

## **ECE 4792, Capstone Design**

Instructor: Waleed Meleis  
Office: 320 Dana  
E-mail: wmeleis.capstone@westernfog.com

### **Course Description**

ECE 4792 is the second of a two-course sequence that aims to give undergraduate engineering students significant experience in dealing with a large design project from the beginning to end. In ECE 4790 you selected a project and prepared a detailed proposal describing the work to be done for completing it. In ECE 4792, you will implement the project and provide the final report.

This semester as member of a design team you will be responsible for assembling, testing, and demonstrating a functioning prototype of your project. You will prepare a detailed project writeup, and present your design to a team of external judges.

### **Course Objectives**

The main objective of the senior capstone design course is to provide a multidisciplinary experience, integrating knowledge from the core, intermediate, and advanced courses in electrical engineering. Most undergraduate engineering courses teach students problem solving in a particular area. Information is presented in organized lectures and students demonstrate their mastery of it through written problems and exams.

In contrast to this learning style, practicing design engineers are often given an open-ended problem, and they must seek the appropriate resources to solve it while they remain within certain budget constraints. These resources may include hardware and software tools, research papers and reports, books describing relevant ideas and other people with useful experiences. Part of their task may be to determine if any solution to the problem exists at all. They may work in teams, so they have to be able to organize themselves, decide who does what and meet regularly to check on progress and discuss the difficulties encountered in the process. Finally, at the end of the project they need to be effective in demonstrating their results and defending their design decisions. By taking part in this course, you will get experience with all these aspects of team work during the engineering design process.

### **Course Requirements**

Your major task this semester is to complete a prototype of your project. You are also required to meet regularly with your group and to attend the group meetings with me. At every meeting, you should make sure I am aware of your contributions to your group's work.

I will also be evaluating the degree to which your group is working well together as a team. A group that is working together well is one where:

1. every group member is making contributions to the final project,
2. the entire group meets together regularly,
3. group member's communicate with one another regularly, and
4. every group member is treated respectfully by every other group member.

Every week, group leaders should submit a summary of the status of the project, and the plan for the coming weeks. The plan should indicate the contributions of every group member.

## Grading Scheme

Your grade will be based both on group and individual work.

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| Attendance and participation at weekly meetings: | 15% |
| Weekly written progress reports:                 | 15% |
| Evaluation of your contributions by your group:  | 15% |
| Final project writeup:                           | 15% |
| Final oral presentation:                         | 15% |
| Final demonstration of prototype                 | 25% |