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 3 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 project is an ABET objective of this course.
**Staff:**

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**TA:** Jonathan Wallen; jwallen@hawaii.edu
Assignments and Grading

Homework/workshops 10%
Drawings and GD&T (Geometric Dimensioning & Tolerancing)

Design Project ......................................................... 90%

Presentations ......................................................... 50%
  3 Oral Presentations .............................................. 20%
    Project Review
    Detailed Design/Manufacturing Review
    Midterm Report

3 Hardware Demonstrations/Presentations ............ 15%
    MCM (Most Critical Module) Hardware Demonstration
    Alpha-Prototype Demonstration
    Final Prototype Demonstration

Poster Presentation .............................................. 5%
Final Oral Presentations .................................... 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.