ECE 572 – Spring 2014
Semiconductor Transistors- Syllabus

Instructor: Diego Krapf
  krapf@engr.colostate.edu
  http://www.engr.colostate.edu/~krapf/biophysics/

Office: Scott 318
Phone: (970) 491-4255

Meeting time: Tuesdays and Thursdays, 2:00 – 3:20, Scott 229
  April 07 - May 11

Course website: RamCT
If you are unable to log into RamCT, contact the ACNS helpdesk for support.

Prerequisites: ECE 341 or equivalent, ECE471B

Office hours: contact me by email to schedule office hours.

Grader: Sanaz Sadegh
  sansade@rams.colostate.edu

Course Objective(s): This course is suitable for undergraduate seniors and first
  year graduate students majoring in engineering or physics. It introduces bipolar transistor
  and the metal oxide semiconductor field effect transistor.

Text: “Semiconductor Physics and Devices: Basic Principles”, 3rd or 4th ed. by Neamen,
  McGraw-Hill

Description: Operation of basic transistor devices: bipolar transistor and MOSFET.

Topics to be covered:
Week 1 (Neaman Ch. 12) Operation of the bipolar transistor, minority carrier
distribution, common-base current gain.
Week 2 Nonideal effects in bipolar transistors, Ebers-Moll equivalent circuit,
frequency limitations.
Week 3 (Neaman Ch. 10,) Energy band diagram of MOS capacitor.
Week 4 MOS C-V characteristics. MOSFET operation.
Week 5 (Neaman Ch. 11,13) Frequency limitation of the MOSFET. Operation of the
  JFET.
**Method of evaluation:** One exam: 50%, Homework: 30%, Quizzes: 20%

A+ = 97-100
A  = 93-97
A-  = 90-93
B+  = 87-90
B  = 84-87
B-  = 80-84
C+  = 75-80
C  = 65-75
D  = 50-65
F  = 0-50

**Homeworks:**
Homework assignments will be posted on RamCT on a regular basis. Each assignment will be due at the beginning of a specified class meeting. I plan for there to be a new assignment every week.

Your first and last name, homework number, and course number must be written in the first page.

Your homework must be stapled, and your solutions to the problems must be in the correct order. Your solutions must be clear and you must include how you reach your results. Writing only the final solution is not acceptable.

Failure to comply with these rules will result in not-graded assignments.

**Quizzes**
Quizzes will be given at the start of class once or twice a week. The quizzes may cover any portion of the material covered in class. You are not allowed to use any electronic device during quizzes (including calculators, smart phones, etc.) and all quizzes are closed book. No make-up quizzes are offered. An unexcused absence from a quiz is graded as zero. An excused absence from one quiz will result on your grade being set according to the remaining quizzes.

**Final exam:**
Final exam is closed book, but you are allowed to bring one hand-written sheet of notes (front and back). You should bring to the exam blank paper to solve the problems, a calculator, and your handwritten note sheet.

**Academic integrity**
The course will adhere to the Academic Integrity Policy of the CSU General Catalog (page 7, http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf) and the Student Conduct Code (http://www.conflictresolution.colostate.edu/conduct-code)