

**EEE4306 Electronic Circuits  
Syllabus  
Fall 2018**

**THIS COURSE IS BEING COMPLETELY RENEWED.  
The following syllabus here is only vaguely related to reality!**

			Lecture		7 <sup>th</sup> Edition
	W	22	1	Intro	
Aug	F	24	2	Amplifiers intro, design-oriented analysis	
	M	27	3	Feedback intro, loop gain, ideal gain	
	W	29	4	More FB, op amp applications	
	F	31	5	Series, shunt resistances	
	M	3		<b>Labor Day (No class)</b>	
	W	5	6	Review MOSFET/BJT regions of operation	
	F	7	7	Amplifiers	
	M	10	8	More FET amplifiers	
Sept	W	12	9	Degeneration, source follower	
	F	14	10	Coupling, bypass caps, more small-signal	
	M	17	11	Diff pair active load	
	W	19	12	Op amp circuits, diff pair, comparator	
	F	21	13	<b>Test 1</b>	
	M	24		Diff pair active load	
	W	26	14	Op amp circuits, diff pair, comparator	
	F	28	15	Vos, CM range	
	M	1	16	Time-constant analysis	
	W	3	17	Frequency response	
	F	5	18	Phase margin, compensation	
	M	8		2-stage op amp, DC	
	W	10	19	2-stage op amp transient, slew rate	
Oct	F	12	20	Vos, CM range	
	M	15	21	Input-referred errors	
	W	17	22	Noise, output stages	
	F	19		<b>Test 2</b>	
	M	22	23	Test 2 review, op amp DC specifications	
	W	24	24	Power amplifiers	
	F	26	25	Filters	
	M	29	26	Filters	
	W	31	27	Second-order filters, universal filter	
	F	2		<b>Homecoming (No class)</b>	
	M	5	28	Second-order filters, universal filter	
	W	7	29	Parallel and series resonance, op amp	
	F	9	30	RF circuits	
Nov	M	10		<b>Veterans Day (No class)</b>	
	W	13	32	Parallel and series resonance, op amp	
	F	15	33	<b>Test 3</b>	
		17		Comparators, Schmitt trigger	
	M	20	34	Wave-shaping circuits	
	W	22		<b>Thanksgiving (no class)</b>	
	F	24		<b>Thanksgiving (no class)</b>	
	M	27	35	Comparators, Schmitt trigger	
	W	29	36	Wave-shaping circuits	
Dec	F	1	37	Oscillators	
	M	4	38	Tubes	
	W	6	39	Review	

## EEE4306 Electronic Circuits 2

Fall 2018

**Description:** Principles and applications of analog and digital electronics

**Prerequisites:** EEL3308C Electronic Circuits 1

**Class times:** MWF 8th period (3:00 – 3:50 PM)

**Room:** NEB 202

**Professor:** Robert Fox ([fox@ece.ufl.edu](mailto:fox@ece.ufl.edu)) NEB 537

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

**Supervised Teaching PhD Student:** TBD

**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*, 7<sup>th</sup> Ed., Oxford University Press.

**Recommended:** *The Art of Electronics*, Horowitz and Hill

**Diligent Analog Discovery Board:** 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)
Tests (3@20% each):	60%
Final exam:	25%

· Final exam: Monday December 10, 10 AM – 12 AM

### Course Themes

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

**There is no lab, but we may build a few circuits and test them using DAD/NAD boards.**

**Diligent Boards/National Instruments boards.**

· I also recommend the Analog Parts Kit

**Tests:** Closed-book; in-class during regular class period.

**Review sessions:**

· Test/review workshop sessions Thursday @ 5 PM before each test, and sometime before the final.

**Homework:** ~ 1 or 2 per week

- Usually due next class, 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 almost always due just before the start of the next class meeting.
- I go over the homework solutions at the start of the next 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.
- Soon after 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.
- 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, I 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 (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-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.
- Do not send someone the “secret word” so they can pretend to be present when they’re not.

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

**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, please 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:

U Matter, We Care: If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

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

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department, 392-1111 (or 9-1-1 for emergencies). <http://www.police.ufl.edu/>

Student Complaints Campus:

[https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

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

**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.”

**Course Evaluations:** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

**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.