

## Section 1 Lab Report

### **Overview**

Include a general idea of what you are going to do in this lab. You can think of this as something of an “abstract”, or summary of the lab report to come. This paper provides a rough sketch of an experiment/results format of organization. This organization lends itself to the labs in ENGR 201 and ENGR 202 very well. This paper may be used as a skeleton for labs – but please, don’t feel tied to this outline! Be creative, and add in or remove anything if you feel it would improve the report. Be careful not to omit anything which satisfies part of a required grading criterion though...

### **Procedure**

Include what is to be done in the lab. If the lab asks you to construct a circuit with a photocell, LED, and resistor, you might say something like “A circuit containing a photocell, LED, and resistor will be built. The purpose of this circuit is to investigate the effects of changing the light intensity on the photocell. The expected result is ..., due to the current changing from ... to ... as ...” or something similar. If you understand the intention of the lab, this section will be a piece of cake.

### **Results**

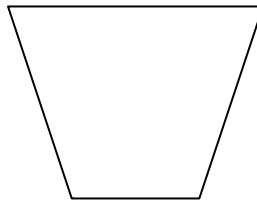
The results of your experiments can go here. Some results might be simply explanations of what was observed, others may be charts and other graphs. It may make sense to divide your results up into separate experiments.

#### **Experiment 1 – Photocell and Led**

When performing this experiment, it was noted that the led caught fire when the photocell was exposed to very dark conditions. (If all you do here is explain the behavior of something, be sure it is a thorough and detailed explanation. The explanation above is neither thorough nor detailed).

#### **Experiment 2 – Referring to a Box**

Many experiments involve reading data – be sure to include all data obtained in the experiment. Include graphs, tables, and figures in the results section, ensuring they have the proper labels, axis intervals, titles, and figure numbers. See Figure 1 below for an example of referring to a figure. The caption was added to this figure using “Insert->Reference->Caption” in the Microsoft Word menus.



**Figure 1 - A Trapezoid**

Sometimes centering an image (and the corresponding caption) makes the image look much neater.

### **Experiment 3 – Tables are Your Friend**

Many reports contain numbers mixed in with the text. Sometimes this gets a bit hard to read. For example, the first count of apples was 3, and the second count was 2. A third count of apples revealed that 4 existed. Using the  $\text{Apples} = 1 / (\text{People} * \text{Hunger})$  equation, it can be predicted that 2 apples will exist under certain circumstances. Note that this information might be better displayed in a table (see Table 1 below):

<b>Experiment Number</b>	<b>Apples</b>
1	3
2	2
3	4
<b>Predicted # From Equation</b>	2
<b>Average</b>	2

**Table 1 - Experimental Apple Counts**

Note the thicker border separating the count from the other data. Knowing how to use formatting features of a word processor can be beneficial, and improve the readability and professional nature of your report.

### ***Analysis***

Here, you can discuss the results of the lab and observations on experiments. If were asked to answer a specific question about the experiments, this section would be a great place to put the answer. When analyzing the experiment results, you might mention whether they were expected, what could cause inaccuracies, or any other interesting information. “I believe the LED caught on fire because it was too close to the soldering iron, and had nothing to do with the lack of light on the photocell”. Note – you can include this type of analysis in the results section if you prefer, but be sure whatever choices you make enhance the organization of the report.

### ***Problems and Modifications***

Here you can list any of the problems encountered in lab. Even if you can't think of an explicit problem, you can mention something that would make the lab go smoother next time. This section should not be left blank.

### ***Conclusion***

Wrap up the lab with a short summary of the experiment and the results. No new information should be introduced in the conclusion. This is also great area to include how the lab relates to your major, the class, or just how the lab relates to the concepts applied.