Southern Illinois University at Carbondale
Spring 2010
Syllabus: ECE447 Semiconductor Devices

Instructor:

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

Textbook: (1) (main) Solid State Electronic Devices, 6th edition, by Ben Streetman and Sanjay Banerjee, ISBN# 9780131497269. (2) (supporting) Semiconductor Device Fundamentals, 2nd edition, by Robert F. Pierret, ISBN# 9780201543933.

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%
Project	10%
Final Exam	25%
Lab	10%

Note:

1. Students are responsible for all announcements made in the class and posted on SIUC's webCT (blackboard).
2. Class materials 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.