

**The George Washington University  
School of Engineering and Applied Science  
Department of Electrical and Computer Engineering**

**Lab 0: Introduction to ECE 20 Lab**

*Communication from GTA to the student will take place via email. Ensure that your GWU account is active and is set to forward to an email account you check every day. Please go to <http://amc.gwu.edu/> to setup mail forwarding from your GWU account to your personal account if you have not done so already.*

**Lab Policies**

**Safety First**

- If an electrical accident occurs immediately turn off the main circuit breaker.
- Be aware of the location of the emergency "stop" and "trip" buttons of all equipments you use in the lab
- **Always Use the current limiting function of your power supply, keep the current under 20 mA, unless you need more.**
- Use the Emergency phone to call UPD at 4-6111.
- Notify your GTA and Staff in Room 304.
- Do not eat, drink or smoke
- Do not play with unknown equipments
- No live experimental circuit is to be left unattended.
- Do not touch live circuit. No leads are to be removed until the supply has been disconnected
- If any faults with equipment are suspected, the GTA should be notified immediately.
- Be aware of energy storage devices, e.g. capacitors
- It is always recommended NOT to work alone in the lab
- Do not wear loose/long metal jewelry that can create short
- **After completion of an experiment students must tidy up respective working area. Turnoff all the live equipments (excepts the PCs)**

**Important Links**

ECE 20 Lab Website: <http://www.seas.gwu.edu/~ece20>

ECE Lab Equipment Website: <http://www.seas.gwu.edu/~ecelabs/>

ECE Department Website: <http://www.ece.gwu.edu/>

GW Class Sharing Website: <http://blackboard.gwu.edu/>

**Note: See the front door of our lab classroom to find out hours for the lab**

## Grading

See Lab Website

## Textbooks and Manuals

1. Microelectronic Circuits, A. S. Sedra and K. C. Smith, Oxford
2. Schematic Capture w/ MicroSim Pspice (w/ CD ROM), M. E. Herniter

## Supplies and Software

### Parts Kits:

Parts Kits may be purchased from room TOMP 304. They contain all the necessary components for ECE20 laboratory. **Only checks** or **Money Orders** are accepted and must be made out to the George Washington University.

Extra parts - Extra parts may be purchased from any of the Vendors listed in the Vendors Pages.

### Software:

Cadence PSD 15.0 (commercial version) is already available in the laboratory PCs. Free student version (Known as ORCAD 10) is available to install on your own PC. The student version is supplied as part of your textbook. There may be an evaluation version that can be downloaded here: <http://www.orcad.com/downloads/demo/default.asp>.

## Class Requirements

### Prelab:

- You must have to complete the prelab before coming to the lab
- It is due before the start of the lab, NO EXCEPTION
- **You must have to keep a copy of your prelab to use it during the experiment.**

### Experiments:

Note down all data from the experiments. Use of **EXCEL** for tabular data is recommended. Answer all questions pertaining to each experiment as required. Your data should include all calculations, circuit diagrams, graphs, and data tables. Your interpretation and comprehension of the experimental results should be described in a concluding statement and also placed in your report.

**Report:**

- Homework Submission: You **MUST** have to submit both electronic and paper copy of your Reports
  - o Both are due at the beginning of the following lab
  - o You have to submit the electronic copy through blackboard, the link and procedure will be emailed to you later

**Midterm and Final Project :**

There will be a Midterm Project and a Final Project for the course. Each Project grade consists of a working demonstration of your design, a professional presentation of 5-10 minutes and a formal report.

**Academic Dishonesty :**

Students in this lab are expected to do their own work, turn in all work and attend all classes (there will be no make up classes). Academic Dishonesty will not be tolerated. Please review the UNIVERSITY'S POLICY ON DISHONESTY.

**Attendance :**

You are expected to be present at every lecture and laboratory session. No make up sessions will be held. Please arrive the lab on time. **Don't forget to sign up the attendance sheet at the beginning of each lab**

**Review of ECE 11**

1. Simulate (PSpICE), build and measure all the current and voltages of a simple series parallel resistive circuit
  - Make sure you limit the current of the DC power supply
  - Know how to connect the DMM to measure the current
2. Design, Simulate, build and measure the frequency response of a passive low-pass filter. Be familiar with OSC and Function generator.

**Report Format**

See the Lab website to find current lab report format.