Southern Illinois University at Carbondale
Spring 2011
Syllabus: ECE447 Semiconductor Devices

Instructor:
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Office Hours: MW 1:10–3:00 PM, and by appointment
Lecture: MWF 3:00–3:50 PM, Engineering A Wing Room 220
Labs: online simulations on nanoHUB.org and Sentaurus Medici simulator
Prerequisite: ECE375, ECE345; or equivalent


Course Topics:
Introduction {2 classes}
Atoms and electrons, quantum mechanics {4 classes}
Crystal properties and energy bands {2 classes}
Carrier statistics, generation and recombination {3 classes}
Carrier transport mechanisms {3 classes}
PN diodes {4 classes}
Field-effect transistors {10 classes}
Bipolar junction transistors {6 classes}
Optoelectronic devices {4 classes}
Integrated circuits {2 classes}

Evaluation:
Quizzes (best 4/6) 20%
Homework 15%
Midterm Exam 20%
Final Exam 30%
Lab 15%

Note:
1. Students are responsible for all announcements made in the class and posted on SIUC’s webCT (blackboard).
2. Class materials and HWs will be posted on SIUC’s webCT (blackboard) portal.
3. Emphasis will be given on the conceptual understanding of the subject-matter rather than on memorization of equations.