Wayne State University  
College of Engineering  
Department of Chemical Engineering & Material Science  
ChE 4200 – Product and Process Design  
Fall 2016

Instructor Information

Prof. Charles Manke  
Office Location: Rm. 2503 Engineering  
E-mail: cmanke@eng.wayne.edu  
Phone: (313) 577-3849  
Office Hours: MW 2:00-3:00PM

Dr. Cristina Piluso  
Office Location: Rm. 1118 Engineering (office hours only)  
E-mail: cristina.piluso@basf.com  
Phone: 734-324-5463  
Office Hours: By appointment

Course Identification

Course Number: ChE 4200  
Course Name: Product & Process Design  
Course Location: Rm 0128 Manoogian  
Class Times: MW 4:30-5:50PM  
Prerequisites: ChE380

0/ChE3400

TA Information

TA: Mr. Majid Moradi  
Office Location: Rm 2404 Engineering  
Office Phone: (313) 577-5339  
E-mail: fr1539@wayne.edu  
Office Hours: By appointment
Course Learning Objectives – After taking this class students should be able to:

1. Apply major concepts of chemical engineering to the design of new chemical plants, or the modification of existing plants.
2. Estimate the capital cost of a plant and its profitability.
3. Apply process design heuristics to develop practical chemical processes.
4. Apply computational tools such as HYSYS to the design of chemical processes.
5. Identify and evaluate safety and environmental hazards in chemical process systems.

Course Content

1. Process simulation
2. Review of sizing methods for process equipment
3. Economics (capital, fixed investment, operating expenses, profitability, return on investment, etc...)
4. Safety & Optimization


Grading Scheme & Tentative Dates

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Test 1</td>
<td>30%</td>
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<tr>
<td>Test 2</td>
<td>30%</td>
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<tr>
<td>Hysys Project 1</td>
<td>5%</td>
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<tr>
<td>Hysys Project 2</td>
<td>25%</td>
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Final grades will be determined based on a curve.

Course Policies

Homework:
Homework assignments are due the following Monday. Completion of the homework may require students to consult additional sources of information, such as: the course texts, the course instructor, TAs, classmates, and the internet. Students may work on their homework individually or in groups but are expected to submit individual assignments. Late assignments are accepted for partial credits.

Exam Policy:
Open Textbook/Open Notes (notes are defined as handwritten notes that you wrote yourself, plus any course materials posted on Blackboard). Only a bound copy of the course textbook, or equivalent electronic version may be used.

Laptops and Tablets are permitted to view the electronic version of the textbook, to perform calculations, to view the course Blackboard site, and to Google unit conversion factors and physical properties.
No cellphones are allowed for any purpose. No electronic communications of any kind are permitted, including text messages, email, and social media. The use of cameras with electronic devices is also prohibited.

**Missed Exams:**
Students who must miss an exam for any reason are expected to contact the course instructor before the date of the exam. Valid reasons for missing an exam should be provided to the instructor, in writing, in order for the make-up exam to be administered. Going on vacation is not considered a valid reason.

**HYSYS Projects:**

- **Project 1** – Assigned Sept. 26, Due October 26
- **Project 2** - Assigned Oct. 26, Due Nov. 30

Projects are to be solved and submitted by individual students. Team project solutions are not allowed.

**Attendance:**
Attendance is not required but recommended.

**Religious holidays** (from the online Academic Calendar): Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

**Student Disabilities Services**
If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.
Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student’s accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

**Academic Dishonesty** -- Plagiarism and Cheating (edited statement from the DOSO’s website): Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (http://www.doso.wayne.edu/student-conduct-services.html).

Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

- **Cheating**: Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student’s test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material during an exam.

- **Fabrication**: Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.

- **Plagiarism**: To take and use another’s words or ideas as one’s own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.

- **Other forms of academic misbehavior** include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student’s access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

**Course Drops and Withdrawals**: In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the
second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at: http://reg.wayne.edu/pdf-policies/students.pdf
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<tr>
<th>Week</th>
<th>Date</th>
<th>Chapter</th>
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<td>1</td>
<td>Aug 31, Sept 7</td>
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<td>Manke</td>
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<td>Sept. 12,14</td>
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<td>Piluso</td>
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<td>3</td>
<td>Sept 19,21</td>
<td>6</td>
<td>Piluso</td>
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<td>4</td>
<td>Sept 26 (Rm 2359), Sept 28 (Rm 2351)</td>
<td>7, Hysys</td>
<td>Piluso, Majid</td>
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<td>5</td>
<td>Oct. 3(Rm 2359), Oct. 5 (Rm 2351)</td>
<td>Hysys</td>
<td>Majid</td>
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<td>6</td>
<td>Oct. 10 (Rm 2359) Oct. 12 (Rm 2351)</td>
<td>Hysys</td>
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<td>7</td>
<td>Oct. 17,19</td>
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<td>Oct 24,26</td>
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<td>9</td>
<td>Oct 31</td>
<td>Review</td>
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<td>Nov. 14,16</td>
<td>Hysys Project – no class meetings</td>
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<td>Nov. 21</td>
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<td>Manke</td>
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<td>Nov. 23</td>
<td>No class meeting - Thanksgiving</td>
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<td>Nov. 28</td>
<td>Dr. Martin West, Fluor – role of engineering and construction firms</td>
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<td>14</td>
<td>Nov. 30, Dec 5</td>
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<td>15</td>
<td>Dec 7, 12</td>
<td>17, review</td>
<td>Manke</td>
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