COURSE OUTLINE: ELR130 - ELECTRICAL FUNDAMTL

Prepared: Randy Clouthier
Approved: Corey Meunier, Dean, Technology, Trades, and Apprenticeship

Course Code: Title	ELR130: ELECTRICAL FUNDAMENTALS
Program Number: Name	4005: PRE-TRADES TECHNOLGY
Department:	PRE-TRADES & TECHNOLOGY
Academic Year:	2024-2025
Course Description:	This course develops awareness of basic electrical and electronic fundamentals. Emphasis is placed on basics of electrical measurement and devices. Practical lab exercises develop hands-on skills. Time permitting, basic splicing and soldering will be performed. And a brief look at the Canadian electrical code.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4005 - PRE-TRADES TECHNOLGY** VLO 1 Function at a level of mathematics suited to the student's post-secondary program aspirations. VLO 2 Develop basic science knowledge compatible with future study in a post-secondary technology program. VLO 7 Obtain basic technical skills and introduce students to the theory and lab content of a variety of technical disciplines.
Essential Employability Skills (EES) addressed in this course:	EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems.
General Education Themes:	Civic Life Science and Technology
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00

C 60 - 69% 2.00
D 50 - 59% 1.00
F (Fail)49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
S Satisfactory achievement in field /clinical placement or non-graded subject area.
U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR Grade not reported to Registrar`s office.
W Student has withdrawn from the course without academic penalty.
Smart watches and similar devices are not allowed during tests and quizzes.

Books and Required Resources:

Electrical/Electronic Fundamentals (notes) by Sault College
Publisher: AK Graphics

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
Discuss and utilize fundamental Electrical/Electronic concepts at an introductory level.	Define of describe the meaning of the following terms: Potential, Potential Difference, Voltage, Current, Resistance, Power, Conductance, Insulator, Resistor, Capacitor, Inductor, Transformer, Capacitance, Inductance, Impedance, Direct Current, Alternating Current, Amplitude, Frequency, Period, Sine Wave, Square Wave, Triangle Wave, Ohm`s Law, Kirchoff`s Law Use Ohm`s Law and Kirchoff`s Law to analyze simple series and parallel circuits. - Describe the characteristics of inductors and capacitors in DC and AC circuits - Describe the characteristics of diodes, BJTs (Transistors) and LEDs (Light Emitting Diodes).
Course Outcome 2	**Learning Objectives for Course Outcome 2**
Use electronic test equipment to test simple electrical and electronic circuits	- Use a digital multi-meter to measure voltage, resistance and current and calculate power dissipation in simple DC circuits - Use an oscilloscope to measure amplitude, frequency and the period of periodic waveforms - Use power supplies, function generators and test equipment to analyze simple AC and DC circuit operation.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
Utilize soldering tools to complete basic soldering tasks.	- Splice two wires together using a rat-tail and a western union splice. - Solder the splices

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments/Quizzes	10%
Lab Projects	30%
Tests (3 equally weighted)	60%

Date:	August 18, 2024
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.