

Professor:	Greg Watkins, Ph.D., PE
Contact:	O'Connell 419A / 530-898-4388 / gkwatkins@csuchico.edu
Course Description:	Design methods applied to mechanical / mechatronic systems. Group design projects. Project planning and management, manufacturing cost control, and environmental and social impact. Oral and written presentation of design results. Needs, resources, and technology for continuing self-education as professional engineers. Initial stage of the capstone design project to be continued in MECH / MECA 440B. This is an approved Graduation Writing Assessment Requirement course; a grade of C- or better certifies writing proficiency for majors. This is an approved Writing Course.
Prerequisites MECH 440A:	GE A2 course with a grade of C- or higher, MECH 200, MECH 340 with a grade of C- or higher. Recommended: MECA 380, MECH 308, MECH 338.
Prerequisites MECA 440A:	GE A2 course with a grade of C- or higher, EECE 237, MECH 200, MECH 340 with a grade of C- or higher. Recommended: MECA 380.
Course Objectives:	<ol style="list-style-type: none"><li>1. Learn and practice design methods applicable to mechanical / mechatronic systems as members of multidisciplinary teams.</li><li>2. Acquire a skillset progressing from problem definition, to conceptual design, to detailed design.</li><li>3. Present findings orally and in writing.</li><li>4. Exercise project planning, budgeting, and cost management.</li><li>5. Understand professional ethical responsibility.</li><li>6. Recognize the need for, and acquire an ability to engage in lifelong learning.</li></ol>
Class Meetings:	Section 01 – Lecture – TH – 11:00 to 11:50 – LANG 300 Section 02 – Supervision – H – 5:00 to 7:50 – LANG 300
Lecture:	The lecture sessions will be used to present material related to the design process. Topics include overview of the design process, customer requirements, specifications, conceptual design, project planning, cost estimating, budgets, documentation, etc.
Supervision:	The supervision section is utilized for sponsor presentation night and for the three required student presentations (Project Proposal, Preliminary Design Review, and Final Design Review). The remaining Thursday night class meetings may be utilized for additional topics such as motor sizing or CNC workshops.

Blackboard Learn:	This class will make use of the Blackboard Learn course management system. Primary content will include lectures, handouts, and an on-line gradebook. Other content, such as non-urgent announcements, may be posted as needed throughout the term.
Email:	In the event I need to contact members of the class or make urgent announcements regarding presentations, class cancellations, etc., it will be done via your WildcatMail email account. I do not plan to use this method of communication frequently, but I do expect that information sent this way will be received. University policy requires students to monitor their WildcatMail accounts. If you have another preferred email provider, you may set up automatic forwarding of your WildcatMail to that address. Details are available at <a href="http://www.csuchico.edu/itss">www.csuchico.edu/itss</a> .
Academic Integrity:	Academic integrity is taken seriously at the University, in this College, and Department, and by your professor. Violations will be referred to student judicial affairs and can result in penalties ranging from failure of the course to long term suspension from the university.
Contribution:	All project work in this class is team based, but students will receive individual grades for “Contribution to the Project.” The grade is determined by the faculty advisor and is based on peer evaluations, advisor meetings, general observations, and the content of the student’s design log book.
Kindergarten Points:	Professionalism and organizational behavior are topics that are intertwined throughout this course. As senior students, professional behavior, similar to that expected in the workplace, is expected here. That includes following instructions, submitting documents on time, in the correct format, and to the correct place. It also includes attending, and being on time for, all class meetings, events, and presentations. Failure to exhibit professional behavior will result in the assignment of <i>Kindergarten Points</i> which correspond to a deduction in the student’s course contribution grade. These points are so named because everything you need to know to avoid them, you learned in Kindergarten.
Americans with Disabilities Act:	If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations. ARC is located at Student Services Center 170 and may be reached at 530-898-5959 or <a href="mailto:arcdept@csuchico.edu">arcdept@csuchico.edu</a> .

Grading:	Topic	%	T/I	Comment
	Project Proposal Presentation	10%	I	Demonstrate that the design problem is understood, well defined, and justified.
	Preliminary Design Review Presentation	15%	I	Demonstrate that a valid concept has been developed. Convince your customer to proceed with detailed design.
	Final Design Review Presentation	20%	I	Demonstrate that the solution will meet the requirements and solve the problem. Convince your customer to proceed with prototype construction.
	Draft Design Report	5%	T	Graded only for completeness
	Final Design Report	25%	T	Content, organization, style, format
	Contribution to Project	25%	I	Peer review and evaluation by faculty advisor

Note: If warranted, the course instructor, with input from the faculty advisor, may issue a failing grade regardless of a student’s computed final average.

Grade Scale: All grades are assigned in this class as grade points:  
 A = 4 / B = 3 / C = 2 / D = 1 / F = 0

Grade Scheme:

A	A-	B+	B	B-	C+	C	C-	D+	D	F
>= 3.70	3.69 to 3.50	3.49 to 3.20	3.19 to 2.80	2.79 to 2.50	2.49 to 2.20	2.19 to 1.80	1.79 to 1.50	1.49 to 1.20	1.19 to 0.50	< 0.49

K-Points: Each Kindergarten point assigned corresponds to a 1/50 grade point deduction in a student’s contribution grade.

Milestones:

Thursday 9/5	Sponsor Presentations
Tuesday 9/10	Projects and teams assigned
Thursday 9/26	Project Proposal Presentations
Thursday 10/24	Preliminary Design Review Presentations
Thursday 12/12	Final Design Review Presentations
Thursday 12/19	Exam period – Final Design Reports Due