

EE / CE 3202 - Course Syllabus

Please read this syllabus in its entirety. There is important information throughout.

Course Information

<i>Course Number/Section</i>	EE / CE 3202
<i>Course Title</i>	ECE Fundamentals – II Laboratory
<i>Term</i>	Fall 2023
<i>Days & Times</i>	Lectures: Fridays 11:30 AM – 12:45 PM ECSS 2.203
<i>Place</i>	Labs: Wednesdays 1:00 PM – 3:45 PM (Sections 305 & 306) Section 305: ECSN 3.112 & 3.114, Section 306: ECSN 3.118 & 3.120.
<i>Other</i>	TAs: TBD OPEN Labs times for working on your lab circuits <u>might</u> be found: TBD

Professor Contact Information

<i>Professor</i>	Lawrence J. Overzet
<i>Office Phone</i>	(972)UTD-2154
<i>Email Address</i>	overzet@utdallas.edu
<i>Office Location</i>	RL 3.404
<i>Office Hours</i>	MW 10:00 – 11:00 AM, in RL 3.404 or by appointment.
<i>Other Information</i>	

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisite: CE/EE 3201 – You'll learn about the lab tools and how to test devices.

Corequisite: ECS 3390 – You will learn about how to communicate a decent report.

Prerequisite or Corequisite: EE / CE 3310 – You will learn about electronic devices (diodes and transistors).

Course Catalog Description

(3 semester hours) Introduction to more advanced building blocks of laboratory measurements and data analysis in Electrical and Computer Engineering.

Student Learning Objectives/Outcomes

1. Demonstrate the ability to test and measure characteristics of electronic circuits and systems.
2. Demonstrate the ability to present laboratory results orally.
3. Demonstrate the ability to design electronic circuits for a specified application.

Required Textbooks and Materials

Required Text

1. The laboratory manual will be made available in eLearning.

Required Materials

1. Test Equipment (Analog Discovery 2 [AD2] and a Digital Multi-Meter [DMM]). These are available in the labs; however, **you may purchase them for yourselves too.** (*This is suggested because the AD2 (or ADALM2000) is a great device for an ECE student or alumnus to own.*)
NOTE: In order to incentivize you to purchase a Digilent AD2 or ADALM2000, I **WILL** allow you to perform the labs at home for credit. This will allow you to do the labs anytime you wish (but still following the oral presentation and report schedules.) Mr. Kevin Rogers (kar140230@utdallas.edu) may be able to get you a great price on your own set of equipment. He will also give you the complete list of components and test equipment that you need. ***You must provide proof that you own the necessary equipment to do your labs at home.***

2. Electronic Components will be provided for in lab use.
3. Access to a computer (laptop or desktop) with an open USB port.
4. Sufficient internet access to allow you to view as well as participate in online (eLearning Collaborate) Lectures (if needed in case of quarantine).
5. Academic Edition of Cadence-OrCAD PSpice.
 - a. Student Download Link: <https://www.ema-eda.com/products/cadence-orcad/orcad-academic-program>
 - b. To get a license and obtain installation assistance contact: techsupport@ema-eda.com
 - c. DO NOT DOWNLOAD the “free 30-Day Trial” version! You need to download the **student version**. This will require you to request a license access key from Cadence-Orcad but it will arrive in a few business days.
 - d. A tutorial on using PSpice (and the other OrCAD products) can be found here: <https://www.ema-eda.com/learning/orcad-walk-throughs>
 - e. My expectation is that you used PSpice in 3201. If not, or if you don’t feel ready to use it, then work through this tutorial before the start of the semester.
6. Academic Edition of National Instruments Multisim.
 - a. Download Link: (Students should select EDUCATION version) <https://www.ni.com/en-us/support/downloads/software-products/download.academic-volume-license.html#461438>
 - b. Your current Student License S/N is: H12X01640 (Student 2022-23)
 - c. A tutorial on installing Multisim can be found here: <https://knowledge.ni.com/KnowledgeArticleDetails?id=kA00Z000000P9BTSA0&l=en-US>
 - d. A tutorial on using Multisim can be found here:: <http://www.ni.com/tutorial/10710/en/#toc1>
 - e. If you prefer Multisim, then make sure you are ready to use it this semester. If you don’t feel ready to use it, then work through this tutorial before the start of the semester.
7. Digilent WaveForms: To operate the Analog Discovery 2 in the lab.
 - a. Download Link: <https://digilent.com/shop/software/digilent-waveforms/>
 - b. A tutorial on WaveForms comes with the download and another is here: <https://digilent.com/reference/software/waveforms/waveforms-3/start>
8. MathWorks also has a circuit simulator called Simscape. It also can simulate a variety of non-circuit kinds of elements (masses on springs, waterfalls, etc.) If you already have MATLAB and Simulink on your computer, you might want to try using Simscape.
9. Please contact the ECE lab manager [Mr. Kevin Rogers at kar140230@utdallas.edu] for help in resolving any issues related to the download and installation of PSpice and Multisim,

