



SYLLABUS
KENNESAW STATE UNIVERSITY
ELECTRICAL & COMPUTER ENGINEERING
EE 3401: ENGINEERING ELECTRONICS
FALL 2024

Course Information

Class meeting time: no in-person meetings – all course material is on D2L

Lab meeting times: Tue or Thu 11:00am – 1:45 pm

Modality and Location: [Lecture online](#); [Lab in person \(Q335\)](#)

Syllabus is posted in D2L

Instructor Information

Name: Sheila Hill

Email: sdoneho1@kennesaw.edu

Office Location: Q337C

Office phone: (470) 578-2408

Office Hours: Posted on D2L

Preferred method of communication:

- For general questions about course content, assignments, due dates, etc, use the **Ask the Professor a Question** discussion board (you may post anonymously if you wish).
- For specific questions, whether they are personal questions concerning absences, extensions, etc OR if you want me to check your work to see if it's correct before submitting it, email me directly.

Communications will be answered within 24 hours on weekdays and 48 hours on weekends, but in general responses from me are much sooner than that.

Course Description

3 Class Hours, 1 Laboratory Hours, 4 Credit Hours

Prerequisites: EE 2301

This course emphasizes internal operation, terminal characteristics, and models of diodes, op-amps, transistors (bipolar & field-effect), and optical devices (LED's & phototransistors). In addition, areas of nanotechnology such as carbon nanotubes and grapheme are explored. A lab component in the course focuses on applying the skills attained in this course to emerging technologies such as robotics, biomedical, motors, etc.

Course Materials

Suggested Text (not required):

- A. Sedra and K. Smith, *Microelectronic Circuits*, 8th Edition, Oxford University Press, ISBN 978-0-19-085346-4. (7th edition is also fine)

Reference Text (current or older editions will work equally well as references):

- D. Neamen, *Microelectronics: Circuit Analysis and Design*, 4th Edition, McGraw-Hill Higher Education, ISBN 978-0-07-338064-3.

Technology Requirements

- You must have access to a computer with reliable internet access, sound and video capabilities. Some of the activities may be completed with a tablet, but that should not be your only way to access course materials since some activities, quizzes especially, sometimes don't work properly.
- You will need a word processing program such as MS Word in order to complete lab reports. There are also activities involving Matlab, LTspice and possibly Excel that can be done on your own computer or in the computer lab in Q220. The computers in the EE labs also have all the software you need.
- You must check your campus email regularly - sometimes important information about the class is dispensed this way.

Assignments that require Dropbox submissions (lab reports, test calculations, etc) should be submitted **ONLY in pdf format**. If you have images that need to be submitted, put them into a Word document and save as a pdf file. Images by themselves are not acceptable because they can be very difficult to read.

Course Software Skills

- Students are expected to be familiar with Microsoft Word and Microsoft Excel and should be able to create a pdf file. Some familiarity with MATLAB is helpful but not required.

Learning Outcomes

Upon successful completion of this course, you should be able to perform the following tasks:

1. Describe the characteristics of ideal operational amplifiers
2. Design and analyze op-amp circuits
3. Describe the operating principles of diodes, MOSFETs and BJTs
4. Design and analyze diode circuits
5. Design and analyze DC bias circuits for MOSFETs
6. Perform small-signal analysis of MOSFET amplifiers
7. Design and analyze DC bias circuits for BJTs
8. Perform small-signal analysis of BJT amplifiers
9. Design, build, and test circuits using diodes, MOSFETs, BJTs, and operational amplifiers in the laboratory

Course Requirements and Assignments

Assessment Descriptions:

Tests:

- The purpose of the tests is to assess a student's ability to successfully perform tasks associated with the course objectives.
- Three tests will be given during the semester, generally after weeks 5, 8, and 11 during a regular semester or after weeks 2, 4, and 6 in the summer.
- General test solutions will be available after the tests are graded.

Final Exam

- Similar to the semester tests, the purpose of the final exam is to assess a student's ability to successfully perform tasks associated with the course objectives.
- The primary difference between a semester test and the final exam is that the scope of topics assessed in the final exam is comprehensive.
- The final exam is 120 minutes in duration.

