**ELEC 2210 Digital Electronics**
**Course Syllabus**

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**Pre/Co Requisites:**

Pre-Requisite: ELEC 2110 Electric Circuit Analysis
Co-Requisite: ELEC 2200. Digital Logic Circuits

**Course Objectives:**

1. Understand electrical conduction in solid state materials
2. Analyze and design dc and switching circuits containing diodes and transistors
3. Analyze and design combinational logic circuits at the transistor level
4. Develop skill with computer-based circuit simulation

**Instructor:**

Dr. Robert Dean (office: 222 Broun Hall, 844-1838, deanron@auburn.edu)

**Schedule:**

Class Lecture: MWF (9:00am-9:50am) BR 235
Lab Lecture: M (3:00pm-3:50pm) BR 235
Lab: T (3:30pm-5:20pm) or R (10:30am-12:20pm) BR 264
Office Hours: TBD and by appointment or by Zoom.

**Textbook:**

Jaeger, ***Microelectronic Circuit Design, 5$^{nd}$ Edition***, McGraw-Hill, 2015.

The first 8 chapters will be covered in this class.

**Course Content:**

Introduction to electronic devices and digital circuits, biasing and operation of diodes, rectification and regulation, biasing and operation of field-effect transistors and bipolar junction transistors in logic circuits, and the use of PSPICE in simulating electronic circuits.

**Class Website:**

www.eng.auburn.edu/~deanron/DigElectr.html. Note: my teaching notes will be put on the class website as PDF files after lectures are given. Homework assignment, homework answers, test study guide, test answers, and lab material will be placed on this website

**Special Accommodations:**

Any student who needs special accommodations should make an appointment to discuss their needs as soon as possible. Accommodations for special needs will be made in accordance with the official policies of Auburn University.

**Fall 2020 Academic Calendar:**

| **2020 Fall TERM** | |
|---|---|
| Aug. 17 | Classes begin |
| **Sep. 7** | **Labor Day Holiday** |
| Nov. 24 | Classes End |
| Week of Dec 1 | Online Final Exams |

**Grading Policy**

Grades will be assigned on a 10% scale (90-100:A, 80-89:B, etc…) based on the point scale presented below

| **Item** | **Points** | **Tentative Date** |
|---|---|---|
| Exam 1 | 100 | Oct. 2 |
| Exam 2 | 100 | Nov 20 |
| HW/Quizzes | 100 | Various |
| Lab | 60 | Various |
| Final Exam | 50 | Week of Dec 1 |

**Exams 1 and 2**

Exams will cover material presented during class lectures, assignments performed as homework and reading assignments. Exams will be closed book and closed note. Calculators can be used on all exams. Laptop and notebook computers cannot be used on any exam. Although exams are worth 100 points toward the final grade, bonus questions *might* be given, such as derivations or proofs, for extra points. Missed exams can only be made up if the absence was due to a university excused absence (illness, co-op job interview, etc…). When possible, let the instructor know ahead of time if an exam will be missed due to an excused absence.

**Final Exam**

The Final Exam will be online/take-home, and will be open book and open note. The exact format is TBD.

**Homework and Quizzes**

Homework and unannounced quizzes will be given, occasionally, throughout the semester. The due dates for homework assignments will be given on the days that the assignments are given. Unannounced quizzes will be short, reflect recent lectures and/or homework/reading assignments, and may be given on days of particularly low class attendance. The instructor reserves the right to give an unannounced quiz consisting of having the students in attendance sign their names on piece of paper and turn it in. Unannounced quizzes cannot be made up and late homework will not be accepted, unless due to an excused absence (illness, job interview, conference travel, etc…). Homework assignments must be submitted in a format that is organized, professional and legible (labeled axes, correct units, etc…). Homework assignments must have the person's name, the class, the date

and the homework assignment number clearly written at the top of the first page, or approximately at the cover page center if a cover page is used.

**Computer Resources:**

Homework assignments and in-class work will make use of PSPICE / LTSpice (for circuit simulation), MATLAB, and EXCEL (for spreadsheet-based analysis). These tools are available on the College of Engineering Workstations.

**Class Attendance**

Class attendance will not affect grading except as previously stated under Exams and Homework and Quizzes. If a student knows that he or she will be absent for an excused absence, such as a co-op job interview or a COVID quarantine, please let the instructor know ahead of time if possible. A doctor's note may be requested for a medical absence.

**Class Etiquette**

The instructor is here to teach and the students are here to learn. Therefore it is important to maintain a classroom atmosphere that fosters learning. Therefore:

(1) do not use cell phones during class
(2) do not read newspapers during class
(3) arrive on time
(4) avoid leaving early (except after completing an exam) unless you notify the instructor before class of a need to leave early that day
(5) minimize disruptive behavior (such as non class related conversations)
(6) come prepared to learn
(7) laptop/notebook computers and/or audio recording devices can be used to take notes

**Academic Honesty**

Students are expected to do their own work. Students may work together on homework assignments; however, each student must submit their own work for a homework assignment. Representation of someone else's work as their own will result in a zero on the assignment and possible further disciplinary action by Auburn University. Quizzes and Exams must be exclusively the work of the student submitting the work for grading.

**Inclement Weather and Other Events**

Auburn University may announce campus closings due to expected or occurring inclement weather, such as hurricanes or ice storms, or COVID. In event of any of these occurrences, we will deal with it.