

MEMORANDUM FOR STUDENTS ENROLLED IN CHEN 4341/MENG 5340

SUBJECT: CHEN 4341/MENG 5340 – Process Intensification - Administrative Instructions

Lecture times: TTh, 11:00 – 12:20 pm, RBN 2007

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Zoom link in case of instructor absence: <https://uttyler.zoom.us/my/lacerdacarla>

Welcome to CHEN 4341/MENG 5340 – Process intensification is the path for development of more sustainable chemical processes. Process intensification leads to substantially smaller, cleaner, safer, and more energy efficient technologies. Process intensification consists of the development of novel apparatuses and techniques to bring improvements in manufacturing and processing, substantially decreasing equipment size/production-capacity ratio, energy consumption, or waste production; ultimately resulting better sustainable technologies. Process intensifying equipment covers novel reactors, intensive mixers, and heat-transfer and mass-transfer devices. Process intensifying methods cover new or hybrid separations, integration of reactions and separations, heat exchange, phase transition and/or new process-control methods such as intentional unsteady-state operations.

Course Objectives - CHEN 4341/MENG 5340 – Process Intensification:

1. Define process intensification
2. Identify opportunities for process intensification in conventional processes
3. Describe the impact of process intensification on heat and mass transfer, and fluid mechanics
4. Apply intensified reactors and/or separators in process industries
5. Design intensified processes using simulation environments
6. Assess economic viability, safety and environmental standards of intensified processes
7. Design innovative systems for materials and energy conservation

1. Classroom Procedures:

- a. Bring study notes, note-taking material, and calculator to every class. You may not borrow or exchange calculators during graded events. If your calculator fails during a graded exercise, instructor is not responsible to furnish a substitute. Class preparation is your individual responsibility.

2. Evaluations:

- a. *ACADEMIC DISHONESTY:* Representation of other's work as your own will not be tolerated. Cheating on examinations, quizzes, and homework and the false representation of work will be interpreted as academic dishonesty. Academic dishonesty will be subject to disciplinary action as outlined by the UT Tyler Student Guide on Conduct and Discipline.
- b. *Homework sets:* Homework problems will be assigned approximately every two weeks (there will be six to eight homework assignments during the semester). All homework is mandatory and becomes part of your grade. As an engineer your goal is to make a clear, logical, and professional presentation of your work, which is both accurate and correct. As such, both the presentation and the accuracy of your work is important, and both will be graded. It is critical that you show all of your work and leave "footprints" so that it can be easily followed. No guess work should be required to see what you did. For each homework problem, the corresponding topic and numerical answers will be provided. You are encouraged to work in groups, but the work that you turn in should be your own.

- c. *Group project:* A multi-part project will be assigned at the beginning of the semester and due as outlined on the schedule below – in the form of a written report and oral presentation. The project will be qualitative in nature, where the student will use process knowledge to make recommendations based on simulations. You will be evaluated based on the approach and thought process you use. You are encouraged to work in groups, but the work that you turn in should be that of your own group. Turning in the same solution to the project as another student will be considered plagiarism. Additional procedural information will be provided on the Canvas worksheet.
- d. *Late submissions:* It is a principle of professionalism that “**Professionals are not late.**” A “COORDINATED LATE” submission occurs when you will miss the due date for a graded assignment, and you contact me in advance. Notification immediately before the submission will not suffice. Point cuts up to the amounts below **may** be assessed for a “COORDINATED LATE” submission:
- 0-48 hours late Deduction of 50% of the earned grade
 - > 48 hours late No credit
- Obviously, there are circumstances that will occur and make a timely submission impossible, and I will work with you when and if they occur.

All forms of evaluation in this course must be properly documented. If you receive help from your classmates, just simply document it. Information from the course textbooks (equations and outlines of procedures), class notes, is considered immediately available to all students and need not be acknowledged or documented with one exception. **YOU ARE REQUIRED TO ACKNOWLEDGE AND DOCUMENT ALL OTHER ASSISTANCE AND REFERENCES USED.** Documentation will be accomplished in accordance with any manual for writing, footnote or endnote, for papers, but for written homework, just place the documentation right at the point you received help using “Who and what” assistance.

- e. *Participation grade:* Students are expected to be engaged in class and outside of the class. The instructor will assign a participation grade to each student based on the following observations:
- Attendance in class and punctuality;
 - Level of participation in class, asking questions and answering questions from the instructor;
 - Engagement in sessions, demonstrating initiative to work on problems, and actively participating in the discussions;
 - Asking questions outside class: after class, during office hours, and by e-mail.

