
- ☐ Other (explain**)

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**)

**** Other: Updating the list of approved mechanical engineering elective courses in the current catalog due to deletion of affected course**

Title of degree, curriculum, major, minor, concentration, or certificate: BS Mech. Eng.
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
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. Naghshineh 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.

   This proposal seeks to update the list of approved mechanical engineering elective courses in the current catalog due to deletion of ME 4590 (Dynamics of Machinery) from the ME elective list.

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

   - **Deletion of ME 4590 due to retirement of the instructor in charge (separate proposal for deletion is currently submitted for this course)**

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.

   N/A

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

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 in response to the demand from the students and the academic advising office for keeping the online catalog most up-to-date. It is through the self-assessment made from the department catalog review for correct and current online information about 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.

N/A

Current Catalog (OLD)

Mechanical Engineering Electives

Students must complete a total of five different elective courses from the list below (Group 1 and/or Group 2). Two must be design courses (marked with a "D" in the list) and two must have a laboratory experience (marked with an "L" in list).

Group 1: Electives from Undergraduate Courses

Note: A minimum grade of "C" is required in all prerequisites to Group 1 electives.

AE 3610 - Aerodynamics I Credits: 4 hours (L)
ME 3670 - Internal Combustion Engines I Credits: 3 hours (L)
ME 4330 - Environmental Systems Design in Buildings Credits: 3 hours (D) This course has a prerequisite that is an elective.
ME 4390 - Design of Thermal Systems Credits: 3 hours (D, L) This course has a prerequisite that is an elective.
AE 4660 - Aerospace Propulsion I Credits: 3 hours (L)
ME 4680 - Engine Design Credits: 3 hours (D, L) This course has a prerequisite that is an elective.
ME 4530 - Machine Design II Credits: 3 hours (D)
ME 4570 - Experimental Solid Mechanics Credits: 3 hours (L)
AE 4630 - Aerospace Structural Design Credits: 4 hours (D)
AE 4690 - Aircraft Design Credits: 3 hours (D)
ME 4700 - Vehicle Structural Design Credits: 3 hours (D)
AE 4600 - Aircraft Stability and Control Credits: 3 hours
ME 4590 - Dynamics of Machinery Credits: 3 hours
ME 4650 - Vehicle Dynamics Credits: 3 hours
ME 4710 - Motion and Control Credits: 3 hours (L)
ME 3990 - Cooperative Education Credits: 1 hour
(Repeatable 3 times to count as one elective 3 credit course.)

Group 2: Electives from Graduate Courses (5000-level)

Note: A minimum grade of "B" is required in all prerequisites to Group 2 electives.
ME 5300 - Theoretical and Computational Fluid Mechanics Credits: 3 hours
ME 5390 - Advanced Thermal Design Credits: 3 hours (D)
ME 5450 - Computational Fluid Dynamics I Credits: 3 hours
ME 5710 - Gas Dynamics Credits: 3 hours
ME 5720 - Advanced Thermodynamics Credits: 3 hours
ME 5770 - Fuel Cell and Alternative Energy Credits: 3 hours (L)
ME 5200 - Orthopaedic Biomechanics Credits: 3 hours
ME 5500 - Modern Engineered Materials Credits: 3 hours (D)
ME 5530 - Advanced Product Engineering Credits: 3 hours (D) This course has a prerequisite that is an elective.
ME 5610 - Finite Element Method Credits: 3 hours
ME 5690 - Principles of Fatigue and Fracture Credits: 3 hours
ME 5730 - Materials Selection in Design Credits: 3 hours (D) ME 5750 - Tribology - Principles and Applications Credits: 3 hours
ME 5410 - Continuous System Modeling & Simulation Credits: 3 hours
ME 5430 - Mechanical Systems Control Credits: 3 hours

ME 5550 - Intermediate Dynamics Credits: 3 hours ME 5580 - Mechanical Vibrations Credits: 3 hours
ME 5640 - Engineering Noise Control Credits: 3 hours (L)
ME 5850 - Mechatronics Credits: 3 hours
ME 5350 - Applied Spectroscopy Credits: 3 hours
ME 5600 - Engineering Analysis Credits: 3 hours
ME 5620 - Application of Numerical Methods in Engineering Credits: 3 hours

Proposed Catalog (NEW)

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