

## Physical Electronics/Semiconductors 1

**ECE 465-01**

**ECE 583-01**

Syllabus (Fall 2023)

### Instructor:

- Russell C. Pepe, RCDD
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### Rooms/Time:

- Lecture/Lab:
  - CoRE
  - Room 538
- Schedule
  - Tuesday
  - 5:30 pm to 8:20 pm

### Books:

- Fundamentals of Semiconductor Devices, Anderson, Second Edition, McGraw Hill, ISBN: 978-0-07-352956-1

### Assignments:

#### Lecture:

- Read the text book assignments for lectures one week in advance.
- Hand in homework assignment questions and problems one week after assigned. These may be hand written, but must be neat and legible. No credit is given for late homework.
- Students will demonstrate homework solutions in class on the due date. This will count towards class participation.
- All homework solutions will be posted.

### Graduate Student Additional Assignments:

- 2 IEEE Seminars related to class
- Extra problem(s) on each test and final

### Extra Credit:

- IEEE Seminar related to class

**Tests:**

- Three tests will be given during the semester.
- You will be given 90 minutes to complete each test.
- A brief review will be given the week before tests.
- Calculators will be permitted.
- All tests are open book, and a one-page (8 1/2 x 11") formula sheet will be allowed.
- Tests will be graded and returned. At that time, the test solutions will be provided during class.

**Grading:**

- Homework: 10 %
- Class Participation: 5 %
- Attendance 5 %
- Tests (3): 60 %
- Final Exam: 20 %
- Graduate 20%

**Attendance:**

- Attendance will be taken before each class.
- You will find that poor attendance will negatively impact your ability to grasp the material presented in this course.
- You will receive a grade for attendance.

**Rules:**

- Arrive to class on time. If you plan to be late or miss a class, call me or send me an e-mail in advance.
- Turn off your cell phone prior to arrive to class. Use of cell phones in class is forbidden.

**Agenda:**

	<u>Week</u>	<u>Topic</u>
<b>Lecture:</b>		
	1	Introduction Chapters 1 (Electron Energy and States in Semiconductors)
	2	Chapter 2 (Homogeneous Semiconductors)
	3	Chapter 3 (Current Flow in Homogeneous Semiconductors)
	4	Chapter 3 continued
	5	Chapter 5 (Prototype pn Homojunctions) Test 1
	6	Chapter 5 continued
	7	Chapter 5 continued
	8	Chapter 5 continued Chapter 7 (The MOSFET)
	9	Chapter 7 continued Test 2
	10	Chapter 9 (Bipolar Junction Transistors)
	11	Chapter 9 continued
	12	Chapter 12 (Power Semiconductor Devices) Test 3
	13	Chapter 12 continued
	14	Chapter 12 continued
	15	Final Exam