GEORGE MASON UNIVERSITY
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
FALL 2009

ECE 584: PRINCIPLES OF SEMICONDUCTOR DEVICES

Time and location: R 4:30 - 7:10 p.m. IN 137

Instructor: Dimitris Ioannou, ENG 348, tel. 993-1580, dioannou@gmu.edu

Office Hours: R 3:00- 4:00 pm; other times by appointment
Textbook: “Device Electronics for Integrated Circuits”
by Muller and Kamins (Willey).

Reference: "Lectures on the Electrical Properties of Materials"
by Solymar and Walsh (Oxford).

COURSE OUTLINE

1 The Electron (Schrodinger's Equation) (one week)
2 The Band Theory of Solids (two weeks)
3 Semiconductors (two weeks)
4 Reverse Biased pn-junction Diodes (two weeks)
5 Forward Biased pn-junction Diodes (two weeks)
6 Bipolar Junction Transistors (two weeks)
7 Schottky Diodes (one week)
8 Field Effect Transistors (one week)
9 Solar Cells (one week)

Grading
Homework/projects - 20%
Test 1 - 40%
Test 2 - 40%