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:

<table>
<thead>
<tr>
<th>Instructors</th>
<th>Teaching Assistants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zac Trimble</td>
<td>Christy Chock</td>
</tr>
<tr>
<td>Holmes Hall 304</td>
<td><a href="mailto:cmchock@hawaii.edu">cmchock@hawaii.edu</a></td>
</tr>
<tr>
<td>+1(808)956-7597</td>
<td></td>
</tr>
<tr>
<td><a href="mailto:atrimble@hawaii.edu">atrimble@hawaii.edu</a></td>
<td></td>
</tr>
<tr>
<td>Trevor Sorensen</td>
<td></td>
</tr>
<tr>
<td>POST 509C</td>
<td></td>
</tr>
<tr>
<td>+1(808)956-4715</td>
<td></td>
</tr>
<tr>
<td><a href="mailto:sorensen@hsfl.hawaii.edu">sorensen@hsfl.hawaii.edu</a></td>
<td></td>
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Assignments and Grading

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

Late work is not accepted.