

ECE 35 Syllabus - Winter 2022

At the start of the quarter, all lectures, discussions (bootcamp) and office/tutoring hours will be remote via zoom. The zoom links are available on Canvas. You will be notified when the course moves to in-person instruction. Due to the uncertainty of the current pandemic, this syllabus and the policies described may be updated during the quarter.

Instructional Team

Instructor: Curt Schurgers
Instructional Assistants (IAs): Joshua, Brandon, Michael, Aditi, Vishaal, Sam, Johnathan, Arsalan, Yizhang, Jean

Course Details

Lectures:	MOS 0114
Discussions (aka/Bootcamp):	CENTR 214
Office and tutoring hours:	JH 5101A (in the ECE tutoring center)

Course Communications - Piazza

We will use Piazza for all course related (non-realtime) communications. You can post questions to the entire class or to the instructional team.

Make messages private if they include (part of) your solutions or would otherwise violate the academic integrity policy. When in doubt, make your post private; we always have the option to change it to public if we feel everyone could benefit from the question. If you select "Instructors" in the 'Post to' field (rather than the entire class), only the instructor and the IAs can read these messages.

You can also send private messages on piazza by selecting specific people in the 'Post to' field. Use this to contact the individual IAs or the instructor. In that case, start the 'summary line' of the message with "Private: ".

Do NOT use the Canvas mailing feature to contact us. We will NOT respond to those messages. If you need to send a private message to the instructor, you can use his ucsd email address (but any course related questions should ideally be through Piazza).

Calendar

Check your [Canvas Calendar](#) for the due dates of the various assignments in this class: video lectures, reading quizzes, homework, exams, logistics tasks, etc. It is your responsibility to be aware of all the deadlines and deliverables.

Course Setup

ECE35 is a challenging course. It introduces a number of new concepts that may initially seem abstract and hard to grasp. It typically requires many hours of analysis, study, practice and problem solving to develop the necessary intuition that electrical engineers need to possess. Most importantly, you will need to grasp the **concepts** that support the problem solving strategies. Simply memorizing solution recipes will not be sufficient and eventually be counterproductive. You need to **understand the “why”, not just the “how”**.

Active Learning

While this is definitely a challenging class, you are not doing it alone. We will be using an active learning methodology called a **flipped classroom**, to provide you with the best guidance and instruction possible, by diverting the instructor's and IA's time with you to where it is most beneficial. This means that you will do the easier part of learning, the transmission of information on your own, by watching lecture videos that explain the theory. Then during the lecture slot, we will work together on processing that information, on making connections and interpreting what is going on. This will be done through active learning questions, where you need to solve problems and vote via a student response system. You will also discuss these problems with other students in the class, a process that is called peer-instruction.

The key points of this way of teaching are:

- **Before the lecture:** You need to come prepared, by watching lecture videos in **ADVANCE**.
- **Lecture:** In lecture, we will apply the concepts you learned about in the lecture videos. The idea is that you learn in class by doing, by working through problems and by discussing problems. Lecture time is not about you passively listening, but about you actively participating. When you attend lectures, you need to participate and be fully engaged in the active learning exercises.
- **Practice:** You need to practice a LOT. This is the purpose of the homework problems we will assign. There are also labs, where you will get to see how the concepts apply to real circuits. But you should really do even more. Check out the additional practice resources on the website.

Course Structure and Modalities

Lecture Videos

You will be learning the core material from a set of video lectures. They are basically the same lectures you would have gotten if the course had been taught in the traditional lecture style. Only now, you have the option to pause, rewind, etc. So, in essence, it is a way to attend the lectures, but at your own pace.

Textbook

The lecture videos cover the material you need to know, supplemented by what is covered in the lectures. The textbook is optional, but can help you fill in the gaps. There are two recommended ones and the corresponding chapters will be listed for both. There are online versions of these books.

- "[Introduction to Electric Circuits](#)", 9th Edition, by James A. Svoboda and Richard C. Dorf, ISBN-13: 978-1118477502 / ISBN-10: 1118477502.
- "[Fundamentals of Electric Circuits](#)", 6th Edition, by C. Alexander and M. Sadiku, ISBN-13: 978-0078028229 / ISBN-10: 0078028221.

Lectures

Because we run this course as a flipped classroom, it is imperative that you watch the lecture videos BEFORE coming to the lectures. During the lectures themselves, we will be doing active learning exercises.

This course is scheduled to be in-person. However, at the start of the quarter, all course components will start off as remote, offered synchronously via zoom.

The zoom links are available on Canvas. Lectures will also be recorded and made available on Canvas for asynchronous viewing. By attending the zoom lectures, you agree to joining a zoom session that is being recorded.

