

Electronics I

(Devices and Materials)

Course number: EENG 3510
Semester: Fall 2025

Tu Th, 2:30 am – 3:50 pm
Classroom: B227

Instructor: Jungkwun 'JK' Kim, Ph.D.

Student Learning and Outcome

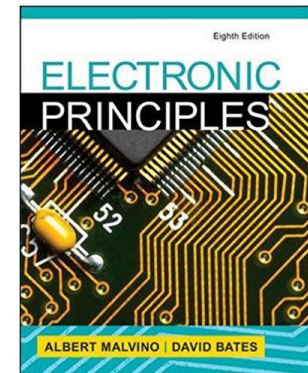
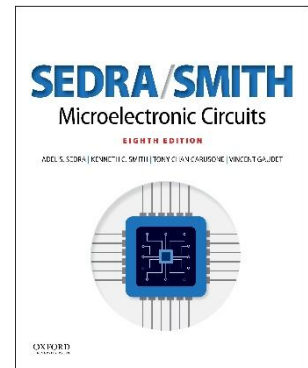
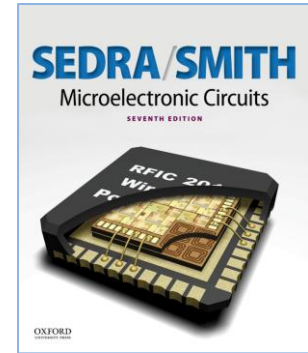
- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- An ability to identify, formulate, and solve engineering problems
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Course Description: Electronics I

- Builds on previous circuits course
- Provides theory needed to understand and design practical electronics circuits and systems of moderate complexity.
- Analog circuit design from the textbook
- Modern circuits (not in the textbook)
 - Interfacing to and from microprocessors
 - Analog-to-digital converters
- Modern Electronics (not in the textbook)
 - PCB fabrication
 - 3D Printing

References

- Reference book
 - A.S. Sedra & K.C. Smith, ***Microelectronic Circuits***, 7th Edition, Oxford
 - A.S. Sedra & K.C. Smith, ***Microelectronic Circuits***, 8th Edition, Oxford
 - ***Electronic Principles*** 8th Edition
by Albert Paul Malvino Dr., David J. Bates
- Additional reading materials will be provided if needed
- The lecture slides (pdf) will be uploaded after the class.



PART I **DEVICES AND BASIC CIRCUITS**

- **1 Signals and Amplifiers**
 - **2 Operational Amplifiers**
 - **3 Semiconductors**
 - **4 Diodes**
 - **5 MOS Field-Effect Transistors (MOSFETs)**
 - **6 Bipolar Junction Transistors (BJTs)**
 - **7 Transistor Amplifiers**
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- **PCB fabrication**
 - **3D printing**

PART II **INTEGRATED-CIRCUIT AMPLIFIERS** (If time allows)

- **9** Differential and Multistage Amplifiers
- **10** Frequency Response
- **11** Feedback
- **12** Output Stages and Power Amplifiers
- **13** Operational Amplifier Circuits

Grading

Quiz	20 %	After each chapter
Assignment	15 %	7-8
Exam 1	15 %	
Exam 2	20 %	
Exam 3	20 %	Final exam
Attendance	10%	
Total	100%	

Grading scale: 100-90=A, 89.99-80=B, 79.99-70=C, 69.99-55=D,
 54.99 and below F
 No curve

Grading Policy

- Exam/Quiz :
 - THERE IS NO MAKE-UP EXAM/Quiz.
 - Make-up exams may be given only in unforeseen, extreme emergency situations, including cases of severe illness (e.g., hospitalization) and undue hardship that is verified by an outside authority (e.g., death in the immediate family).
 - Should one such conflict occur, requests for any make-up exams must be made to the instructor prior to the examination hour or as soon as humanly possible.
 - Official written documentation of your hardship (e.g., from the hospital or police) is required for any consideration of a make-up exam at the discretion of the instructor. Original copies of documentation materials are required.

Class Rules and Etiquette

Class attendance: You are required to attend all lectures! Announcements concerning assignments, exams, and schedules will be made during class.

1. No eating or drinking in the classroom (I know you want to eat always, but please do not bring food or drink into the class).
2. Homework will be assigned – there will be several homework assignments during the semester. All homework must be handed in on time; late homework will not be accepted unless arrangements have been made in advance.
3. There are no make-up exams/quizzes for this course. If you have a problem or conflict and cannot attend an exam, let me know about it in advance, and we will try to work something out.

Zero credit will be given for a missed exam that we haven't made arrangements about beforehand unless you have a satisfactory medical excuse excusing you from exams on grounds of illness.

Office Hour

- **Office Hours: 1:30-2:30 Tu**
- I will be in or near my office on Tuesday. Please stop by if you are having problems understanding the material, doing the homework, etc.,
 - or if there is anything else (jobs, graduate school, etc.) you would like to discuss. You are free to come by at other times; however, be warned that I may or may not be in my office, and I may or may not have time to talk (I'm usually not unfriendly, just busy).

Academic Honesty

- The University of North Texas has an Honor and Integrity System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance.
- Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor and Integrity System. The policies and procedures of the Honor and Integrity System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning.
- A component vital to the Honor and Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." **A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.**

Students with Disabilities

- Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact UNT - Office of Disability Access <ODA@post.accessiblelearning.com>.
- Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. Please contact the UNT - Office of Disability Access <ODA@post.accessiblelearning.com>.

Campus Safety

University of North Texas is committed to providing a safe teaching and learning environment for students and faculty members. In order to enhance your safety in the unlikely case of a campus emergency make sure that you know where and how to exit your classroom quickly and how to follow any emergency directives.

- Police/fire/medical emergency: Call 911.
- Non-emergency: Call the UNT Police Department at Discovery Park: 940-565-3000

Pull the fire alarm and follow evacuation procedures.

- If you hear a fire alarm, follow evacuation procedures. Leave the building.
- Do not use elevators.
- Assist individuals with disabilities to a safe location and notify emergency personnel. Most buildings have an identified area of rescue near the top landing of staircases.
- Once outside, keep clear of entrances, move at least 100 feet away from the building, and stay clear of emergency vehicles. A campus authority will notify you when it is safe to return.

Tornado and severe weather

- Go to the building's designated tornado shelter. In most cases this is the lowest floor in the central core of the building and away from glass windows.

Other possible threats: Call 911.

- Remain calm.
- Give the dispatcher as much information as possible.

Serious student situations

Campus procedures

- **Threatening or disruptive student situations**

Call the UNT Police Department at Discovery Park: 940-565-3000

Discrimination, Harassment, Sexual Violence and Stalking

Unwanted contact or stalking

Missing students