ECE/CHE 612 – Process Integration

➢ Currently identified as ECE 512 & ChE 572

Catalog Description: Process integration, simulation, and statistical quality control issues related to integrated circuit fabrication. Offered alternate years. PREREQS: ECE/CHE 611. CROSSLISTED: CHE/ECE 612

Credits: 3 Terms Offered: Winter, alternate years

Structure: Three 50-minute lectures or two 80-minute lectures per week.

Prerequisites:
By course: ECE/CHE 611 or instructor approval
By topic: Fundamentals of semiconductor processing

Courses that require this as a prerequisite: none
Instructor: J.F. Conley

Topics
- Statistical process control (SPC)
- Design of experiments (DOE)
- Process simulation
- Isolation technologies
- Metallization technology
- Multilevel interconnection
- NMOS process integration
- CMOS process integration
- Bipolar / BICMOS process integration
- Semiconductor memory process integration
- GaAs process integration

Measurable Student Learning Outcomes:
Students are expected to demonstrate the ability to:
1. Implement SPC and DOE, as applicable to process integration, using a commercial software package.
2. Design a simulated CMOS process using a commercial software package.
3. Explain and assess the basic process flow required for the fabrication of CMOS integrated circuits.

Evaluation of Student Performance:
- 1 midterm, final, 2 projects
Learning Resources:
- Statgraphics (statistical quality control commercial software package)
- Silvaco (process simulation commercial software package)

Students with Disabilities:
Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Link to Statement of Expectations for Student Conduct, i.e., cheating policies http://oregonstate.edu/admin/stucon/achon.htm

6/23/09