University of Texas at El Paso
Spring 2025 -ECE 2301- Electric Circuits I
Syllabus

INSTRUCTOR: Dr. Martha Torres
Dept. of Electrical and Computer Eng.
Engineering Bldg. Room 327
E-mail: mltorreslozano@utep.edu (best way to communicate)

CLASS TIME, PLACE: CRN: 25603. MW 7:30am-8:50am. Chemistry Computer Sci Bldg G. 0208
CRN: 25605. TR 10:30am– 11:50 am, Liberal Arts 319

OFFICE HRS.: Monday/Wednesday 2:00 – 4:00PM – In person

COURSE DESCRIPTION

Electrical Circuits concentrates on acquiring the knowledge and abilities required to analyze the functioning of circuits with DC and AC sources through math, circuit theory, simulation and lab resources

Prerequisites: EE 1305/ECE1300 – Introduction to Electrical Eng., MATH 1312 – Calculus II approved with a "C" or better.

Corequisites: PHYS 2421 – Introductory Electromagnetism (may be taken concurrently), MATH 2326 – Differential Equations (may be taken concurrently)

REQUIRED TEXTBOOK:

Main: Fundamentals of Electric Circuits, 7th Edition Charles Alexander & Matthew Sadiku
McGraw-Hill Education, 2021, 992 pages ISBN: 978-1-26-022640-9

Optional: Electric Circuits (11th Edition) . James W. Nilsson, Susan Riedel. Ed. Pearson.
ISBN-13: 978-0134746968, ISBN-10: 0134746961
Optional: FREE PDF Textbook (Optional): Circuit Analysis and Design Ulaby, Maharbiz, Furse Oxford University Press, 2018 ISBN: 978-0-19-020017-6. Link URL: https://cad.eecs.umich.edu/

Course Materials

- A scientific calculator, not a cell phone or computer as a calculator.
- Pen/Pencil and notebook to take notes
- Laptop with internet access
- Access to Multisim or LTSPICE
- Access to Blackboard and UTEP Email
- **Access to Mc Graw Hill Connect**

The course content will be delivered through Blackboard. Also, important class announcements will be delivered via Blackboard and/or e-mail. Please make sure your UTEP e-mail and Blackboard accounts are

working. If you have troubles with your Blackboard or Email account, please contact UTEP Technology support (https://www.utep.edu/technologysupport/)

LTSpice is a free simulator developed by Analog Devices, Inc. that includes a graphical schematic capture interface. To download and install LTSpice, visit: https://www.analog.com/en/design-center/design-tools-and-calculators/ltspice-simulator.html

Multisim is a Simulator developed by National Instruments. You can use the Online version, this software is free is you use just 5 components, for more than 5 you need to pay a monthly fee. To check the rules, please visit https://www.multisim.com/

Instructions for Mc Graw Hill Connect access will be provided via Blackboard, please register on this platform via Blackboard ONLY. You will have access to the e-book, problems, homework, and quizzes. This platform will be used for Circuits I and II.

Course Topics:

1. Circuit Analysis techniques under DC conditions.
2. Analysis of Operational Amplifier circuits.
3. Analysis of circuits containing inductors, capacitors, and resistors under DC conditions
4. Sinusoidal steady-state analysis using phasor techniques
5. Steady-state power calculations, transformers, and mutual inductance.

Course Evaluation:

Two In-class Semester Exams	40 % (20% each exam)
Homework (Must be submitted on Blackboard)	20%
Quizzes	20 %
Final Exam	20 %
TOTAL	100 %

Grading

90%−100% →A , 80%− 89% →B, 70%− 79% →C , 60%− 69% →D, 59% →F

Learning outcomes

At the end of the semester, the student will be able to:

- Using network analysis techniques to analyze resistive circuits under DC circumstances.
- Analyze the steady-state behavior of inductors and capacitors in circuits.
- Create circuits with operational amplifiers according to the real-world requirements.
- Calculate sinusoidal power under steady-state settings by determining impedances.
- Analize three-phase balanced transformers (Power delivered and transferred).

