CHEM 581 Topics in Industrial Chemistry-DEAdd-2019-03-28

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Form Information

The page you originally access is the global template version. To access the template document that progresses through the workflow, please complete the following steps:

First Step: **ONLY** change the text in the [brackets] so it looks like this: **CRIM 101 Intro to Criminology-CrsRvs-2015-08-10**

- ***If DUAL LISTED list BOTH courses in the page title***

Second Step: Click **"SAVE"** on bottom right

- ***DO NOT TYPE ANYTHING INTO THE FIRST PAGE OTHER THAN THE TEXT IN BRACKETS***
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Third Step: Make sure the word ***DRAFT*** is in yellow at the top of the proposal

Fourth Step: Click on "**EDIT CONTENTS**" (*not EDIT*) and start completing the template. When exiting or when done, click **"SAVE"** (*not Save Draft*) on bottom right

When ready to submit click on the workflow icon and hit approve. It will then move to the chair as the next step in the workflow.

**Indicates a required field*

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Course Level*	graduate-level

Distance Education Section

*- Complete this section only if adding Distance Education to a New or Existing Course - If adding to an Existing Course - please check to see if it has already been approved HERE (On Documents Page) - **before** completing the form*

NOTE - if already approved - a new proposal DOES NOT NEED TO BE COMPLETED

Course Prefix /Number*	581
Course Title*	Topics in Industrial Chemistry
Type of Proposal*	*See CBA, Art. 42.D.1 for Definition* online
Brief Course Outline*	*Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar or assignments* *As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or* *direct faculty instruction, there should be a minimum of two hours of out of class student work.* This course introduces the student to industrial chemistry. Students will learn about unit operations, unit processes, equipment in chemical industry, diagrams for understanding chemical processes, fundamentals of material and thermal/heat balance, principles of process design, and separation processes design. These concepts will be used to study some organic and inorganic manufacturing processes.
Rationale for Proposal (Required Questions from CBA)	

How is/are the instructor (s) qualified **in the Distance Education delivery** **method as well as the discipline?***	I previously taught Environmental Pollution Control classes using a Zoom type system (some of the students in the Zoom room and some in a remote location). I participated to a D2L training session (May 2017) and use D2L on a daily basis for my classes. I currently use on line systems for homework and quizzes (e.g. Sapling). I am eligible to teach graduate courses. I hold a BS in Chemical Engineering and a PhD in Materials Science and have been a professor in the Chemistry Department at IUP since 2016. My main teaching responsibilities include Physical Chemistry lab II, General Chemistry I, College Chemistry I and II, Chemistry Seminar, and Chemical Engineering of Materials. I was previously teaching Analysis and Synthesis of Chemical Processes and Chemical Technology classes to chemical engineering students for more than 15 years. My research focuses on synthesis of processes and catalysts for wastewater treatment.
For each outcome in the course, describe **how the outcome will be achieved using** **Distance Education technologies. ***	Objective #1 – Identify unit operations and processes with their specific equipment. Explain how the equipment works. Use process diagrams to collect information about a chemical process. How objective #1 will be met: Assigned readings from the text and supplemental materials. Videos will be used to provide insights on how industrial equipment operates. Learning management system will be used to deliver class material and to communicate weekly assignments or quizzes. Objective #2 – Solve material and heat balances in chemical systems. How objective #2 will be met: Assigned readings from the text and supplemental materials. Several examples of solving material and heat balances will be available for students. Step by step analyses of the systems and how to approach balance problems will be provided. A learning management system will be used to deliver class material and to communicate weekly assignments or quizzes. Objective #3 – Design a chemical process. How objective #3 will be met: Assigned readings from the text and supplemental materials. Steps involved in chemical process design will be clearly explained using videos and/or other specific materials. A detailed example will be available for students, with emphasis on the chemical steps. A learning management system will be used to deliver class material and to communicate weekly assignments or quizzes. Objective #4 – Design a separation process How objective #4 will be met: Assigned readings from the text and supplemental materials. Steps involved in a separation process design will be clearly explained using videos and/or other specific materials. A detailed example on how to design a distillation separation process will be available for students. A learning management system will be used to deliver class material and to communicate weekly assignments or quizzes. Objective #5 – Detailed analysis of chemical processes How objective #5 will be met: Assigned readings from the text and supplemental materials. Students will be required to study several chemical processes (each student will be assigned two main processes from chemical industry). A learning management system will be used to deliver class material and to communicate weekly assignments or quizzes. Topics related to this object will be selected by students for their final written project.

How will the instructor-student and student-student interaction take place?* (if applicable)	Students will interact with the instructor using one or several of the following: - the learning management system online class discussion board, - completion of online quizzes and assignments, - @iup email for additional questions and assistance, - online office hours. Students will interact with other students using learning management system online class board. Video communication interactions can be also set up, depending on the situation or if students require it.
How will student achievement be evaluated?	Objective #1 – On-line quiz and assignment will measure the understanding on what a process/operation is, how specific equipment work, how to build a process flow diagram, and what information can be collected from different types of process diagrams. Objective #2 – On-line assignment. Students will be required to solve a material or heat balance using a given set of initial data. Objective #3 – On-line assignment. Students will be required to design a process (chemical or separation) using process specific initial information Objective #4 – On-line assignment. Students will be required to design a distillation separation process for a specified mixture. Objective #5 – A final written project, that will be uploaded at the end of the semester in the management system, will determine how well students can connect the theoretical knowledge (e.g. analyze, design) with a real industrial chemical process. There will be two exams, a midterm and a final. As extensive drawing is involved, exams will be supplied to the students as pdfs. Students will complete the exam, scan it and upload it before the deadline (which will be usually 48 hours from the instructor upload /email sent to students). Academic integrity statements will be included on each of the exams and written assignments for students to sign.
How will academic honesty for tests and assignments be addressed?*	The course syllabus will include the university academic integrity policy. The expectation for academic integrity and the penalty for dishonesty will be clearly stated. Quizzes will use times tests, limit on attempts, and feedback only after quizzes end. Similar Academic integrity will be described on the course syllabus as follows: **Academic integrity policy:** All students are expected to do their best and behave in an ethical and honest manner. Anyone who is attempting any dishonest behavior such as (but not only): cheating, stealing chemicals, disorderly behavior in the laboratories will be punished to the further extent allowed by Indiana University of Pennsylvania regulations. “IUP is committed to the fundamental values of academic integrity. Academic integrity means honesty and responsibility in scholarly endeavors and behaviors; it means that all academic work should be the result of an individual’ s own effort.” See the IUP Undergraduate Catalog http://www.iup.edu/registrar/catalog/acapolicy) for a complete description of this policy.

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