RANKEN
TECHNICAL COLLEGE

Course Information
Course Number: EEL 1111
Course Name: DC/AC Electrical Fundamentals Theory

Credit-By-Assessment (CBA) Competency List
Written Test: 80 questions (percentages rounded to nearest hundredth)

- Explain the concept of electrical charge. 6.25%
- Define Voltage, Current, Resistance, and discuss their characteristics. 3.75%
- Define a series circuit and calculate the current, and total resistance applying Ohm's law in series circuits. 10%
- Use a series circuit as a voltage divider and identify the ground in a circuit. 2.5%
- Troubleshoot series circuits. 7.5%
- Use a parallel circuit as a current divide and troubleshoot parallel circuits. 10%
- Solve, using Ohm's Law, Combination, Loaded voltage divider and Wheatstone bridge circuits. 8.75%
- State the principles of the magnetic field, electromagnetism. 3.75%
- Identify a sinusoidal waveform, measure its characteristics. 3.75%
- Calculate the voltage and current values of sine waves. 5%
- Apply basic circuit laws to ac resistive circuits. 2.5%
- State the basic structure and characteristics of an inductor. 3.75%
- Understand how inductors respond in DC and AC circuits. 1.25%
- Use basic transformer terms to describe transformer construction. 1.25%
- Apply basic calculations to step-up and step-down transformers. 6.25%
- Calculate the impedance and phase angle in a parallel RL circuit. 1.25%
- Calculate electrical values of a parallel RL circuit. 7.5%
- State the basic structure and characteristics of a capacitor. 8.75%
- Calculate the electrical values of series capacitors and parallel capacitors. 1.25%
- State the relationship between current and voltage in RC circuits. 1.25%
- Calculate the impedance, phase angle, and power in RC circuits. 6.25%