

**COURSE # ECE 1000**

Introduction to Electrical and Computer Engineering

**Instructor**

**Instructor:**

**Phone:**

**Email:**

**Office Hours:**

**Course**

**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 Prerequisites

MATH 1060 or higher.

## Course Objectives or Learning Outcomes

Students who successfully complete this course will be able to:

* 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.

## About the Course Structure

This course is a foundational course which means there is basic set of knowledge to be learned; however, that is not enough. You must master the knowledge gained with exercise and learn how to leverage them facing real engineering problems.

* zyBooks activities are selected to help you refresh your existing knowledge of the material and initiate the learning process/introduce the new material.
* My goal during the lecture time is to make sure you gain the knowledge. Within the limited class time I explain the concept with an example.
* There is going to be one Homework per chapter. Designed to reinforce the knowledge and turn the knowledge to skill.
* Project are designed to teach you how to put your skills to work for solving real engineering problems.
* This course includes assignment, homework, and projects that need to be completed outside of the class assigned time.

## Required Text and Materials

Engineering Design: A Project-Based Introduction, 4th Edition, Clive L. Dym, Wiley, 2013, ISBN: 978-1118-80699-9.



zyBooks

You will receive the instructions and necessary info to buy this online book via **Canvas**.



## Course Topics

The following titles will be covered (one way or another):

* 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
* Oral and visual communication
* Teamwork
* Engineering Economics and Ethics
* 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

Please note that due to the special circumstance caused by COVID-19 some titles might get less emphasis. The assessment of each title will be proportional to the emphasis it receives.

# Assignments, Activities, and Assessment

## Assessment

Students will be evaluated based on all the activities, assignments, and exams. A major part of this course (in evaluation as well as time consumption) are the assignments that need to be mainly completed outside of the normal class time. Grading Scale

Grades will be assigned based on the following scale:

93% and above A

90%-92% A- 86%-89% B+

83%-86% B

80%-82% B- 77%-79% C+

73%-76% C

70%-72% C- 67%-69% D+

63%-66% D

60%-62% D-

59% and below E

## Breakdown

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Professionalism  |   |   |   |   |   |   |  5 %  |
| Attendance& Participation  |   |   |   |   |   |   |  5 %  |
| Activity Assignments  |   |   |   |   |   |   |  20 %  |
| Design Problems  |   |  25 %  |
| Project (Presentation, Demo, Project Video and Final Report)  |   |  24%  |
| Exam 1  |   |  10 %  |
| Exam 2  |   |  10 %  |
| Returning of the Borrowed Equipment1  |   |  1 %  |

Bonus and Participation points

## Professionalism and Participation

Behave respectfully and appropriately toward everyone in the class. Set all communication devices in non-audible mode before class begins. Be actively involved during the lectures and try to answer the questions especially when you are called upon. Attendance

* Attend all classes and be punctual.
* Roll may be taken at any time during class or it might not take place at all.
* Make sure to submit all the in-class activities (even if they are incomplete) since they might count toward your Attendance & Participation point.

## Exams

There will be two exams. You are responsible for all material in the text, class lectures, and supplemental reading assignments. All exams are closed-book (a one-page reference list is allowed).

## Late policy

* There are no makeup exams. Late homework, assignment, activity, and project will be deducted 10% per day to maximum of 50%.
* Homework and assignment will not receive any points after the solutions are posted.
* The last day to submit all homework is the last day of classes, Thursday Dec 9.

## Returning of the Borrowed Equipment

All the equipment that are borrowed should be returned (unless permission to keep the equipment is granted by instructor) before the grades are finalized, otherwise an Incomplete (“I”) letter grade will be obtained.

# Logistical issues

## Communications

As indicated in the first week of class, you are responsible to read this page and familiarize yourself with the important logistical information on it.

We will use email and Canvas as an official means of communicating class information to you. Please check the website as well as your email at least twice during each working day (Monday-Friday). Students should use MS Teams to ask questions from their instructor.

Use Microsoft Teams to ask questions from your instructor and for office hours.

## Tentative Schedule

The tentative Schedule of the classes, labs and recitations will be posted on Canvas as a separated document after the first day of the class.

## Suggestions

Suggestions for improvement are welcome at any time. Any concern about the course should be brought to the instructor’s attention.

# University Policies

## Academic Integrity

(via [https://www.uvu.edu/lang/docs/handbook2018.pdf)](https://www.uvu.edu/lang/docs/handbook2018.pdf)

Plagiarism, cheating, and other forms of academic dishonesty are not allowed. For definitions and examples, please refer to the course catalog in the Student Rights and Responsibilities under Academic Responsibilities.

In keeping with UVU policy, evidence of academic dishonesty may result in a failing grade in the course and disciplinary review by the college. Additional information on this topic is published in the student handbook and is available on the UVU website. Students with Disabilities

(via [https://www.uvu.edu/accessibility-services/faculty/)](https://www.uvu.edu/accessibility-services/faculty/)

Students who need accommodations because of a disability may contact the UVU Office of Accessibility Services (OAS), located on the Orem Campus in LC 312. To schedule an appointment or to speak with a counselor, call the OAS office at 801-863-8747. Deaf/Hard of Hearing individuals, email nicole.hemmingsen@uvu.edu or text 385-208-2677. Dropping the Class

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 located at [http://www.uvu.edu/schedule/index.html.](http://www.uvu.edu/schedule/index.html) The last day to drop the class is also listed there. Attempting to withdraw from the course after that date will be difficult, since the department chair's signature is required, along with a rationale for the late withdrawal request. Late withdrawal requests must be transmitted to the department chair by US mail (not email). If you stop attending class without doing 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 or a UW). Subsequent appeals for grade change must be made to the UVU Academic Standards Committee.

This course syllabus is subject to change.

Any changes will be announced in class.