ELECTRICAL INSTRUMENTATION TECHNOLOGY

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EIT 233 Intro to Instrumentation 3-4 Credits
Successful completion of this course will provide the student with an understanding of the concepts of instrumentation as used in industry and why the accompanying skills are an exciting and highly sought after trade. Common pneumatic and electronic instruments that are used to control processes in refineries, power plants, mines, and most manufacturing facilities will be discussed. Prerequisite: Must have been accepted into the Instrumentation Technology Program.

EIT 240 Adv Topics in Instrument 2 Credits
Focuses on some of the more specialized instrumentation systems found in industry such as analyzers, weight scales, and wireless systems. Analyzer applications for pH, CO, CO2, NOx, SO2, HCN, and conductivity are becoming more critical to plant processes for environmental reasons. Weight scales are necessary for raw material accounting and inventory. Wireless systems are increasingly demonstrating their usefulness in low cost installations as security issues are resolved. Prerequisite: Must have completed EIT 233 or have been accepted into the Instrumentation Technology Program.

EIT 299 Special Topics 1-3 Credits
EIT 299 is a special topics course students can take for a maximum of 3 credits. The topics of the course can vary depending on how the student and faculty choose to use it, and it will be used to help students focus on specific skills identified for specialization. For the Process Operator program, the course will be 3 credits. Prerequisite:

EIT 315 Pres/Lev/Flw Measurement 4 Credits
Exploration of the physics of pressure, level, and flow. Calculations are derived from formulas that pertain to fluids and solids and used to configure instruments for the purpose of process control. The types of instruments that are presented in this course are found in every industry that produces or manufactures a product. Labs will consist of configuring and calibrating instrumentation to precise standards based on the theory learned in the class lecture. Prerequisite: Must have completed EIT 233 or have been accepted into the Instrumentation Technology Program.

EIT 323 Installation and Configuration 3 Credits
Provides students with an understanding and practical application of safe and efficient methods of installation and maintenance of process instrumentation. Includes instrument piping, electrical wiring, and mechanical structures as related to physical, chemical, electrical, hydraulic, and pneumatic processes. Configuration of control loop elements is included with detailed exercises on 'live' trainers. Prerequisite: Must have been accepted into the Instrumentation Technology Program.

EIT 333 Prcss & Instrmnt Diagram 3 Credits
P&ID drawings are integral to understanding how manufacturing process works. P&IDs are the prelude to loop diagrams and other various schematics. All of these drawings are used by technicians for troubleshooting, wiring, and tubing. AutoCAD drafting basics are required to develop P&ID and loop drawings. Prerequisite: Must have completed EIT 233 or have been accepted into the Instrumentation Technology Program.

EIT 336 Control Valves/Regulators 4 Credits
The theory and operation of valves and associated pneumatic and hydraulic devices used in the control of gasses and fluids. Prerequisite: Must have completed EIT 233 and EIT 315 and EIT 323 and EIT 333 and EIT 368 or have been accepted into the Instrumentation Technology Program.

EIT 348 Temp Measure & Control 3 Credits
The measurement and control of industrial heat and temperature processes. Prerequisite: Must have completed an Associate of Applied Science or Certificate and EIT 315 or have been accepted into the Instrumentation Technology Program.

EIT 368 Measurement Sys Analysis 2 Credits
Designed to demonstrate the importance of accurate and reliable measurements in process control systems. Covers how to deal practically with inaccuracies and the methods to minimize the downside effects of inadequate measurement systems. Prerequisite: Must have completed EIT 233 and EIT 315 or have been accepted into the Instrumentation Technology Program.

EIT 437 Intro to Control Systems 3 Credits
Successful completion of this course will provide the student with an understanding of the concepts pertaining to analog control using Programmable Logic Controllers. Selection of hardware including processor architecture, input/output module wiring, programming, controller installation, and system troubleshooting. Students will learn PID control systems by utilizing PLC hardware/software in a 'live' process. Loop tuning methodology, controller feed-forward, feedback, cascade, and ratio control will be incorporated on process simulators. Prerequisite: Must have completed ELM 134 and ELM 136 and EIT 233 and EIT 315 and EIT 323 and EIT 333 or have been accepted into the Instrumentation Technology Program.

EIT 468 Advanced Control Systems 3 Credits
This course provides in-depth instruction in the design, development, and troubleshooting of programmable logic controllers (PLC), and distributed control systems (DCS) projects utilizing human machine interfaces (HMI) applications. Hands on hardware setup, programming, process monitoring and troubleshooting, and configurations of industrial networking. Prerequisite: Must have completed EIT 315 and EIT 333 and EIT 348 and EIT 437.