

EE 2351 Electric Circuits II (CRN: 28142)

Instructor: Scott Starks, Ph.D., P.E.

Office: Room E230B, CREATE Office (above the breezeway between the Engineering and Class Room Buildings)

Office Hours: 1:30-2:50 TR

Phone: 915-747-8856

E-Mail: sstarks@utep.edu

Course Location: Room 311, Education Building

Time: Mondays and Wednesdays, 10:30 – 11:50 PM

Course Description

Electric Circuits II (3-0) Continuation of Electric Circuits I to include operational amplifier, transient analysis of RC, RL, and RLC circuits, Laplace transform in circuits, frequency-selective circuits, Bode diagrams and two-port circuits.

Prerequisites for Course

([EE 2350](#) w/C or better) AND ([PHYS 2421](#) w/C or better) AND ([MATH 2326](#) w/C or better)

Textbook

Electric Circuits by Nilsson & Reidel, 10th Edition.

Course Outcomes

At the completion of the course, students shall be able to:

1. Analyze simple circuits containing ideal operational amps and understand the role of negative feedback (Critical).
2. Determine the natural and step responses of both RL and RC circuits (Critical).
3. Analyze circuits using the Laplace transform (Critical).
4. Design first-order lowpass, highpass, bandpass, and bandreject filters (Critical).
5. Characterize two-port networks using Bode plots (Critical).

Course Topics

Operational Amplifiers – Chapter 5

Response of First-Order *RL* and *RC* Circuits – Chapter 7

Natural and Step Responses of *RLC* Circuits – Chapter 8

Introduction to the Laplace Transform – Chapter 12

The Laplace Transform in Circuit Analysis – Chapter 13

Introduction to Frequency Selective Circuits – Chapter 14

Active Filter Circuits – Chapter 15

Two-Port Circuits - Chapter 18

Lecture and Reading Assignments

This course will be taught as an interactive course, with daily student-student discussions and instructor feedback during every session. The course material is directly linked to the textbook, and students will be required to complete reading assignments prior to material being covered in the class as listed in the class schedule. The reading assignments will be correlated with short lectures which will be used to introduce problem solving methods and to reinforce critical concepts. The lectures will be linked to group problem solving sessions in class and additional homework exercises.

Homework (Mastering Engineering)

Homework is an essential part of the course. You will be assigned Homework for virtually every class period. Homework will be submitted and graded using Pearson Publishing's **Mastering Engineering**. **Mastering Engineering** is an online system that is supported by Pearson, the publisher of your textbook. You will be required to register for **Mastering Engineering**. For this you will need several things.

- **Course ID:** This will be provided by the instructor.
- **Pearson account:** You will either create your Pearson student account or identify your existing account.
- **Access code or buy access:** Either enter a student access code or buy access using a credit card or PayPal. A student access code card may be provided with your new textbook or you may be able to purchase this separately.

Quizzes (Learning Catalytics)

You will be given Quizzes at various times during the semester. Quizzes will not necessarily be announced in advance. Quizzes are important because they provide the instructor with an indication of your status with regard to understanding the topics.

You are required to bring a mobile device with you to every class. Tablets, laptops, smart phones, etc. are all acceptable.

Quizzes will be administered in class using a tool provided by the publisher of your textbook called Learning Catalytics, which is a “bring your own device” engagement system. Learning Catalytics is designed to provide instantaneous feedback to the instructor. It allows the instructor to measure your learning during class and adjust lectures accordingly.

Attendance Policy

Students are expected to attend all classes. Students who miss 3 or more classes **may be dropped** from the class.

Calculator Policy

Students are required to bring a scientific calculator to class daily. These are needed to calculate numeric answers on problems in class. **Only calculators that meet the guidelines set forth by the National Council for Engineering and Engineering Surveyors (NCEES) will be allowed on Exams.** The website that follows gives more specific information.

<http://ncees.org/exams/calculator-policy/>

Students may ask the Instructor for approval to use a scientific calculator not identified on the NCEES list. The Instructor will allow other models of scientific calculators provided that they do not have memories capable of storing formulas, algorithms, problem solutions or other information. These requirements are set to protect the integrity of exams.

Academic Dishonesty

“Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the *Handbook of Operating Procedures*, and available in the Office of the Dean of Students and the homepage of the Dean of Students at www.utep.edu, may result in sanctions ranging from disciplinary probation, to a failing grade in the work in question, to a failing grade in the course, to suspension or dismissal, among others.” (Quote from the Undergraduate and Graduate Catalog)

Accommodation under the Americans with Disabilities Act

If you feel you may have a disability that requires accommodation, contact the Disabled Student Services Office at 747-5148, go to room 106E Union, or e-mail dss@utep.edu.

Grading Policy

Three Exams will be given during the term. Each Exam will count 22% of the final grade.

The Final Exam will be given on Friday, May 13 at 10:00 – 12:45. The Final Exam will count 22% of the final grade.

The combination of Homework and Quizzes will count 12%.

Letter grades will be assigned according to the following scale:

90 – 100 % A

80 – 89 % B

70 – 79 % C

60 – 69 % D

59 or below F

Exams

Exams will be announced in class at least one week in advance. It is a requirement to take exams on their scheduled dates and times.

Makeups for missed exams will only be allowed for students for medical reason(s) that prevents their attendance (written notification from doctor required), military duties (notification to be provided in advance) and for other compassionate reasons.

Business related activities, car problems, and over sleeping are not considered compassionate reasons. To avoid unforeseen problems, please plan on arriving at the University early on exam days.