RULES AND POLICIES:

- Come to class and show up on time. Habitual late comers may not be allowed in class without a justification.

- Leaving early is considered disruptive, unprofessional, and somewhat offensive, it should be kept to a minimum. Inform the instructor ahead of time if you must leave early and sit near the door to minimize disruptions.
- Ask questions of broad interest, your fellow students will also benefit.
- Bring your book and laptop/smartphone to class if you find it useful. More on this later.
- Turn down the sound on cell phones, beepers, i-pods, etc. during the class period.
- The use of cellular phones during exams and quizzes is strictly prohibited, put them away and out of reach.
- Do not bring smelly food into the classroom unless you are willing to share with me and everyone else that will suddenly become hungry! Eating other things during class should be done very quietly and as a last resort.
- Use of the restroom during exams and quizzes should be done with the permission of the proctor/instructor; rules apply (mobile phones should be surrendered, etc.).
- Homework will be due according to the date shown on **Blackboard.** Late submissions are not allowed.
- The homework is done by hand or via Mc Graw Hill Connect platform only.
- **To submit your homework on Blackboard (did by hand), please, take pictures of your work., then, convert them into a single PDF file and submit it.**
- As engineers, we use engineering notation to express our homework solutions. We will make use of engineering notation (up to two decimal places) throughout the course. For example, 3π, $\sqrt{14}$, sin (0.2) are not final answers. These should be given as 9.42, 3.74, and 0.20.
- **For exams, quizzes, and homework: Full work must be shown for full credit. Work must be neat and well organized. The final answer must be boxed and given proper units.**
- There are not make-up quizzes, exams or homework.
- **A missed exam can be made-up IF AND ONLY IF:**

  (1) the reason for missing the exam is beyond the student's control: medical excuse, jury duty, death in the family, military reason or automobile accident, and
  (2) prior consent is obtained from the professor for missing the exam based on a non-frivolous reason, e.g., job interview, conference, or out-of-town job-related travel.
  In either case, the student must submit a written and signed statement the day before the exam, describing the reasons for missing, appropriate documentation, and petition for a make-up exam. A missed exam will carry zero grade if conditions are not met.

Tentative Exams Calendar

Exams	**CRN 25603 (MW)**	**CRN 25605 (TR)**
Exam 1 date	March 5th	March 6th
Exam 2 date	April 21st	April 22nd
Final exam date	**Friday May 16th 7:00am to 9:45am (No tentative)**	**Thursday May 15th 10am to 12:45pm (No tentative)**

Academic Conduct

Academic dishonesty will not be tolerated. You must submit your work only. If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, per UTEP catalog policy (http://www.utep.edu/dos/acadint.htm). See the OSCCR homepage at http://sa.utep.edu/osccr/ for more information.

Harassment

Please be aware that harassment is unacceptable in the classroom. Jokes, comments of sexual nature, as well as racist comments will not be tolerated. The student that violates this rule will be sent to the Dean of students for disciplinary action.

American Disabilities Act

If you have a disability and need special 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 http://sa.utep.edu/cass/

Notice

The instructor reserves the right to make any changes to the syllabus during the term of the semester. The instructor will notify any changes made to the syllabus to the students prior to the lecture week.

Students Resources:

- Utep Library : Provide access to full text online or presence, journals, conference papers and eBooks. Website: https://www.utep.edu/library/

- Help Desk and ETC Center: For technological issues, software issues, email or Blackboard accounts, please contact: helpdesk@utep.edu or etchelpdesk@utep.edu

- University Writing Center (UWC): Provides assistance for writing style and formatting papers or assignments. Website : https://www.utep.edu/uwc/

- Math Tutoring Center (MaRCS): Provides tutoring and resources for Math courses. Website: https://www.utep.edu/science/math/marcs/