



Level 1 Pneumatics

Course Number 210

Course Description

This Course covers the fundamentals and principles of pneumatics with emphasis on hands-on exercises. Students will obtain a strong foundation in compressed air production and preparation in pneumatic systems as well as a thorough look at basic pneumatic components. The course begins with safety followed by basic fluid power principles. Air compression, preparation, and distribution are then covered. The construction, operation, and specific use of pneumatic components then become the focus of the class. Specific components covered in this course are compressors, air motors, flow controls, directional valves, actuators, aftercoolers, and driers. In addition, seals and gaskets, filtration, and circuit basics are discussed.

Prerequisites: None

Course Length: 3 days

Textbook: TBD

Course Outline	Learning Objectives
Safety Guidelines <ul style="list-style-type: none"> - PPE - Pressure Vessels - Hoses and Fittings - Lockout/tagout 	<ul style="list-style-type: none"> • Recognize compressed air safety practices • State advantages and disadvantages of pneumatic systems • Explain relationship between gauge and absolute pressures • Identify schematic symbols and be able to read a basic circuit • Explain the fundamental construction and operation of compressors • Explain the effect of contaminants in compressed air systems • Demonstrate where to locate filters • Explain how pneumatic filters are rated • State the purpose of a pressure regulator • Illustrate how an air lubricator works • Recognize the need to monitor compressor oil level and condition • Distinguish between venting and non-venting regulators • Explain the fundamental construction and operation of cylinders • State how to replace seals and packing in cylinders • Identify Symptoms of leaking seals in air cylinders • Explain the fundamental construction and operation of directional valves • Explain the fundamental construction and operation of flow control valves.
Theory and Principles <ul style="list-style-type: none"> - Advantages of Pneumatic systems - Producing linear and rotary motion - Principles and properties - Gas laws - Definitions and units of measurement 	
Symbols and Intro to Circuits	
Air Production <ul style="list-style-type: none"> - Compressor types and functions - Unloading methods 	
Air Preparation/Treatment <ul style="list-style-type: none"> - Pressure regulators - Dryers - Filtration - Lubrication - FRL's 	

