Curriculum Course Request Change Course EDMM 2560 - A-2018-EDMM-48; effective term: 201940

Steven E Butt
Mon 11/26/2018 1:32 PM

To: Raja G Aravamuthan <raja.aravamuthan@wmich.edu>; Said M Abubakr <said.abubakr@wmich.edu>
Cc: Holly Blanks <holly.blanks@wmich.edu>

Please verify your data for New Curriculum Course Request for department: EDMM; college: A. Go to the following URL to complete your worklist items: https://bwfp1.cc.wmich.edu:7102/wfbprod

Date of request: 01-OCT-2018
Request ID: A-2018-EDMM-48

College: A
Department: EDMM
Initiator name: Joseph Licavoli
Initiator email: Joseph.j.licavoli@wmich.edu

Proposed effective term: 201940

Does course need General Education approval?: N
Will course be used in teacher education?: N
If 5000 level course, prerequisites apply to: U

Proposed course data:
Change Course EDMM 2560
Specific Course Change type selected: Title
Specific Course Change type selected: Description

1. Existing course prefix and number:
   EDMM 2560

2. Proposed course title:
   Engineering Material Design

3. Existing Banner course title:
   Properties of Materials

4. Proposed course title to be entered in Banner:
Engineering Material Design

A. Please choose Yes or No to indicate if this class is a Teacher Education class:
No

B. Please choose the applicable class level:
Undergraduate

C. Please choose Yes or No to indicate if this class is a General Education class:
No

D. Explain briefly and clearly the proposed improvement.
The class is being redesigned to focus on applied materials science and engineering relevant in engineering design as opposed to material properties and testing.

E. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.).
The current class does not take full advantage of the learning resources available and can be made to better fit the EDMMS curriculum and senior capstone activities.

F. List the student 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.
Students will gain hands on experience designing, processing, and evaluating engineered materials used in many real world applications. Topics covered include: fundamental structure-processing-property relations, materials characterization, and testing techniques. Laboratories will enable students to learn how materials science may be used in a practical engineering design. This will be accomplished by demonstrating how computational methods are used to design and process metals, polymers, and ceramics.

G. Describe how this curriculum change is a response to student learning assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities.
Previous student feedback has indicated that the laboratory sessions were underutilized and the presentation of the course materials could use some additional structure (e.g. a textbook, improved slides, etc.) The restructuring of the course will entail using a new design-based approach to materials science which will optimistically resonate better with students.

H. 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.
Other majors (e.g. IEE&EM) sometimes take this class. No objections have been raised about the proposed change.

I. Effect on your department's programs. Show how the proposed change fits with other departmental offerings.
The proposed changes will give students a more general material design skill set that can be applied in plastics engineering, metal-casting and other departmental programs. Students may be able to more readily pivot between engineering and material design limitations in their senior capstone projects.

J. 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 are no program conflicts as this will be an update to an existing class with no scheduling changes.

K. 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?
There will be 30-40 students in the class. All students in EDMMS take this as a required course. This is not a brand new course.

L. 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.)

Aside from refocusing on using already available processing techniques (new component of the course) in addition to evaluation techniques (current class), there should be no significant impact on the university resources.

M. With the change from General Education to WMU Essential Studies, this question is no longer used.<br>

For courses requesting approval as a WMU Essential Studies course, a syllabus identifying the student learning outcomes and an action plan for assessing the student learning outcomes must be attached in the Banner Workflow system.

Not Applicable

N. (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.

No change in current transfer articulation.

O. Current catalog copy:

EDMM 2560 Properties of Materials A study of materials and metallurgy involving the mechanical properties of various industrial alloys used in hot and cold processes. Students will gain an understanding of physical properties and microstructures for various industrial alloys. Applications of the foremost ASTM standard tests methods used in primary metals industry (hardness, tensile and impact procedures) are performed. Prerequisites: CHEM 1100 and CHEM 1110, with a 'C' or better in all prerequisites. 3 hours (2-3)

P. Proposed catalog copy:

EDMM 2560 Engineering Material Design Students will gain hands on experience designing, processing, and evaluating engineered materials used in many real world applications. Topics covered include: fundamental structure-processing-property relations, materials characterization, and testing techniques. Laboratories will enable students to learn how materials science may be used in a practical engineering design. This will be accomplished by demonstrating how computational methods are used to design and process metals, polymers, and ceramics.

Prerequisites: CHEM 1100 and CHEM 1110, with a 'C' or better in all prerequisites. 3 hours (2-3)

Department Curriculum Chair approver: Paul Engelmann

Department Curriculum Chair comment: This reflects the excellent changes that Dr. Licavoli is bringing to this course.

Date: 26-NOV-2018

Department approver: Steven Butt

Chair comment:

Date: 26-NOV-2018