ATPT 141 Process Technology I-Equipment
Credit Hours: 3
Scheduled hours per week
Lecture: 10
Lab: 2
Other: 0

Catalog Course Description:

Course covers the various types of equipment used in the process environment and the interaction of the process operator/technician with it. An understanding of the operation, operator maintenance
and trouble shooting is gained. (Prerequisites: ATPT 130 C or better)
Pre-requisites: ATPT 130, ATPT 131, ATPT 140

Co-requisites: None

Course Learning Outcomes:

- *Develop and understanding of piping, tubing, hoses, fittings, valves, pumps, compressors, turbines, motors, engines, heat exchangers, cooling towers, furnaces, boilers, vessels, tanks, filters, and dryers.*
- *Develop an understanding of simple control loops, sensors, transmitters, transducers, and control valves.*
- *Develop an understanding of regulators, switches, relays, and enunciator systems.*
- *Develop a basic understanding of PID controllers, PLCS (programmable logic controllers), and DCS(distributive control systems).*

Topics to be studied:

- Course Overview and Introduction to equipment and tools
- Piping, Tubing, Hoses and Fittings
- Valves
- Pumps
- Compressors
- Turbines
- Motors and Engines
- Power Transmission and Lubrication
- Heat Exchangers Cooling Towers
- Furnaces
- Boilers
- Filters and Dryers
- Vessels
- Process Diagrams
- Instrumentation Power Supply
- Emergency Shutdown (ESD), Interlocks, and Protective Devices
- Instrument Malfunctions

Relationship of Course to Program Learning Outcomes:	
Exhibit knowledge of OSHA General Industry requirements.	x
Articulate Total Quality Management concepts including customer service, variance, process capability, continuous improvement, corrective/preventive action, SPC basics, data collection, and control charts.	
Internalize the process instrumentation that a process technician/operator utilizes in performing job functions.	x
Use the various types of equipment in the process environment in a productive manner, and the interaction of the process operator/technician with it.	x
Knowledge of equipment roles and control methods for each process system.	x
Demonstrate safety and the role played by operator in maintaining the system safely.	x
Understand and follow Block flow diagrams, P & ID drawings, Process Flow diagrams, 3D drawings, and Plot plans.	
Use critical thinking skills, be able to see and troubleshoot problems in the process through trending and analysis of process parameters. Use critical thinking skills, be able to see and troubleshoot problems in the process through trending and analysis of process parameters.	x
10/20/2017	

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.	
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.	
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Special requirements of the course:

None

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