

ECE 395: Senior Electrical Engineering Projects I
Department of Electrical Engineering, School of Engineering, Cooper Union
Fall 2023

Course Website: <http://faculty.cooper.edu/sable2/courses/fall2023/ece395/>

Catalog Description:

ECE 395 and ECE 396 constitute the year-long senior design project. Students work in small groups on projects chosen with the advice and consent of the faculty adviser. Projects may be oriented towards research or product development, and may be in any area of electrical and computer engineering, such as in: computer engineering, signal processing (imaging, sensor arrays, multimedia), telecommunications, computer networks, microwaves, optics, advanced electronics, VLSI chip design, or an interdisciplinary area such as robotics or bioengineering. Students perform all aspects of project management, such as scheduling, budgeting, system design and developing milestones, as well as technical work including hardware and software implementation, testing and performance evaluation. Students also give several spontaneous and rehearsed oral presentations and prepare written reports. Students attend weekly lectures covering: social, economic, legal and ethical issues; safety and laboratory practice; design methodologies; technical writing; preparation of multimedia presentations and tailoring presentations to target audiences.

3 credits. Prerequisite: ECE 394.

Instructor Info:

Prof. Carl Sable

Office: Rm. 614

Email: carl.sable@cooper.edu

Instructor website: faculty.cooper.edu/sable2

Fall 2023 Office Hours (subject to change, updates would be displayed on instructor website):

Tuesdays, 5-6 pm

Thursdays, 1:30-3:30 pm

More information about office hours is available on my instructor website.

Grading:

Grading for the fall semester will largely be based on the following four components:

- Progress on the project
- End-of-semester project showcase
- End-of-semester report
- Individual activity log

The four assignments above will each receive substantial written feedback. Detailed criteria for these assignments will be discussed when they are assigned. When determining a student's grade for the fall semester, their performance on these four assignments will be primarily considered.

Other assignments throughout the semester will be graded with ✓, ✓-, or ✓+, with ✓+ being extremely rare. A ✓- is still better than a missing assignment. These assignments may be considered at the end of the semester for students who are otherwise borderline.

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Course Outcomes:

1. Students gain experience with project management, leadership, team dynamics, technical writing, and oral presentations.
2. Students gain experience in formulating and undertaking an engineering project of some degree of complexity, which requires reliance on their theoretical knowledge and analytical skills developed in other courses in the engineering curriculum.
3. Students have showcased ethical and professional responsibilities, and they have demonstrated the importance of their projects in various societal contexts.

Assessment:

1. Critiques of written reports.
2. Critiques of end-of-semester showcase, by the instructor, other students, other faculty, and/or invited guests.
3. Review of project activity archives, project schedules, and other submitted documents.
4. Meetings between the instructor and each group to assess the nature of the project, the technical content of the project, and progress made towards the completion of the project.

Activities:

The following activities are planned for the fall semester. Please see the course website for the expected date or dates on which each activity will occur.

- I. Introduction to EE Senior Projects plus initial Interdisciplinary Senior Project activity.
- II. Initial individual presentations and related discussions.
- III. Initial group presentations (describing project ideas) and related discussions.
- IV. Graduate school advice session.
- V. Library workshop.
- VI. Writing workshop.
- VII. Poster workshop.
- VIII. Mid-semester critiques / project updates.
- IX. Fun, thought-provoking activity and related discussion.
- X. Group meetings, which are scattered throughout the semester; at group meetings, individual groups meet with their instructor to discuss progress, to brainstorm about how to solve problems, and to receive feedback from previous presentations and written assignments; when one group is meeting with the instructor, other groups work on their projects in the Senior Lab or at another appropriate location.
- XI. End-of-semester project showcase.

Accommodations:

Students seeking accommodations due to a condition covered by the Americans with Disabilities Act are required to formally self-identify through the Office of Dean of Students. The Dean of Students will work with the students to clarify requested accommodations. It is the student's responsibility to speak directly to me to see how their accommodations can be met. If you are entitled to receive extra time for an assignment, please speak to me well in advance, preferably at the start of the semester, but at the latest, immediately after an assignment is assigned.