Anoka Technical College

ETEC 1111: AC Electrical Theory and Lab

A. COURSE DESCRIPTION

Credits: 5

Lecture Hours/Week: 3

Lab Hours/Week: 4

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

The course will cover analyzing components in series, parallel, and series-parallel AC (Alternating Current) circuits, using meters, function generators, Oscilloscopes, Ohm's Law, Kirchhoff's Laws, and troubleshooting concepts. The Lab emphasizes electronic component identification, schematic reading, circuit construction and testing, applying AC test and measuring equipment, as well as documentation. Troubleshooting techniques are implemented in every lab. (Prerequisites: None; Co-requisites: ETEC1102)(3 credits lecture/2 credits lab)

B. COURSE EFFECTIVE DATES: 11/19/2007 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Demonstrate professional behavior, compliance with safety procedures, and working as a team member where appropriate.
2. Identify AC component types, schematic symbols, ratings, behavior, and applications.
3. Calculate AC branch currents and voltages between nodes using Kirchoff's Law and Ohms law.
4. Analyze AC circuit behavior using circuit simulation software.
5. Measure AC circuit voltage, current, and resistance with a multimeter.
6. Measure AC signal time period/frequency, amplitude, DC level, and phase relationships with an Oscilloscope.
7. Analyze AC circuit behavior with a function generator.
8. Calculate and measure the frequency response of RC, RL, and RLC circuits in series and parallel.
9. Explain the behavior of resonant circuits.
10. Explain the importance of impedance matching.
11. Apply a systematic approach in troubleshooting AC circuits.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted