COURSE OUTLINE: ELR622 - INSTRUMENTATION I

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	ELR622: INSTRUMENTATION - LEVEL 1
Program Number: Name	6520: CONST & MTCE ELE BAS 6540: IND.ELECT. - BASIC
Department:	ELEC. APPRENTICES
Semesters/Terms:	19F
Course Description:	This course is an introduction to instrumentation symbols and terminology. Temperature and pressure measurement will be studied in detail.
Total Credits:	3
Hours/Week:	3
Total Hours:	24
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Satisfactory/Unsatisfactory
Other Course Evaluation & Assessment Requirements:	The student must pass both the written tests and the practical tests to pass the course. Smart watches, smart phones and similar devices are not allowed during tests or quizzes and must be removed. Smart phones are not acceptable for use as a calculator during a test or quiz. 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:

Lab Volt

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Describe Instrumentation and Process Control and understand related terminology.	1.1 Explain what Instrumentation is. 1.2 Explain what Process Control is. 1.3 Describe the major components of a process control loop. 1.4 Draw the block diagram of a process control loop. 1.5 Understand instrumentation units, symbols and terminology.(I.S.A.)
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Understand temperature measurement, devices and applications	2.1 Understand the difference between temperature and heat. 2.2 Convert from one temperature scale to another. 2.3 Describe the physical and operating characteristics of filled system thermometers, thermocouples (T/C), resistance temperature detectors (RTD) and thermistors. 2.4 Calibrate and explain the operation of thermocouple and RTD transmitters 2.5 Describe methods of measuring temperature. 2.6 Select, install and calibrate temperature measurement devices
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Understand pressure measurement, devices and applications	3.1 Define the term fluids and fluid mechanics 3.2 Derive units of force, energy and pressure in SI and English units 3.3 Perform unit conversions and calculations 3.4 Describe methods of measuring pressure

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Asiignments and Quizzes	10%
Labs	20%
Practical Tests	20%
Written Tests	50%

Date: August 29, 2019

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