UVU UTAH VALLEY UNIVERSITY™

Master Course Syllabus

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

Semester: Spring
Course Prefix: ECE
Course Title: Introduction to electrical and computer engineering

Year: 2025
Course and Section #: 1000-001
Credits: 3

Course Description

Introduces engineering-problem-solving techniques, design processes, modelling and analysis of simple electrical and computer circuits using MATLAB and LabVIEW software packages. Emphasizes engineering design procedures by incorporating group projects and presentations.

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: Dr. Farzad Ahmadi
　　　Office: CS 425N
　　　Office Phone: 801-863-6438
　　　Email: farzad.ahmadi@uvu.edu

Office Hours

　　　Tuesdays:　11:00 a.m. to 1 p.m.　AND　5:00 p.m. to 5:30 p.m.
　　　Thursdays:　12:10 p.m. to 1 p.m.　AND　3:50 p.m. to 5:30 p.m.
　　　Please email me if you need to arrange an alternative appointment.

Class Time and Location

　　　T/R　1 p.m. – 2:15 p.m.
　　　CS 614

Student Learning Outcomes

• Define working aspects of the engineering profession.
• Explain the engineering design process.
• Identify the steps that engineers follow when designing and presenting their products and services.
• Explain basic electrical quantities including charge, current, voltage, energy, power, various sources of electricity, and resistance.
• Apply circuit theory and techniques to resistive circuits.
• Use MATLAB as a tool to solve engineering problems.
• Use LabVIEW as a tool to solve engineering problems.

Course Materials and Texts

Free book for Matlab:
https://www.mathworks.com/content/dam/mathworks/mathworks-dot-com/moler/exm/book.pdf
Free Online Help Center for Matlab:
https://www.mathworks.com/help/releases/R2024a/matlab/index.html?s_tid=hc_panel

(optional) 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.

(optional) Engineering Design: A Project-Based Introduction, 4th Edition, Clive L. Dym, Wiley, 2013, ISBN: 978-1-118-80699-9.

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	4%
hands-on assignments (in class simulations+experiments+coding)	55%
Test	10%
Project (presentation and final report)	30%
Returning of the Borrowed Equipment	1%

➢ The test 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 is no makeup test** unless you have a university approved excuse.
- ➤ Twenty five percent will be deducted from the HW grade for each late day (unless you have a university approved excuse). So, a late HW must be submitted within four days of its due date, after which no credit will be given.
- ➤ You are expected to take the final exam when and where it is scheduled. Students with a documented need for accommodation must make special arrangements with the instructor. Any other change of the final exam place or time will require the approval of the instructor, then the department chair, then the Dean's office.
- ➤ For in-class assignments, the deadline is at the end of the class session on the same day. However, if you attended the class, started the assignment, but couldn't complete it by the end of the session, you may submit/present your work during the next class session without losing any points. If you are unable to submit it by the next session, 25% will be deducted from the assignment grade for each late day, unless you have a university-approved excuse.
- ➤ Students are responsible for ensuring that all materials they upload online, including but not limited to homework, reports, and other assignments, are the correct files. Uploading an incorrect document will result in a loss of all points for that particular assignment.

Required or Recommended Reading Assignments
The Slides and reading files will be uploaded to Canvas. Weekly or biweekly assignments will be assigned.

General Description of the Subject Matter of Each Lecture or Discussion

Class Date			Topic	Assignment Due Date
Week 1	Tuesday	7-Jan	Circuit Theory	
	Thursday	9-Jan	Circuit Theory	
Week 2	Tuesday	*14-Jan*	Circuit Theory	
	Thursday	16-Jan	Circuit Theory	**HW 1**
Week 3	Tuesday	21-Jan	Circuit Theory	**HW 2**
	Thursday	23-Jan	Measurement Lab	In-Class Tasks
Week 4	Tuesday	28-Jan	Measurement Lab	In-Class Tasks
	Thursday	30-Jan	Measurement Lab	In-Class Tasks
Week 5	**Tuesday**	**4-Feb**	**Test**	
	Thursday	6-Feb	Project Management+Project Proposal Presentation	In-Class Tasks
Week 6	Tuesday	11-Feb	Design Problem 1 (Bell Simulation)	Design Problems 1
	Thursday	13-Feb	Design Problem 2 (Bell implementation)	Design Problems 2
Week 7	Tuesday	*18-Feb*	Simulink intro	Simulink Intro
	Thursday	20-Feb	Simulink & Arduino	Simulink & Arduino

Week 8	Tuesday	25-Feb	Design Problem 3	Design Problem 3
	Thursday	27-Feb	Design Problem 4	Design Problem 4
Week 9	Tuesday	4-Mar	Matlab	In-Class Coding
	Thursday	6-Mar	Matlab	In-Class Coding
Week 10	Tuesday	*11-Mar*	**Spring Break**	
	Thursday	*13-Mar*	**Spring Break**	
Week 11	Tuesday	18-Mar	Matlab	In-Class Coding
	Thursday	20-Mar	Matlab	In-Class Coding
Week 12	Tuesday	25-Mar	Matlab	In-Class Coding
	Thursday	27-Mar	Matlab	In-Class Coding
Week 13	Tuesday	1-Apr	Matlab	In-Class Coding
	Thursday	3-Apr	Group 1 LabVIEW1/Group 2 Renewable Lab1	In-Class Tasks
Week 14	Tuesday	8-Apr	Group 2 LabVIEW1/Group 1 Renewable Lab1	In-Class Tasks
	Thursday	10-Apr	Group 1 LabVIEW2/Group 2 Renewable Lab2	In-Class Tasks
Week 15	Tuesday	15-Apr	Group 2 LabVIEW2/Group 1 Renewable Lab2	In-Class Tasks
	Thursday	**17-Apr**	***Final Project Presentation* (Group 1)**	
Week 16	**Tuesday**	**22-Apr**	***Final Project Presentation* (Group 2)**	
	Thursday	*24-Apr*	**Final Project Report Submission; 2pm**	

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.