
Kecheng Li
Tue 12/18/2018 2:57 PM
To: Raja G Aravamuthan <raja.aravamuthan@wmich.edu>; Said M Abubakr <said.abubakr@wmich.edu>
Cc: Holly Blanks <holly.blanks@wmich.edu>

2 attachments (71 KB)
CHEG 2611 syllabi 2018 WES.doc; CHEG 2611 SLOs for Level II Exploration and Discovery (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: 18-DEC-2018
Request ID: A-2018-PAPR-136
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 2611
Specific Course Change type selected: WMU Essential Studies - Level 2: Exploration and Discovery

1. Existing course prefix and number:
CHEG 2611

2. Level 2: Exploration and Discovery
Indicate which course category the course should be placed in:
Science and Technology

3. Indicate which ONE additional required student learning outcome the course will assess: (may NOT select category required
https://outlook.office.com/owa/?realm=WMICH.EDU&exsvurl=1&ll-cc=1033&modurl=0

1/4
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. Initial WMU Essential Studies review and approval

K. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand 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 twice per year in Fall and Spring with a capacity of 80 students, 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:
The sources, impacts, and management practices for gas, liquid, and solid byproducts of natural, industrial, and municipal sources. Legal, ethical, and economic implications included in evaluation of applicable emission reduction and emission control techniques and processes will be stressed.

b. Prerequisites: CHEM 1100

P. Proposed catalog copy:
a. Catalog description: The sources, impacts, and management practices for gas, liquid, and solid byproducts of natural, industrial, and municipal sources. Legal, ethical, and economic implications included in evaluation of applicable emission reduction and emission control techniques and processes will be stressed. This course meets the student learning outcomes in the WMU Essential Studies Level 2- Exploration and Discovery Science and Technology Course Category. (3 credits) Offered in Fall and Spring

b. Prerequisites: CHEM 1100

Department Curriculum Chair approver: Said Abubakr

Department Curriculum Chair comment:

Date: 18-DEC-2018
CHEG 2611: Environmental Engineering I  
Updated, November 29, 2018

Catalog Data: Environmental Engineering I (3-0)  
Credit: 3  
Prerequisite: CHEM 1100, CHEM 1110 and either (MATH 1230 or MATH 1710)  
Corequisite: none

The sources, impacts, and management practices for gas, liquid, and solid byproducts of natural, industrial, and municipal sources. Legal, ethical, engineering, and economic implications included in evaluation of applicable emission reduction and emission control techniques and processes will be stressed. This course meets the student learning outcomes in the WMU Essential Studies Level 2- Exploration and Discovery Science and Technology Course Category. (3 credits) Offered in Fall and Spring


Lecture: MW 6:30 – 7:45 PM D115 Parkview  
Course Instructor: Dr. Andrew Kline (andrew.kline@wmich.edu) phone: (269)276-3516  
Professor, Chemical and Paper Engineering  
Associate Dean for Research and Graduate Education  
Office: C253 or A221 Ford Hall  
Office Hours: To be announced.

Teaching Assistant: Mr. Dylan Davis  
Office Hours: To be announced.

Course Objectives  
1. Students will be introduced to environmental engineering topics including air and water pollution and remediation or control of the same; solid waste management; resource availability and recovery; and government or regularity oversight of industry in relation to environmental concerns.  
2. Students will learn about professional standards and engineering ethics.  
3. Students will actively consider contemporary environmental and global issues and the possible impact or influence of these issues on their engineering studies or future career or life activities.  
4. Provide an opportunity for students to develop independent learning skills be engaging in learning activities outside the classroom.  
5. Provide an opportunity for students to apply their knowledge to open-ended engineering problems and formulate solutions.  
6. Provide an opportunity for students to practice and develop problem solving techniques and teamwork skills.

Course Learning Outcomes  
1. **Student will develop practices for planetary sustainability.** (WMU Essential Studies SLO)  
2. **Student will demonstrate and apply scientific literacy.** (WMU Essential Studies SLO)  
3. Students will be familiar with the elements of professional and ethical practice in an engineering profession, and  
4. Students will be able to express their understanding of contemporary environmental and global issues influencing the chemical and biological industries.  
5. Students will be able to conduct independent learning activities outside the classroom.  
6. Students will be able to approach open-ended engineering problems about environmental engineering topics and be able to articulate methods of solution and formulate answers.  
7. Students will have developed their teamwork skills as part of a group of engineering students working to solve problems.
Class Attendance

If you know in advance that you will not be here, please contact the instructor at least 5 business days before your anticipated absence to determine if your absence qualifies as being excused. If you are absent for any reason, it is your responsibility to contact the instructor (written memo, either hard copy or by e-mail) as soon as practical to explain your absence. The instructor will not assist students in making up missed work who are absent from class and who do not have a valid explanation.

