ENGR 0031 – Electric Circuits Syllabus
Fall 2023

Instructor: Prof. Yang Liu
Credit Hours: 3
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Office Hours: Tuesday and Friday, 1:30 PM - 5:30 PM, or by appointment
Office: Room 221, Zone 4, Liberal Arts Building

Teaching Assistant:

Section 1:
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Lectures

Section 1:
Tuesday, 8:15 AM - 11:00 AM
Room 104, Zone 3, Liberal Arts Building

Section 2:
Friday, 8:15 AM - 11:00 AM
Room 104, Zone 3, Liberal Arts Building

Textbook James A. Svoboda, and Richard C. Dorf, *Introduction to Electric Circuits*, 9th Edition, Wiley, 2014.

Course Description

This course is an introductory course which provides an overview of electric circuits. Specific topics include electric circuit elements, Ohm's law and Kirchhoff's law, mesh and node equations, operational amplifiers, Thevenin/Norton equivalents circuits, max power transfer, energy storage elements, RLC circuits, and sinusoidal steady-state analysis.

Course Objective

1. Students will have knowledge of the terminology used in the

analysis of electric circuits and the terminal characteristics of ideal electric circuit elements.

2. Students will have the ability to mathematically model electric systems using ideal resistive, inductive, and capacitive elements.

3. Students will be able to use MATLAB software to assist in the analysis of electric circuits.

Applicable ABET Outcomes:

(a) An ability to apply knowledge of mathematics, science, and engineering
(b) An ability to analyze and interpret data
(c) An ability to identify, formulate, and solve engineering problems
(d) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Pre-requisites PHYS 0175, or PHYS 0202

Grading

Mid-term Exam	30%
Final Exam	40%
Homework	20%
Quiz	10%

Final grades:

Level	Letter Grade	Reported Numerical Score	Grade Points
Superior Performance	A	90 - 100	4.0
	A-	85 - 89	3.7
Meritorious Performance	B+	80 - 84	3.3
	B	76 - 79	3.0
	B-	73 - 75	2.7
Adequate Performance	C+	70 - 72	2.3
	C	66 - 69	2.0
	C-	63 - 65	1.7
Minimal Performance	D+	61 - 62	1.3
	D	60	1.0
Insufficient Performance (Failure)	F	< 60	0.0

Course Policies:

- Students are expected to come prepared for each lecture by reading the appropriate material prior to class
- Questions concerning the grading of homework assignments, project-related materials, or exams must be presented to the instructor or the TA within one week (7 calendar days) after the materials have been made available for return to the student
- Late assignments will **NOT** be accepted, and all assignments, projects, and examinations must be **completed/taken at the scheduled time**. No exceptions will be made unless there are truly extenuating circumstances
- Cheating or academic dishonesty in any form will result in a grade of F for the course; there will be no exceptions to this policy.
- Professional classroom demeanor is required; in particular, all cell phones and personal electronic devices must remain off or silent during the lecture.
- Do not conduct side conversations during the lecture as it is distracting to the lecturer and other students.

Email Policy Email will be responded as promptly as possible. For detailed technical questions, please talk to the instructor during office hour.

Audio-Video Recording

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussions, and activities without the advance written permission of the instructor, and any such recording properly approved in advance should be used solely for the student's private use.

Make-up exam Policy

Make-up exam grading is only to replace your final exam grading. Students who pass the course after the make-up exam will receive only a passing grade as the final grade.

Special Accommodations

If the student has a disability for which the student is or may be requesting an accommodation, the student is encouraged to contact the instructor.

Tentative Schedule

Week 1: Introduction to Electric Circuits
Week 2: Electric Circuits Variables
Week 3: Circuits Elements
Week 4: Resistive Circuits
Week 5: National Day Holiday
Week 6: Methods of Analysis of Resistive Circuits
Week 7: Circuit Theorems
Week 8: Circuit Theorems
Week 9: Mid-term Exam
Week 10: The Operational Amplifier
Week 11: Energy Storage Elements
Week 12: The Complete Response of RL and RC Circuits
Week 13: The Complete Response of Circuits with Two Energy Storage Elements
Week 14: The Complete Response of Circuits with Two Energy Storage Elements
Week 15: Sinusoidal Steady-State Analysis
Week 16: Sinusoidal Steady-State Analysis
Week 17: Course review
Week 18: Final Exam