Instructors: Professor Matthew W. Liberatore Professor Thihal Ponnaiyan

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Office Hours: See Blackboard
Online Resource: blackboard.utdl.edu

Educational Materials: Material and Energy Balances zyBook – zyBooks.com

\$48/student (waived this semester only!)

Course description: Introduction to the principles and techniques used in chemical engineering. Basic concepts of mathematics, physics and chemistry are applied to solving problems involving stoichiometry, material balances and energy balances.

Credit hours: 3

Prerequisites: CHEE1000 for level UG with min. grade of D- and MATH1850 for level UG with min. grade of D- (may be taken concurrently) and CHEM1230 for level UG with min. grade of D- (may be taken concurrently)

Core Objectives: Upon completion of CHEE2010, the successful student should be able to do the following:

- 1. Demonstrate professional behavior including being punctual and completing problems in a timely manner.
- 2. Demonstrate a mastery of "chemical engineering vocabulary."
- 3. Solve material balance problems for processes, which may contain chemical reactions, multiphase equilibria, recycle streams, and/or purge streams.
- 4. Solve multiphase problems including vapor-liquid systems using Raoult's law.
- 5. Sketch phase diagrams and process flow diagrams and label appropriate phase boundaries, streams, and process units.
- 6. Solve combined mass and energy balance problems for processes involving external heat and work in open and closed non-reacting steady-state and transient systems.
- 7. Solve combined mass and energy balance problems for reacting systems.
- 8. Calculate thermal properties such as the heat of reaction using heats of formation, phase change data, and heat capacity data.

Class Attendance and Professional Behavior: Walking in late and other inconsiderate behavior (e.g., inappropriate use of electronic devices) will not be tolerated; chronic disruptors will be disenrolled from the course. If you miss class, the instructors will not provide copies of notes, handouts, etc. If you miss something, you must get it from another student.

Getting Help: Every effort will be made to help you master the course material. Realize however, that if you come to see us outside of office hours or without a special appointment, we will likely be committed to some other activity. Please respect the fact that if our office doors are closed or if we are meeting with another student or professor, we are not available for help. Also, note that we do not provide assistance with homework problems, etc. via phone or email.

Grades: Grades are weighted as follows:

Homework, zyBook reading, Blackboard quizzes,	20
Team assignments	
Quizzes	10
3 Midterms	45 (15 each)
Final	25
Total	100

Generally, an assignment of some kind may be due before every class period of the semester. Late assignments of any kind will not be accepted.

Homework: Homework will be posted on Blackboard and will be due approximately one week later before the start of class.

ZyBook reading: Sections of the zyBook will be due through the semester. A schedule will be included on Blackboard.

Blackboard Quizzes: Short quizzes will be posted on Blackboard each week. These questions will serve to keep the student current with the reading assignment.

Team assignments: Work in your assigned teams will be posted to Blackboard with instructions about the assignment and due dates.

Quizzes: A short quiz will cover material discussed in the previous classes and homework assignments. There will be no makeup quizzes (if you miss a quiz you will receive a zero – exceptions will **require** an excused absence, see Absenteeism below); however, at the end of the semester, we will "throw out" your lowest (one) quiz score. You are expected to bring your calculator to every class. Quizzes may be announced or unannounced.

Examinations: Exams will be closed book and notes and will be held in class. Any exceptions to taking the exam at this time will **require** an excused absence, see Absenteeism below. The final will cover all of the course material. One make up exam will be offered to students missing an exam due to an excused absence. The make up exam will be cumulative (through the third exam) and is scheduled for 7am Monday, April 25, 2016.

Re-grade Policy: If you feel your exam, quiz or other assignment has been incorrectly or unfairly graded, submit a request for a re-grade as follows. All requests must be submitted to your instructor in writing during the class period following the item's return (e.g., exam returned on Wednesday, re-grade requests accepted on Friday). The re-grade will be based strictly on your written request.

Class Ethics: Unless otherwise instructed, all class work that receives a grade is to be done individually. Exceptions to this rule include homework and team assignments, where working together in small groups is a good opportunity for you to better understand the material. Using solutions manuals or other online resources to assist in solving homework needs to receive proper citation or will be considered cheating (i.e., representing the work of others as your own). Cheating will not be tolerated in this course, and all incidents will be handled according to the guidelines published in the university's policy statement on academic dishonesty. All students are expected to be familiar with this policy.

Absenteeism: All excused absences must adhere to the University's Missed Class Policy. Students must submit requests for an excused absence in writing via email (or via voicemail) to

Professor Liberatore. The requests must be received at least two weeks before an assignment is due or exam is given, expect in the case of personal emergencies. All requests should include written documentation of the missed class time (e.g., doctor's note, etc.). The professor will respond within one week via email granting or denying the excused absence request.

Uncollected documents: All course documents (homework, quizzes, etc.), with the exception of the final exam, will be recycled if not collected by one week following the final exam. Final exams will be held for five months and then recycled.

Schedule (subject to change)

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Date		Week	#
1/11/16	Syllasbus, Introductions, YouTube challenge pr	1	1
1/13/16		1	2
1/15/16		1	3
1/18/16	MLK Day - No Class	2	Х
1/20/16		2	4
1/22/16		2	5
1/25/16		3	6
1/27/16		3	7
1/29/16		3	8
2/1/16		4	9
2/3/16		4	10
2/5/16		4	11
2/8/16		5	12
2/10/16	Exam 1	5	13
2/12/16		5	14
2/15/16		6	15
2/17/16		6	16
2/19/16		6	17
2/22/16		7	18
2/24/16		7	19
2/26/16		7	20
2/29/16		8	21
3/2/16		8	22
3/4/16		8	23
3/7/16	Spring Break	Х	Х
3/9/16	Spring Break	Χ	Х
3/11/16	Spring Break	Х	Х
3/14/16		9	24
3/16/16	Exam 2 (option 1)	9	25
3/18/16	, , ,	9	26
3/21/16		10	27
3/23/16	Exam 2 (option 2)	10	28
3/25/16		10	29
3/28/16		11	30
3/30/16		11	31
4/1/16		11	32
4/4/16		12	33
4/6/16		12	34
4/8/16		12	35
4/11/16		13	36
4/13/16		13	37
4/15/16		13	38
4/18/16		14	39
4/20/16	Exam 3	14	40
4/22/16		14	41
4/25/16		15	42
4/27/16		15	43
4/29/16		15	44
5/6/16	Final Exam 10:15am to 12:15pm	16	