
SECTION HEADING

RNEW 1115: Mechanical Fundamentals for Process Controls

Description

Mechanical Fundamentals for Process Controls covers the basic functions of equipment such as drive components, pumps, compressors, valves and basic electrical equipment. It explores various methods and the importance of equipment lubrication. Additional topics covered in this course include material handling equipment and procedures. Mechanical Fundamentals explains how equipment is used in systems such as piping systems, heat exchangers, cooling towers, refrigeration, furnace and boiler systems. Startup, shutdown, operation and troubleshooting procedures of various mechanical systems will be explained.

Credits

3

Prerequisite

None

Corequisite

None

Topics to be Covered

1. Process Drawings and Industry Standards
2. Piping, Gaskets, Tubing, Hoses and Fittings
3. Valves
4. Pumps, Compressors, and Turbines
5. Motors and Engines
6. Power Transmission and Lubrication
7. Heating and Cooling Equipment
8. Boilers
9. Vessels and Reactors
10. Filters and Dryers
11. Miscellaneous Equipment

Learning Outcomes

1. Demonstrate knowledge of process control and instrumentation.
2. Explain the concepts of troubleshooting and maintenance for process control.
3. Describe the functions of valves and pneumatic actuators.
4. Identify the various types of pumps, compressors, and turbines.
5. Describe the basic operations of cooling towers and condensers.
6. Identify and describe common pipe fittings and pipe line control.
7. Identify the drivers and auxiliary equipment for pumps.
8. Explain the basic operations of heat exchangers.
9. State the basic requirements of steam production and combustion.

Credit Details

Lecture: 3

Lab: 0

OJT: 0

MnTC Goal Area(s): None