



Course Name: ELT-100 Circuit Analysis DC/AC

Date Updated: 2/2022

Credit Hours/week: Lec. 2, Lab 1 hrs./wk. – 3 cr.

BEGINNING: SPRING 2022

Catalog Description: This course introduces the student to both DC and AC circuit theory. It includes Ohm's and Kirchoffs laws for analysis of series and parallel circuits. Computer circuit simulation of series-parallel, ladder and bridge networks in both DC and AC are analyzed. Resonance and frequency response are included along with some discussion of AC power and transformers. The laboratory experiments are designed to support the theory and obtain measurement skills.

Prerequisite: MAT-110, PHY-132

Text: None

Supplementary Material: The laboratory portion must be held in SH-159 or SH-161 Materials:
Specialized equipment, supplies, facilities, for classes limited by enrollment or restricted by accreditation and/or equipment limitations:

Syllabus:

Topics:
Definition of voltage, current and resistance
Ohm's Law
Kirchoffs Law
DC circuit analysis
Alternating Current and signals
AC Instruments
Inductance, Capacitance and Impedance
Transformers
Motors and controls

Format for Offering this Course: Traditional

Students are expected to adhere to the policies of the County College of Morris. These can be accessed at: (insert link here)

Statement of Expected Course LEARNING OUTCOMES

- Define voltage, current and resistance
- Use Ohm's Law to solve problems involving voltage, current and resistance
- List the characteristics of current, voltage and resistance in a series circuit
- List the characteristics of current, voltage and resistance in a parallel circuit
- Use Kirchoffs Laws to solve unknown electrical quantities in circuits
- Define electrical power
- Explain the difference between a DC and AC source
- Explain the principles of reactance Demonstrate the proper use of a Multimeter to measure voltage, current and resistance

Statement of Relation to Curriculum(s):

This course introduces students to electricity, the basic circuit elements, electronic circuits, measurement and instrumentation techniques. Required for students in Mechanical Engineering Technology (3700), Electronic Engineering Technology (3600), and Biomedical Equipment Technology (3601) and a recommended elective course for other technologies and selective career programs.