EE 411 – Circuit Theory
Fall 2019

Course: EE 411; Unique Numbers 15965,15970,15975, and 16000,16005,10610
Lecture: (15965,15970,15975) TTH 930a-11a in BUR 134; and
(16000,16005,10610) TTH 1230p – 2p in ECJ 1.214
Final Examination: (15965,15970,15975) Sat, Dec 14, 7p-10p; and
(16000,16005,10610) Sat, Dec 14, 2p-5p

Lab/Recitation Schedule:
The labs/recitation sessions are conducted by the Teaching Assistants

Unique Number	Day	Time	Recitation Location	Lab Location
15965	M	3-5p	EER 1.512	EER 1.828
15970	M	5-7p	ETC 2.102	EER 1.828
15975	M	7-9p	EER 1.512	EER 1.828
16000	W	3-5p	EER 1.512	EER 1.828
16005	W	5-7p	ETC 2.102	EER 1.828
16010	W	7-9p	EER 1.512	EER 1.828

Instructor
Dr. Al Cuevas

Graduate Teaching Assistants

Undergraduate Teaching Assistants

Required Text
For this course you will be required to purchase McGraw-Hill Education Connect® access for Fundamentals of Electric Circuits by Alexander-Sadiku, 6e. Connect will provide full access to the eBook, so you are not required to have a print text. Please be aware if you purchase a used textbook, you must still purchase Connect access.

Connect codes are available in the bookstore. If you would like a print version of the text to accompany Connect, the bookstore is carrying a discounted bundle, which includes a print text and a Connect access code. A print-upgrade option is also available via Connect throughout the semester. This will be a full color binder-ready version of the text.

CHAPTERS TO BE COVERED

Chapters 3-4	Methods of Analysis, Circuit Theorems (Review)
Chapter 5	Operational Amplifiers
Chapter 6	Capacitors and Inductors
Chapter 7	First-Order Circuits
Chapter 8	Second-Order Circuits
Chapter 9	Sinusoids and Phasors
Chapter 10	Sinusoidal Steady-State
Chapter 11	AC Power Analysis
Chapter 12	Three-Phase Circuits
Chapter 13	Magnetically Coupled Circuits
Chapter 14	Frequency Response
Chapter 19	Two-Port Networks

Software

You will be required to use MATLAB and LTSpice in this course. MATLAB is available through the University. LTSpice can be downloaded at www.analog.com/LTSpice.

Course Website

Use of the cloud-hosted learning management system, Connect and Canvas, will be used throughout this course. In addition, Piazza will be used for Q/A and student discussions.

Catalog Description

Capacitance and inductance; first- and second-order transient circuit response, including operational amplifier circuits; sinusoidal steady state analysis; Bode plots; complex power in single and balanced three-phase systems; transformers; two-port networks (Z-parameters and Y-parameters); and computer-aided analysis and design.

Prerequisites

Electrical Engineering 302 or 302H with a grade of at least C-; credit with a grade of at least C- or registration for Mathematics 427J or 427K, and Physics 303L and 103N.

Grading Policy

In-class assignments / Attendance	5%
LearnSmart Book Activities	5%
Homework	15%
Labs	15%
Exam 1	15%
Exam 2	20%
Final Exam	25%

Grade Cutoffs

A: 94%	A-: 90%	
B+: 87%	B: 84%	B-: 80%
C+: 77%	C: 74%	C-: 70%
D+: 67%	D: 64%	D-: 60%
F: <60%		

The numerical course grade is computed by weighting the raw scores as indicated above. A final course grade may be adjusted on a curve rather than an absolute scale. Final grades will be assigned using plus and minus increments. A course/instructor survey will be conducted at the end of the semester via the standard MEC form for the Instructor and each Teaching Assistant.

Homework & MATLAB / LTSpice problems

There will be about 10 homework assignments during the semester. Homework is completed and submitted through Connect or Canvas. No late submission will be graded. Homework will be made available on Connect, generally, a week before the due date. Announcements will be made in class and on Canvas regarding changes.

In-class assignments / Attendance
You are expected to attend every lecture session and Recitation session. Attendance will be monitored by random “pop quizzes” which will test your knowledge on the material and to verify your attendance. There are no make-up opportunities for the in-class assignments. Quizzes are administered electronically through Canvas using the Canvas Student app on your SmartPhone or Laptop.