Once we move to in-person instruction, lectures will be held in the lecture room listed on the schedule. In-person lectures will also be recorded via the UCSD podcast system and made accessible through a link on Canvas for asynchronous viewing. We may also attempt to broadcast the lecture in real-time via zoom at that time (the success/quality will depend on the UCSD Wifi network).

As part of the active learning process in both the remote and in-person mode of the course, we will use a student response system that allows you to vote on certain questions. This system, called Webclicker, works with your smartphone, tablet or laptop. When you attend the lecture,

we expect you to participate in these student polls. Tutors will also be present in lecture to assist you in the active learning process.

Discussions (Bootcamps)

There are two discussion sessions. They are not duplicates of each other. It is therefore advised to attend to both if you can. They are organized as a "Problem Solving Bootcamp". This is a setup which is meant to mimic an exam setting: you get challenging questions and only a limited amount of time to solve them. The goal is to help you prepare for the time pressures of an exam. Come ready to solve problems and ask questions.

In terms of modality and recording, discussions will be handled similar to the lectures: initially remote via zoom, and then in-person. Recordings and podcasting will be used to make the material available asynchronously as well. However note that the quality of these recordings is far from guaranteed as we may be using the blackboard.

Labs (updated 1/6/2022; 5:15pm)

There are also labs, where you will apply the concepts you have learned and try them out on real-world circuits. There are 6 labs total: 4 remote labs and 2 in-person labs.

There are four remote labs, named lab 1, lab 2, lab 3 and lab 4 (spread throughout the quarter). They are simulation-based asynchronous, and thus similar to a homework. These assignments are individual. Tutors will be available through zoom to help you.

There are two in-person labs: lab A and lab B. For each of these, you need to go to the Warren Lecture Hall (WLH) lab rooms during a 90 minute lab mini-slot. These labs can be worked on in pairs. The possible mini-slots are listed on Canvas. You must select a mini-slot that falls within the lab slot you signed up for when you registered for the class, but you can select either mini-slot within your enrolled lab slot. Also, you can choose which week you do each of the two labs, within the following constraints:

- Lab A: You can choose week 6, 8 or 10.
- Lab B: You can choose week 8 or 10 (you can only do lab B if you have finished lab A)

Homework

A key contributor to success in ECE35 is practice. The homework assignments use our online homework tool, called ElectroTriton. Answer checking is automatic (you get multiple tries, potentially for partial credit). Solutions are available through the tool after the submission deadline. There are also optional Practice Problems available (not for credit).

Office Hours and Tutoring Hours

The Instructional Assistants (TAs and tutors) will also have a lot of tutoring hours to help you with the material. When we are in-person, the [tutoring hours and the instructor office hours](#) are all in the ECE Tutoring Center, which is located on the [5th floor of Jacobs Hall](#) (EBU1). We will be in the first cubicle room, labeled A. The hours are listed on Canvas under the “Weekly Schedule”.

In addition to these in-person tutoring and office hours, we will also offer some remotely via zoom. They are listed on the schedule in a different color. The zoom link for the remote tutoring hours and the instructor office hours can be found on Canvas under *Zoom Links*. We will use the breakout room feature in Zoom to talk to you in private (e.g., when you want to share your screen with us without other students in office hours seeing it). If you get to the Zoom meeting and you find nobody there, it is probably because we are in such a breakout room. Just wait for a bit; we will get back to the main room when we are done helping the other student. Initially, all tutoring hours will be remote.

Academic Integrity

Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind. This is especially important now that the course is taught in an online format. We will be lenient in the grading, but very strict in enforcing the academic integrity standards.

Cheating, plagiarism and any other form of academic dishonesty **will not be tolerated**. This includes cheating on exams, using resources that are not allowed, copying assignments, lying to tutors/TAs or the instructor, aiding in plagiarism or cheating, or any form of dishonesty including impersonating someone else in student polling. Never claim work/ideas to be yours if they are not, and never assist others in cheating (e.g. by offering them your solutions). Do not post solutions, even after you have finished the course. Collaborating with other students to develop, complete or correct course work is limited to activities explicitly authorized by the Instructor. Use of other students' course work, in part or in total, to develop, complete or correct course work is unauthorized. If you are not sure of what is allowed, ask the instructor. Wrong assumptions are never an excuse.

Each student is responsible for knowing and abiding by UCSD's policies on Academic Dishonesty and on Student Conduct. Any student violating UCSD's Academic Dishonesty or UCSD's Student Conduct policies risks an F in the course and will be reported to their college Dean for administrative processing. Committing acts that violate Student Conduct policies that result in course disruption are cause for suspension or dismissal from UCSD. For more information, check out the [UCSD Academic Integrity website](#).

Grading

This course offers many opportunities to demonstrate your learning. If you **master the concepts** and can apply them, you will do well in this class.

