University of Wisconsin - Madison  
College of Engineering [EGR]  
Last Offered: 2012-2013 Fall [1132]  
Direct Link to this Syllabus:  

1. E C E 170, Introductory Laboratory  
2. Credits : 1  
3. Contact Hours : 3.0  
3. Textbook and Materials :  

ECE 170 Lab Manual  

a. Other Supplemental Materials : None  

• Specific Course Information :  

a. Brief description of the content of the course (Course Catalog Description) : This lab provides students with hands-on experiences in using laboratory instrumentation such as oscilloscopes and various meters. It also provides basic safety information on using various electrical equipment.  

b. Pre-requisites or Co-requisites : Con reg in Physics 202  
c. This is a Required course.  

• Specific Goals for the Course :  

a. Course Outcomes :  

1. Determine whether an instrument's output is floating or grounded  
2. Measure the resistance of the green ground wire between the prong of the plug and the instrument case  
3. Measure resistance, DC voltage, and DC current  
4. Take voltage and current readings at various points in a circuit  
5. Identify the resistance of a resistor by reading the color code bands  
6. Explain the operation and function of a potentiometer
7. Identify and verify voltage and current division configurations in a circuit
8. Measure circuit parameters to determine if they are linearly related and proportional
9. Apply the superposition theorem to circuit analysis
10. Calculate the uncertainty of a measurement due to the stated accuracy of an instrument and the implied precision of a reading

- **ABET Student Learning Outcomes**: 
  
  (a) Ability to apply mathematics, science and engineering principles.
  (b) Ability to design and conduct experiments, analyze and interpret data.
  (c) Ability to design a system, component, or process to meet desired needs.
  (k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

- **Brief List of Topics to be Covered**: 
  
  1. Measure DC voltage and DC current
  2. Kirchhoff's laws
  3. Thevenin equivalents