

Professor: Greg Watkins, Ph.D., PE

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Office Hours: Tuesday 9:00 to 9:50 & 2:00 to 3:50
Thursday 9:00 to 10:50

Course Description: System design methods applied to mechanical / mechatronic systems. Group design projects. Consideration of the manufacturing cost, and environmental and social impact. Oral and written presentation of results. Initial design of the capstone design project to be continued in MECH / MECA 440B.

Textbook: Ullman, D. G., *The Mechanical Design Process*, 3rd Edition, McGraw-Hill, 2003

Prerequisites MECH 440A: ENGL 130 (or its equivalent) with a grade of C- or higher, MECH 200, MECH 340, MFGT 160. Recommended: CIVL 302, MECA 380, MECH 308, MECH 338.

Prerequisites MECA 440A: ENGL 130 (or its equivalent) with a grade of C- or higher, EECE 344, MECH 340, MFGT 160. Recommended: CIVL 302, MECA 380.

Class Meetings: Section 01 – Lecture – TH – 8:00 to 8:50 – O'Connell 254
Section 02 – Lab – T – 5:00 to 7:50 – O'Connell 254

Lecture: The lecture sessions will be used to present material related to the design process. Topics include overview of the design process, project management, work breakdown structure, design reviews, etc. There will be times within the semester when the lecture period is not utilized.

Lab: The lab sessions will be used early in the semester for presentation of potential projects, organization of design teams, and presentation of project proposals. The period will be used later in the semester for preliminary and final design review presentations. There will be weeks within the semester when the lab period is not utilized.

Grading:	<u>Topic</u>	<u>%</u>	<u>T/I</u>	<u>Comment</u>
	Written Project Proposal	10%	T	Content, organization, style, and format
	Project Proposal Presentation	5%	I	Clarity of project along with presentation technique
	Preliminary Design Review	10%	I	Content, organization, and presentation technique
	Final Design Review	15%	I	Content, organization, and presentation technique
	Design Report	20%	T	Content, organization, style, and format
	Teamwork Skills	5%	I	Observation by instructor and project advisor
	Contribution to Project	15%	I	Peer review along with observation by instructor and project advisor
	Overall Project Quality	20%	T	Quality of solution relative to difficulty of project.

Note: If the course instructor and project advisor agree that an individual's contribution is grossly inadequate, they will adjust the course grade appropriately regardless of the computed course grade based upon the above formulas..

Tentative Schedule:	Wk 2	Project list complete
	Wk 3	Projects assigned, teams finalized
	Wk 5	Project proposal presentations
	Wk 10	Preliminary design review
	Wk 15	Final design review
	Exam	Design report due