Written Exams

There will be five written exams: four quizzes and one final exam. All quizzes will be during the scheduled lecture slots. Check the Canvas calendar for the exact dates. The final exam will take place during the regular final slot in finals week.

The quizzes will be remote via zoom. The final is scheduled to be in-person. Only if the university guidance requires the course to be fully remote, will the exam be remote as well.

For the exams, the grading rubrics focus on testing your mastery of the fundamental concepts and your ability to apply them. To get a feel for what that means in terms of partial credit, check out these [grading rubric examples](#).

Oral Assessment

There will be an oral assessment in the course where you will meet one-on-one with an IA or the instructor. The goal is to serve as a follow-up for the written exams and help you better understand which concepts you are struggling with.

Total Grade

The total grade is calculated as below. This grade will directly translate into a letter grade.

Grade breakdown:

2.5%	max [final, reading quizzes *]
5%	lab participation
15%	max [final, homework problems *]
2.5%	max [final, oral assessment]
10%	quiz 1 **
10%	quiz 2 **
10%	quiz 3 **
10%	quiz 4 **
35% 37.5%	final

Notes:

- $\max [\]$ means that we take the maximum of the two scores. So effectively, “ $\max[\text{final}, \text{reading quizzes}]$ ” means that your grade on the reading quizzes is replaced by your grade on the final, if the latter is higher.
- * your lowest score is dropped first.
- ** up to two of your lowest quiz scores are replaced by your grade in the final exam if the latter is higher.
- We reserve the right to adjust this grade breakdown as needed.
- In case of changes in course modality or when irregularities are found, oral exams may be included on a case-by-case basis or for the class as a whole.
- If you do not accept the academic integrity agreement, you will automatically lose 25% of your points

Letter Grades

The total grade will translate into your letter grade as listed below. **However, if your score on the final exam is below 35%, you can at most get a D. If your score in the final exam is below 25%, you will get an F.**

80 – 85%	A-	85 – 95%	A	95 – 100%	A+
65 – 70%	B-	70 – 75%	B	75 – 80%	B+
50 – 55%	C-	55 – 60%	C	60 – 65%	C+
0 – 40%	F	40 – 50%	D		

It is important to know that the class is **not curved**. As such, your grade does not depend on how you stack up against other people in the class. The goal is for your grade to represent how much you learned, and we hope everyone will do well in this course. Please support each other (**without violating the academic integrity policy**).

Lecture Topics

This link points to a detailed list of the [lecture topics](#).

Prerequisites

Make sure you satisfy the formal prerequisites for this course. It is extremely important that you are proficient in the math needed for ECE35. The pace at which new concepts are introduced is very challenging, and you will only be able to do well in ECE35 if your math foundation is solid. To help you gauge your preparedness, there is a pre-requisites self-test. This test will give you

an idea of what concepts you are expected to already know before starting ECE35. It is also a tool for you to test if indeed you have sufficient mastery of these topics. One of the main reasons students fail in the major is the lack of sufficient mastery of math.

Learning Outcomes

In this course, you will learn the fundamental concepts and techniques that underlie electrical circuits. These form the bedrock of electrical engineering. At the end of this course, you will be able to

- Solve, analyze, and estimate networks of resistive elements, dependent and independent sources
- Solve, analyze and estimate transient behavior of electrical circuits with R, L, C elements
- Solve, analyze and estimate sinusoidal steady state behavior of electrical circuits with R, L, C elements
- Apply analysis methods to unfamiliar problems, judge solution options, and develop intuition about circuits.
- Design, execute and analyze simulations of electrical circuits.

Research Studies

We are running two research studies this quarter on specific pedagogical strategies related to ECE35. As part of these studies, we will invite you to complete a few surveys. Participation is voluntary and will in no way impact your grade or class standing.

The first study is on the course structure, specifically the flipped classroom model, and how it relates to student motivation. For more information on this study, you can check out the consent form: <http://goo.gl/J1NcEV>. If you want to opt out of the study, send an email with your name and the course name to <phadjipieris@ucsd.edu>, indicating you wish to opt-out.

The second study is about the use of one-on-one oral assessments. For more information on this study, check out the consent form: <https://drive.google.com/file/d/1X00kavweTVWKKAd9vmtbXovLYppdjY35/view?usp=sharing>. If you want to opt-out of the study, send an email with your name and the course name to <lklement@ucsd.edu>, indicating you wish to opt-out.

Getting Additional Help

ECE Tutoring

The ECE tutoring center has a number of tutors to help you with a variety of core ECE classes. For more information, check out the [ECE tutoring website](#).

IDEA Center

The IDEA Engineering Student Center is a hub for student engagement, academic enrichment, personal/professional development, leadership, community involvement, and a respectful learning environment for all. It offers a variety of programs: <http://idea.ucsd.edu/>.

