ELEC 104-ELECTRICAL & INSTRUMENTATION TECHNOLOGY 3

Credit Hours: 3
Scheduled hours per week
Lecture: 2
Lab: 2

Catalog Course Description:
Study of electronic components, hazardous locations, machine bending, and installation of tubing systems. Laboratory exercises are designed to provide hands-on practice of concepts.

Pre-requisites: None

Co-requisites: None

Course Learning Outcomes:

- Students perform conduit bending requirements.
- Students demonstrate the use of electronic components in circuitry and explain half and full-wave rectification.
- Students demonstrate the use of electrical test equipment.
- Student discuss the layout and types of tubing necessary for various tubing installations. The students will demonstrate knowledge of fittings, hangers, and support mechanisms
- Students will identify hazardous locations and determine classification

Topics to be studied:

- Machine conduit bending (electrical, mechanical, and hydraulic)
- Electronic components and circuitry (resistors, capacitors, inductors, diodes, transistors)
- Hazardous locations, classifications, necessary precautions, conduit and fitting installation
- Types of tubing and their uses, fittings, hangers, and supports

Relationship of Course to Program or Discipline Learning Outcomes:	
Demonstrate basic understanding of electrical safety.	X
Show understanding of and uses of terminology, measuring systems, hand and power tools, mechanical instruments, lathes, mills and measuring tools and instruments.	X
Demonstrate basic comprehension of electrical theory and National Electric Code.	X
Interpret parameters relating to pressure, level, flow, and temperature measurement.	
Differentiate various electronic components and uses in circuitry.	
Compare and contrast AC & DC motors, transformers and distribution equipment.	
Summarize understanding of transducers, actuators, and controllers.	
Demonstrate ability to calibrate and configure process loops.	

Show use of PLCs, data networks, and DCSs.	
Demonstrate ability to write concise and accurate reports.	
Summarize comprehension of fractions, decimals, and percentages.	
Solve algebraic equations.	X
Differentiate between of area and volume and calculate both.	
Read blue prints and schematics and use effectively in installation and trouble-shooting scenarios.	
Successfully execute Level 4 E & I NCCER Certification Project.	

For general education courses, a listing of the general education competencies that are met.)

Relationship of Course to General Education Learning Outcomes:	
Composition and Rhetoric Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	X
Science & Technology Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	X
Mathematics & Quantitative Skills Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	X
Society, Diversity, & Connections Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
Human Inquiry & the Past Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	X
The Arts & Creativity Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
5/3/2016	

Special requirements of the course:

(All NCCER exams must be passed with minimum 70% score

Additional information:

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