Instructor: Dr. Jim P. Zheng Room 346 Lecture Hours: TR: 1:15-2:30pm
Office Hours: TR: 2:30-3:30pm Phone: (850) 410-6464
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Prerequisites: EEE 3300 and 3300L (grading C or better)


Course Highlight: This course outlines the basic principles underlying fabrication processes for devices and integrated circuits made from silicon.

Course Objectives: At the conclusion of this course, you should be able to
1. Explain some important properties of solid-state materials such as, crystalline structure, Miller indices, and impurity. (Chapter 2)
2. Describe single crystal growth, thermal diffusion and oxidation, ion implantation, and contact formation processes. (Chapter 3-6)
3. Describe optical, electron-beam lithography concepts. (Chapter 7-9)
4. Explain the gas kinetic theory, vacuum pump and measurement. (Chapter 10)
5. Describe Wet and dry chemical etching processes. (Chapter 11)
6. Describe thin film deposition processes. (Chapter 12-14)
7. Describe the fabrication of complete microelectronics. (Chapter 15-16)

Grading: Two Examinations: 50% (25% from each exam)
Homework: 10%
Final Examination: 40% (a comprehensive exam)
Attendance and Quizzes: 5% (bonus points, no credit will be awarded if one missed more than 3 lectures)

Grading scale: A: >90%, B: 80-89%, C: 65-79%, D: 50-64%, F: <50%
These breakpoints may be lowered slightly depending on overall class performance.

Policy Statements:
• Attendance is mandatory.
• Coming late (5 minutes) or leaving early (5 minutes) will be considered as the absence from class.
• Homework is due at the beginning of class. No late homework will be accepted.
• The general policy is no makeup exams and quizzes. In the event of an excused absence, you must notify the instructor prior to the exam to discuss proper procedure.
• Cellular phones and beepers must be turned off in the classroom.
• There is renewed emphasis on the Honor Code. Violation of this code can result in course failure and/or dismissal from the College of Engineering.