



COURSE OUTLINE: ELR130 - ELECTRICAL FUNDAMTL

Prepared: Randy Clouthier

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	ELR130: ELECTRICAL FUNDAMENTALS
Program Number: Name	4005: PRE-TRADES TECHNOLOGY
Department:	PRE-TRADES & TECHNOLOGY
Semesters/Terms:	19F
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:	45
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 TECHNOLOGY 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
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.



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	<p>S Satisfactory achievement in field /clinical placement or non-graded subject area.</p> <p>U Unsatisfactory achievement in field/clinical placement or non-graded subject area.</p> <p>X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.</p> <p>NR Grade not reported to Registrar's office.</p> <p>W Student has withdrawn from the course without academic penalty.</p> <p>Smart watches and similar devices are not allowed during tests and quizzes.</p>												
Books and Required Resources:	<p>Electrical/Electronic Fundamentals (notes) by Sault College</p> <p>Publisher: AK Graphics</p>												
Course Outcomes and Learning Objectives:	<table> <tr> <th>Course Outcome 1</th><th>Learning Objectives for Course Outcome 1</th></tr> <tr> <td>Discuss and utilize fundamental Electrical/Electronic concepts at an introductory level.</td><td> <p>Define or 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</p> <p>Use Ohm's Law and Kirchoff's Law to analyze simple series and parallel circuits.</p> <ul style="list-style-type: none"> - Describe the characteristics of inductors and capacitors in DC and AC circuits - Describe the characteristics of diodes, BJTs (Transistors) and LEDs (Light Emitting Diodes). </td></tr> <tr> <th>Course Outcome 2</th><th>Learning Objectives for Course Outcome 2</th></tr> <tr> <td>Use electronic test equipment to test simple electrical and electronic circuits</td><td> <ul style="list-style-type: none"> - 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. </td></tr> <tr> <th>Course Outcome 3</th><th>Learning Objectives for Course Outcome 3</th></tr> <tr> <td>Utilize soldering tools to complete basic soldering tasks.</td><td> <ul style="list-style-type: none"> - Splice two wires together using a rat-tail and a western union splice. - Solder the splices </td></tr> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	Discuss and utilize fundamental Electrical/Electronic concepts at an introductory level.	<p>Define or 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</p> <p>Use Ohm's Law and Kirchoff's Law to analyze simple series and parallel circuits.</p> <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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.	<ul style="list-style-type: none"> - Splice two wires together using a rat-tail and a western union splice. - Solder the splices
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Date:	August 28, 2019												
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.												