Participation

- Participation assignments consist of problems that assist with module objectives
- Participation assignments are available on D2L and must be completed by the due date
- Solutions to the participation assignments are available the day after they are due.
- You may check your answers with the professor before submitting them on D2L

Homework

- The homework assignments are designed primarily to assist in learning the module objectives.
- Homework assignments are available on D2L and must be completed by the due date.
- Late assignments will not be accepted.

- You may check your answers with the professor before submitting them on D2L

Evaluation and Grading Policies

Midterm Grade:

A midterm grade will be assigned by the midterm grade due date identified on this semester's academic calendar. This midterm grade is for assessing mid-semester performance prior to the last day to withdraw without academic penalty. You may view your midterm grade in Owl Express. Note that only your final grade will be officially recorded on your academic transcript.

Grading Scale:

The grading scale that relates your final grade percentage to the letter grade you will be awarded for this course is presented in the table below:

EE 3401 Grading Scale	
Final Grade Percentage	Letter Grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Final grades will be rounded up to the nearest whole number.

EE 3401 Grade Composition	
Assessment Category	Percentage Weighting (%)
Tests (3)	40 (final replaces lowest)
Final Exam	20
Participation Assignments	10 (lowest is dropped)
Homework	10
Lab	20

Course Policies

Attendance Policy:

- Each student is responsible for the lecture content covered on D2L.
- No make-up tests will be administered, unless a credible excuse is given prior to your absence, or in the case of an emergency, on the day of your return to class.
- Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

Appealing a Grade:

- You may appeal any grade received.
- All appeals for re-evaluation of a grade must be made within **one week** of the assessment being returned to you.
- The instructor reserves the right to re-grade the entire exam, homework assignment, or project.

Netiquette Guidelines

- Kennesaw State University's netiquette guidelines can be found [here](#)
- Basically, treat people well and everything will be fine.

Feedback in a Timely Manner:

The following table lists the maximum turn-around times on the different types of assessments used in this course.

EE 3401 Feedback Times	
Assessment Category	Max. Turn-around Times
Semester Exams	1 week
Final Exam	1 week
Participation Assignments	Immediate
Homework Assignments	Immediate

Institutional Policies

[Federal, BOR, & KSU Required Syllabus Policies](#)

KSU Student Resources

This link contains information on help and resources available to students: [KSU Student Syllabus Resources](#)

Course Schedule

KEY:

P = Participation Exercise

HW = Homework

T = Test

EE 3401 Course Schedule Fall 2024			
Week	Dates	Content Covered	Due Dates
1	08/12 – 08/18	Introduction and Circuit Analysis	Syllabus Quiz / P01 due Sun 08/18
2	08/19 – 08/25	Signals and Amplifiers	VT Introduction due Sun 08/25
3	08/26 – 09/01	Op-Amp Characteristics	P02 due Sun 09/01
4	09/02 – 09/08	Op-Amp Circuits	P03 due Sun 09/08
5	09/09 – 09/15	Op-Amp Applications	HW01 due Sun 09/15
6	09/16 – 09/22	Diode Characteristics	T01 due Weds 09/18 / P04 due Sun 09/22
7	09/23 – 09/29	Diode Circuits	P05 due Sun 09/29
8	09/30 – 10/06	Diode Applications	HW02 due Sun 10/06
9	10/07 – 10/13	MOSFET Characteristics	T02 due Weds 10/09 / P06 due Sun 10/13
10	10/14 – 10/20	MOSFET DC Circuits	P07 due Sun 10/20
11	10/21 – 10/27	MOSFET Amplifiers	HW03 due Sun 10/27
12	10/28 – 11/03	BJT Characteristics	T03 due Weds 10/30 / P08 due Sun 11/03
13	11/04 – 11/10	BJT DC Circuits	P09 due Sun 11/10
14	11/11 – 11/17	BJT Amplifiers	HW04 due Sun 11/17
15	11/18 – 11/24	Final Exam Review Problems	
	11/25 – 12/01	Thanksgiving Break – no classes	
Final Exam	12/03 - 12/04	Final Exam Available (due 12/04)	