ECE 311

**ELECTRICAL ENGINEERING LAB III**

**SYLLABUS Fall 2008**

# INSTRUCTOR INFORMATION

Name :

Email :

Phone :

Office :

Office Hours :

**COURSE COORDINATOR**

Name: Dr. Timothy Burg

Email: tburg@clemson.edu

Office: 307 Fluor Daniel (EIB)

Phone: 864-656-1368

## LAB INFO

Section : 004

Time : 2:00 – 4:00 TH

Room : Riggs Hall 200C

## MATERIALS REQUIRED

ECE 311 Lab Manual Versions 1.2

IEEE Lab Kit

Lab Notebook

ECE 320 Texts

PC or Scientific Calculator

PC with B2SPICE installed

## ATTENDANCE POLICY

Students are required to attend ALL lab sessions unless a documented excuse is given. A student who misses a lab will receive a grade of zero for the lab and pre-lab report. The lowest pre-lab and post-lab scores will be dropped in computing final averages.

## GOALS AND OBJECTIVES

The goal of this laboratory is to study electronics through experimentation. Upon completion of this course, students should be able to use standard laboratory equipment to analyze the behavior of basic electronic devices and to design, simulate, and construct simple circuits containing these devices.

## LAB TEAMS

Most of the labs will consume the full two-hour lab period and will be performed by two-person lab teams. Some labs will require only one hour and will be performed by each team member sequentially and independently during half of the corresponding lab period.

## HOMEWORK POLICY

Every lab requires preparation prior to performing the experiments. Most of the labs require SPICE simulations, and some of the labs require calculations of design parameters before beginning the experiments. Students are required to perform this preparatory work prior to coming to the lab. At or before the beginning of lab, students are required to turn in both a pre-lab report for the current week and a post-lab report from the previous week.

## GRADING

Final grades will be calculated according to the following weights:

#### PRE-LAB : 30 %

* **POST-LAB : 30 %**
* **LAB REPORTS : 40 %**

## PRE-LAB REPORTS

Each pre-lab report is due at the **beginning** of the lab period. No exceptions of any kind will be permitted for this. If the pre-lab is not submitted before the start of lab, the student shall receive a zero for the pre-lab report. The required report format is found in the lab manual. Each student is required to keep a copy of all pre-labs submitted. The pre-lab report should be used as the basis for the post-lab report and the two full lab reports, which will be written sometime after completion of the lab.

In certain cases, an instructor may require the student to make corrections to simulations in the pre-lab reports, which will be due the following lab meeting. A 10-point deduction will be taken on every resubmission. Resubmissions must be turned in no later than a week from the due date.

* **If you have not completed your pre-lab when due, a grade of 50% will be assigned for the post lab grade as well.**

**POST-LAB GRADES**

Each post-lab report is due at the **beginning** of the **following** lab period. So then at the beginning of each lab period, the student will turn in a pre-lab report for the current experiment, and a post-lab report for the previous experiment. The post-lab report will include the pre-lab report, the experimental results obtained in lab, and the ‘Discussion of Experimental Results’ section (see page XXVI of the lab Manual). The student will be required to follow the lab report guidelines, which are found in the lab manual at the end of each lab section, when writing the discussion for the post lab report

**FULL LAB REPORTS**

Students are required to turn in two full lab reports for the semester. An opportunity to turn in a rough draft will be given with no grade assignment. An electronic copy is required for final submissions of all lab reports. Lab reports will be assigned randomly to each student. The first report will be assigned upon completion of Lab 3, and the second report will be assigned upon completion of Lab 7. The lab reports are due at the beginning of the lab period on a date determined by the instructor. The required report format is found in the manual.

### ACADEMIC HONESTY

Taken from the student handbook - “As members of the Clemson community, we have inherited Thomas Green Clemson’s vision of this institution as a ‘high seminary of learning.’ Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

Upon each and every document submitted, the student is required to place his/her signature and the following statement: “I have neither given nor received aid in the completion of this report. I pledge that the work included in this report is entirely my own and represents my best work.”

### CHANGES TO THE LAB SYLLABUS

The instructor reserves the right to make changes to this syllabus during the semester. Students will be given adequate notice in the lab of any changes.

**Lab Schedule**

**Lab 0:** Laboratory Introduction (Attendance Mandatory)

Date: 09/4/08

Due: None

**Lab 1:** Semiconductor Diode Characteristics (2-person lab);

Date: 09/11/08

Due: **Lab 1** **Pre-lab**

**Lab 2:** Power Supply Operation (2-person lab);

Date: 09/18/08

Due: **Lab 2** **Pre-lab : Lab 1 Post-Lab**

**Lab 3:** Diode Clippers and Clampers (2-person lab);

Date: 09/25/08

Due: **Lab 3** **Pre-lab : Lab 2 Post-Lab**

**Lab 4:** Power Supply Design (**one hour, 1-person lab**);

Date: 10/02/08

Due: **Lab 4** **Pre-lab** **: Lab 3 Post-Lab**

**Lab 5:** Bipolar Junction Transistor Characteristics (2-person lab);

Date: 10/09/08

Due: **Lab 5** **Pre-lab** **: Lab 4 Post-Lab**

**Lab 6:** BJT Common Emitter Circuit Bias (2-person lab);

Date: 10/16/08

Due: **Lab 6** **Pre-lab** **: Lab 5 Post-Lab, Lab report #1**

**Lab 7:** BJT Common Emitter Circuit Voltage Gain (2-person lab);

Date: 10/23/08

Due: **Lab 7** **Pre-lab** **: Lab 6 Post-Lab**

**Lab 8:** BJT Common Emitter Amplifier Design I (2-person lab);

Date: 10/30/08

Due: **Lab 8** **Pre-lab** **: Lab 7 Post-Lab,**

**Lab 9:** BJT Common Emitter Amplifier Design II (**one hour, 1-person lab**);

Date: 11/06/08

Due: **Lab 9** **Pre-lab** **: Lab 8 Post-Lab**

**Lab 10:** Field Effect Transistors (2-person lab);

Date: 11/13/08

Due: **Lab 10** **Pre-lab** **: Lab 9 Post-Lab, Lab report #2**

**Lab 11:** Basic Logic gates (2-person lab);

Date: 11/20/08

Due: **Lab 11** **Pre-lab** **: Lab 10 Post-Lab**

\*Note: No lab the week of the Jan \*\* due to Martin Luther King Jr day

\*Note: No lab the week of the Nov \*\* due to Fall Break

\*Note: No lab the week of the Oct \*\* due to Thanksgiving Holiday