Course Administration

While you may, and should, consult with others if you are having difficulty, all submitted work on the individual projects, homework assignments, and exams must be on your own. The work submitted for group projects must be the work of the members of the group. All students are expected to comply with the WMU code of ethics as defined in the student handbook. Failure to follow these rules is cheating. Anyone found cheating will be given a failing grade in the course as well as being subject to Departmental and University actions.

Use of University E-mail Addresses for Course Activities

The only e-mail address that Dr. Kline will be sending course information or notices to is your official WMU e-mail address. It is your responsibility to check that address on a regular basis to receive information. Students e-mailing Dr. Kline should also use their university e-mail account, and include a specific subject line topic. Dr. Kline routinely deletes without reading all e-mail from unknown e-mail addresses, or that have generic subject lines that are interpreted as SPAM.

Regrade Requests

If you suspect that a mistake has been made in the grading of an exam or a homework assignment, you may submit it for a regrade. To do so, you must compose a typed memo describing in detail what you believe is in error. Under no circumstances should you alter your homework or exam in any manner, including adding extra information, erasing, etc. Submit your written memo with the complete solution to your exam or homework to Dr. Kline, within five business days of when the graded assignment was returned to you.

Syllabus prepared by: Andrew A. Kline       Date: September 6, 2017
Exam Guidelines

Exams use comprehensive open-ended problems that often have multiple solution methods that reach a single correct answer. For this reason, they can be extremely time consuming to grade. You will use the format given below during exams in order to organize your solutions.

1. **Regular exams are open book and closed notes.** You are not allowed to exchange or share a book with another student during the exam.
2. **Bring your calculator and pens or pencils.** You are not allowed to exchange or share a calculator, pens, or pencils with another student during the exam.
3. **Bring your own “blue book” to exams.** It is not the responsibility of the proctor to provide this for you.
4. **Unless a problem is extremely short (less than one-half sheet of paper), start each problem on a new sheet of paper within the “blue book.” This includes subsections of a numbered problem, e.g. Problem 1, a through e. Include the problem number with your solution.**
5. Use only one side of the paper.
6. Medium to dark pencil is preferred. Dark blue or black ink is also acceptable.
7. **Box in all final answers.**
8. **If you do not wish a portion of your calculations to be considered (i.e. you made an obvious mistake in a calculation in the middle of a page), and you do not erase it, put a large “X” through it. This material will not be considered for grading.**
9. **Organize your work.** Include problem numbers that are on the exam. For example, if Problem 1 has parts a, b, c, and d, make sure your solution clearly shows where each of these parts begins. **Neatness count (see number 14).**
10. **Materials used in your solution that are not considered “general engineering knowledge” or are not given in the exam statement must be referenced as to their source. Such material would include heat capacities, vapor pressure values, equipment design equations, or prices of equipment or commodities. A note will be written in your calculations where the information is used, giving the author, book title, year published, and page number.**
11. **Show all equations used, what numbers are substituted into the equation, and the result from an equation. Numbers that suddenly appear on a page (i.e. \( F = 100.9 \) moles), will receive zero credit towards your exam grade, even if the number is correct. The instructor can only grade what you turn in as part of your written solution, not what was pre-programmed into your calculator.**
12. **Make sure your name is on the front of every “blue book” you turn in as part of an exam solution.**

**The order of submission of your solution to an exam:**

a. The original exam statement, in its original order.
b. Your properly formatted handwritten solution in a “blue book” or “blue books.” Your solution will be clearly labeled as to what each part of the solution is.

c. Exams that do not follow the appropriate format for documenting your solution, follow the format poorly, or the handwriting is messy to the point where it is difficult to read will have points deducted from the exam score. A minimum of 5 points will be deducted, and up to a maximum of 25 (total points on an exam are 100).

15. **If you have any questions during the exam as you are working on it, please raise your hand, and I will come to you. I will not answer any questions during an exam that I feel are inappropriate, or are about concepts or topics that you should know before coming to the exam.**
16. **Exams are held during class time. I will not answer any questions from students on homework, class notes, or other exam-related materials after Noon on the day before a scheduled exam.**
## Western Essential Education

### Exploration and Discovery Sci/Tech

**CHEG 2611**

<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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X</strong> Demonstrate and apply scientific literacy</td>
<td>Compose a series of correctly formatted and clearly written letters, memorandums, and proposals. Identify a specific technical job and write an appropriate cover letter and résumé that reflect current practices. Research an approved topic related to major, identify appropriate sources, and write a selected review or literature following APA guidelines for documentation.</td>
<td>By end of second quarter By end of semester</td>
</tr>
<tr>
<td><strong>X</strong> Develop practices for planetary sustainability</td>
<td>Students will demonstrate an understanding of elements of professional and ethical practice in an engineering profession. Students will be able to demonstrate understanding of contemporary environmental and global issues influencing the chemical and biological industries.</td>
<td>By end of third quarter By end of semester</td>
</tr>
</tbody>
</table>