

**EEE3308C Electronic Circuits
Tentative Syllabus
Fall 2019**

			Lecture		Homework, etc.	7 th Edition
	W	21	1	Intro	TBD	Ch. 1
Aug	F	23	2	Amplifiers intro, design-oriented analysis		Ch. 2
	M	26	3	Voltage/current dividers, cascade amps		Video
	W	28	4	LTSpice		Video
	F	30	5	Ideal op amps		Ch. 2
	M	2		Labor Day (No class)		
	W	4	6	Op amp applications		Ch. 2
	F	6	7	Op amp loop gain		Ch. 2
	M	9	8	Op amp non-idealities		
Sept	W	11	9	Frequency Response		Append E, F
	F	13	10	Difference/instrumentation amps		
	M	16	11	AC coupling		
	W	18	12	Choosing capacitors, port resistances		9.1
	F	20	13	Review for Test 1		
	M	23		Test 1		
	W	25	14	NMOS FET regions of operation		Ch. 5
	F	27	15	Resistor biasing		Ch. 5
	M	30	16	MOSFET amplifier		
	W	2	17	More FET amplifiers		Ch. 7
	F	4		Homecoming (No class)		
	M	7	18	Other FET types, PMOS		Ch. 7
	W	9	19	Coupling, bypass cap design		Ch. 7
Oct	F	11	20	Degeneration, source follower		Ch. 7
	M	14	21	NMOS/PMOS amps		Ch. 8
	W	16	22	Current mirror; active load		Ch. 8
	F	18	23	Multi-stage amplifier design example		Ch. 8
	M	21		Test 2		Ch. 9
	W	23	24	Test 2 review, diff pair		Ch. 8
	F	25	25	Diff pair, comparator		
	M	28	26	Logic: NAND, NOR		Ch. 14
	W	30	27	Logic: Transmission gate		Ch. 14
	F	1	28	Comparators, Schmitt trigger		Ch. 18
	M	4	29	Relaxation oscillator		Ch. 18
	W	6	30	Diodes		Ch. 4
	F	8	31	BJT large-signal		Ch. 4
Nov	M	11		Veterans Day (No class)		
	W	13	32	BJT small-signal analysis		Ch. 4
	F	15	33	BJT multi-stage amplifiers		Ch. 4
	M	18		Test 3		
	W	20	34	Op amps plus transistors		Ch. 13
	F	22	35	High-frequency response		
	M	25	36	Time-constant analysis		
	W	27		Thanksgiving (no class)		Ch. 17
	F	29		Thanksgiving (no class)		
Dec	M	2	37	History of Electronics, Vacuum Tubes		
	W	4	38	Review		
	Th	12		Final Exam		

EEE3308C Electronic Circuits

Fall 2019

Description: Fundamentals of electronic circuits and systems. Lab.

Prerequisites: EEL3008 Physics of EE; EEL3112 Circuits 2

Class times: MWF 7th period (1:55 – 2:45 PM)

Room: LAR 330

Professor: Robert Fox (fox@ece.ufl.edu) NEB 537

Fox's office hours: I'm available almost every day. Email to make sure I'll be in.

Lab UPIs:

Yiyang Tan tanyyang@ufl.edu

Andres Anchausti AndresInchausti@ufl.edu

Anthony Dermody atd216@ufl.edu

Nicholas Fata nicholas.fata@ufl.edu

Supervised Teaching PhD Student: (Nidish Vashistha (nidishv@gmail.com))

Course Organization: Each major topic will include homework assignments emphasizing analysis and design and in-class demonstrations emphasizing practical applications. Three tests plus a final exam.

Text: A. Sedra and K. Smith, *Microelectronic Circuits*, 6th or 7th Ed., Oxford University Press.

Diligent Analog Discovery Board: Required. Versions 1 or 2 are OK. Works with PC or Mac. See <http://tinyurl.com/NAD-UF-f17>.

