

# RANKEN

TECHNICAL COLLEGE

## COURSE INFORMATION

Course Number: EEL 1110

Course Name: DC/AC Electrical Fundamentals Lab

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## CREDIT-BY-ASSESSMENT (CBA) COMPETENCY LIST

- EEL 1110 is a three part test that includes a written and two hands-on tests all of which is weighted equally.

### PART I WRITTEN TEST: 33 QUESTIONS (PERCENTAGES ROUNDED TO NEAREST TENTH)

- Describe and explain how to use the resistor color code to determine the value of a resistor. 15.2%
- Calculate voltage, current, and resistance values for series circuits. 6.1%
- Troubleshoot a series DC circuits. 33.3%
- Calculate voltage, current, and resistance values for parallel circuits. 3%
- Troubleshoot parallel DC circuits. 6.1%
- Calculate voltage, current, and resistance values for complex circuits 9.1%
- Calculate frequency using an oscilloscope. 3%
- Understand the basic principles of magnetism. 3%
- Calculate the phase shift of an AC circuit. 9.1%
- Find voltage measurements for capacitive and resistive circuits. 6.1%
- Calculate voltage and charge for capacitive and resistive circuits. 6.1%

### PART II DC HANDS-ON TEST (COMPLEX DC CIRCUIT): 55 CALCULATIONS AND MEASUREMENT

- Understand and apply the safety practices and proper use of test equipment in the lab.
- Operate a DC power supply.
- Construct a complex circuit.
- Find voltage, current and resistance measurements using a multi-meter.
- Measure voltage, current, and resistance values in a complex circuit.
- Calculate voltage, current, and resistance values for complex circuit.

### PART III AC HANDS-ON TEST (RESISTIVE CAPACITIVE INDUCTIVE CIRCUIT [RLC]) 72 CALCULATIONS AND MEASUREMENT

- Understand and apply the safety practices and proper use of test equipment in the lab.
- Operate an oscilloscope.
- Operate a function generator.

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- Construct a RLC circuit.
- Calculate phase angle, power factor, current, reactance, and resistance values in a RLC circuit.
- Measure and calculate frequency and phase angle using an oscilloscope.
- Measure current measurements of an RLC circuit using the multi-meter.