

EECS 312 - Electronics Circuits I (Spring 2018)

Monday, Wednesday, Friday 12:00-12:50pm

Room 1136 Learned Hall, KU Course # 51304

Instructor: Prof. Ron Hui, (rhui@ku.edu)

Course Website: www.ittc.ku.edu/~hui/EECS312

Office: 3026 Eaton Hall 864-8814
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Office Hours: 1:00 – 2:00pm, Monday, Wednesday, Friday, and by appointment

Catalog Listing: EECS 312 Electronic Circuits I (3). Introduction to diodes and MOSFETs, and their use in electronic circuits, especially digital circuits

Prerequisite: EECS 212, and 300-level EECS eligibility.

Course Objective: To provide an introduction to electronic devices and digital electronic circuits for both EE and CoE majors.

Required Text: *Microelectronic Circuits*, by Sedra & Smith, **7th Edition**, ©2014

Suggested Text: *KC's Problems and Solutions*, by K.C. Smith

Grading: The following factors will be used to arrive at the final course grade

Homework/quiz	15%
Exam I	20 %
Exam II	20 %
Exam III	20 %
Final Exam (comprehensive)	25 %

Grading Scale: Grades will be assigned to the following scale:

A	90 - 100 %
B	80 - 89 %
C	70 - 79 %
D	60 - 69 %
F	< 60 %

Homework: Homework will be collected at the **beginning** of class (that is before 1:00pm) weekly. Collaboration with classmates is permitted. **Copying is not permitted.**

Exams: There will be no make-up exams. If you regularly attend class **and** hand in 75% of your homework and have a legitimate excuse (discretion of the instructor – for example, a medical emergency), then the missed exam will be graded as 90% of the average of the other exams. Note: you must have a legitimate excuse; you cannot simply “drop” one exam.

Ethics Policy: Academic misconduct will **not** be tolerated. It will result in a **failing grade** and may result in further disciplinary action by the University. For details see the Academic Misconduct section of the Timetable.

EECS 312 - Preliminary Course Schedule (Spring 2018)

Week	
1 (Jan. 17, 19)	Introduction and Syllabus, Sec. 4.1, 4.2 (ideal diodes and terminal characteristics)
2 (Jan. 22, 24, 26)	Sec 4.2, 4.3 (diode terminal characteristics and forward biasing)
3 (Jan. 29, 31, Feb. 2)	Sec 4.4, 4.5 (reverse biasing, Zener diode, and rectifier circuits)
4 (Feb. 5, 7, 9)	Sec 4.6, 4.7 (diode-based limiting circuits, special diodes)
5 (Feb. 12, 14, 16)	Sec 5.1, 5.2 (MOSFET structure, current-voltage characteristics)
Feb. 19 (tentative)	EXAM I
6 (Feb. 21, 23)	Sec. 5.3 (MOSFET circuit DC analysis)
7 (Feb. 26, 28, March 2)	Sec. 5.3, 5.4 (MOSFET circuit DC analysis and body effect)
8 (March 5, 7, 9)	Sec 7.2.1 (MOSFET small-signal analysis, and linear amplifier)
9 (March 12, 14, 16)	Sec 14.1, 14.2 (CMOS logical-gate circuits)
10 (March 19, 21, 23)	Spring Break
11 (March 26, 28, 30)	Sec 14.3, 14.4 (CMOS digital logical inverters, dynamic operation)
April 2 (tentative)	EXAM II
12 (April 4, 6)	Sec 15.1, 15.3 (Deep submicron design issues, pseudo-NMOS)
13 (April 9, 11, 13)	Sec 15.4, 16.1 (Pass-transistor logic circuits, Latches & flip-flops)
14 (April 16, 18, 20)	Sec 16.2, 16.3 (Memory types, RAM cells, sensing amplifiers)
15 (April 23, 25, 27)	Sec 16.5, 16.6 (ROM, CMOS imaging sensors)
April 30 (tentative)	EXAM III
16 (May 2)	Review
May 3	Stop Day
May 11 (Friday)	10:30am – 1:00pm (Final Exam)

Homework Policy

- 1. Organization:** Make sure your answers are complete and well presented. Just the answer is not sufficient; and if I cannot read your work, it will receive no credit.
- 2. Due Dates:** Homework is assigned on Monday and due on Monday of the following week, unless specified otherwise.
- 3. Due Time:** Homework is due at the beginning of class. Homework turned in after but immediately following the lecture (while I am still in the classroom) will receive 2/3 credit.
- 4. Solutions:** Most homework solutions will be made available on the webpage.
- 5. Submitting:** Turn in your assignments folded lengthwise, and in the upper corner list:

Your Name – Last, First
Your Student Number
Homework Number
Due Date

Hints for EECS 312 Success

- 1. Pre/Co-requisites:** Know this material. This class builds on these and assumes you are already familiar with circuit analysis; resistors, capacitors, inductors ...
- 2. Attendance:** Come to class and turn in homework. This is not all though; be prepared when you come to class by reading the text and handouts.
- 3. Office Hours:** Stop by. This is a great opportunity for 1-on-1 help.