

<b>COURSE #:</b> CHE 460		<b>COURSE TITLE:</b> CHEMICAL ENGINEERING LABORATORY II	
<b>TERMS OFFERED:</b> Fall, Winter		<b>PREREQUISITES:</b> ChE 343 Separation Processes, ChE 360 Chemical Engineering Laboratory I	
<b>TEXTBOOKS/REQUIRED MATERIAL:</b> Course Pack available on course web site		<b>COGNIZANT FACULTY:</b> Casper, Gulari, Kotov, Sheffield, Wang, Yang	
<b>INSTRUCTORS:</b> Gulari, Fogler, Savage, Van Hoewyk		<b>FACULTY APPROVAL:</b> 2013-12-19	
<b>CoE BULLETIN DESCRIPTION:</b> Experimentation in rate and separation processes on a scale that tests process models. Introduction to the use of instrumental analysis and process control. Laboratory, conferences, reports. Technical communications.		<b>COURSE TOPICS:</b> (number of hours in parentheses) (Each student works on 3 projects, each for 3-4 weeks, for a total of 10 weeks in the laboratory. Projects include distillation, double-effect evaporator, process control, reactor optimization, and extraction. Each project concludes with a written and oral report. Tech. Comm. faculty provide opportunities outside of scheduled class time for students to rehearse, videotape, and get professional feedback on presentations.) Lectures include the following topics: 1. Overview of equipment (5) 2. Process economics (1) 3. Oral Technical communication (4) 4. Process and laboratory safety. (1) 5. Problem-solving and trouble shooting skills (3)	
<b>COURSE STRUCTURE/SCHEDULE:</b> Lecture: 2 per week @ 1 hour; Laboratory: 1 per week @ 4 hours			
<b>COURSE OBJECTIVES</b>	Links shown in brackets are to course outcomes that satisfy these objectives. 1. To equip students to plan a set of experiments that leads to a desired outcome [1] 2. To equip students to examine and troubleshoot process equipment, including consideration of safety and economic issues [2, 3, 6] 3. To equip students to apply engineering analysis to experimental data [4] 4. To train students in oral and written communications [5, 6] 5. To give students experience in working in teams [7]		
<b>COURSE OUTCOMES</b>	Links shown in brackets are to student outcomes a-k 1. Design and conduct experiments on process equipment to achieve desired outcomes [b,e,i,k] 2. Apply engineering analysis to experimental data [a,e,i] 3. Identify safety concerns related to the experimental processes [e] 4. Write effective reports [g] 5. Prepare and present effective oral reports [g] 6. Assess the operating costs of a unit operation [k] 7. Work as a member of a team [d]		
<b>ASSESSMENT TOOLS</b>	1. Written work plans and interactions with course instructor assess course outcomes 1-3 and 6-7 2. Oral reports assess outcomes 1-3 and 5-7 3. Written reports assess outcomes 1-4 and 6-7 4. End-of-term course evaluation provides student self-assessment of outcomes 1-7		