Attendance in class is the component with more weight on participation. A student that attends every class, but otherwise is not active will not receive a participation grade.

f. *Midterm and Final Exam:*

There will be one Midterm exam and one Final exam. The Midterm will be eighty minutes long, and the Final will be two hours long. The dates for exams are included in the course schedule. Official reasons for missing an exam are outlined in the “Student Handbook”. You are required to take a make-up exam, regardless of your reason for missing the scheduled exam. Report any conflict to me as soon as possible prior to the exam. You can use a **TI-30 calculator** (or FE equivalent), and ***an equation sheet will be provided by the instructor.***

3. Course Surveys and Collection of Student Work:

Throughout the semester you will be asked to fill out anonymous non-graded surveys to help me guide course development as well as peer evaluation surveys. Even though these do not count for your grade, you are **required** to complete them to pass the course. Non-compliance with peer-evaluation may result in a zero grade for the whole project team.

I will also collect student work (best, average, and worst) for the ABET course and outcomes notebooks, for course improvement purposes. This will require me to make a copy of your work, keep your original and return a copy of the graded work to you. I will not draw attention as to what level of work you accomplished.

4. Additional work for MENG 5340:

If you are enrolled in the graduate course MENG 5340, it is expected that you produce more work and are assessed at a higher level than students enrolled in CHEN 4341. As such, throughout projects and exams, there will be questions assigned specifically to graduate students. In addition, you are expected to play a lead role in group projects, due to your prior knowledge of reaction engineering and chemical separation strategies. If a graduate student does not possess such knowledge and is unable to meet course requirements, it is advisable to talk to the instructors.

5. Grading:

Grades will be based entirely on the student's demonstrated ability to develop detailed, neat, organized, and correct solutions to the problems presented. Correct answers accompanied by incorrect, incomplete, or untidy solutions may receive no credit.

Course Points

Homework (2-3 points each)	15%
Group Project (4 at 10 points each)	40%
Midterm Exam (1 at 20 points)	20%
Final Exam (1 at 25 points)	25%
Total	100%

Grade Scale based on points

90 points or higher	A
Between 80 and 90 points	B
Between 60 and 80 points	C
Between 30 and 60 points	D
Less than 30 points	F

You need at least 60 points total to pass the course with a C grade.

6. **UT Tyler Honor Code** - Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

7. **Students Rights and Responsibilities** - To know and understand the policies that affect your rights and responsibilities, please follow: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>.

8. **Campus Carry** - We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.

9. **Grade Replacement/Forgiveness and Census Date Policies** - Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar. Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract. The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)

- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

10. **UT Tyler a Tobacco-Free University** - All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products. There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

11. **Disability/Accessibility Services** - In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) UT Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079.

12. **State-Mandated Course Drop Policy** - Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date). Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

13. **Student Absence due to Religious Observance** - Students who need to be absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

14. **Student Absence for University-Sponsored Events and Activities** - Revised 05/19 If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

15. **Social Security and FERPA Statement** - It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

16. **Emergency Exits and Evacuation** - Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

17. **Student Standards of Academic Conduct** - Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during an assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

ii. "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.

iii. "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

iv. All written work that is submitted will be subject to review by plagiarism software.

18. UT Tyler Resources for Students

- UT Tyler Counseling Center (903.566.7254)
- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu

Proposed Schedule – to be continuously updated:

Weeks	Dates	In class	Due on Canvas
Week 1	16-Jan		
	18-Jan	Syllabus + Expectations	
Week 2	23-Jan	BK - Promax	
	25-Jan	BK - Promax	
Week 3	30-Jan	BK - Optimization	
	1-Feb	BK - Optimization	
Week 4	6-Feb	BK – PERT analysis, project management	
	8-Feb	BK – PERT analysis, project management	
Week 5	13-Feb	Intro to PI principles and domains	BK Homework assignments?
	15-Feb		
Week 6	20-Feb	Design of conventional plants	Homework 1
	22-Feb		
Week 7	27-Feb	Intensified reactors	Lit review conventional process
	29-Feb		
Week 8	5-Mar	<i>Midterm exam</i>	Homework 2
	7-Mar		
Week 9	19-Mar	Hybrid separators	Lit review intensified process
	21-Mar		Homework 3
Week 10	26-Mar		
	28-Mar	Reactors with separation	
Week 11	2-Apr		Simulations conventional process
	4-Apr		Homework 4
Week 12	9-Apr	Heat exchangers	
	11-Apr		
Week 13	16-Apr		Simulations intensified process
	18-Apr		Homework 5
Week 14	23-Apr	Presentations (I and II)	
	25-Apr	Presentations (III and IV)	
Week 15	30-Apr	<i>Final Exam 11-1 pm</i>	