Syllabus – Spring 2016
ECE 222L - Electrical Engineering Laboratory

TA: See separate info sheet on course webpage

Lab Coordinator: Phillip Wong **Email**: ecelab@ece.pdx.edu

Phillip's web page http://web.cecs.pdx.edu/~ecelab has information on lab kits and quick guides to lab equipment.

Course Information:

There are 6 lab experiments. The labs are designed to be more project-like and less specified as we go along. You will be given a general outline of what to do, but there will be some room for creativity and individual choices in the design. You also have more responsibility to look up information that is not given to you. The lab descriptions are in separate documents, but here are some general instructions:

- Work with a partner. Lab reports are submitted on D2L, and one report per group is acceptable. Make sure both partner's names are on the report.
- The assignment deadlines are generous and should be considered the absolute latest. Any lab reports turned in after the deadline will be considered on an individual basis. The late report should be turned in to the TA with an explanation given the TA *and* the instructor why it is late.
- You may not miss more than one lab to pass the class and you may not miss Lab 4.
- You must report only your groups' work and not use other students' results or reports. **All screen shots and LTSpice plots must include date and name. Lab reports will not be accepted otherwise.**
- The lab counts as 20% of the ECE 222 grade.
- You will use LTSpice and MATLAB in the labs. If you haven't yet, I recommend downloading LTSpice onto your own computer. If necessary, review the MATLAB tutorial and the introduction to LTSpice from 221.
- There is a parts kit available from the IEEE store. You will need it for the first lab.

The **course outcomes** are:

1. Ability to design, simulate, build and test a rectifier with RC filter

2. Ability to design, simulate, build and test an RLC circuit to display underdamped and overdamped natural response

3. Ability to design, simulate, build and test an LC tank circuit

4. Ability to design, build and test a basic AM radio receiver

5. Ability to design, simulate, build and test circuits to explore magnitude and phase relationships in ac circuits

6. Ability to use MATLAB and Simulink for Laplace analysis

Schedule: The lab **will not** meet the first week, however you should use this week to find a lab partner if possible, buy the parts kit, make sure your computer account is in order and get started on the design and simulation part of the first lab so that you are ready to get to work building circuits the second week.

Lab reports are due by midnight Sunday the week after the lab is scheduled for all lab sections. For example, the Lab 1 report is due by midnight of Sun. at the end of week 3.

Week 1: No lab

2: Introduction and Lab 1. Rectifier circuits with RC filter

3: Lab 2. Step response of RLC circuits

4: Lab 3. LC tank circuit (you will use this in Lab 4)

5: Lab 4. AM radio receiver

6: Lab 4 continued

7: Lab 5. Phasor circuits

8: Lab 6. Laplace analysis using MATLAB and Simulink