COURSE OUTLINE: ELR621 - ELECTRONICS I

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	ELR621: ELECTRONICS - LEVEL 1
Program Number: Name	6520: CONST & MTCE ELE BAS
Department:	ELEC. APPRENTICES
Semesters/Terms:	18F, 19W, 19F
Course Description:	This course introduces the student to semiconductors and their applications. Simple digital logic devices and circuits are also covered.
Total Credits:	5
Hours/Week:	4
Total Hours:	32
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
General Education Themes:	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. 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 W Student has withdrawn from the course without academic penalty.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:	Electronics For Electricians by Stephen L. Herman Edition: Current

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
This is a course in electronics which includes topics such as series, parallel and combination DC circuits, diodes, LEDs, NPN	- Describe TTL and CMOS logic gate technology - Describe the operation of basic logic gates including NOT, AND, OR, NAND and EXCLUSIVE OR gates - Identify the schematic symbols both North American and European for basic logic gates.

	and PNP bipolar transistors used as a switch, logic gates.	- Demonstrate the use of basic logic gates to create digital logic. - State the Boolean equations for simple logic gates. - Design and test combination logic circuits using basic logic gates. - Demonstrate the use of a logic probe to troubleshoot a digital system. - The proper procedure for soldering and de-soldering. - State the standard resistor colour code. - Connect resistors in series, parallel and combination circuits, complete with voltmeter and ammeter connections. - Describe the properties of N and P type semiconductor materials. - Describe and demonstrate the operation of a bipolar diode. - State current and voltage requirements for silicon diodes, germanium and light emitting diodes (LEDs). - Demonstrate requirements for silicon diodes, germanium diodes and LEDs to be forward and reverse biased. - Explain the important diode characteristics used when selecting replacement diodes - Describe the operation and biasing requirements of NPN and PNP transistors - Identify the schematic symbols for NPN and PNP bipolar transistors - Describe and demonstrate how a transistor can be used as a switch - Describe the operation of an opto-coupler

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Projects/Labs	50%	
Tests	50%	

Date: August 20, 2018

Please refer to the course outline addendum on the Learning Management System for further information.