Suggested Course Materials

Suggested Readings/Texts

1. A tutorial on using PSpice (and other OrCAD products) can be found here: <https://www.ema-eda.com/learning/orcad-walk-throughs> My expectation is that you used PSpice in EE/CE 3201. If not, or if you don’t feel ready to use it, then work through this tutorial.
2. A tutorial on using Multisim can be found here: <http://www.ni.com/tutorial/10710/en/#toc1>
3. The WaveForms tutorial: <https://digilent.com/reference/software/waveforms/waveforms-3/start>
You can check this out this even before the start of the semester. 😊

Suggested Materials

1. You may purchase any components that you would like to test out. Try Mouser.com or Arrow or any other component distributor. I would suggest that you could try out things like:
 - a. A few different LEDs (different colors so that you can learn about the different materials)
 - b. A micro-controller which accepts digital and analog inputs (MSP432 from TI is a great one).
 - c. Various sensors to test out (maybe see their frequency response and input impedance etc. etc.)
 - d. Or components that you want to use to build something for fun or for your house / family.

Course Schedule: This is our schedule for the semester. I do not expect to deviate from it.

1. Pre-Lab reading is due at the start of the Preparatory Lecture for each Lab (Fridays)
2. Pre-Lab HW assignment is due at the start of the lab period. (Wednesdays)
3. Lab Written Report is due the Monday following the lab (by 10 PM).
4. Lab Performance and Oral Report is due by the end of the next lab period (at assigned time).

Therefore:

For students in the **Wednesday (W) 1:00 – 3:45 PM lab section.** (All times are listed as CDT.)

1. Pre-Lab reading is due Friday at 11:30 AM. (Before the start of lecture.)
2. Pre-Lab HW assignment is due the following Wednesday at 1:00 PM. (At the start of lab.)
3. Lab Written Report is due the following Monday (by 10 PM).
4. You will give your Lab Performance and Oral Report during the next lab period. (The next Wednesday between 1:00 and 3:45 PM – it occurs during the lab.)

Week	Lab Period (W 1:00 – 3:45 PM)	Preparatory Lecture (F 11:30 AM – 12:30 PM)
8/21	No Lab	Introduction and Review of Safety Guidelines
8/28	No Lab	Variable Power Supply and Device IVs
9/4	Variable Power Supply	Transformers
9/11	Transformers	Bipolar Junction Transistors – BJTs (DC)
9/18	Bipolar Junction Transistors (DC)	Bipolar Junction Transistors – BJTs (AC)
9/25	Bipolar Junction Transistors (AC)	Open
10/2	BJT Cont'd	Field Effect Transistors – FETs (DC)
10/9	Field Effect Transistors (DC)	Field Effect Transistors – FETs (AC)
10/16	Field Effect Transistors (AC)	Operational Amplifiers (Op Amps)
10/23	Operational Amplifiers (Op Amps)	Analog to Digital Converters – ADCs
10/30	Analog to Digital Converters – ADCs	Digital to Analog Converters – DACs
11/6	Digital to Analog Converters – DACs	Open
11/13	ADC– DACs Cont'd	Proportional-Integral-Differential Controllers (PID)
11/20	Thanksgiving Holiday	Thanksgiving Holiday
11/27	PID Controllers	Open
12/4	No Lab	Final Exam Week Begins (Reading Day 12/9)
12/9 –		
12/15	Final Exam Week	
12/XX	FINAL EXAM PERIOD	TBD

