# Microelectronics I

**2015 SPRING**

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Lecture: Tuesday/Thursday 15:30-16:45, 301-Rm.102

Lab.: Thursday 18:30-20:30, 301-Rm.308

Office Hours: Thursday 17:00-17:30, 301 동 802 호

Course Description:

This course deals with devices such as diode, BJT, and MOSFET, and Operational Amplifier, as well as the methods of analysis for small signal model, input and output resistance, amplifier gain, non-ideal characteristics of passive devices and transistors.

Course Materials:

Fundamentals of Microelectronics: Behzad Razavi

Exams, Homework,

OP-Amp Design and Its Application Project and Grading:

There will be two tests: Midterm (25%) and Final (30%). There will be Experimental Laboratory (25%) and others (20%). Exams may be closed books/ closed notes. Each of the tests will roughly cover about a half of the course's material.

| | Topics |
|---|---|
| 1 | 1. Introduction to Microelectronics<br>2. Basic Physics of Semiconductors |
| 2 | 2. Basic Physics of Semiconductors |
| 3 | 3. Diode Models and Circuits |
| 4 | 3. Diode Models and Circuits |
| 5 | 4. Physics of Bipolar Transistors |
| 6 | 4. Physics of Bipolar Transistors<br>5. Bipolar Amplifiers |
| 7 | 5. Bipolar Amplifiers |
| 8 | Midterm Examination |
| 9 | 6. Physics of MOS Transistors |
| 10 | 6. Physics of MOS Transistors |
| 11 | 7. CMOS Amplifiers |
| 12 | 7. CMOS Amplifiers<br>8. Operational Amplifiers As Black Box |
| 13 | 8. Operational Amplifiers As Black Box |
| 14 | 15. Digital CMOS Circuits |
| 15 | Final Examination |