

Syllabus

ME 482 – Design Project II

Fall 2023

Overview

- Continuation of design project initiated in ME 481. Extension of conceptual design to final design and prototype. Analysis, materials and part selection, synthesis of working systems. Computer-aided design and finite element modeling. Manufacturing specifications, shop drawings, and a final report are required.

Objectives

- Heuristic completion of a structured design process focusing on design for manufacture, prototyping techniques, and closing the design loop (self-evaluation).
- Students will learn to apply engineering analysis tools to an open-ended design problem, including pertinent application of Computer Aided Design Tools such as Computer Aided Modeling (CAM – SolidWorks) and Finite Element Analysis (FEA – ANSYS, SolidWorks Simulation, or Comsol).
- Effective oral communication. In fact, this is an oral communication intensive course (OC), and thus, students will be required to do a substantial number of technical presentations. Students will learn effective oral communication in three areas applicable to engineering: technical presentations, poster presentations, and hardware demonstrations.
- Effective written communication. Students will continue to enhance their written communication skills through several professional (typed, computer generated graphics, etc.) technical reports. Students must also write a publication-quality final paper, which, under supervision and conforming to UH policies, they are then encouraged to submit to a conference or journal.

Prerequisites

- ME 481

References:

- Course Websites:
 - Primary
 - <http://rip.eng.hawaii.edu/courses/me-481482-design-project-iii/>
 - Supplemental
 - Laulima
- Additional references: the ability to obtain the references you need to be successful in your projects is an ABET objective of this course.

Staff:

Instructors	Teaching Assistants
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Assignments and Grading

Safety Training (must be completed on time to pass the course)	P/F
Homework/workshops	10%
Drawings and GD&T	
Design Project	90%
Presentations	50%
3 Oral Presentations	20%
Project Review	
Detailed Design/Manufacturing Review	
Midterm Report	
3 Hardware Demonstrations/Presentations	15%
MCM Hardware Demonstration	
Alpha-prototype Demonstration	
Final Prototype Demonstration	
Poster Presentation (FRMDC)	5%
Final Oral Presentations (FRMDC)	10%
Reports	25%
Midterm	10%
Final	15%
Design Quality (Achievement of Objectives/Customer Satisfaction, Hardware Quality, etc.)	15%
Individual Contribution (multiplier on group grade)	0.5-1.1

Late work is not accepted.