University of Southern California
Viterbi School of Engineering
Ming Hsieh Department of Electrical Engineering

EE447L – Mixed Signal Electronic Circuits (4.0 units)
Course Syllabus
Spring 2025

EE447L is a project-based Capstone design experience course covering the design of mixed signal electronic circuits. Application of solid-state electronic devices to the design of linear and analog, digital, and radio frequency systems will be a main focal point. Laboratory experiments will be geared toward completing an approved mixed signal project.

Teams of 3-4 students will be established in the first week of classes in the semester. Each team will propose 2-3 mixed-signal electronics projects via a written proposal of which one will be approved in the second week. From there, the students in each team will work on biweekly goals and meet with the instructor as such throughout the semester as progress is made. By the end of the semester, students are expected to successfully have built a prototype of their proposed project with physical electronic components and to be able to present their work to the class.

As a note, EE447L Students who are interested in modern electronic circuits will want to further consider EE477L, EE536ab, EE505L, EE577ab, and EE632 as courses leading to a strong background in digital, analog, mixed-signal integrated circuits. Such engineers continue to be in great demand.

Meetings:

Biweekly meetings will be held on Zoom via the course website on Brightspace.usc.edu. There will also be a Capstone Requirements Ethics Meeting scheduled along with a finalized project presentation with your teammates. A general schedule is shown below with instructor meetings for each group (to be formed) to be scheduled in the during the first week of classes. Also, groups will be required to check in with the TA and CP weekly to work on their projects via email and/or Google Docs. Tentative meeting time will be set for 2pm on biweekly Tuesdays, unless otherwise noted in the table below.[1]

January 16	Meet and form group project teams: 2pm on Thursday, January 16th
January 21	Discuss 2-3 possible projects: Decide on 1 of these
January 28	Present project proposal; assign basic biweekly goals
February 11	Biweekly goal #1: Detailed parts list and system diagram
February 25	Biweekly goal #2: TBD per team

[1] Please make sure at least 1-2 of your teammates, in the least, who can act as the appointed leader or co-leaders, are available to present the group and individual contribution/work on the project if not all students are available. If a student cannot attend a biweekly meeting, please make sure it is highlighted what work they did for the week in the Google Docs where the project is updated. It is helpful to record your work for your team leader to present for the reviews as needed if you must miss a meeting.

March 11	Biweekly goal #3: TBD per team
March 25	Biweekly goal #4: TBD per team
April 1[2]	2pm Thursday Capstone Ethics meeting with Gigi Ragusa via Zoom
April 8	Biweekly goal #5: Prototype finalization
April 22	Final wrap for Projects/Preparation for presentations
April 29[2]	Team project presentations (10-15 minutes each +5 minutes Q/A)

Lab:

To gain access to OHE240, please submit your USCard (6 numbers on the back) to CP Chiara and she will submit these to the stockroom manager Nathan Timpke (timpke@usc.edu) to gain access via Seth to this electronics lab (info: https://ee.usc.edu/info/access/). You will have access in this lab from 6am to 11pm daily, when Professor Weber's Capstone class is not in there (TBA), so that you can work on your team projects. Please be respectful of all those working in the lab. Students should make use of the USC Viterbi Maker's lab if needed to build their projects and may gain access here via training: https://viterbiundergrad.usc.edu/bfms/operations/training-levels/.

Instructor:

Professor Susie Schober
Email: schober@usc.edu
Office Hours: Tuesdays/Thursdays 2:00-3:00pm in OHE240 lab room
Office: PHE628

Course Producer:

Chiara De Camillo
dicamill@usc.edu
Chiara will assist during the bi-weekly group meetings and is also available to help in OHE240 TTH 2:00pm-3:00pm along with the instructor.

Course Administration:

EE447L is a biweekly Zoom meeting format class taught on Tuesdays/Thursdays and led by the instructor. The lab in OHE240 is used as needed for working on your projects and during office hours to help the students with their projects. The pre-requisite is EE348L.

The last day to drop the class without a W grade is February 28, 2025, without a refund (January 31, 2025, with a refund). The last day to drop the class with a W is April 11, 2025. (Reference: Registration Calendar - USC Schedule of Classes). Incomplete grades (IN) are rarely assigned. The IN grade may only be justified in exceptional cases such as student illness or a personal tragic event that occurs after the twelfth week of the semester.

[2] Capstone requirement meetings; exact date and time is subject to updates.

The EE447L grade is based on the following components:

BiWeekly Meetings and reaching biweekly goals: 35%
Final Project Presentation: 25%
Final Project Report (Due: May 4rd at 11:59pm): 30%
Capstone Requirements Fulfilled (Online Questionnaire and Ethics Meeting Completed): 5%
Group Peer Team Member Review: 5%

Apart from numerical grades for the final project report/presentation, grades will be posted by May 2, 2025. There is no final exam, just a final project report. It is the student's responsibility to verify (and possibly contest) these grades **before** the final project submission. **Once assigned, a letter grade will not be changed except for grossly erroneous circumstances.**

Project Reimbursement:

Each student is allowed to use $250 toward their group project. If a team has 4 members, then, for example, the team has $1000 to utilize for their group project. Each student must keep all receipts and make an Excel spreadsheet for their expenses of this $250 per student. At the end of the semester each student can submit their receipts and Excel spreadsheet detailing the project expenses to Nathan Timpke (timpke@usc.edu) with the instructor cc'd in order to be reimbursed.

The EE447L website is located on Brightspace.usc.edu.