

COURSE SYLLABUS

CSEE 481

Capstone Project - Implementation

Instructional Materials

Required Instructional Materials:

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

Optional Instructional Materials:

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

Course Learning Outcomes

Expected Learning Outcomes:

1. Carry out a detailed design of a technological artifact (hardware or software). Design includes developing mathematical or other models of an artifact for analyzing or simulating expected performance and optimization of components. **(ABET Student Learning Outcome 2)**
 2. Analyze environmental, social, legal, and ethical implications of an engineering design solution **(ABET Student Learning Outcome 4)**
 3. Demonstrate engineering, technical, and management skills in a team setting. **(ABET Student Learning Outcome 5)**
 4. Design and implement laboratory performance tests to verify subsystem and overall system performance, and troubleshoot system. **(ABET Student Learning Outcome 6)**
 5. Demonstrate the ability to learn technical skills and acquire new knowledge independently **(ABET Learning Outcome 7)**
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Assessment

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

Ethics Report: A written report that discusses the ethical and social implications of the project design, applying appropriate professional standards.

Technical Evolution Report: A written report that makes use of individual research in the technical literature and discussing future evolution of the technology used in the design project

Final Prototype Demonstration and Documentation: A team demonstration of a working prototype of the implemented design, accompanied by all appropriate documentation

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:

- Ethics Report: 15%
- Technical Evolution Report: 15%
- Final Prototype Demonstration and Documentation: 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 Ethics Report (15%), and a mid-semester Team Performance Assessment (5%)

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

Each week one class will be devoted to professional development topics, and the remaining class time will be devoted to students working with their teams on project implementation:

1. Work planning and workspace assignment (1 week)
2. Presentation of project design summaries and feedback (1 week)
3. Engineering Professionalism (1 week)
4. Intellectual Property (1 week)
5. Business planning and development (2 weeks)
6. Conflict resolution (1 week)
7. Basic engineering economics (2 weeks)
8. Engineering Ethics – Guest lecture (1 week)
9. Engineering Ethics Case Studies (2 weeks)
10. Global Project Management (1 week)
11. Final Group Presentations (1 week)
12. 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%