

Description	In this course, the principles of Engineering Design will be applied. Students will work on multidisciplinary teams on selected and approved design projects, practice design methodology, complete project feasibility study and preliminary design, including optimization, product reliability and liability, economics, and application of engineering codes. Final report and presentation.																																			
Instructor	Alejandro Gutiérrez, Ph.D. Email: agutierrez78@ucmerced.edu Office Location: https://ucmerced.zoom.us/my/alejandrogutierrez Office Hours: Mondays & Wednesdays 15:00-16:30																																			
TA	02L & 03L Hector Gomez hgomez8@ucmerced.edu 04L Thomasjae Garcia tgarcia48@ucmerced.edu																																			
Lecture	Wednesdays, 12:30-13:20 COB2 130																																			
Labs	Lab meetings will be done on a schedule agreed upon by all members of the team and their respective TA																																			
Grading	<table><tr><td>Quizzes</td><td>5%</td></tr><tr><td>Faculty meetings</td><td>5%</td></tr><tr><td>Deliverables</td><td>10%</td></tr><tr><td>PDR</td><td>20%</td></tr><tr><td>CDR</td><td>20%</td></tr><tr><td>FDR</td><td>20%</td></tr><tr><td>Final report</td><td>10%</td></tr><tr><td>Poster</td><td>10%</td></tr></table> <table><tr><td>A+ = 99%-100%;</td><td>A = 95%-99%;</td><td>A- = 90%-95%;</td><td>B+ = 87%-90%,</td></tr><tr><td>B = 83%-87%;</td><td>B- = 80%-83%;</td><td>C+ = 77%-80%;</td><td>C = 73%-77%,</td></tr><tr><td>C- = 70%-73%;</td><td>D+ = 67%-70%;</td><td>D = 63%-67%;</td><td>D- = 60%-63%,</td></tr><tr><td>F = 0%-60%</td><td></td><td></td><td></td></tr></table>				Quizzes	5%	Faculty meetings	5%	Deliverables	10%	PDR	20%	CDR	20%	FDR	20%	Final report	10%	Poster	10%	A+ = 99%-100%;	A = 95%-99%;	A- = 90%-95%;	B+ = 87%-90%,	B = 83%-87%;	B- = 80%-83%;	C+ = 77%-80%;	C = 73%-77%,	C- = 70%-73%;	D+ = 67%-70%;	D = 63%-67%;	D- = 60%-63%,	F = 0%-60%			
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Policies

- Attendance to class and to weekly team meetings is mandatory
- The performance of each team member will be reviewed by their peers and assessed by means of a team contract
- Weekly deliverables must be presented on time at each weekly meeting. Late submissions will affect the grade of all team members regardless of who is individually responsible
- Catcourses will be the principal means of official communication between the instructors and the students, so be sure to check your inbox often

Learning outcomes

By the conclusion of this course, students will be able to:

- Design an engineering solution to a challenging contemporary problem, within realistic constraints and utilizing appropriate standards
- Use project management and teamwork skills to deliver a solution within time and budget constraints
- Deliver a professional presentation appropriate to a broad audience
- Demonstrate effective written technical communication skills

Academic Integrity

- Each student in this course is expected to abide by the University of California Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work
- You are encouraged to study together and to discuss information and concepts covered in class with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, other electronic file, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will automatically receive a zero for the assignment

Students with disabilities

The University of California, Merced is committed to creating learning environments that are accessible to all. If you anticipate or experience physical or academic barriers based on a disability, please contact the instructors. In addition, please contact Student Accessibility Services (SAS) at (209) 228-6996 or disabilityservices@ucmerced.edu as soon as possible. All accommodations must have prior approval from Student Accessibility Services on the basis of appropriate documentation. If you anticipate or experience barriers due to pregnancy, temporary medical condition, or injury, please contact the instructors. You are encouraged to contact the Dean of Students¹ for support and resources at (209) 228-3633

Diversity and inclusion

This class is conducted in accordance to the UC Merced Principles of Community², which include the recognition and celebration of all identities, values, and beliefs. Discrimination on the basis of race, religion, sex, sexual orientation, gender identity, national origin, citizenship, documented status, or any other social identity will not be tolerated. All students are invited to discuss any situation they perceive as harmful or threatening with the instructor in class or during office hours

¹ <https://studentaffairs.ucmerced.edu/dean-students>

² <https://www.ucmerced.edu/principles-of-community>

Course Schedule

Week	Topic	Deliverable
1	Preliminaries	Signed forms, change sections
2	Introduction	Team contract, first meeting with client, meeting schedules
3	Planning	Problem translation
4	Concept	Team name, list of concepts
5	PDR	PDR outline
6	PDR presentations	Presentation slides. PDR on 09/29 - 10/01
7	System	System diagram
8	Economics	Cash flow estimates
9	Risk assessment	Risk assessment
10	CDR	CDR Outline, updated team contract
11	CDR presentations	Presentation slides. CDR on 11/03 – 11/05
12	Testing	Testing plan
13	Ethics	Ethics report
14	FDR	FDR outline
15	FDR presentations	Presentation slides, poster, final report. FDR on 12/17