Elements of Electrical Engineering

EEL3003, Sections 11292 & 21377 (web), 26294 (in-person)
Class Periods: Asynchronous (11292 & 21377), Thu Periods 7-8 (26294)
Location: Online (11292 & 21377), NEB 101 (26294)
Academic Term: Fall 2025

Instructor:
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Teaching Assistant/Peer Mentor/Supervised Teaching Student:
Please contact through the Canvas website.
Our course peer mentors/graders will offer online help hours, each session will have virtual assistance for students. All peer mentor sessions are for help with both calculation-based problems and Arduino Build Kit assistance. You can attend any mentor hours for help, not just the one with your grading range.
If you have questions or need help outside of office hours, please use Canvas Discussion Board. This provides the most visibility enabling you to receive answers most efficiently from the peer mentors, instructor, or your fellow students.

Course Description
Introduces the theory and practice of electrical engineering for those not majoring in electrical engineering. Discusses circuits, machines, electronics and systems.

Course Pre-Requisites
MAC 2313 and PHY 2049

Course Objectives
1)Become familiar with common engineering circuit components.
2)Understand role of circuits across engineering majors for future multidisciplinary courses or projects.
3)Learn techniques to solve open-ended engineering challenges.
4)Understand core equations and numerical problem-solving techniques of introductory circuits.
5)Connect circuit theory and equations to practice and builds with physical circuits components.

Relation to Program Outcomes (ABET):
The table below is an example. Please consult with your department's ABET coordinator when filling this out.

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Medium
3. An ability to communicate effectively with a range of audiences	Low

4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Low
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Medium

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

1.ELEGOO Super Starter Kit:
Each student should purchase their own ELEGOO Super Starter Kit. Half of your course homework assignments and some conceptual questions on the exam will be based on built items using the Arduino Kit. Amazon link here.
2.Laptop with web camera and microphone tested well ahead of each exam: You will need your own laptop to use your Arduino (ELEGOO) Kit as well as take course exams, which are proctored online using Honorlock. Please read the following handout to prepare for an online exam proctored by Honorlock: https://secure.aa.ufl.edu/Shared/DistancePrograms/dl-images/honorlock-student-guide.pdf
3.Calculator: A polar-rectangular mixed mode calculator

Required Computer
Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/

HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/

Course Schedule
Week 1: Physics 2 Review Part 1
Week 2: Physics2 Review Part2, Intro to Arduino
Week 3: Nodal, Mesh/Loop Analysis
Week 4: Review for Exam1, Source Transformation
Week 5: Exam1, Superposition
Week 6: Thevenin Equivalent Circuits, Maximum Power Transfer
Week 7: Operational Amplifiers
Week 8: Capacitors, Inductors Networks
Week 9: Review for Exam2, Arduino Final Project Info
Week 10: Exam2
Week 11: AC Part 1: AC Intro, Complex Numbers, RMS, Transformers
Week 12: AC Part 2: Phasors, Impedance, Filters, AC Circuit Analysis I
Week 13: AC Part 3: AC Circuit Analysis II, AC Power

Week 14: Review for Exam3
Week 15: Exam3

Important Dates
Thursday, September, 18 Exam 1 (Online 11292 & 21377; TBA 26294)
Thursday, October, 23 Exam 2 (Online 11292 & 21377; TBA 26294)
Monday, December, 8 Arduino Project due
Thursday, December, 11 Exam 3 (Online 11292 & 21377; TBA 26294)

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Participation (10)	100 each	3%
Homework (6)	100 each	12%
Arduino Reports (6)	100 each	15%
Exams (3)	20 each	60%
Arduino Project	10	10%
		100%

All exams (exams will be administered online), assignments, and projects are to be completed independently by the individual student unless otherwise explicitly stated. Collaborative study is permitted, but each student must submit their own original work. Any violation of this policy will be considered a violation of the honor code and reported to the office of the Dean of Students.

Grading Policy

Percent	Grade	Grade Points
92 - 100	A	4.00
90.0 - 91.99	A-	3.67
88 - 89.99	B+	3.33
82 – 87.99	B	3.00
80.0 – 81.99	B-	2.67
78 - 79.99	C+	2.33
72 – 77.99	C	2.00
70.0 – 71.99	C-	1.67
68 - 69.99	D+	1.33
62 – 67.99	D	1.00
60.0 – 61.99	D-	0.67
0 - 59.9	E	0.00

Academic Policies & Resources
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies: https://go.ufl.edu/syllabuspolicies.

•You are responsible for the announcements made in class.
•You are expected to watch every video. The videos are an important source of class content and communication channel about exams, grading, policies, and information that can have a profound effect on your outcome.

Commitment to a Positive Learning Environment
The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:
- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu