

EE301 Microelectronics

Spring 2020

Instructor: Prof. Seong-Jin Kim, School of Electrical and Computer Engineering
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Classroom: 106 T205

Class hours: 2:30~3:45pm on Tuesday and Thursday

Office hours: 10:00~11:30am on Tuesday or appointment-basis

Course Objectives

To provide the fundamentals of microelectronics from the semiconductor device physics to the analysis techniques of analog circuits with nonlinear devices

Textbook: Behzad Razavi, Microelectronics, 2nd ed

Grading: Attendance 10%, Quiz 25%, Midterm 30%, Final 35%

Attendance

Your class attendance will count for 10% of grading. If you have some special reason not to come to the class, you have to notice it in advance. More than 2 missing classes will give you penalty as follows.

0 ~ 2:	0%
3:	-1%
4:	-2%
5:	-4%
6:	-6%
7:	-8%
8 :	-10%

Being late twice will be regarded as being absent once. If you don't bring the ID card or find out your missing in the attendance check system, you must let me know it within the day. Other requests will be ignored.

Homework & Quiz

A recommended problem set from each chapter will be given. You can solve it, but you don't need to submit your solution. It is encouraged for you to discuss with your friends. Hence, there are no official assignments but 6 quizzes during the class hour. Each quiz includes 3 problems from the problem set. Five best score excluding one worst will be counted for your grade.

Grade

It will not be either 100% relative or 100% absolute evaluation, but somewhere in between them. However, the absolute evaluation is much preferred so that you don't need to concern your relative ranking basically. Neither objections nor negotiations about the grade after the course will be accepted.

Course Schedule

- Week 1: No lecture due to Covid-19 - Substituted with additional homework (TBD)
- Week 2: No lecture due to Covid-19 - Supplementary classes will be scheduled on 3rd and 10th April, respectively
- Week 3: Introduction to Microelectronics (Ch 1)
- Week 4: Basic Physics of Semiconductors (Ch 2)
- Week 5: Diode Models and Circuits (Ch 3)
- Week 6: Physics of Bipolar Transistors (Ch 4)
- Week 7: Bipolar Amplifiers (Ch 5)
- Week 8: Midterm Exam
- Week 9: Bipolar Amplifiers (Ch 5)
- Week 10: Physics of MOS Transistors (Ch 6)
- Week 11: Physics of MOS Transistors (Ch 6)
- Week 12: CMOS Amplifiers (Ch 7)
- Week 13: Operational Amplifier as a Black Box (Ch 8)
- Week 14: Cascode Stages and Current Mirrors (Ch 9)
- Week 15: Cascode Stages and Current Mirrors (Ch 9)
- Week 16: Final Exam