ME 210 Laboratory Report Format

A formal lab report, worth 50 points, must be turned in for each experiment. Use the information you recorded in your lab notebook to create them. Lab reports must be written on a computer.

The purpose of a scientific or engineering lab report is to accurately convey the details and results of an experiment to someone who may need to repeat the experiment in order to verify your results. At each step of the process, you observe and record the results in your lab notebook. After the experiment is finished, you will write a report that describes what you did, what you calculated, and what you measured or observed. Finally, you will report any conclusions that can be drawn from the experiment.

Note that this process requires several steps. You must:

1. Understand your goals for the experiment.
2. Take very good notes (in your lab notebook) while performing the experiment.
3. Write about your experiment in an acceptable format.

Each lab report must have five sections, with no more than one section on a page. This is the format for lab reports:

Cover Sheet (worth 2 points). This is the first page and will contain:

1. Name & number of the lab exercise.
2. Your full name.
3. Course and section number.

Introduction (worth 10 points). This will have three parts (label them):

1. **Purpose**: What are the objectives of the lab exercise?
2. **Equipment**: What equipment, supplies, and materials were used in the lab exercise?
3. **Procedure**: What steps were taken to accomplish the stated objectives? Be complete. A good rule of thumb is to write it for someone who has the same background you had before the lab. That means you should explain, in detail, how to do anything that was not learned in a previous lab. Write the directions specific enough so that he or she can exactly duplicate your work. Simply copying the directions on the lab assignment is not sufficient; it only explains *what* to do – not *how* to do it. Use a bullet format to make the steps easier to follow.

Schematic Diagrams (worth 5 points).

This section shows the circuit(s) used in the experiment. The circuit(s) should normally be generated on a computer. The circuit simulation software you downloaded for this course will allow you to draw schematic diagrams. In the rare event that something must be illustrated by hand, draw it neatly on plain white paper. The heading and any captions, however, must be typed.

Experiment Data (worth 10 points). This will have two parts (label them):

1. **Expected (or Calculated) Results**: These are the results you predicted or calculated. Show how they were determined.
2. **Actual (or Measured) Results**: These are the results or values you actually observed or measured.

Discussion & Conclusions (worth 15 points).

This section is the most important -- and is worth the most points. It ties all of the other sections together. It compares the expected results with the actual results and describes what it all means. Your results show *what* happened; this section describes *why* it happened.

Your conclusions show how much you have thought about the experiment. Explain the basic principles that were examined and show how your results correlate with the theory. Do not simply say, "Everything went smoothly, and I learned a lot." Remember, it is not a summary, it is a discussion of what you *concluded* after performing the lab experiment! You will probably use words like, "This demonstrates . . .", "This means . . .", "This is because . . .", etc.

Address the following questions:

1. How well did you achieve your objectives?
2. How accurate are the measurements?
3. What errors were encountered? How were they eliminated or minimized?
4. If your measurements are different from your calculations, why is that so?
5. How is the theory supported by your findings?
5. What are some applications for these principles or circuit configurations?
6. What are the advantages and disadvantages of this circuit implementation compared to others you have used?

Although you may work with a partner on your lab experiment, and therefore have the same data, your conclusions must be uniquely yours. You may not write a joint Discussion & Conclusions section.

Other (8 points)

In addition to the points listed for each section, 3 points are given for neatness and 5 points are given for professional-quality language and spelling. Remember, this is not an informal paper; it is a professional-quality document.