Utah Valley University Electrical and Computer Engineering Department

ECE 1000

Section – 001

Introduction to Electrical and Computer Engineering (Fall 2025)

Syllabus

Class Time: TR 10 – 11:15 a.m.
Class Location: CS 517

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

Office Hours: in person
TR: 9:10 a.m. to 10 a.m. & 2:20 to 4 p.m.
Please email me if you need to arrange an alternative appointment.

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 Objectives and Learning Outcomes
Successful completion of this course should enable you to do the following:
• 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.

Pre-requisite: MATH 1060 or higher.

In this course we will cover these topics:

- Working aspects of the engineering profession
- Engineering design process
- Steps that engineers follow when designing and presenting their products and services
- Technical communication and engineering reports
- Teamwork
- Engineering Economics and Ethics
- Oral and visual communication
- Basic electrical quantities including charge, current, voltage, energy, power, various sources of electricity, and resistance.
- Apply circuit theory and techniques to resistive circuits
- MATLAB, Simulink and LabVIEW software
- Electricity and Circuits basics
- Arduino microcontrollers

Textbooks and Materials:
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.

Grading:

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)	50%
Test	15%
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**.**
➢ <u>Twenty-five percent</u> 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.

Class Attendance

Because of the content's inherent complexity AND most hands-on assignments should be completed during the class hour, your presence at the lectures and comprehension of the topics discussed during these sessions are crucial and mandatory. Occasionally, the instructor will delve into subject matter that may not be in the textbook. Roll may be taken at any time during class, or it might not take place at all. Moreover, participating in the lectures grants you the chance to inquire, leading to dynamic discussions, and the potential to earn bonuses.

Returning of the Borrowed Equipment

All the equipment that are borrowed should be returned (unless permission to keep the equipment is granted by instructor) by the last week of classes, otherwise an Incomplete ("I") letter grade will be obtained.

Canvas:
Course information including the syllabus, assignments, and notes will be posted on Canvas. No hard copies of handouts and notes will be made available in class. All assignments will be turned in on Canvas. Check your email and "announcement" section of Canvas at least twice during each working day.

Professional Behavior (Professionalism)
Professional behavior in an academic setting includes attending each class, coming to class prepared, arriving on time, treating others with respect, giving visitors a positive impression, doing your own work, doing high-quality work, seeking help when you need it (in appropriate ways), helping others, providing helpful feedback to others, and helping the entire class grow. To ensure the best possible learning environment, please do not engage in the following disruptive activities:

- Come to class late or unprepared.
- Talk or visit with classmates when the professors explain new material, make announcements, or answer questions during lecture.
- Play computer games.
- Send/read personal e-mail, text messages, or instant messages.
- Use other computer programs or study for other classes.
- Use cell phones to place or receive calls or text messages. Because cell phones and pagers are major distractions, you must turn off these devices before class begins. If you engage in inappropriate classroom behavior, you will be asked to leave the classroom. Our expectation is that you will be professional.

Dropping Policy:
The last day to drop the course without it showing on your transcript, to receive a 100% refund, or to add or audit the course is listed in the student timetable at http://www.uvu.edu/schedule/.
The last day to drop the course is also listed there. Attempting to withdraw from the course after that date will be extremely difficult or impossible, since the department chair's signature is required. If you stop attending course without taking care of a formal drop or withdrawal, the instructor cannot do anything at the end of the semester except assign a grade based on the number of accumulated points (typically an "E").

Academic Honesty:

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*.

Attention 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.

Non-Discrimination Statement:

UVU Policy 165 defines protected classes as "race, color, religion, national origin, sex, sexual orientation, gender identity, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, genetic information, or other bases protected by applicable federal, state, or local law." Bigotry and harassment will not be tolerated by the Engineering Department.

Student Veteran Support:

UVU is committed to providing a working and learning atmosphere for student veterans and their families. If you are a student veteran, or a student family member of a veteran you are eligible for support services from the Veterans Success Center and may be eligible for Post-9/11 GI Bill benefits. For help receiving your benefits, please contact the Veterans Success Center in the Woodbury Business Building, room 100, via email atveterans@uvu.edu or by calling 801.863.8212.

Course Evaluations:

UVU is dedicated to providing quality academic experiences for students. Help us identify areas where professors can improve their teaching by participating in the Student Ratings of Instructor (SRI). Your confidentiality is assured. Your feedback is critical to help us improve the teaching and learning at UVU. The online SRIs will be available toward the end of the semester.

Inclusion Statement:

"Come as you are. UVU has a place for you."--President Tuminez.

UVU is committed to preparing all students for success in an increasingly complex, diverse, and globalized society. We value and promote collegial relationships and mutual respect among students, faculty, staff, and the community. We acknowledge and seek to address the needs of populations who are underserved as well as students with varying levels of academic preparation. Since your experience in this class is important to me, it is my intent to promote civility and respect the voice, dignity, and potential of everyone. I aim for an inclusive learning environment that provides equitable opportunities and fosters the understanding, appreciation, and recognition that diversity and individual differences are a source of strength. I aim for a course that is respectful of diversity including age, culture, disability, ethnicity, gender, nationality, race, religion, sexuality, and socioeconomic status.

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.

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.

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.

Using 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.

Bookstore Information:
Please note that the UVU Bookstore may recommend additional "Optional Study Tools & Resources" for this class on their website. These resources are advertisements and were not selected or endorsed by your professor. Purchasing these resources is **not recommended.**