Course Title: Electrical Circuits Lab
Prerequisite: Electrical Circuits (2)
Credet Hours: 1 Level 2nd Year

Course Goals:
Learn the basic requirements for building simple DC/AC circuits. Students will employ power supplies as well as measure electrical parameters of current, voltage, resistance and impedance with Digital multimeters(DMM) and oscilloscopes. Furthermore, students will learn to write well organized lab reports.

Time Schedule:
Duration: 14 weeks Lectures: None
Tutorial: None Laboratories: 3 hours / week

Objectives:
At Completing this module the student should be able to:
- Understand circuit variables and circuit elements.
- Construct and troubleshoot DC/AC circuits which are simple series combinations of resistance or impedance.
- Construct and troubleshoot DC/AC circuits which are simple parallel combinations of resistance or impedance.
- Construct and troubleshoot DC/AC circuits which are simple series/parallel combinations of resistance or impedance.
- Use multimeters and scopes to correctly measure, record, tabulate and interpret measurements of circuit voltage, resistance and impedance.
- Work in a team setting, learning to share the group responsibilities of circuit construction, troubleshooting, measurement and data interpretation.

Course Outline:
Experiment No.1 : Resistors, Dc power supplies, Dc meters, Series and Parallel DC circuits
Experiment No.2 : Potentiometers, Series-Parallel DC circuits, Wheatestone Bridge And Delta-Y Connection
Experiment No.3 : Methods of Analysis and Superposition
Experiment No.4 : Thevenin's and Norton's Theorems
Experiment No.5 : Maximum Power transfer and Source Transformation
Experiment No.6 : Capacitors, RC, RL and RLC circuits with DC/AC source
Experiment No.7 : Oscilloscope: Voltage, Current and Time measurements.
Experiment No.8 : Oscilloscope: Frequency and Phase Measurements.
Experiment No.9 : RLC Circuits: Components, frequency dependence and frequency response.
Philadelphia University
Course Outline

Mode of Assessment

Reports                          20 %
Quizes & Participation               30%
Final Exam                        50%

References:

2. Electrical Circuit Lab Report.