



## COURSE OUTLINE: ELR130 - ELECTRICAL FUNDAMTL

Prepared: Randy Clouthier

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	ELR130: ELECTRICAL FUNDAMENTALS
<b>Program Number: Name</b>	4005: PRE-TRADES TECHNOLOGY
<b>Department:</b>	PRE-TRADES & TECHNOLOGY
<b>Semesters/Terms:</b>	18F
<b>Course Description:</b>	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.
<b>Total Credits:</b>	3
<b>Hours/Week:</b>	3
<b>Total Hours:</b>	45
<b>Prerequisites:</b>	There are no pre-requisites for this course.
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>  Please refer to program web page for a complete listing of program outcomes where applicable.	<b>4005 - PRE-TRADES TECHNOLOGY</b>  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.
<b>Essential Employability Skills (EES) addressed in this course:</b>	EES 3    Execute mathematical operations accurately. EES 4    Apply a systematic approach to solve problems.
<b>General Education Themes:</b>	Civic Life  Science and Technology
<b>Course Evaluation:</b>	Passing Grade: 50%, D
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	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.



SAULT COLLEGE | 443 NORTHERN AVENUE | SAULT STE. MARIE, ON P6B 4J3, CANADA | 705-759-2554

	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 W Student has withdrawn from the course without academic penalty.		
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	Course Outcome Assessed
	Assignments/Quizzes/Attendance	10%	
	Lab Projects	30%	
	Tests (3 equally weighted)	60%	
Date:	August 22, 2018		
	Please refer to the course outline addendum on the Learning Management System for further information.		

