

**EEE3308C Electronic Circuits
Syllabus Fall 2021 Rev. 1**

			Lecture	Topic	Text	Lab
Aug	M	23	1	Intro to Electronics	Ch. 1	
Aug	W		2	Review of Circuits, KVL, KCL	Ch. 1	
Aug	F		3	Fundamentals of Electronics	Ch. 1	
Sep	M	6	4	Diodes	Ch. 3	1
Sep	W		5	Ideal and Non-Ideal	Ch. 3	1
Sep	F		6	Wave Rectifiers (Part 1)	Ch. 3	1
Sep	M	13	7	Wave Rectifiers (Part 2)	Ch. 3	2
Sep	W		8	AC-DC Converters	Ch. 3	2
Sep	F		9	Other Diode Applications	Ch. 3	2
Sep	M	20		MOSFET Physics and Regions	Ch. 6	
Sep	W		10	Review for Test 1	Ch. 6	
Sep	F			Test 1	Ch. 2	
Sep	M	27	11	MOSFET I/V	Ch. 6	3
Sep	W		12	Saturation and Linear Regions	Ch. 6	3
Sep	F		13		Ch. 7	3
Oct	M	4	14	DC Bias of MOSFETS	Ch. 7	4
Oct	W		15		Ch. 7	4
Oct	F		16		Ch. 7	4
Oct	M	11	17	Non-Linear Circuits	Ch. 7	5
Oct	W		18	Small Signal & Large Signal	Ch. 7	5
Oct	F		19	MOSFETS as Amplifiers Part 1	Ch. 7	5
Oct	M	18		MOSFETS as Amplifiers Part 2-4	Ch. 7	
Oct	W		20		Ch. 7	
Oct	F				Ch. 7	
Oct	M	25	21	Current Mirrors & Active Loads 1-3	Ch. 9	Spice
Oct	W		22		Ch. 9	Spice
Oct	F		23		Ch. 9	Spice
Nov	M	1	24	Ideal Opamps	Ch. 8	6
Nov	W		25	Real Opamps	Ch. 8	6
Nov	F		26	Applications of Opamps	Ch. 8	6
Nov	M	8	27	Applications of Opamps (Part 2)	Ch. 8	7
Nov	W		28	Applications of Opamps (Part 3)	Ch. 8	7
Nov	F		29	Comparators		7
Nov	M	15	30	Op Amp/Comparator Applications		
Nov	W		31	Op Amp/Comparator Applications		
Nov	F			Test 3		
Nov		22		Holidays		
Nov		29		CMOS Logic Gates	Ch. 16	
Nov					Ch. 16	
Nov					Ch. 16	
Dec		6		Final Review		
Dec		8				

Lab 1: Intro: Thevenin, Norton, etc. Lab 2: Diodes Lab 3: MOSFET Common-Source Amp Lab 4: Tone Control	Lab 5: Op Amp/Comparator Applications Lab 6: CMOS Logic Lab 7: TBD
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EEE3308C Electronic Circuits

Fall 2021

Description: Fundamentals of electronic circuits and systems. Lab.

Prerequisites: EEL 3008 Physics of EE

Class times: MWF 7th period (1:55 – 2:45 PM) **ONLINE/ZOOM/ON CAMPUS**

Professor: Nima Maghari (maghari@ece.ufl.edu)

UPIs:

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Course Organization: Each major topic will include homework assignments and labs emphasizing practical applications. There will be three in-class tests. No final exam. There will be weekly Quiz on Canvas.

Textbook: B. Razavi, *Fundamentals of Microelectronics*, 3rd Ed. (YOU WILL NEED ACCESS TO THE TEXTBOOK.)

Diligent Analog Discovery Board: **Required.** Versions 1 or 2 are OK. Works with PC or Mac.

Parts Kit: **You will need to order your own parts.** See Canvas page.

Grading:

HW:	15%
Labs, projects:	15%
Quiz	16%
Tests (3@18% each):	54%

Course Themes:

- Practical electronics: How do you create circuits to do useful things?
- Basic electronic elements
- Design-oriented analysis

Labs/ Times:

ONLINE/ZOOM

TBD

UPI Office Hours: TBD

Homework: ~ 1 per week

- Usually assigned Monday; due by class start time on Friday, where solutions will be discussed
- Goals are to illustrate and reinforce lecture topics and provide practice for quizzes
- Lowest score will be dropped
- It's OK to work in groups or to get tips from other students; you must push your own calculator buttons and the work you turn in must be your own.
- You won't learn as much from the homework if you depend on somebody else to tell you how to do it.
- Turn in homework online in Canvas as .pdf, .doc, .xls, or .asc.
- Late homework may be accepted at the instructor's discretion, typically for reduced credit.
- Turning in homework late based on my published solutions would be cheating.

