

<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: <ol style="list-style-type: none"><li>1. Overview of equipment (5)</li><li>2. Process economics (1)</li><li>3. Oral Technical communication (4)</li><li>4. Process and laboratory safety. (1)</li><li>5. Problem-solving and trouble shooting skills (3)</li></ol>
<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. <ol style="list-style-type: none"><li>1. To equip students to plan a set of experiments that leads to a desired outcome [1]</li><li>2. To equip students to examine and troubleshoot process equipment, including consideration of safety and economic issues [2, 3, 6]</li><li>3. To equip students to apply engineering analysis to experimental data [4]</li><li>4. To train students in oral and written communications [5, 6]</li><li>5. To give students experience in working in teams [7]</li></ol>
<b>COURSE OUTCOMES</b>	Links shown in brackets are to student outcomes a-k <ol style="list-style-type: none"><li>1. Design and conduct experiments on process equipment to achieve desired outcomes [b,e,i,k]</li><li>2. Apply engineering analysis to experimental data [a,e,i]</li><li>3. Identify safety concerns related to the experimental processes [e]</li><li>4. Write effective reports [g]</li><li>5. Prepare and present effective oral reports [g]</li><li>6. Assess the operating costs of a unit operation [k]</li><li>7. Work as a member of a team [d]</li></ol>
<b>ASSESSMENT TOOLS</b>	<ol style="list-style-type: none"><li>1. Written work plans and interactions with course instructor assess course outcomes 1-3 and 6-7</li><li>2. Oral reports assess outcomes 1-3 and 5-7</li><li>3. Written reports assess outcomes 1-4 and 6-7</li><li>4. End-of-term course evaluation provides student self-assessment of outcomes 1-7</li></ol>