EE 2350 ELECTRIC CIRCUITS I
SYLLABUS FOR SPRING 2022

INSTRUCTOR: Dr. Hector Erives
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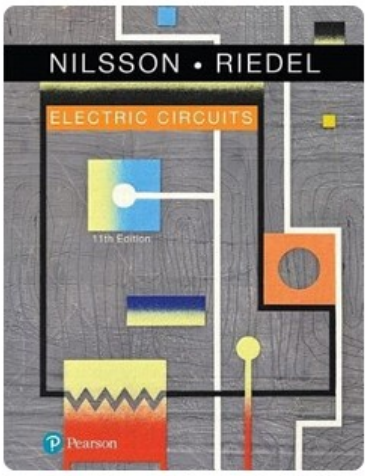
TEACHING ASSISTANT: Ms. Ana Chavez Lopez (acchavezlop@miners.utep.edu)

OFFICE HRS.: M- F 9:00 – 10:00 AM. **TA OFFICE HOURS:** Please contact Ms. Lopez

CLASS TIME/PLACE: 4:30 pm - 5:50 pm MW College of Business Admin 304

TEXTBOOK: J.W. Nilsson and S.A. Riedel, **Electric Circuits**, 11th Edition, Prentice Hall, 2014.



WEB TOOLS:
Mastering Engineering by Pearson.
Go to https://www.pearson.com/mastering
Under Register, select Student.
Enter your instructor's course ID:
Enter your existing Pearson account username and password to Sign In. If you don't have an account, select Create and complete the required fields.

Circuit Tutor by Dr. Brian Skromme from ASU.
An ID will be assigned to you so that you can login into the website:
https://www.circuittutor.com/web/

CATALOG DESCRIPTION: Introduction to systematic methodologies for the analysis of electric circuits in DC and AC steady state. Use of simulation tools for steady state circuit analysis. Can be taken concurrently with **PHYS 2421** and **MATH 2326**.

PREREQUISITES: EE 1305, MATH 1312, PHYS 2421+ and MATH 2326+, each with a grade of C or better. (PHYS 2421 and MATH 2326 may be taken concurrently.)

COURSE LEARNING OUTCOMES: Students completing EE 2350 will be able to:

- Understand terminology used in conjunction with electric circuits of ideal circuit elements.
- Mathematically model electric systems using ideal resistive, inductive, and capacitive elements.
- Apply phasors and impedance transformations to the analysis of electric circuits.
- Apply various systematic methods (node, mesh, terminal equivalency, and circuit theorems).
- Apply various circuit analysis techniques to study circuits that include operational amplifiers.
- Apply various circuit analysis techniques to study energy and power in dc and ac circuits.
- Apply software tools to the analysis of electric circuits in steady state.

COURSE GRADING:

- Two Partial Exams 30%
- Homework (Mastering Engineering and Circuit Tutor) 30%
- Quizzes 10%
- Project: Chapter 5 **(Appendix)** 10%
- Comprehensive Final Exam 20%
- **Attendance** **Required**

You can can find your grades on the left-hand navigation panel on "My Grades."
Late work WILL BE assessed a late penalty of 30%.

GRADE DISTRIBUTION: Grades will be based on the standard scale

90% - 100%	A
81% - 90%	B
71% - 80%	C
60% - 70%	D
Below 60%	F
At least 70%	S

TOPICS TO BE COVERED FROM THE TEXTBOOK: (the exact order, pages and/or sections and subsections will be listed in homework assignment handouts). See the Appendices for very useful review and reference materials!

CALENDAR: Tentative schedule

Dates	Topics
Jan - Feb	**Chapter 1: Circuit Variables** a) Electrical Engineering b) Circuit Analysis: An Overview c) Power and Energy **Chapter 2: Circuit Elements** a) Voltage and Current Sources b) Electrical Resistance (Ohm's Law) c) Kirchhoff's Laws
Feb - Mar	**Chapter 3: Simple Resistive Circuits** a) Resistors in Parallel and Series b) Voltage-Divider and Current-Divider c) Delta-to-Wye Equivalent Circuits **Chapter 4: Techniques of Circuit Analysis** a) Node-Voltage Method and Special Cases b) Mesh-Current Method and Special Cases c) Source Transformations d) Thévening and Norton Equivalents e) Maximum Power Transfer f) Superposition
	Exam I
Mar - Apr	**Chapter 6: Inductance, Capacitance, and Mutual Inductance**

	a) The Inductor b) The Capacitor c) Mutual Inductance **Chapter 9: Sinusoidal Stead-State Analysis** a) The Sinusoidal Source b) The Phasor c) Kirchhoff's Laws in the Frequency Domain d) Source Transformation and Thévening-Norton Equivalents e) Node-Voltage and Mesh-Current Methods f) The Transformer
Apr - May	**Chapter 10: Sinusoidal Stead-State Power Calculations** a) Instantaneous Power b) Average and Reactive Power c) The rms Value and Power Calculations d) Maximum Power Transfer **Chapter 11: Balanced Three-Phase Circuits** a) Balanced Three-Phase Voltages b) Three-Phase Voltage Sources c) Analysis of the Wye-Wye Circuit d) Analysis of the Wye-Delta Circuit e) Power Calculations in Balanced Three-Phase Circuits f) Measuring Average Power in Three-Phase Circuits
	Exam II
May	**Final Exam (According to UTEP's Academic Calendar).**

ACADEMIC INTEGRITY:
Please review the statements below and UTEP's Web page on Policy on Academic Integrity at: http://sa.utep.edu/osccr/academic-integrity/. Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be taken seriously and will be referred to the Dean of Students Office for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions.

CENTER FOR ACCOMMODATIONS AND SUPPORT SERVICES (CASS):
If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

COVID-19 PRECAUTION STATEMENT
Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

APPENDIX.

PROJECT. CHAPTER 5: Operational Amplifier.

Instructions

- An introduction of chapter 5 and the whole project would be presented during TA's office hours (Friday's 3:00 to 4:00 PM). This session is **mandatory** for every student of EE2350.
- The project part 1 needs to be presented in **PDF format** or **by hand**. If another format is presented, **5 points would be subtracted** from your final project grade.
- If you plan to get the 10 extra points of the presentation, you need to schedule. Instructions would be provided before 1st exam is presented. Your job must be presented **before** midterm in order to get extra points. **This is not a mandatory activity!**
- The project part 2 could be presented **by hand or PDF**. Include the whole procedure for each problem or points will be subtracted from your final project grade. If another format is presented, **5 points would be subtracted** from your final project grade.
- In case you need help to understand a topic, with your research or to solve a problem, you can **always contact** the Prof. Erives or the TA Ana Chavez.
- **No extensions for each part of the project would be applied!** Due dates are pending but consider part 1 is due at midterm, part 2 is due at the end of the semester and the presentation is due before midterm.

This project is divided in two parts:

Part 1 (At midterm).

- Chapter 5 summary – 20 pts
- Research answering the following – 30 pts
    - Search for three types of industries where the op-amps are used.
    - Take an example of a circuit with op-amps and explain how it works.

Presentation – 10 extra points (Before midterm)

- Present one of the industries you chosen, and the circuit related to that industry.
- **The presentation will be during TA's office hours (Friday's 3:00 to 4:00 PM)**

Part 2 (End of the semester)

- Open questions related to Op-amps – 10 pts
- 5 Op-amps problems – 15 pts
- Quiz at the end of the semester – 25 pts