Software: LTSpice <http://www.linear.com/designtools/software/#LTspice>

Grading:

HW:	15% (drop lowest one)
Labs:	20%
Tests (3@15% each):	45%
Final exam:	20%

· Final exam: Thursday December 14, 10 AM – 12 AM

Course Themes

- Practical electronics: How do you create circuits to do useful things?
- Basic electronic elements: Op Amps, MOSFETs, BJTs, diodes
- Design-oriented analysis

Labs

- 6 sections; NEB 211
- 7 or 8 labs (about 2 weeks/lab)
- Supply fee is \$71.12

Lab Schedule:

Monday	9-10	(4:05 - 6:00)	Yiyang
Monday	E2-E3	(8:20 - 10:10)	Andres
Tuesday	9-10	(4:05 - 6:00)	Nick
Wednesday	11-E1	(6:15 - 8:10)	Anthony
Thursday	11-E1	(6:15 - 8:10)	Anthony
Thursday	E2-E3	(8:20 - 10:10)	Andres

- You must attend all of the labs. Be sure to work out any conflicts with the TA, in advance if possible.
- Lab handouts will be available well before the lab meeting time.
- It is required that you be prepared for labs. Generally you will need to have your lab circuit built and working and all pre-labs done before you come to lab. If you are unprepared, you will receive a score of zero for the lab.
- The TAs will be available in the week before the lab meets to help you get things working and to answer questions about the labs.
- Since most of the work will be done before lab, you should be done with the actual lab in less than two hours.

Diligent Boards:

- The labs require the Diligent/National Instruments boards.
- NAD-2 available for \$179 at <http://tinyurl.com/NAD-UF-f17> .
- DAD-2 available for \$179 (with some extra effort) at <http://tinyurl.com/NAD-UF-f17> .
 - Select Get Academic Pricing
- The UF Bookstore carries some NAD-1 (\$199) and NAD-2 (\$311.25) for those who want to use financial aid or want it right away.
- I also recommend the Analog Parts Kit

Tests: Closed-book, no notes. I'll provide formulas; in-class during regular class period.

Review sessions: MAYBE

- Test/review workshop sessions on Thursday before each of the tests

Homework: ~ 1 or 2 per week

- Usually due at start of 2nd following class day, where solutions will be discussed
- Goals are to illustrate and reinforce lecture topics and to 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.
- Homework is usually assigned at the end of a lecture and is usually due at the start of the class meeting after the next one.
- I go over the homework solutions at the start of class, while it's fresh in your mind.
- Turn in homework electronically 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.

Attendance:

- Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. See <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.
- I'll be tracking attendance using the multi-platform clicker software PollEverywhere. I'll help you get signed up using your ufl email address. If you create an account using a different email address we may lose track of you.
- At the beginning of each class meeting, I'll provide a few warm-up questions plus a "secret word" question to answer using your phone or computer. If you don't know the secret word, you'll be marked absent.
- You are responsible for everything in the lecture unless I tell you otherwise.
- If you need to miss class, be sure to see me or a TA to find out what you missed.
- Handouts: I put as much as possible in the notes, but the lectures usually cover more
- Textbook: Supplements lecture; follow by topic; syllabus may include some pointers to topics
- Problems: Work as many as you can find: the best possible quiz preparation.
- Supplementary problems: Sometimes we can help find more; try assigning yourself design problems and look at other books.

SPICE assignments

- LTSpice; download from <http://www.linear.com/designtools/software/>.
- To help debugging SPICE runs, we need print-outs of input and output files, a schematic with labeled node numbers, .OP (Bias Point Detail) information, .OPTIONS, .MODELS, etc.
- If you turn in .asc files, make sure all needed files are included.

Academic Honesty Policy

- UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.
- 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.
- Sending someone the “secret word” so they can pretend to be present when they’re not would be blatant cheating, and both parties would risk failing the course.

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.

Make-Up Opportunities: It is very hard for me to make you a customized exam. If you have a University-approved excuse and arrange for it in advance, or in an emergency, a make-up exam will be allowed.

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

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.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or

<http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

<https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.