ELEC 204-ELECTRICAL & INSTRUMENTATION TECHNOLOGY 6

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

Catalog Course Description: Study of instrument calibration, loop checks, troubleshooting a loop, Programmable Logic Controllers (PLCs), and data networks.
Laboratory exercises are designed to provide hands-on practice of concepts.

Pre-requisites: None

Co-requisites: None

Course Learning Outcomes:

- Students will demonstrate knowledge of control loops, performing loop checks and component calibration, troubleshooting, and commissioning of control loops
- Students will program and troubleshoot Programmable Logic Controllers
- Students will demonstrate understanding of components and applications of data networks and Distributed Control Systems

Topics to be studied:

- Instrument calibration and configuration
- Performing loop checks
- Troubleshooting and commissioning a loop
- Data networks
- Programmable Logic Controllers (PLCs)
- Distributed Control Systems (DCSs)

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.	X
Differentiate various electronic components and uses in circuitry.	X
Compare and contrast AC & DC motors, transformers and distribution equipment.	
Summarize understanding of transducers, actuators, and controllers.	X
Demonstrate ability to calibrate and configure process loops.	X

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

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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