COURSE OUTCOME MATRIX
COURSE SYLLABUS
PART 2 of 3

Course Number and Title	EG 296 Program Logic Controllers (PLC)

Credit Hours	4

Course Description	This course provides the student with the fundamentals of process control, transducers, signal processing, feedback, loops, actuators, analog and digital controllers and the fundamentals of robotics, along with a review of the prerequisite courses. EG 290 is recommended but not required.

Prerequisite(s) and/or Corequisite(s)	EG 214 or EG 290 and MT 124 or higher

Required Textbooks/References/Course Materials:

Programmable Logic Controllers	5th	Petruzella	Mcgraw-Hill	0073373842
Programmable Logic Controllers - Lab Man.	5th	Petruzella	Mcgraw Hill	1259680843

	General Education Outcomes
1	Utilize written and verbal language to discuss and comprehend information, incorporating a variety of technologies, such as text, data, and images (written language, verbal language, and information technology).
2	Identify and interpret relevant information in order to formulate an opinion or conclusion (critical thinking).
3	Demonstrate and communicate computational methods and mathematical reasoning in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate) (quantitative literacy and fluency).
4	Communicate in appropriate ways with those who are culturally diverse (intercultural competence).

	Program/Department Outcomes
1	Prepare students to become safe and competent electrical technicians
2	Provide opportunities to display critical thinking skills
3	Demonstrate responsible professional conduct and behavior.
4	Effectively communicate.
5	
6	
7	
8	
9	
10	

	Course Outcomes (CO)	Bloom's Domain for CO (C, A, P), Category, and Level	Program/ Department Outcome(s)	Written Language	Verbal Language	Information Technology	Critical Thinking	Quantitative Literacy and Fluency	Intercultural Competence
1	Define, describe, and identify basic PLC parts, their function, sequence of operations, and classification	C-Remembering (1)	1, 2, 4	1	1	1	2	1	0
2	Compare and contrast the decimal, binary, octal, and hexadecimal numbering systems	C-Analyzing (4)	1, 2, 4	1	1	1	2	1	0
3	Convert from one numbering or coding system to another; add, subtract, multiply, divide, binary numbers	C-Understanding (2)	1, 2, 4	1	1	1	1	2	0
4	Construct a truth table, state the Boolean equations for the AND, OR, and NOT functions, the Boolean expressions, and derive Boolean equations for given logic circuits	C-Applying (3)	1, 2, 4	1	1	1	1	2	0
5	Write ladder logic programs from ladder schematics, develop elementary programs based on logic gate functions, program instructions that perform logical operations	C-Creating (6)	1, 2, 4	1	1	1	2	1	0
6	Describe the operation of sensors, output control devices, electromagnetic latching relay, the LATCH/UNLATCH instruction, pneumatic on-delay and off-delay timers, PLC counter instructions, master control reset instructions, function of subroutines, immediate input and output instructions	C-Remembering (1)	1, 2, 4	1	1	1	2	1	0
7									
8									
9									
10									

Bloom's Domain Legend
C = Cognitive
A = Affective
P = Psychomotor

General Education Outcome Legend
2 = Included and Measurable
1 = Introduced and/or Minimally Addressed and Not Measurable
0 = Not included