

**Spring 2006**  
**RPI, ECSE-2210 MICROELECTRONICS TECHNOLOGY**

<b>Faculty</b>	<b>Professor Zhaoran Rena Huang</b> , Office location JEC 6007; Phone: 518-276-6086 Email: zrhuang@ecse.rpi.edu, Office Hours: Monday & Thursday 1:30 - 2:30 PM  <b>Professor E. F. Schubert</b> , Office location CII 7111; Phone: 518-276-8775 Email: EFSchubert@rpi.edu Office hours: Tue., Wed., Fri. 12:00–12:30 PM
<b>TAs</b>	Suman Dwari Room JEC 2327 Phone 518-276-6706 Email dwaris@rpi.edu Office hours: Tuesday 4.30–5.30 pm (JEC lounge, 3rd floor) Sumit Suhag Room CII 6126 Phone 518-276-2513 Email suhags@rpi.edu Office hours: Thursday 3.00–4.00 pm (CII 6126) MingYuan Zhao Room JEC 7315 Phone 518-276-8221 Email zhaom@rpi.edu Office hours: Wednesday 1.00–2.00 pm (JEC flip-flop lounge, 6th floor)
<b>Course web site</b>	www.rpi.edu/~schubert → go to “Courses” → go to 2006 MT course
<b>Objectives</b>	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.
<b>Pre-requisite</b>	ECSE-2010 Electric Circuits
<b>Co-requisite</b>	ECSE-2100 Fields and Waves I
<b>Text</b>	R. F. Pierret: “Semiconductor Device Fundamentals” Addison–Wesley
<b>Class</b>	<b>Tuesday, Wednesday, and Friday, 10:00am – 11:50am, DARRIN 330</b>
<b>Homework</b>	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.
<b>In-class activities</b>	There will be 34 class activities. You should finish these activities in class.
<b>Exams</b>	Quiz I February 10 <sup>th</sup> , 2006 10:00 – 11:50 AM Quiz II March 24 <sup>th</sup> , 2006 10:00 – 11:50 AM Quiz III April 28 <sup>th</sup> , 2006 10:00 – 11:50 AM Final Exam TBD TBD
<b>Solutions</b>	Solutions to the homework problems and class activities will be available from the class web-site

## **Grading**

- Three quizzes and final exam count 75 %
- In-class activities count 15 %
- Homework counts 10 %
- You can make up the in-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.
- The lowest 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 in-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 %.
- Grading policy: Top student will receive A. Lowest student will receive C, D, or even F. All other grades will be obtained by linear interpolation.

## **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, you should finish the assignment for that class and submit in a 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:**

- In quizzes and final exam, students are allowed one crib sheet, 8.5" × 11" in size. You can write anything on this sheet.
- The faculty will offer on the web the following additional sheets that you can bring to the exams: (i) Physical constants (ii) Semiconductor properties of Si Ge, and GaAs, and (iii) Crib sheets.
- There will be no make-ups for quizzes. Notify the course instructor as soon as possible. If you are excused from a quiz, the final exam becomes mandatory.

### **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.