Course Outline - Fundamentals of Pipe Fitting

Course Topic: Fundamentals of Pipe Fitting
Recommended Contact Hours: 35 hours

Course Description:

This course explains the types, construction, and applications of pipe, tube and hose used in fluid systems. Construction and types of connectors will be discussed, as will, securing, hanging and supporting systems.

Course Outcomes and Objectives

PFF-1 Describe and layout a pipe system

1. Able to explain a layout of a piping system
2. Identify and size a piping system
3. Able to demonstrate techniques for renovating piping systems

PFF-2 List and describe the various types of pipe materials

1 Identify cast iron, PVC, CPVC, ABS, types K, L and M copper Black Iron, galvanized and stainless steel piping
- Skill 1 – Identify Pipe types

2 Explain the applications cast iron, PVC, CPVC, ABS, types K, L and M copper Black Iron, galvanized and stainless steel piping

3 Explain the application for each of the above materials
- Skill 3 – Given a pipe application explain the type of pipe material selection

PFF-3 Describe the various types of pipe joints PFF-2

1 Identify and describe each type of joint-thread, solder, flare, cement, compression or flange
Skill 1 – Identify various pie joints

2 Explain how to fabricate a pipe joint

3 Demonstrate how to fabricate pipe joints
- Skill 3 – Fabricate pipe joints

PFF-4 Describe the various types of valves

1 Identify each of the gate, globe, ball, butterfly, check, relief and safety valves
- Skill 1 – label various valves

2 Describe the application of each valve in a system

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- Skill 2 – Identify valves in a system

3 Describe the operation of each type of valve

PFF 5 Describe the various types of fittings, nipples, flanges and gaskets

1 Identify tee, cross, ell, union and wye fittings
2 Identify the manufacturer of each type of flange
3 Identify the applications of each type of gasket

PFF 6 Demonstrate the use of various types of pipe hangers and their appropriate spacing

1 Identify the acceptable hanger material for each type of material
2 Identify the various types of hangers
3 Explain the application of each type of hanger

PFF 7 Describe the effect of pressure on fluid flow in pipes

1. Demonstrate how to use the tables of pipefittings and determine the equivalent length of fittings
2. Reading the graphs of fluid flow for five pipe materials determine the flow for a given pressure

PFF-8 Demonstrate how to set up a pipe system

1. Demonstrate the proper use of pipefitting tools.
2. Demonstrate the proper procedures for doing material take-offs from blueprints.
3. Demonstrate and practice the use of shop math in the piping trade.
4. Solve practical math problems used in piping systems.
5. Demonstrate finding information from a reference source about piping in text books, and computer

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