Southern Illinois University at Carbondale  
Spring 2013  
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 and Sentaurus commercial simulator  
Prerequisite: ECE 345

Other Useful Books/Resources:  
(2) Online book: http://eceee.colorado.edu/~bart/book/

Course Topics (Tentative):  
Introduction: Device industry, figures-of-merit {2 classes}  
Atoms and electrons, basic quantum mechanics {4 classes}  
Crystal properties and energy bands {2 classes}  
Carrier statistics {3 classes}  
Carrier transport mechanisms and phenomena {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 (Tentative):  
5 short tests 40%  
Homework 20%  
Final Exam 25%  
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 D2L portal.  
3. Emphasis will be given on the conceptual understanding of the subject-matter rather than on memorization of equations.