Curriculum Course Request WES Change Course CHEG 4870 - A-2018-PAPR-133; effective term: 202040

Kecheng Li
Fri 12/14/2018 9:07 AM
To: Raja G Aravamuthan <raja.aravamuthan@wmich.edu>; Said M Abubakr <said.abubakr@wmich.edu>
Cc: Holly Blanks <holly.blanks@wmich.edu>

2 attachments (41 KB)
CHEG 4870 Syllabus Level 3 Connection.docx; CHEG 4870 SLO Level III Connection WMU Essential Studies Assessment (1).docx

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

Date of request: 13-DEC-2018
Request ID: A-2018-PAPR-133
College: A
Department: PAPR
Initiator name: Said Abubakr
Initiator email: said.abubakr@wmich.edu

Proposed effective term: 202040

Does course need General Education approval?: Y

Will course be used in teacher education?: N

If 5000 level course, prerequisites apply to: U

Proposed course data:
WES Change Course CHEG 4870
Specific Course Change type selected: WMU Essential Studies - Level 3: Connections

1. Existing course prefix and number:
CHEG 4870

2. Level 3: Connections:
Indicate which course category the course should be placed in:
Local and National Perspectives

3. Indicate which ONE additional required student learning outcome the course will assess:
In addition, this course provides significant support for ABET Criterion 3 category student Outcomes 1,2,3,4,5,6 and 7.

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.
Initial WMU Essential Studies review and approval

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.
Initial WMU Essential Studies review and approval

I. Effect on your department’s programs. Show how the proposed change fits with other departmental offerings.
Initial WMU Essential Studies review and approval

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. Help students meet WMU essential study requirements

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?
Initial WMU Essential Studies review and approval

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.)
One section offered in Spring with a capacity of 50 students, however, the class is divided to group of 4-5 students to be advised by 5-6 faculty and industrial advisers. Not offered on-line

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

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.
Initial WMU Essential Studies review and approval

O. Current catalog copy:
Application of chemical engineering to the solution of a complex, open-ended research problem selected in consultation with faculty. The project will involve feasibility analysis, design, and optimization of chemical processes. The project is the culmination of the curriculum and is a major design experience based on the knowledge and skills acquired in earlier coursework and will incorporate appropriate engineering standards and multiple realistic constraints. Emphasis will be on working in small design groups, submission of written report, and oral presentation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum. Will be offered as honors courses for interested students. (3 credits)
Prerequisite: CHEG 4600, a minimum grade of ‘C’ is required in CHEG prefixed prerequisites. 3 hours (1 – 2)

https://outlook.office.com/owa/?realm=WMICH.EDU&exsvurl=1&ll_cc=1033&modurl=0&path=/mail/search
Updated, November 29, 2018

Course number and name: CHEG 4870 – Senior Design Project

1. Credits and contact hours: 3 credits

2. Instructor’s or course coordinator’s name: Dr. Andrew Kline


3. Specific course information

   a. brief description of the content of the course (catalog description):
      Application of chemical engineering to the solution of a complex, open-ended research problem selected in consultation with faculty. The project will involve feasibility analysis, design, and optimization of chemical processes. The project is the culmination of the curriculum and is a major design experience based on the knowledge and skills acquired in earlier coursework and will incorporate appropriate engineering standards and multiple realistic constraints. Emphasis will be on working in small design groups, submission of written report, and oral presentation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum. Will be offered as honors courses for interested students. This course meets the student learning outcomes in the WMU Essential Studies Level 3- Connections, Local and National Perspectives Course Category. (3 credits). Spring offering

   b. Prerequisites: CHEG 4600

   c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program: Required

4. Specific goals for the course

   a. specific outcomes of instruction:

   1. Apply ethical, critical, and informed thought within or across disciplines
   2. Demonstrate effective and appropriate written communication skills
   3. Students will be prepared for their transition to industry by acquiring necessary skills in process and project design, analysis, evaluation, and management.
   4. Students will have an appreciation for the profit motive, how it affects business decision-making, and how the chemical engineer fits into the process.
   5. Students will have enhanced their ability to determine the types of data needed to solve an engineering design problem and to appropriately analyze the data to support and guide their work.
**CHEG 4870 (3 Credit Hours) WMU Essential Studies Assessment**

**Level III-Connections**

<table>
<thead>
<tr>
<th>WMU Essential Studies Student Learning Outcome</th>
<th>Assignments and/or Learning Activities that meet the criteria within the rubric that is aligned with the SLO</th>
<th>When the SLO assessment will take place</th>
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</thead>
<tbody>
<tr>
<td><strong>X</strong> Apply ethical, critical, and informed thought within and across disciplines</td>
<td>Engineering and Professional Ethics paper begins with reviewing engineering code of ethics and a class discussion on professional and team ethics. Students must then submit papers which incorporate possible ethical concerns in the area of the team’s senior capstone project including disciplines of design, production, quality, human resources, and supply chain.</td>
<td>Content delivery during week 1 and 2 of the semester. Papers are due in week 3 of the semester.</td>
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<td><strong>X</strong> Demonstrate effective and appropriate written communication</td>
<td>Students develop multiple written documents throughout the semester, including weekly progress reports, project objective statement, project summary poster, and portions of a final technical report.</td>
<td>Progress Reports – assigned week 1 continue through semester  Project Objective Statement – due week 4 Summary Poster – due week 13 Final Report – due week 15</td>
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<td><strong>X</strong> Work both independently and in collaboration with others to achieve goals</td>
<td>All students work in teams and supervised by 5-6 faculty to analyze an issue, provide possible solutions or develop a product or process, and ultimately recommend the best option. Teams must collaborate on interactions internally as well as with advisor(s), sponsor(s), and instructor(s). Students must identify and execute approaches to best achieve the project goal and present them both presentation and report format.</td>
<td>Weekly progress reports throughout the semester provide insight into team dynamics and effectiveness. Team presentations occur during weeks 6, 10 and 14. The final report is due in week 15.</td>
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