

Department of Electrical and Computer Engineering
ECE 4900: Senior Capstone Design

Autumn 2016

Tuesday/Thursday 12:45-2:05

Classroom – Journalism Bldg 304, Lab Workspace – Dreese 761

Instructor: Dr. Christopher Ball
Office: Dreese 660
Email: ball.51@osu.edu

Office Hours: (at present, subject to change)

- Tuesday 2:15 – 3:15 pm, Thursday 11:30 am – 12:30 pm
- Tuesday and Thursday during class times when no class meetings are scheduled.
- By appointment: please arrange via email.

Course Objective: To provide students with a realistic engineering design experience in which they propose, manage, and execute a design project. Key goals include:

- Understanding engineering design process
- Integrating concepts learned throughout the engineering core curriculum
- Applying modern engineering practices and standards
- Learning and using project management techniques to ensure successful project execution
- Developing verbal and oral communication skills
- Using teamwork to optimize project performance
- Performing design activities in context of realistic design constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

Text: Design for Electrical and Computer Engineers, Ford and Coulston, 2008

Prerequisites: Option 1: 2560 (265), 3010 (312), 3020 (323), 3030 (432), 3040 (341), 3050 (352), 3090 (582), and 3900 and Sr standing, and enrollment in Electrical Engineering Program of Study (EES subplan) of the ECE major. Prereq or concur: 3080 (481).

Option 2: 3020 (323), 3090 (582), 3561 (561), 3567 (567), 3900, CSE 2231 (321), and 2451, and Sr standing, and enrollment in Computer Engineering Program of Study (CES subplan). Prereq or concur: 3080 (481) and 5362 (662).

Not open to students with credit for 4900H (683H), 4901 (683), or 682, or Engr 4903 or 5902.01.

Assignments [Grading]:

- Individual and Team Assignments [10%]
- Design Proposal and Project Planning Presentation [10%]
- Design Proposal and Project Planning Report [15%]
- Weekly Progress Reports [15%]
- Preliminary Demonstration [5%]
- Final Design and Testing Presentation [15%]
- Final Design and Testing Report [20%]
- Tested Prototype Implementation and Demonstration [10%]
- Self and Team Member Evaluations (submit individually, midterm and final) [up to ± 1 letter grade]

Written assignments: due by the end of day (11:59 pm) on their scheduled due date.

Presentation files: due at the end of the day (11:59 pm) of the day before the presentation. Revised presentation files are due at the end of the following day (11:59 pm) on which the presentation is made.

Submission: Electronically through individual or team drop box on Carmen

Presentations: all team members are expected to participate (develop and present).

Late assignments: no late work will be accepted without prior arrangement.

Other Notes:

- Role of the instructor:
 - This is your design; I will not dictate a specific technical approach. Take ownership of the project and figure out how to get it done. I am available and eager to help you and mentor you, but you need to take responsibility for involving me if you need help.
 - I will want to meet with each team from time to time (see schedule). You should keep the scheduled class time free even when class is not meeting. You can also use the class time for team meetings.
- Teamwork expectations:
 - Teams are expected to schedule a regular meeting. Procure a notebook and appoint someone to document each meeting: ideas and options discussed, decisions made, progress (success and failures), etc. These notes will be the basis for your weekly progress reports.
 - I expect all team members to contribute. Sand bagging will not be tolerated. I reserve the right to promote/demote and team member(s) a full letter grade from their team's grade based on my judgment of that individual's contribution to the team effort.
- Components and supplies:
 - You may need to purchase components and supplies in order to build and test your prototype design. You should plan for a budget of approximately \$500 for any additional supplies or components you might need. **ALLOW PLENTY OF TIME FOR THE UNIVERSITY TO PROCESS AND PLACE THE ORDER AND THE VENDOR TO DELIVER.** First components/modules should be ordered on or before Tuesday, October 18.
 - There are limited components available in the lab (Dreese 761). Please familiarize yourself with the resources available there as early as you can.
 - Talk to me **BEFORE** you spend out of pocket if you think you want to be reimbursed.

Disabilities Statement

Any student who feels s/he may need an accommodation based on the impact of a disability should contact the instructor privately to discuss specific needs. Please contact the OSU Office for Disability Services for assistance in verifying the need for accommodations and developing accommodation strategies.

Academic Misconduct Statement

Any student found to have engaged in academic misconduct, as set forth in the Code of Student Conduct Section 3335-23-04, Prohibited Conduct, will be subject to disciplinary action by the university. Academic misconduct is any activity that tends to compromise the academic integrity of the university, or subvert the educational process.

Student Conduct

Students are expected to abide by the provisions in the Code of Student Conduct. The University's Code of Student Conduct and Sexual Harassment Policy are available on the OSU Web page.

ECE 4900 – Autumn 2016 – Calendar (subject to change)

Week	Tuesday	Thursday
1	August 23 Lecture (classroom)	August 25 Lecture (classroom) Individual Assignment 1 Due Friday 8/26
2	August 30 Teams announced in class Lecture (classroom)	September 1 Individual Assignment 2 Due Friday 9/2 No Class Meeting
3	September 6 Team Assignment 1 Due Tuesday 9/6 No Class Meeting	September 8 Finalize project selection No Class Meeting
4	September 13 Team Assignment 2 Due Tuesday 9/13 No Class Meeting	September 15 No Class Meeting
5	September 20 Team Assignment 3 Due Tuesday 9/20 No Class Meeting	September 22 Team Assignment 4 due Friday 9/23 No Class Meeting
6	September 27 Individual team meetings with instructor Weekly Progress Report 1 Due Tuesday 9/27 Scheduled in Classroom	September 29 Individual team meetings with instructor Scheduled in Classroom
7	October 4 Design Proposal and Planning Presentations Weekly Progress Report 2 Due Tuesday 10/4 Class Meeting	October 6 Design Proposal and Planning Presentations Class Meeting
8	October 11 Design Proposal and Planning Report Due Tuesday 10/11 Weekly Progress Report 3 Due Tuesday 10/11 No Class Meeting	October 13 Autumn Break
9	October 18 Individual team meetings with instructor Weekly Progress Report 4 Due Tuesday 10/18 First parts order deadline Scheduled in Classroom	October 20 Individual team meetings with instructor Individual/Peer Evaluations Due Fri 10/21 Scheduled in Classroom
10	October 25 Weekly Progress Report 5 Due Tuesday 10/25 No Class Meeting	October 27 No Class Meeting
11	November 1 Individual team meetings with instructor Weekly Progress Report 6 Due Tuesday 11/1 Scheduled in Classroom	November 3 Individual team meetings with instructor Scheduled in Classroom
12	November 8 Preliminary demonstrations Weekly Progress Report 7 Due Tuesday 11/8 Scheduled in Lab	November 10 Preliminary demonstrations Scheduled in Lab
13	November 15 Optional team meetings with instructor Weekly Progress Report 8 Due Tuesday 11/15 Scheduled in Lab	November 17 Optional team meetings with instructor Scheduled in Lab
14	November 22 Weekly Progress Report 9 Due Tuesday 11/22 No Class Meeting	November 24 No Class Meeting
15	November 29 Final Presentations Class Meeting	December 1 Final Presentations Class Meeting
16	December 6 Final Project Demonstrations Class Meeting	December 8 Final Project Demonstrations Final Report Due Friday 12/9 Final Individual/Peer Evaluations Due Friday 12/9 Class Meeting
Exam Week	December 9 - 15	December 9 - 15