

**Rensselaer Polytechnic Institute**  
**ECSE-2210 MICROELECTRONICS TECHNOLOGY**  
**Fall 2005**

**Faculty:** **Professor E. F. Schubert**, CII 7111; Phone: 276-8775 Email: [efschubert@rpi.edu](mailto:efschubert@rpi.edu)  
**Office hours: Tue., Wed., and Fri. 12.00 – 12.30.** Web site: <http://www.rpi.edu/~schubert/>

**Professor Thomas Gessmann**, CII 7229; Phone: 276-3102 Email: [gessmann@rpi.edu](mailto:gessmann@rpi.edu)  
Office Hours: **By appointment**

**TA:** Mr. Canhua Li, Email: [lic6@rpi.edu](mailto:lic6@rpi.edu)

**Objectives:** An introductory survey of microelectronics technology emphasizing physical properties of semiconductors, physical principles of device operation, equivalent circuits useful in circuit design and fundamental limitations of semiconductor devices and principles of integrated circuit fabrication. Particular emphasis is placed on semiconductor fundamentals, p-n junctions, and MOSFETs.

**Pre-requisite:** ECSE-2010 Electric Circuits  
**Co-requisite:** ECSE-2100 Fields and Waves I

**Text:** R. F. Pierret “Semiconductor Device Fundamentals” Addison–Wesley

**Class:** **Tuesday, Wednesday, and Friday, 10:00 – 12:00, Location as scheduled**

**Homework:** Assignments will be handed out in class on Tuesdays and are due the following Tuesday. These will be graded mostly for effort, with timely submission particularly important. In addition, there will be in class assignments almost every class.

**In-class activities:** There will be 34 class activities. You should finish these activities in class.

<b>Exams:</b>	<b>Quiz I</b>	<b>see class schedule</b>
	<b>Quiz II</b>	<b>see class schedule</b>
	<b>Quiz III</b>	<b>see class schedule</b>
	<b>Final Exam</b>	<b>as scheduled by Registrar’s Office</b>

**Solutions:** Solutions to the homework problems and class activities will be available from the class web-site

<b>Grading:</b>	Three quizzes and final exam	75 %
	In class activities	15 %
	Homework	10 %

## **COURSE PROCEDURES AND POLICIES**

### **To maintain accurate course records, follow the following guidelines:**

- Print your name clearly on all papers.
- In case of absence from a class, give the faculty lecturing an excuse signed by the Infirmary, Dean of Students, Coach, etc. If an excused absence is granted, finish assignment for that class and submit in timely fashion.
- To submit a paper for re-grading, attach a note and give it to the TA who will be responsible for the grading. Do not make any changes to the work, but describe the discrepancies in an attached note. Do this no later than one week after the paper was returned.
- Save your graded papers (at least until the course is concluded). You may need these papers in the unlikely event of a clerical error.

### **Other policies:**

- All exams will be “open book”, i.e. all materials will be allowed including the textbook.
- There will be no make-ups for quizzes. If you are excused from a quiz, the final exam becomes mandatory.
- You can make up the class activities, but you will get only 50 % of the grade if you submit before the next class. No credit will be given if you do not finish the activities before the next class. No exceptions.
- Scores for one (1) homework and eight (8) in-class activities will be dropped from the total. But it is to your advantage to attend all class activities.
- If you take the final, the three quizzes together count 50 % and the final exam counts 25 %. If you do not take the final exam, the three quizzes together count 75 %. If you are excused from one of the quizzes, then the two quizzes together count 42 % and the final will count 33 %.
- The grades you will earn in the course will be as follows: After the third quiz: A = 90 +, B = 80 +, C = 70 +, and D = 60 +. “Curving” may be done only after final exam.
- The grade "curve" will be based on the total scores including the final at the end of the term.

### **Academic integrity:**

- Students may work in groups of two or three for in-class activities. Collaboration with others on homework is permitted. Each student must submit homework.
- Students must work independently on quizzes and final exam. Cases of academic dishonesty will be dealt with according to procedures outlined in the Student Handbook.