ENGR 2219 – LINEAR CIRCUITS I

Spring 2019

Syllabus

Instructor: Bill Saari
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Office Hours: 12:00 – 12:50 MWF, 11:00 – 11:50 TR
Course Website: http://www.ar.cc.mn.us/saari/engr2219

Course Description

Topics include circuit elements, Kirchhoff's laws, equivalent resistances, mesh and nodal analysis, source transformations, Thevenin and Norton, equivalent circuits, RL, RC, and RLC circuits, and sinusoidal steady state analysis. Electronics topics include diodes, bipolar junction transistors, field effect transistors, and operational amplifiers. Laboratory included.

Major Areas of Course Content

1. Circuit variables, circuit elements, and simple resistive circuits
2. Kirchhoff's Laws
3. Node-voltage and mesh-current methods
4. Source Transformations
5. Inductance and Capacitance
6. RL, RC, and RLC circuits
7. Sinusoidal steady state analysis
8. Diodes
9. Bipolar Junction Transistors (BJT's)
10. Field effect transistors (FET's)
11. Operational amplifiers

Learner Outcomes

1. Comprehend and apply fundamental engineering concepts related to electric and electronic circuits
2. Present clear and accurate solutions with respect to mathematics
3. Construct, test, and analyze circuits in a laboratory setting

Prerequisite

Math 1400 and Phys 1327

Textbook

Electric Circuits, 10th Edition by Nilsson and Reidel

Grading

Grades will be determined based on a weighted average of percentages.
Exams: 4 of 5 exams (the lowest exam score will be dropped) x 20% = 80%
Labs: 20%
A > 90%, B > 80%, C > 70%, D > 60%, F < 60%

Exams

Exams will be closed book, closed notes. Exam 5 will be during the final exam week, and will be cumulative and multiple choice. There will be no make-up exams under any circumstance. To account for an emergency on an exam date, your lowest exam score will be dropped.

In-Class Exercises and Additional Problems

There will be several in-class guided exercises that will be completed in groups. These exercises will be collected and count as extra credit. The extra credit will be applied to your next exam score. Extra credit will be assigned based on the accuracy of the solution, and your contributions to your group. An additional non-guided problem will be distributed during class on the day of the exercise. This should be completed individually, and may or may not be collected for extra credit at the next class period. All exercises and problems are distributed in class only. I will not e-mail any exercises to you or post them on the course website.

Homework

Homework will be assigned on a regular basis. Homework will not count towards your grade, but it is critical that you do all of the homework problems. You can submit your homework to me if you would like feedback on your work.

Academic Dishonesty

You are encouraged to work with others in the class. However, I expect the work you turn in to be your own efforts. Instances of academic dishonesty will be dealt with according to the regulations of Anoka-Ramsey Community College.

Class Conduct

You are expected to be courteous towards the instructor and your classmates. You are expected to be on time for lecture. Cell phones and notebook computers should be turned off and put away during lecture. You should not talk to your classmates while I am talking or while one of your classmates is asking a question. If you have a question about the course material, ask me and I will be more than happy to answer your question. The instructor reserves the right to take any necessary action for class disruptions in accordance with the Student Handbook.

Tentative Course Schedule

Week of	Monday	Wednesday	Friday
Jan 14	Ch 1	Ch 1	Ch 2
Jan 21	**No Class**	Ch 2	Ch 2
Jan 28	Ch 3	Ch 3	Ch 3
Feb 4	Ch 4	Ch 4	**Exam 1**
Feb 11	Ch 4	Ch 4	Ch 4
Feb 18	**No Class**	Diodes	**No Class**
Feb 25	Diodes	Diodes	Diodes
Mar 4	BJT's	BJT's	**Exam 2**
Mar 11	**No Class**	**No Class**	**No Class**
Mar 18	BJT's	BJT's	MOSFET's
Mar 25	MOSFET's	MOSFET's	Ch 5
Apr 1	Ch 5	Ch 5	Ch 6
Apr 8	Ch 6	Ch 7	**Exam 3**
Apr 15	Ch 7	Ch 7	Ch 8
Apr 22	Ch 8	Ch 8	Ch 9
Apr 29	Ch 9	Ch 9	**Exam 4**
May 6	Review	Review	Review
Exam 5: Wednesday, May 15, 2:00 – 4:00 pm			