

LAB 1 – Getting to know your Equipment

The purpose of this lab is to familiarize yourself with the equipment you will use in this course. Each student will receive a set of equipment. All lab exercises are “individual” exercises.

Material:

Breadboard with integrated power supply
Function generator (AC power source)
Multimeter
Oscilloscope
Resistors, Capacitors, wires

Goals and Learning Outcomes

By the end of this lab, you should be able to-

- measure resistance, capacitance
- build a simple circuit on a breadboard
- predict voltage and current in a circuit
- measure voltage and current
- understand the basic functions of an oscilloscope
- understand how to keep a lab notebook

Tasks:

1. Copy the circuit diagram into your notebook.
2. Predict all DC voltages and current values for the circuit below.
3. Measure all resistor values and write them down in your lab notebook
4. Build the circuit on the breadboard.
5. Add a DC power supply and set the voltage to 3.5V.
6. Measure all DC voltage drops (note them in your lab notebook)
7. Measure the DC current through each resistor (note them in your lab notebook)
8. Compare your measured values with your predicted values. Determine the percent difference.
9. Exchange the DC power supply to an AC voltage source (function generator)
10. Set the amplitude of the voltage to 5V peak-to-peak
11. Measure all voltages and currents with the multimeter – watch your setting
12. Repeat voltage measurements with oscilloscope

