

EENG 3510-001 Electronics I

Instructor: Shuping Wang
Office: NTDP F130
Phone: 940-369-8895
Email: shuping@unt.edu

Summer 2023
Time: (MW) 3:00pm – 4:50pm
Meeting Place: NTDP E264
Office Hours: (MW) 2:00pm – 3:00pm

GA: Mitul Parmar
Office Hours: (Room B250) Wed 11am - 1pm
Email: MitulMahendrabhaiParmar@my.unt.edu

Course Description

Electronics I. Introduction to contemporary electronic devices, terminal characteristics of active semiconductor devices, and models of the BJT and MOSFET in cutoff and saturation region are introduced. Incremental and DC models of junction diodes, bipolar transistors (BJTs), and metal-oxide semiconductor field effect transistors (MOSFETs) are studied to design single and multistage amplifiers.

Course Information

Prerequisites

EENG 2610 Circuit Analysis, solid algebra skills, and basic calculus.

Required Text

Adel S. Sedra, Kenneth C. Smith, Tony C. Carusone, and Vincent Gaudet, Microelectronic Circuits, 8th Edition. Oxford University Press, 2020, ISBN 9780190853464 or 978-0190853532 (ebook).

Attendance

Attendance is expected. Research has shown that students who attend class are more likely to be successful. To encourage your attendance, punctuality, and learning, I will provide pop-up quizzes of the previous lecture's material at the beginning of class. You will have the ability to earn up to **5 bonus points** toward your overall grade over the semester by attending the lectures. The pop-up quizzes will be administered **sharply at 3 pm** and will last for about 5 minutes. Plan to arrive on time because you must be present when class begins to take the quiz.

Student Evaluation of Instruction

SPOT is a requirement for all organized classes at UNT. The survey will be made available at the end of the semester.

Homework

Homework will be assigned to assess understanding and reinforce the materials covered in lecture.

- Homework needs to be uploaded to Canvas at the due date/time.
- Homework turned in late will be penalized 50%. No homework accepted after 24 hours.
- Students have one week to contest any grade once grade posted.

Exams

There will be **three** exams (this includes the final exam), each worth 100 points. Exams will be based on text readings, handouts, class exercises, and class lectures and discussions. Students are responsible for all text material, regardless of whether we review the text material in class or not.

Missed Exams

There are **no** make-up Tests. If you cannot take the test for any reason, the weight of the test will be put onto the final, so that the final is worth 55% of your grade. Make-up exam accommodations for the Final Exam will only be made if you have a documented university excused absence (refer to UNT Policy 06.039).

Grading Elements and Weights

Pop-up quiz (Attendance bonus)	5%
Homework	20%
Test 1	25%
Test 2	25%
Final Examination	30%

Grade Distribution

Points	Letter Grade
90.0% - 100%	A
80.0% - 89.9%	B
70.0% - 79.9%	C
60.0% - 69.9%	D
59.9% & Below	F

UNT Policies

ODA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the [ODA website \(https://disability.unt.edu/\)](https://disability.unt.edu/).

Academic Integrity Policy (Policy 16.003)

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may

result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Tentative Course Outline

- Review of Circuit Analysis/Signals and Amplifiers (5/22, **lecture via Canvas**)
- Semiconductors (5/24, **lecture via Canvas**)
- Memorial Day—No classes (5/29)
- Semiconductors (5/31)
- Diodes (6/5)
- MOS Field-Effect Transistors (MOSFETs) (6/7)
- **Test 1** (Monday, 6/12)
- MOS Field-Effect Transistors (MOSFETs) (6/14)
- Juneteenth—No Classes (6/19)
- MOS Field-Effect Transistors (MOSFETs) (6/21)
- Bipolar Junction Transistors (BJTs) (6/26, 6/28, 7/3)
- Transistor Amplifiers (7/5)
- **Test 2** (Monday, 7/10)
- Transistor Amplifiers (7/12, 7/17, 7/19)
- Review (7/24)
- **Final Exam** (Friday, 7/28, 3pm – 5pm)