Catalog Description
Concepts in chemical engineering process design, including: capital and manufacture cost estimation; discounted cash flows; interest; taxes; depreciation; profitability analysis; project specifications. Prerequisites: CHME 307 and CHME 441

Textbook

Course Objectives
To provide engineering students with a fundamental understanding of process design and engineering economic analysis.

This course addresses the following student outcomes from ABET Criterion 3:
(a) Ability to apply knowledge of mathematics, science, and engineering
(e) Ability to identify, formulate, and solve engineering problems
(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, and societal context

Students successfully completing this course will demonstrate the ability to do the following:
1. Basic Concepts. Write and explain the basic principles and equations related to the engineering economic analysis. [ABET Outcome 3(a)]
2. Problem Solving. Solve problems involving process design and engineering economics. [ABET Outcomes 3(a)(e)]
4. Social and Economic Effects. Discuss the social and economic implications of chemical plant design. [ABET Outcome 3(h)]

Topics Discussed
Process Diagrams Estimation of Capital Costs
Process Flow Diagrams Estimation of Manufacturing Costs
Batch Processing Engineering Economic Analysis
Chemical Product Design Profitability Analysis
Tracing Chemicals through PFDs Chemical Industries
Process Conditions Financial Reports

Instructor: Daniel Gulino; office: EC3 333; 575-646-2258 (office) or 740-517-2389 (cell, no later than 9 p.m.); gulino@nmsu.edu

Office hours: Monday, Wednesday, Friday, 11:00 a.m. – 12:30 p.m.; other times by appointment
**SACHE Modules**

To login to the system:

1. Direct a browser to www.sache.org.
2. Select “login” from the menu bar on the left side, then go to “university student login.”
3. Select NMSU from the dropdown menu, then type “goaggieches” as the password.
4. Click on “Student Certificate Program” in the menu on the left.
5. Complete the modules entitled “Inherently Safer Design” and “Safety in the Process Industries” Content from “Runaway Reactions” and “Chemical Reactivity Hazards” (assigned in CHE 441) may also appear on the SACHE modules Exam.

**Performance Evaluation**

<table>
<thead>
<tr>
<th></th>
<th>Per Event</th>
<th>Total for Course</th>
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<tbody>
<tr>
<td>Exams</td>
<td>4 x 125 each</td>
<td>500 pts</td>
</tr>
<tr>
<td>Comprehensive final exam</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Homework</td>
<td>200/no. of assignments</td>
<td>200</td>
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<tr>
<td>SACHE module</td>
<td>2 x 25 each</td>
<td>50</td>
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<tr>
<td>SACHE exam</td>
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<td>50</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1000</strong></td>
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Grading scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, <60 F.

**Canvas Site**

Please check the course Canvas site daily for announcements and course material. Canvas may also be used to communicate with the course instructor.

**Common Syllabus Addendum**

The NMSU Department of Chemical and Materials Engineering maintains online a syllabus addendum containing course requirements common to all courses with the CHME prefix. This document is accessible at the URL: http://http://chme.nmsu.edu/academics/syllabi/chme-common-syllabus-addendum/

The Addendum covers Attendance Policy, Student Accessibility Services, Misconduct, Cell Phone Use, Re-Grades, Student Work Products, Communication, Video Surveillance, Computer Resources, Etiquette, and Firearms.

**Syllabus Preparation Date**

Prepared on August 18, 2015 by Daniel Gulino