LearnSmart Book Activities
The online interactive book contains a number of Questions/Activities as part of your reading assignments. You are required to complete all activities in each assigned section. The due date for the completion of all activities for a given section/chapter will be announced in class. You will not receive credit after the due date.

Lab Schedule
Labs will be held in EER 1.828. Lab assignments/reports are due by 9 pm on the “due by” date, typically one day after your scheduled lab day. Submissions will be made online through Canvas. Once the lab work has been submitted on Canvas, it cannot be later revised. The due dates listed are subject to change.

Lab	Topic	Due by 9 pm on
0	Circuit Simulations	(All) 9/13
1	Op-Amps	(M) 9/17, (W) 9/19
2	First-Order RC Circuits	(M) 9/24, (W) 9/26
3	First-Order RL Circuits	(M) 10/01, (W) 10/03
4	Second-Order RLC Circuits	(M) 10/08, (W) 10/10
5	Filter Frequency Response	(M) 11/19, (W) 11/21

Examinations
There will be two uniform mid-term examinations and a final examination. The examinations will test your knowledge of the material presented during lecture, your homework assignments, and the book's material. In addition, I will test your ability to apply the material presented. The two mid-term examinations will be returned after being graded. The Final Examination will not be returned but, if needed, you may review it with me the following semester. It will be available until the end of January 2020. The two uniform midterm exam dates are scheduled for Friday evenings on 9/27 and 11/01. The midterm exams are common to both lecture sections. The Final Exam will be scheduled per the University's Final Exam schedule.

The examinations will consist of a number of questions to be answered in a given time period. The exams are closed-book, closed-notes, no “baseball” caps or hats. You must show your UT ID when turning in your exam. There are no make-up examinations. Excused absence from an examination must be approved in advance. Absence is excused only in extreme circumstances (serious illness, death in the immediate family, etc.). Requests for excused absences should be made in writing and must be supported by appropriate documentation. Unexcused absence from an examination will result in a grade of zero for that examination.

There is no re-grading of examinations, unless you feel that there is an error. In this case, you should submit a written request. Verbal requests will not be considered. An examination grade will not be changed one week after the exam has been returned.

Proposed Schedule

#	Date	Lecture Topic	Sections	Lab Theory
1	8/29	Course Overview		
2	9/03	Review of Ch 1-4: Basic Concepts		Lab 0
3	9/05	Ch 5: Operational Amplifiers	5.1-5.9	Lab 1
4	9/10	Ch 6: Capacitors and Inductors	6.1-6.5	
5	9/12	Ch 7: First-Order Circuits	7.1-7.3	
6	9/17	Ch 7: First-Order Circuits	7.4-7.6	Lab 2
7	9/19	Ch 7: First-Order Circuits	7.7-7.8	Lab 3
8	9/24	Ch 8: Second-Order Circuits	8.1-8.4	
9	9/26	Ch 8: Second-Order Circuits	8.5-8.6	Lab 4
	09/27	**Uniform Exam 1 – FRIDAY EVENING**		
10	10/01	Ch 8: Second-Order Circuits	8.7-8.10	
11	10/03	Ch 9: Sinusoids and Phasors	9.1-9.4	
12	10/08	Ch 9: Sinusoids and Phasors	9.5-9.7	
13	10/10	Ch 10: Sinusoidal Steady-State Analysis	10.1-10.4	
14	10/15	Ch 10: Sinusoidal Steady-State Analysis	10.5-10.8	
15	10/17	Ch 11: AC Power Analysis	11.1-11.5	
16	10/22	Ch 11: AC Power Analysis	11.6-11.8	
17	10/24	Ch 12: Three-Phase Circuits	12.1-12.3	
18	10/29	Ch 12: Three-Phase Circuits	12.4-12.6	
19	10/31	Ch 12: Three-Phase Circuits	12.7-12.9	
	11/01	**Uniform Exam 2 – FRIDAY EVENING**		
20	11/05	Ch 13: Magnetically Coupled Circuits	13.1-13.4	
21	11/07	Ch 13: Magnetically Coupled Circuits	13.5-13.8	
22	11/12	Ch 14: Frequency Response	14.1-14.4	
23	11/14	Ch 14: Frequency Response	14.5-14.7	Lab 5
24	11/19	Ch 14: Frequency Response	14.8-14.11	
25	11/21	Ch 19: Two-Port Networks	19.1-19.3	
26	11/26	Ch 19: Two-Port Networks	19.4-19.6	
27	12/03	Ch 19: Two-Port Networks	19.7-19.8	
28	12/05	Course Review		
		Final Exam as scheduled per the University calendar		

Recitation begins the week of September 09. Each week thereafter will either be a Lab session or Recitation session where the graduate TA will present additional material and examples. See the above Lab schedule for details when the weekly Lab/Recitation sessions are held. Note the Lab/Recitation sessions are in different rooms.

