A diagram of a circuit

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**Manual to Lab 8: PHY2048C**

**Florida State University**

**Circuits III**

**About labs in this class**

The labs in this class will have general instructions, and many things need to be figured out by the students. I will be answering any specific questions the students may have without completely giving away the key to the puzzle. **Answer the questions and record your measurements in your lab notebook and submit the notebook at the end of the activity.**

**About this lab**

In this lab, you are provided with tools to make an RC Circuit

**Activity 1:** Make a charging RC circuit, placing a resistor and a capacitor in series with a battery and a switch.

**Activity 2:** Measure the characteristic capacitor charge time using the oscilloscope (the Universal Interface). Plot the current over time.

**Question 1:** What is the characteristic time of the circuit? Does it coincide with the theoretical value (RC)? Identify sources of error for this measurement

**Activity 3:** Now make a circuit that allows the capacitor to discharge. **Do not short the capacitor:** place the capacitor in series with a different resistor.

**Question 2:** What would happen if you connected the two terminals of the charged capacitor without the resistor? Use the RC-circuit equations to answer this question. **Do not try to short-circuit the capacitor.**

**Activity 2:** Measure the characteristic capacitor discharge time using the oscilloscope (the Universal Interface). Plot the voltage across the capacitor over time.

**Question 3:** What is the characteristic time of the circuit? Does it coincide with the theoretical value (RC)? Identify sources of error for this measurement