Class Meetings:

Class Participation: The lectures and the labs are online and synchronous through Zoom. The lectures will be recorded and posted to MediaSite, where you can watch whenever you want. It is best to watch the lectures in real-time so you can ask questions and participate in chats.

Zoom Etiquette:

I can teach more effectively if you keep your video on and audio off during lectures. However, if for whatever reason, you prefer it keep the video off, that is OK.

- Attendance at labs is required. Work out any conflicts with the lab UPI in advance if possible and/or arrange makeups.

Handouts: I put as much as possible in the notes, but the lectures usually cover more.

Textbook: Anything in an assigned chapter of the book is fair game unless I tell you otherwise.

Problems: Work as many as you can find, this is the best possible test preparation.

Supplementary problems: Sometimes we can help find more; try assigning yourself design problems and look at other books.

SPICE Assignments:

- Everycircuit. Download from <https://everycircuit.com/> (**Class license will be provided**)

Labs:

Labs in 3308C are run similarly to 3701.

1. Before starting your lab section you will be expected to:
 - a. Understand the lab manual
 - b. Analyze and build the circuits
 - c. Perform most measurements at home with your Analog Discovery board
 - d. Submit your pre-lab document on Canvas 15 min before your lab section
2. You must demonstrate your working circuit by the end of your lab section
3. A **lab handout** will be provided on Canvas for each lab. The lab handout is broken into pre-lab and in-lab sections. They will be graded separately.
4. The pre-lab steps and results are due before the lab starts.
5. You complete the in-lab steps while in contact with your UPI, and turn in
6. Failure to do any of these will negatively affect your lab score
7. **Lab Manuals** and **Pre-Lab documents** will be accessible before your lab date
8. There will be office hours to answer questions and help you get your lab working

Lab Makeup Policy:

For an excusable event, you must notify Morgan Thomas a week prior to the event. This includes exams, conferences, etc. You must email Morgan Thomas, not your lab TA, to get a makeup scheduled. If you do not email a week in advance you may not get a makeup. If an emergency occurs where you cannot attend email Morgan Thomas and cc your lab TA so they are aware you will not be attending that day.

Late Lab Policy:

Late labs will only be accepted on a case by case basis at the instructor discretion. If you are turning in your lab late please alert Morgan Thomas and cc in your lab TA.

Lab Reports:

Your lab reports are due prior to the next lab you are scheduled to attend. Your pre-lab is due prior to attending that lab session. If you get a scheduled makeup lab session, your prelab will be due prior to attending that makeup session but your lab report will still be due at your regularly scheduled lab time.

Software

We will be using EveryCircuit for this lab to simulate the circuits.

Everycircuit. Download from <https://everycircuit.com/> (**Class license will be provided**)

We will be using Waveforms and the DAD board to test the circuits.

Lab Parts:

You will be ordering your lab parts from digikey. Use the link below to access the cart.

Link to Order:

If you do not have a Diligent Analog Discovery Board (DAD) you will need to order one for this course. It will be used for testing all your circuits.

Academic Honesty Policy:

You are not allowed to cheat or to tolerate cheating. The University's honesty policy, which I follow, can be found at <https://sccr.dso.ufl.edu/wp-content/uploads/sites/4/2018/08/The-Orange-Book-Web.pdf>.

You may consult with other students on homeworks or projects. However, solutions or reports that you turn in must be **your work alone**. For example, you must create your own computer files and run your own simulations.

- You are expected to do your own work.
- You are expected to report any violations of the Honor Code that you become aware of.
- It is a violation of the Honor Code to turn in solutions to homeworks, labs or tests copied from other students or from published handouts or solutions.
- You are welcome to work with other students on homeworks and lab reports. However, once you understand the method of solution you should work through the calculations yourself.

How to study for this course:

The best way to learn how to analyze circuits and to prepare for tests is to *practice*. There are at least two sets of skills that you must master. One is figuring out how to approach an unfamiliar circuit or problem; the other is how to work through the solution to the problem or the analysis. If you always get help with setting up the problem, or just watch someone else solve the problem, you do not get any practice at all. To learn this material and to do well in the course, you must work problems and analyze circuits by yourself.

Disabilities Accomodations:

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

UF Religious Holiday Policy:

“Students, upon prior notification of their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. No major test, major class events or major university activity should be scheduled on a major religious holiday. Professors and university administration shall not penalize students who are absent from academic or social activities because of religious observance. Students shall be permitted a reasonable amount of time to make up material or activities covered in their absence.”

To excuse religious holidays, students need to give the instructor a 1 week notice prior to the specific holiday.

UF Counseling Services:

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. Resources include:

- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC Mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

Software Use:

All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. “We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity. “

Make-Up Opportunities:

It is very hard for me to make you a customized exam. With a University-approved excuse and arranged for in advance, or in an emergency, a make-up exam will of course be allowed.