CAPS

[Counseling and Psychological Services](#) offers confidential counseling to students free of charge and has a 24-hour crisis line available at 858-534-3755.

Course Policies

Regrade Policy

For all regrade requests for ECE35, [the deadline is exactly one week from the moment the grades are posted](#). This applies to quizzes and exams. For reading quizzes and homework, the regrade deadline is one week after the submission deadline for that assignment. Regrade requests result in us looking at the entire assignment (so it is possible you gain points but you might also lose points). Regrade requests are for situations where we made an error in the grading.

For assignments where you had to submit via Gradescope, regrade requests have to be done via Gradescope.

For other regrade requests, send us a private message with “Regrade request” in the title on Piazza, mention your name and PID and explain in detail why you are requesting a regrade.

Recordings

This course uses video and audio recording or other personal information for the purpose of facilitating the course/class/meeting. The lectures and discussions are podcasted. For any zoom meetings, if you have privacy concerns, do not turn on your video and, if you prefer to use a

pseudonym instead of your name, please let the instructor know what name you will be using so that they will know who you are during the session. You may use the Zoom private chat feature to comment or ask questions. UC San Diego does not allow vendors to use this information for other purposes. Recordings will be deleted when no longer necessary. However, if cheating is suspected, the recording may become part of the student's administrative disciplinary record.

Attendance Policy

Attendance in the lectures is highly encouraged. We are creating an active learning environment, and 'attendance' does not simply mean being physically present; it involves being mentally present and having an active participation. Being engaged in class is crucial for your own learning, but also for that of your fellow classmates. It only works if everyone is committed to be truly present and to actively participate.

However, if it is absolutely impossible to attend in realtime, we expect you to watch the recordings.

Late Work Policy and Missing Exams

There are no make-ups for exams or quizzes. No late work will be accepted. Homework and lab assignments will have strict deadlines. We will share complete information on assignments to allow ample time for completion if you do not procrastinate. Please respect our time and that of your colleagues; plan ahead and submit on time so that we can all progress through this learning experience together.

Professionalism Policy

Please attend to all university policy and class etiquette procedures. Please be attentive, and respectful. Do not disrupt the lectures, act inappropriately, or exhibit other unprofessional behavior. Those not heeding the policies will be removed from the lecture or zoom sessions, so as to not disrupt the learning environment. Habitually engaging in this behavior may result in a reduction in the final class grade (at the complete discretion of the instructor). Harassment or abuse of any kind will not be tolerated, and could lead to expulsion from the class, as well as official reporting (see also Title IX Compliance).

Zoom Policy

During zoom meetings, everyone will be automatically muted. There is a "raise hand" feature if you want to ask a question. You can also use the chat to ask questions. We will do our best to respond to your questions. It is important to follow proper class etiquette in the zoom sessions as well. This means you shouldn't be doing non-lecture related things on your computer at the

same time. Also, do not be disruptive. If we observe any behavior that we feel impacts other students' ability to learn, we will remove you from the meeting. Please use your best judgment. The instructor has the final say.

Title IX Compliance

Title IX of the Education Amendments of 1972 is the federal law that prohibits sex discrimination in educational institutions that are recipients of federal funds. The University recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. This does not necessarily mean that a formal complaint will be filed.

If you find yourself in an uncomfortable situation, ask for help. Should you want to speak to a confidential source you may contact the Counseling Center. The Office for the Prevention of Harassment & Discrimination (OPHD) provides assistance to students, faculty, and staff regarding reports of bias, harassment, and discrimination. Students have options for reporting incidents of sexual violence and sexual harassment. Sexual violence includes sexual assault, dating violence, domestic violence, and stalking. Information about reporting options may be obtained at OPHD at (858) 534-8298, ophd@ucsd.edu or <http://ophd.ucsd.edu>. Students may receive confidential assistance at CARE at the Sexual Assault Resource Center at (858) 534-5793, sarc@ucsd.edu or <http://care.ucsd.edu> or Counseling and Psychological Services (CAPS) at (858) 534-3755 or <http://caps.ucsd.edu>.

Disability Access

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD). You need to contact me at least one week before a test or exam so that accommodations may be arranged.

Contact the OSD for further information:

858.534.4382 (phone)

osd@ucsd.edu(email)

<http://disabilities.ucsd.edu>(website)

Grades of "Incomplete"

The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where someone currently has a passing grade and unexpected emergencies prevent them from completing the course and the remaining work can be completed the next quarter. The instructor is the final authority on whether you qualify for an incomplete.

Religious Observances

Students are expected to notify their instructor at least a week in advance if they intend to miss class to observe a holy day of their religious faith.