

# COURSE SYLLABUS

## CSEE 480

### Capstone Project - Design

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#### Instructional Materials

**Required Instructional Materials:**

Clive L. Dym and Patrick Little, Engineering Design- a Project Based Introduction, 3<sup>rd</sup> edition, John Wiley, ISBN: 978- 0-470-22596

**Optional Instructional Materials:**

Relevant resources and references shall be posted to the course's eCampus page.

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#### Course Learning Outcomes

**Expected Learning Outcomes:**

1. Develop a quality system design for a product or process that meets the complex needs of a prospective client or customer using a formally recognized and accepted engineering or software design process **(ABET Student Learning Outcome 2)**
  2. Communicate the design by submitting via electronic means a written design proposal and making a formal oral presentation of the design proposal at the end of the semester. **(ABET Student Learning Outcome 3)**
  3. Work effectively on a team with other technical people on a large project. **(ABET Student Learning Outcome 4)**
  4. Design appropriate laboratory or field test to verify the performance and validate the finished design. **(ABET Student Learning Outcome 6)**
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#### Assessment

**Short Descriptions of and Grading Criteria for Major Assignments/Assessments:**

Requirements Specification and Systems Architecture report: A written report that documents the systems requirements and proposed architecture for the selected design project.

Project Management Plan: A written report that documents the timeline and responsibilities for design and implementation of the document.

Failure Mode Analysis and Test Plan: A written report that documents the plan for testing and debugging the proposed design.

Final Detailed Design Report: A comprehensive final report that documents the detailed the design of the system, incorporating feedback from earlier work.

Final Oral Presentation: Oral presentation by the team of their design work at a Capstone Design showcase event.

Team Performance Assessment: Peer and instructor assessment of team member performance.

**Weight/Distribution of Course Points:**

- Requirements Specification and Systems Architecture Report: 20%
- Project Management Plan: 10%
- Failure Mode Analysis and Test Plan: 10%
- Final Detailed Design Report: 30%
- Final Oral Presentation: 5%
- Team Performance Assessment: 25%

**Mid-Semester Grade:**

The mid-semester grade will be based on the Requirements Specification and Systems Architecture Report (20%), the Project Management Plan (10%), and a mid-semester Team Performance Assessment (5%)

**Expected Timeline of Major Assignments/Assessments and Topics/Units:**

Each unit below represents 1-2 weeks of the semester:

1. Introduction, team formation, project selection (1 week)
2. Expectations of engineering professionals (1 week)
3. Requirements specification (2 weeks)
4. Project Management (2 weeks)
5. Functional Decomposition (2 weeks)
6. Behavioral Models (1 week)
7. Failure Modes (1 week)
8. Discussion and examples of final design document (1 week)
9. Testing (1 week)
10. User Interface design (1 week)
11. Capstone Design Expo (1 week)

**Final Grading Scale:**

- A: 90% or above
- B: 80% or above, but less than 90%
- C: 70% or above, but less than 80%
- D: 60% or above, but less than 70%
- F: less than 60%