A 5-minute time for conducting the Lab Performance and Oral Report (Oral report) will be assigned to each student. I expect that it will take place during the lab-period, but it depends upon logistics. The Oral reports are to be given using PowerPoint and take at most 3 minutes followed by ~1 minute for questions. The details and grading rubric will be provided later.

Grading Policy

- 35% Pre-Lab Homework.
- 40% Lab Written Report
- 25% Lab Performance and Oral Report

Course Policies

Make-up exams: You must have written permission from Dr. Overzet to report at an alternate time and you must have that permission at least 1 hour in advance of the scheduled report time.

Extra Credit: None.

Late Work: Each student must turn in individual work. Any Pre-Lab HW, Lab Written Report or Lab Performance and Oral Report will be reduced in credit by 25% per day late.

Special Assignments: None

Lecture Attendance: Required synchronously either remote or in person. Lecture recording can be made available only to those with a valid pre-approved excuse.

Class Citizenship:

1. Students are expected to add to class discussions.
2. You must complete all of the assignments on your own, by yourself, without help from others. All work turned in for grading must be your own work. No one else may help you do any of the work. The reason for this is simple: You learn by doing the work. You learn less if anyone does any part of the work for you.
3. The lab measurements must be done by you using the specified equipment for this course.
4. You, alone, must develop all of the simulation codes (in PSpice, Multisim or Simscape).
 - a. You may not use code developed by others.
 - b. Your own hands must be used to build and test all of the circuits in this course.
 - c. You will receive help as needed from our TAs.
 - d. If you violate the above policy (perhaps by collaborating with others or using the work of others to accomplish these labs) your TA and instructor are quite likely to catch you. In that case, you will be referred to UTD's disciplinary committee and receive a failing grade on the assignment or for the entire class.
5. You may be required to describe the circuits you have built (orally) as well as your circuit operation. This may be required of you during the assigned lab period. (It can be completed earlier and you can do the lab earlier whether you report it earlier or not.) We may need to use MS Teams to enable both screen sharing and verbal reporting / questioning. Each student is expected to be able to describe their circuit and demonstrate its operation.
6. You may work on any experiment at any time you wish (if you buy your own equipment), but you must finish your Lab Performance and Oral Report by the deadline and I think it will be best for you to do it before beginning the next experiment.
7. Please note that the Pre-Lab HW assignment is due before the start of the lab period. Upload your assignment in eLearning. You may not be allowed to do your Lab until after you have uploaded your Pre-Lab HW Assignment. (See the late HW and reports policy above.) The reason is that the pre-Lab HW Assignments are designed to help you understand the lab measurements you will make. Taking measurements without understanding is horrible engineering and something we find we must discourage. So. You really must keep up in this lab.
8. I am VERY MUCH looking forward to being your professor this coming fall. My hope is that you will learn a large amount of valuable information and skills through my instruction and your hard work.

