ELECTRICAL & COMPUTER ENGINEERING
UNIVERSITY of HAWAI'I at MĀNOA

ECE 328 – Microcircuit Fabrication

Spring 2025 meeting times: MWF 1:30 to 2:20 pm
Prerequisites: EE 327 or instructor consent

This course aims to introduce students to the principles, materials, and methods for the design and fabrication of semiconductor devices, integrated circuits, microelectromechanical systems (MEMS), and microfluidic devices.

General Course Outline / Topics:

I. Silicon wafer production, microfabrication in cleanrooms
II. Microfabrication techniques: additive and subtractive processes, lithography
III. Design and fabrication of semiconductor devices / MEMS
IV. Introduction to microfluidics
V. Design and fabrication of microfluidic devices
VI. Principles of CMOS IC processing

Major Deliverables: (tentative)

Homework	~6 assignments; no late homework is accepted
Microfabrication Exam	In class
Project 1	Design and fabrication of an organic LED or organic solar cell
Project 2	Design and fabrication of a microfluidic device
Final Project	Design of a CMOS circuit

Curricular Credit:

- Electrophysics Track: this course fulfills a Track Elective course requirement
- Systems & Data Sciences Track: this course fulfills a Technical Elective course requirement
- Computer Engineering: this course fulfills a Technical Elective course requirement

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