COL Squire

EE223 Laboratory Reports

Each lab team must submit a laboratory report detailing the laboratory exercise at the beginning of the **Friday** class period following the lab. Label the report with both lab members' names. Only turn in one report per team. The lab report will contain the following sections (detailed instructions on each section follow):

- **Purpose**: What are the objectives of the lab?
- **Procedure**: what you built, what you measured and how you measured it. Should enable a different group to duplicate your lab, so should include a schematic.
- **Data**: List your data in a table. You know it is correct if it includes columns for expected (from calculations or SPICE), measured (using a meter) and % error.
- **Discussion**: Analyze the data and answer the discussion questions
- **Conclusions**: summarize lab findings.
- **Preliminary Lab**: attach to the back of your lab a single Prelab (choose any one of the prelabs completed by the lab group members for this).

Grading

A grade out of 10 will be assigned to each laboratory report broken out as listed below. The grade will be reduced by 30% if not completed on time (i.e. not complete by the start of the class following the lab).

Practical skills (3)
  lab skills demonstrated
  end of lab check-off, if any
Understanding (5)
  prelab correctness
  discussion questions
Report quality (2)
  neatness (reports do not need to be typeset)
  writing clarity
  grammar

Note on Preliminary Lab. Each laboratory exercise has a preliminary section. The preliminary section consists of circuit analysis using ideal values. This work is done in the same manner as homework problems, except that **each lab member must complete his/her own prelab**, unlike the lab reports that are due one per team. The preliminary must be completed before the laboratory period begins. Laboratory exercises can be accomplished in the allotted 2 hours; however, this will be impossible if little effort is put into the preliminary. Failure to properly prepare for a laboratory exercise will not be tolerated, *e.g.*, you'll be told to depart the laboratory.

Detailed Report Instructions

Purpose
Briefly (i.e. in a single paragraph) explain the overall goal of the lab. What will you learn to build, analyze, or construct? Why is this useful or important?

Procedure
Explain in a step-by-step fashion what you designed/built/measured. It must be detailed enough to allow another person to duplicate your lab. *You can frequently eliminate nearly all wording in your procedure section by simply drawing a schematic* and saying "We constructed the following circuit".

Data
Present your data in table form. Be sure to write down what each component or measurement's value is expected to be (based on the nominal resistor value, for instance, or theoretical analysis), what the component or measurement's actual value is (based on measurement), and percent error.

Discussion
In this section you will check whether your calculated values and measurements make sense. You will always include, at a minimum, answers to the discussion questions and an explanation of errors described in the data section.

Conclusion
The conclusion will briefly restate the purpose of the lab and summarize any significant findings. Suggest improvements, if any, you feel would make the lab a more effective learning experience. Try to encapsulate in a sentence or two the overall theme that tied together the many subparts of the lab. For instance,

> *In this lab, we learned how to measure current and verified Ohm's Law. The experiment verified that Ohm's Law is true, with an error of less than 5%. The error observed is acceptable, and may be due to the slight resistance within the DMM when functioning as an ammeter.*
>
> *The only noteworthy item is that we measured the current immediately after R, rather than before R. We concluded, based on our results, that this would not effect our measurements.*

Prelab
Include any one lab member's copy of the prelab.