

# ECE-311 Circuit Analysis II: Lab Syllabus

*All sections, Spring 2012*

**Room:** ECE-235 for Experiments and ECE-121 (Computer Cluster room) for Simulations

**Lab schedule & materials:** <http://www.dejazzer.com/ece311/index.html>

## Lab times

Section 1: Th 8:00-9:50am

Section 2: Th 10:00-11:50am

Section 3: Th 12:00-1:50pm

## Lab objective

The objective of this part of the class is to provide hands-on experience with circuit analysis. Laboratory activities consist of hands-on experiments and circuit simulations. In the experiments portion you will need a lab kit and the appropriate experiment printout for that week. In the simulation portion you will use LTSpice and MATLAB to simulate circuits and then compare them to your analytical computations.

## Experiment reports

Each lab partner is expected to turn in an individual experiment report for each experiment activity. All duplicates will be counted as a zero. Reports are due at the beginning of the next lab meeting and must be typed with full, complete sentences. The format for this report is as follows:

**Title:** The title page should include the title, your name, your lab partners' names, the date, and your section number.

**Introduction:** Clearly describe the purpose of the experiment and give general background information.

**Procedure:** List the equipment used. Outline what you did in the lab by describing the steps involved in the experiment. Be concise but don't include results.

**Calculation/Data:** Describe the assumptions and equations used. Show the calculations used and provide an error analysis. Put multiple results in a table and plot it on a graph, if appropriate.

**Questions:** Answer questions here, first restating the question.

**Conclusion:** Re-state the results and discuss those results. Indicate your conclusions.

**Data sheet:** Contains the data taken during the experiment and graphs. **IMPORTANT: Your data sheet must be initialed by the instructor/TA. You must have the instructor/TA initial your lab data sheet before you leave the lab. Any report without a data sheet or which is not initialed by the instructor/TA will receive a score of zero. No exceptions, so don't forget!**

## Simulation reports

You are expected to turn in a simulation report for each simulation activity. Each student has to turn in their own simulation report. Simulation reports are due at the beginning of the next lab meeting and must be typed with full, complete sentences. The report must contain: the simulation schematic, the value of the parts, and the outputs. Include your name and section number on the simulation report.

## Grading

- You are supposed to build the circuit ahead of the lab/experiment time. You can split the work with your partner(s). Bring your circuit when you come to the lab.
- **Each experiment report is worth 20 points. No late submissions are accepted. If you miss turning in one lab report, you will automatically fail ECE-311!**

Your reports will be graded based on the demonstration of your knowledge of circuit analysis and your ability to communicate what you did and what you want to find out, not on the error in your results. If your results were not what was expected, that's OK as long as you are able to give a reasonable

explanation of why your results might be different than what was expected (detailed error analysis). Your grade will not depend directly on your results as long as you work hard to get the best result you can and understand the circuit analysis. Please inform the instructor/TA if you suspect that your experiment isn't working right. Often times, the problem can be corrected in the lab. Please keep all of your reports until the end of the semester -- if a mistake in recording your lab grades would happen, this will be your only proof.

- **Each simulation report** is worth 10 points. No late submissions are accepted.

### **Lab make-up's**

- In case of an absence for any reason, only one lab/experiment make-up will be allowed. The makeup will take place in the "make-up week".
- In special situations the instructor may allow additional "make-ups". However, this is at the discretion of the instructor, and the extraordinary circumstances requiring a makeup must be verifiable.

### **Special needs**

Any students with disabilities or other special needs that need special accommodations in this course are invited to share these concerns or requests with the instructor as soon as possible.

### **Veterans and soldiers**

Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance.

### **Academic honesty**

All work in this course must be completed in a manner consistent with NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct. Violation of this policy will result in receipt of a failing grade. Please read: <http://www.ndsu.nodak.edu/policy/335.htm>