

2023 Spring - CHME-595-M70-GRAD PROCESS DESIGN

SYLLABUS

CHME595 Graduate Process Design

Spring 2023

Instructor:

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Objective:

Graduate chemical process design principles, emphasizing literature review, patent search, heuristics application, process simulation assistance to process creation, synthesis of reactor and separator trains, second-law analysis, heat and power integration, process equipment mechanical design specifications, process design optimization, cost accounting and capital estimation, annual costs, earnings, and profitability analysis.

Prerequisite(s)/Corequisite(s): CHME 506, CHME 516, CHME 542.

Prerequisite(s): CHME 452, CHME 455 L or equivalent.

Goals:

- Make a definitive estimate or project control
- Perform research on the process
- Identify the equipment, instrumentation needed
- Summarize the safety aspects
- Identify the environmental impact
- List local/state/federal regulations
- Provide a cost estimate from vendor costs
- Provide sketches and drawings for the plant or system (e.g. P&IDs, plot plans, evaluation diagrams, energy balances, and final PFDs with stream tables/mass balances)
- Provide final cohesive report

Grading:

1. Written background on the process (25%).
2. Research description (with preliminary results—figures, tables, data....) (25%).
3. Preliminary demonstration of use of design and engineering (calculations, estimations). (25%)
4. Preliminary demonstration of fundamentals (energy balance, mass balance..) (25%)

The final letter grades are determined by the following percentage cutoffs:

94%: A+**76%: B+****50%: C****88%: A****70%: B****below 50%: F****82%: A-****64%: B-**

Syllabus Student Resources & Policy

Please visit <https://provost.nmsu.edu/faculty-and-staff-resources/syllabus/policies> (<https://provost.nmsu.edu/faculty-and-staff-resources/syllabus/policies.html>) for university policies and student services, including Discrimination and Disability Accommodation, academic misconduct, student services, final exam schedule, grading policies and more.

This link is available on the side menu of every canvas page under "Syllabus Student Resources & Policy".

Ethics Statement

As members of the NMSU community, we are all bound by the ethical guidelines established by the college. This includes policies regarding sexual and ethnic harassment; discrimination based on race, color, religion, national origin, gender, age, handicap, sexual orientation, and veteran status; academic honesty and plagiarism; and other guidelines for appropriate professional and student behavior. Many of these policies are outlined in the [Student Handbook](https://studenthandbook.nmsu.edu/) (<https://studenthandbook.nmsu.edu/>).

If you have any questions or concerns regarding these policies, please consult with any faculty member, including the department head.

Plagiarism Statement

Plagiarism (<http://lib.nmsu.edu/plagiarism>) is using another person's work without acknowledgment, making it appear to be one's own. Any ideas, words, pictures, or other intellectual content, taken from another source must be acknowledged in a citation that gives credit to the source. This is true no matter where the material comes from, including the Internet, other students' work, unpublished materials, or oral sources. Intentional and unintentional instances of plagiarism are considered cases of academic misconduct. It is the responsibility of the student submitting the work in question to know, understand, and comply with this policy." It is the policy of the School of Teacher Preparation, Administration and Leadership that students found to have committed an act of plagiarism, one or more of the following consequences will occur; and, a written statement outlining the offense and consequences will be placed in the student's permanent file by the Department Head/Hearing Officer.

- Failure of the course assignment;
- Failure of the course;
- Academic suspension for one or two semesters;
- Dismissal or expulsion from the program.

There is no statute of limitations for an act of plagiarism. Once committed, a student can be held accountable at any time even after the semester has ended. All students and instructors are obliged to follow the procedures for documenting the offense as described in the [Student Handbook](https://studenthandbook.nmsu.edu/) (<https://studenthandbook.nmsu.edu/>) under Section II: Academic Misconduct.

Academic Misconduct

Academic and non-academic misconduct: The Student Code of Conduct defines academic misconduct, non-academic misconduct and the consequences or penalties for each. The Student Code of Conduct is available in the NMSU Student Handbook online:

- [Student Handbook \(http://studenthandbook.nmsu.edu/\)](http://studenthandbook.nmsu.edu/)

College of Engineering

All students should be aware that the College of Engineering has a “two strikes and you are out” policy regarding academic misconduct – two documented offenses of academic misconduct on a student’s part will result in their immediate suspension from NMSU for a minimum of one year.

<https://engr.nmsu.edu/Academics/academic-integrity.html>
(<https://engr.nmsu.edu/Academics/academic-integrity.html>)

Class Recording

Class lectures can be recorded and are covered by ARP 11.05, Part 2, Letter I. These recordings should not be distributed by anyone other than the instructor.

Discrimination and Disability Accommodation

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Main Campus

Disability Access Services

Corbett Center Student Union Room 208

Aaron Salas, Director

575-646-6840

[das@nmsu.edu \(mailto:das@nmsu.edu\)](mailto:das@nmsu.edu)

New Mexico State University, in compliance with applicable laws and in furtherance of its commitment to fostering an environment that welcomes and embraces diversity, does not discriminate on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex (including pregnancy), sexual orientation, spousal affiliation, or protected veteran status in its programs and activities, including employment, admissions, and educational programs and activities. Inquiries may be directed to the Laura Castille, Executive Director,

Title IX and ADA/Section 504 Coordinator, Office of Institutional Equity, P.O. Box 30001, E. 1130 University Avenue, Las Cruces, NM 88003; 575.646.3635; 575-646-7802 (TTY); equity@nmsu.edu (<mailto:equity@nmsu.edu>)

Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. For more information on discrimination or Title IX, or to file a complaint contact:

Laura Castille, Executive Director and Title IX Coordinator
Office of Institutional Equity (OIE) - O'Loughlin House, 1130 University Avenue
Phone: (575) 646-3635
E-mail: equity@nmsu.edu (<mailto:equity@nmsu.edu>)
[Office of Institutional Equity Website \(http://equity.nmsu.edu/\)](http://equity.nmsu.edu/)

Other NMSU Resources:




Resource	Phone	Web
NMSU Police Department:	(575) 646-3311	www.nmsupolice.com (http://www.nmsupolice.com/)
NMSU Police Victim Services:	(575) 646-3424	
NMSU Aggie Health & Wellness Center	(575) 646-1512	https://wellness.nmsu.edu/ (https://wellness.nmsu.edu/)
NMSU Dean of Students:	(575) 646-1722	
For Any On-campus Emergencies:	911	

Syllabus Modification

This syllabus is a guide, and every attempt is made to provide an accurate overview of the course and its requirements. However, certain circumstances may make it necessary for the instructor to modify the syllabus during the semester. Changes to the syllabus will be made with advance notice to the students and will be provided in writing.

Course Summary:

Date	Details	Due
Fri Feb 17, 2023	 Outline	due by 11:59pm

Date	Details	Due
Fri Mar 10, 2023	 Rough draft (https://nmsu.instructure.com/courses/1524059/assignments/13559207)	due by 11:59pm
Fri Apr 7, 2023	 Second draft (https://nmsu.instructure.com/courses/1524059/assignments/13559208)	due by 11:59pm
Wed May 3, 2023	 Final Report (https://nmsu.instructure.com/courses/1524059/assignments/13559205)	due by 11:59pm