Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: ECE
Course and Section #: 2250-001
Course Title: Circuit Theory
Credits: 3

Course Description

Develops linear circuit theory and its application in the analysis and design of RLC active circuits. Covers DC, AC, and transient analysis utilizing node and mesh analysis.

Course Attributes

This course has the following attributes:

☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Jake Johnson
Phone: 801-678-2216
Email: jake.johnson@uvu.edu

Office Hours

Tuesdays: 7:30 a.m. to 8:30 a.m.
Wednesdays: 6:00 p.m. to 9:00 p.m.
Thursdays: 7:30 a.m. to 8:30 a.m.
Please email me if you need to arrange an alternative appointment.

Class Time and Location

T/R 8:30 a.m. – 9:45 a.m.
CS 502

Student Learning Outcomes

- Explain basic electrical quantities including charge, current, voltage, energy, and power.
- Explain basic electrical components including independent and dependent voltage and current sources, resistors, capacitors, and inductors.
- Explain operational amplifiers.
- Apply basic circuit theory and analysis techniques (SO-1a, SO-1b, SO-1c).
- Analyze electrical circuits for time and frequency behavior (SO-1a, SO-1b, SO-1c).

Course Materials and Texts

Textbook: Nilsson, J.W. and Riedel S.A., Electric Circuits, 10th Edition, Pearson Prentice Hall, Upper Saddle River, NJ, 2011, ISBN-10: 0133760030, ISBN-13: 978-0133760033.

Graphing calculator with CAS capabilities is recommended (i.e. TI Nspire w/ CAS, HP Prime, etc.)

Course Requirements

Course Assignments, Assessments, and Grading Policy

Final grades for the course will be assigned according to the following schedule (anything above a XX.9% will be rounded up):

93% & above	A	73 – 76.9%	C
90 – 92.9%	A-	70 – 72.9%	C-
87 – 89.9%	B+	67 – 69.9%	D+
83 – 86.9%	B	64 – 66.9%	D
80 – 82.9%	B-	60 – 63.9%	D-
77 – 79.9%	C+	0 – 59.9%	E

Your performance on the following will determine your course grade:

Homework	25%
Exam 1	25%
Exam 2	25%
Exam 3	25%

- The exams will be scheduled for a specific day/time-period and can only be taken at the scheduled time-period.
- Talking with other students, web surfing, and using cell phones is not permitted during the class hours.
- **There are no makeup tests** unless you have a university approved excuse**.**
- Ten percent will be deducted from the HW grade for each late day, up to a maximum of a 50% deduction from the completed homework grade. If an assignment is late, there is still benefit to completing it and turning it in.

Required or Recommended Reading Assignments

The course has no required reading assignments, but textbook chapters will be used in the completion of homework and exam study.

General Description of the Subject Matter of Each Lecture or Discussion

ECE 2250 Spring 2025 Course Schedule					
Class Date			**Textbook Chapter**	**Topic**	**Assignment Due Date**
Week 1	Tuesday	7-Jan	CH 1	Circuit Variables	
	Thursday	9-Jan	CH 1	Circuit Variables	
Week 2	Tuesday	14-Jan	CH 2	Circuit Elements	
	Thursday	16-Jan	CH 2	Circuit Elements	
Week 3	Tuesday	21-Jan	CH 3	Simple Resistive Circuits	HW 1
	Thursday	23-Jan	CH 4	Node-Voltage Method	
Week 4	Tuesday	28-Jan	CH 4	Mesh Current Method	HW 2
	Thursday	30-Jan	CH 4	Source Transformation	
Week 5	Tuesday	4-Feb	CH 4	Thevenin & Norton Equivalent	HW 3
	Thursday	6-Feb	CH 4	Superposition	
Week 6	Tuesday	11-Feb	CH 1-4	Exam 1 Review Session	
	Thursday	13-Feb	**Exam 1 (HW 1-3)**		
Week 7	Tuesday	18-Feb	CH 4	Max Power Transfer	HW 4
	Thursday	20-Feb	CH 5	Operational Amplifiers	
Week 8	Tuesday	25-Feb	CH 5	Operational Amplifiers	HW 5
	Thursday	27-Feb	CH 6	Inductor + Capacitor	
Week 9	Tuesday	4-Mar	CH 6	Inductor + Capacitor	HW 6
	Thursday	6-Mar	CH 4-6	Exam 2 Review Session	
Week 10	Tuesday	11-Mar	***Spring Break***		
	Thursday	13-Mar	***Spring Break***		
Week 11	Tuesday	18-Mar	**Exam 2 (HW 4-6)**		
	Thursday	20-Mar	CH 7	First Order Circuits	
Week 12	Tuesday	25-Mar	CH 7	First Order Circuits	
	Thursday	27-Mar	CH 8	Second Order Circuits	
Week 13	Tuesday	1-Apr	CH 8	Second Order Circuits	HW 7
	Thursday	3-Apr	CH 9	Sinusoidal Steady-State Analysis	
Week 14	Tuesday	8-Apr	CH 9	Sinusoidal Steady-State Analysis	HW 8
	Thursday	10-Apr	CH 9	Sinusoidal Steady-State Analysis	

Week 15	Tuesday	15-Apr	CH 9	Sinusoidal Steady-State Analysis	HW 9
	Thursday	17-Apr	CH 9	Sinusoidal Steady-State Analysis	
Week 16	Tuesday	22-Apr	CH 7-9	Exam 3 Review Session	HW 10
	Thursday	24-Apr	*(No Class)*		
Week 17	Tuesday	29-Apr	**Final Exam (HW 7-10)**		
	Thursday	1-May			

Required Course Syllabus Statements

Generative AI

AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you.

The use of generative AI tools (e.g. ChatGPT, Google Bard, etc.) is permitted in this course for the following activities:

- Brainstorming and refining your ideas;
- Fine tuning your research questions;
- Finding information on your topic;
- Drafting an outline to organize your thoughts; and
- Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities:

- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts/responses assigned to you or content that you put into a Teams/Canvas chat.
- Completing group work that your group has assigned to you, unless it is mutually agreed upon that you may utilize the tool.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs, or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should clearly indicate what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Using Remote Testing Software

☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX
Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment,

admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.