This course might use Honorlock – an online exam proctoring tool. To successfully take an exam, you must have a web camera with microphone, a laptop or desktop computer (no tablets/phones), Chrome browser, a reliable internet connection and your photo ID. You will be prompted to install the Honorlock Chrome Extension (which you can remove after you finish the test). You will then access the exam within your eLearning course and go through the authentication process. The web camera will monitor you throughout test. Please see the Testing Guidelines and Support Information for additional information.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

Additional Information for the Fall of 2022 (Copied from 21F):

Classroom Conduct Requirements Related to Public Health Measures

UT Dallas will follow the public health and safety guidelines put forth by the Centers for Disease Control and Prevention (CDC), the Texas Department of State Health Services (DSHS), and local public health agencies that are in effect at that time during the Fall 2021 semester to the extent allowed by state governance. UT Dallas strongly encourages all Comets to get vaccinated and wear face coverings as recommended by the CDC. Check the [Comets United: Latest Updates webpage](#) for the latest guidance on the University’s public health measures. Comets are expected to carry out [Student Safety](#) protocols in adherence to the Comet Commitment. Unvaccinated Comets will be expected to complete the [Required Daily Health Screening](#). Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the [Student Code of Conduct – UTSP5003](#).

Class Attendance

The University’s attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. Faculty have the discretion to set an attendance policy for their in-person meetings, but the absences due to COVID-19 cannot be counted against a quarantined student.

Class Participation

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Accommodations for Students Who Must Isolate or Quarantine Due to COVID-19

To keep the UT Dallas community as safe as possible, the University requires students who test positive for COVID-19 or who are close contacts as determined by the campus contact tracing

program to isolate or quarantine as applicable. Faculty will be notified by the Dean of Students' Office if a student in their class has been required to isolate (positive case) or quarantine (exposed). Faculty must make lectures available for those students during the period the students must isolate or quarantine. Absences due to COVID-19 cannot be counted against an isolated or quarantined student.

Verifying COVID-19 Isolations or Quarantines

Students need to self-report COVID-19 positive results or exposures via an [online form](#) so that university campus tracers can verify, record, and take necessary campus precautions. When faculty are notified by students rather than by the Dean of Students' Office that the students are isolating or quarantining, the faculty should remind students to self-report via the form; students should not attend class until cleared by campus tracers.

Vaccinations are widely available, free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated. You are encouraged to [get a COVID-19 vaccine](#) and register your vaccination status through the [voluntary vaccine report form](#).

Proactive Community Testing remains an important part of the university's efforts to protect our community. Tests are fast and free. Please check the [Comets United](#) webpage for additional information.

[Student Safety](#) remains an important part of the UT Dallas' efforts to protect our community. All students will adhere to the Comet Commitment. Unvaccinated Comets will be expected to complete the mandatory [Required Daily Health Screening](#). Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the [Student Code of Conduct – UTSP5003](#). All students are encouraged to read the [Recommendations for Students Returning to Campus](#) issued on August 2, 2021.

Visit [Comets United webpage](#) to obtain the latest information on the University's guidance and resources for campus health and safety.

Student Resources

Students who have tested positive for COVID-19 or may have been exposed should not attend class in person and should instead follow required disclosure notifications as posted on the university's website (see "[What should I do if I become sick?](#)")

COVID-19 Resources

[Comets United webpage](#): check frequently

[FAQ](#): check out the FAQs and reach out to your instructor or academic advisor if answers are not included

[Student Resources](#): a variety of resources are available to help students to obtain counseling, health care, and academic support.

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

The instructor may record meetings of this course. These recordings can be made available to students registered for this class with a pre-approved and valid excuse for missing the meeting. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to <https://go.utdallas.edu/syllabus-policies> for these policies.

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to: <https://go.utdallas.edu/academic-support-resources>.

ADA

The University of Texas at Dallas is committed to providing reasonable accommodations for all persons with disabilities. The syllabus can be made available in alternate formats upon request. If you are seeking classroom accommodations under the Americans with Disabilities Act (2008), you are required to register with the Office of Student AccessAbility, located in the Administration Building, Suite 2.224. Their phone number is 972-883-2098, email: studentaccess@utdallas.edu and website is <https://studentaccess.utdallas.edu>. To receive academic accommodations for this class, please obtain the proper Office of Student AccessAbility letter of accommodation and meet with me at the beginning of the semester.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.