UNIVERSITY POLICIES

Religious Holy Days
Students shall be excused from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused will not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. University policy required students to notify each of their instructors as far in advance of the absence as possible so that arrangements can be made.

Policy on Academic Integrity
Each student in the course is expected to abide by the University of Texas Honor Code: "As a student of The University of Texas at Austin, I shall abide by the core values of the University and uphold academic integrity." Plagiarism is taken very seriously at UT. Therefore, if you use words or ideas that are not your own (or that you have used in previous class), you must cite your sources. Plagiarism applies to all assignments in this course including software/firmware source codes.

Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on academic dishonesty will be strictly enforced. For further information, please visit the Student Conduct and Academic Integrity website at:http://deanofstudents.utexas.edu/conduct.

You are responsible for understanding UT's Academic Honesty and the University Honor Code.

Q Drop Policy
If you want to drop a class after the 12th class day, you'll need to execute a Q drop before the Q-drop deadline, which typically occurs near the middle of the semester. Under Texas law, you are only allowed six Q drops while you are in college at any public Texas institution. For more information, see: http://www.utexas.edu/ugs/csacc/academic/adddrop/qdrop

University Resources for Students
Your success in this class is important to me. We will all need accommodations because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course. There are also a range of resources on campus:

Services for Students with Disabilities
This class respects and welcomes students of all backgrounds, identities, and abilities. If there are circumstances that make our learning environment and activities difficult, if you have medical information that you need to share with me, or if you need specific arrangements in case the building needs to be evacuated, please let me know. I am committed to creating an effective learning environment for all students, but I can only do so if you discuss your needs with me as early as possible. I promise to maintain the confidentiality of these discussions. If appropriate, also contact Services for Students with Disabilities, 512-471-6259 (voice) or 1-866-329- 3986 (video phone). http://ddce.utexas.edu/disability/about/

Counseling and Mental Health Center
Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful.

If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support.
http://www.cmhc.utexas.edu/individualcounseling.html

The Sanger Learning Center
Did you know that more than one-third of UT undergraduate students use the Sanger Learning Center each year to improve their academic performance? All students are welcome to take advantage of Sanger Center's classes and workshops, private learning specialist appointments, peer academic coaching, and tutoring for more than 70 courses in 15 different subject areas. For more information, please visit http://www.utexas.edu/ugs/slc or call 512-471-3614 (JES A332).

Undergraduate Writing Center: http://uwc.utexas.edu/
Libraries: http://www.lib.utexas.edu/
ITS: http://www.utexas.edu/its/
Student Emergency Services: http://deanofstudents.utexas.edu/emergency/

ECE Departmental Tutoring
n collaboration with the Engineering Student Services Office, the ECE Department provides opportunities for students to receive one-on-one personalized tutoring. The ECE COMPASS Tutoring Program creates a collaborative environment that motivates each student to develop new study strategies that will better assist them with their EE coursework. Free walk-in tutoring is available for the following EE courses during the Fall and Spring semesters:

Courses: EE 302, EE 306, EE 411, EE 319K, EE 312, EE 313, EE 351K, M 340L (Tuesdays only)
Days: Sunday - Thursdays: 7:00p.m.-10:00p.m.
Location: *NEW* EER 0.814

More information can be found at: http://www.ece.utexas.edu/undergraduate/tutoring

Important Safety Information
If you have concerns about the safety or behavior of fellow students, TAs or Professors, call BCAL (the Behavior Concerns Advice Line): 512-232-5050. Your call can be anonymous. If something doesn't feel right – it probably isn't. Trust your instincts and share your concerns.

The following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, http://operations.utexas.edu/units/csas//

Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.

- In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

- Link to information regarding emergency evacuation routes and emergency procedures can be found at: https://emergency.utexas.edu