Experiment #1:

*Introduction to Lab Equipment: Power Supply, DMM, Breadboard, and Multisim*

Student’s Name

ECE 2110-31: Circuit Theory

GTA: GTA’s Name

September 8, 2014 (Date you submit report)

**EXPERIMENT REPORT EXAMPLE**

# Introduction

The purpose of this experiment was…

<do not simply copy the objectives from the lab manual, put them in your own words>

<should only be a few sentences long>

<remember everything in this report is past tense>

<no “I’s” or “We’s” in a lab report, replace them with “this student” and “our group”>

1. **Background Information**

<Provide background theory>

<Provide any formulas you may use in this section>



Equation 2.1 – Percentage Error (PE) Equation, Nominal Value (NV), Measured Value (MV)

<Notice how we # things, Equation 2.1 since it is Section 2 and it’s the 1st equation>

<Include any relevant circuit diagrams (Multisim) that you can refer back to>

1. **Methods and Materials**

<simple bullet list or table of the equipment you used>

<do not just copy from lab manual, update with anything lab manual missed>

|  |  |
| --- | --- |
| **Equipment** | **Components (Quantity and Type)** |
| Agilent E3631A Triple Output DC Power Supply | (1) 9.1 Ω Resistor |
| Keithley Multimeter - Model 175 | (1) 200 Ω Resistor |
| Breadboard | (1) 3.9 kΩ Resistor |
| … | … |

Table 3.1 – Equipment and Components List

**OR**

Equipment**:**

* (1) Agilent E3631A Triple Output DC Power Supply
* (1) Keithley Model 175 Digital Multimeter (DMM)
* (1) Pair of Banana to alligator test leads

Components**:**

* (1) 200Ω Resistor
* (1) 3.9KΩ Resistor
* (1) 4.7MΩ Resistor

1. **Experimental Procedures**
   1. **Prelab**
   2. **Resistance Measurement**
   3. **Solderless Prototype Breadboard**
   4. **Resistance Determination Using Voltage and Current**

**…**

<break this into the sub-sections from the lab manual>

<don’t copy paste every step from the lab manual, paraphrase the important portions in a paragraph structure>

<this should be a few sentences for each section in the lab manual, but thorough enough to properly explain your lab procedure>

1. **Measurements and Results**

<show all measurements and calculations in this section (a sample calculation for each field in a table will suffice, no need to show percent error calculation 10 times, etc.)>

<show any and all simulation results, oscilloscope screenshots, tables of data, etc.>

<# all tables and graphs, make certain to have units and axis labels>

<do not interpret your results in this section, that is for the next section>

1. **Analysis and Discussion**

<**Explain**, **analyze**, and **interpret**>

<***Explain*** your results in terms of the theoretical background you provided in section 2>

<***Analyze*** the differences between hand calculations, simulations, and measurements, using % error>

*<****Interpret****, w*hat is the significance of the results? Why do we have a large % error?>

1. **Conclusion**

<very short section in undergraduate work, no more than 2 paragraphs>

<After you present your conclusion, provide a short justification. The percentage of error is the result that helps us draw this conclusion. This makes a sound and sufficient conclusion. Generally, this is enough; however, the conclusion might also be a place to discuss weaknesses of experimental design, what future work needs to be done to extend your conclusions, or what the implications of your conclusion are.>

1. **References**

[1] GWU SEAS ECE Department. "Experiment #1: Introduction to Lab Equipment: Power Supply, DMM, Breadboard, and Multisim." The ECE 2110 Course Website, Fall 2014.

<http://www.seas.gwu.edu/~ece11/fall14/labs/labs/ECE_2110_Experiment_1.pdf>

[2] Thomas, Roland E., Albert J. Rosa, and Gregory J. Toussaint. *The Analysis and Design of Linear Circuits*. 7th ed. Hoboken, NJ: Wiley, 2012.

1. **Appendices**

<optional, if you have large amounts of raw data, calculations, graphs pictures or tables that

have not been included in the report itself for the purpose of clarity in your report.>

<refer to your appendix from the previous sections as follows: "Relevant sections of the

resistor’s Data Sheet are contained in Appendix A.">