ENGR101 - Introduction to Engineering Design
University: Pacific Tech University
Course Duration: Full Year (Fall and Winter)
Instructor: Dr. Jane Smith
Contact Information: jane.smith@pacifictech.edu
Office Hours: Mondays and Wednesdays, 2:00 PM - 4:00 PM

Course Description
This first-year course introduces students to the fundamentals of engineering design. Students work in teams to solve a real-world problem presented by a fictitious client. Projects may include designing a simple mechanical device, creating a basic software application, or developing a sustainable solution for a community issue.

Learning Outcomes
By the end of this course, students will be able to:
1. Apply design thinking and problem-solving methodologies to engineering challenges.
2. Work effectively in teams to develop and implement design solutions.
3. Create prototypes and conduct testing to evaluate design performance.
4. Communicate design concepts and results through written reports and oral presentations.
5. Understand the ethical and societal implications of engineering design.

Course Timeline and Deliverables
Fall Semester:
- **September 15, 2020: Team Formation and Project Proposal (10%)**
  - Students form teams and submit a project proposal outlining the problem they intend to solve, initial design ideas, and a project plan.
- **October 20, 2020: Preliminary Design Review (15%)**
  - Teams present their preliminary designs, including sketches, initial calculations, and a plan for prototyping. Feedback is provided by the instructor and peers.
- **November 25, 2020: Prototype Development and Testing (20%)**
  - Teams develop a functional prototype and conduct initial testing. A report detailing the prototype development process and test results is submitted.
- **December 10, 2020: Midterm Presentation (10%)**
  - Teams present their progress, including prototype performance and any design modifications. This presentation is evaluated by the instructor and peers.

Winter Semester:
- **February 15, 2021: Final Design Review (15%)**
  - Teams present their final designs, including detailed drawings, final calculations, and a comprehensive testing plan. Feedback is provided by the instructor and peers.

- **March 20, 2021: Final Prototype and Testing Report (20%)**
    - Teams submit their final prototypes and a detailed report on the testing process, results, and any further modifications made to the design.
- **April 10, 2021: Final Presentation and Demonstration (10%)**
    - Teams present their final designs and demonstrate the functionality of their prototypes. This presentation is evaluated by the instructor, peers, and invited guests.

Grading Breakdown

- Team Formation and Project Proposal: 10%
- Preliminary Design Review: 15%
- Prototype Development and Testing: 20%
- Midterm Presentation: 10%
- Final Design Review: 15%
- Final Prototype and Testing Report: 20%
- Final Presentation and Demonstration: 10%

Total: 100%

Course Policies

- **Attendance:** Regular attendance is required. More than three unexcused absences may result in a lower grade.
- **Late Submissions:** Assignments submitted late will incur a penalty of 5% per day, up to a maximum of 25%.
- **Academic Integrity:** All students are expected to adhere to the university's academic integrity policy. Plagiarism or cheating will result in disciplinary action.

Required Materials

- Textbook: "Engineering Design: A Project-Based Introduction" by Clive L. Dym and Patrick Little
- Access to CAD software (e.g., AutoCAD, SolidWorks)
- Prototyping materials (to be specified based on project requirements)

Additional Resources

- University Library
- Engineering Design Lab
- Online tutorials and workshops