PetroSkills

Piping Systems and Welding

MODULE

About the Skill Module

This skill module describes the material and construction methods and piping system codes, including industry requirements and principles related to piping system operation, safety, reliability, and availability outlining applicable codes/standards and statutory requirements. The module also explains the purpose of welding, codes, types of weld processes, welding metallurgy, filler materials, shield materials, testing practices, and quality control.

See example Mechanical eLearning module

Target Audience

Facilities Engineers, Process Engineers, Senior Operations Personnel, Field Supervisors, Engineers who select, design, install, evaluate or operate gas processing plants and related facilities

You Will Learn

Participants will learn how to:

- Describe the processes for manufacturing industrial pipe for high pressure and hazardous material containment
- Describe industry design, material, and construction methods
- Define piping specifications, economic selection criteria, and project specific requirements
- Identify pressure, temperature, and weight factors, and describe how they are applied to piping systems
- Identify organizations that provide codes and standards used in the piping systems
- Define pipe sizing criteria and equations, outlining loads/limits
- Identify thermal and dynamic effects of pipe sizing and selection criteria
- Describe key code references applicable to piping sizing and selection criteria
- Describe piping sizes, ratings, materials, and design considerations
- Explain pipe and fitting manufacturing codes, standards, and industry specifications
- Identify piping materials for oil and gas and other industrial applications
- Describe and identify basic industry codes and standards that define piping classes, services, and service conditions used in the oil and gas and other industries
- Describe the physical properties of the fluid and the pipeline that affect liquid flow
- Define the application and importance of conservation of energy, conservation of mass to determining hydraulic behavior

- Determine flow friction coefficients and calculate proper line size/pressure drop relationship for hazardous liquids pipelines
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- Define issues related to piping system layout and integration with other equipment
- Describe joint efficiency and what it means
- Explain the difference between a joint efficiency of 1.0 and full radiography of all pressure containing butt welds
- Identify the 100% radiography requirements from chart UCS-57
- Describe weld joint design and preparation
- Discuss the five types of welding used in pressure vessels and their application
- Review common weld defects
- Explain the differences between Procedure Qualification Record (PQR) and Welding Performance Qualification (WPQ)

Product Details

Categories: Midstream

Disciplines: Mechanical Engineering

Levels: Basic

Product Type: Individual Skill Module

Format: On-Demand

Duration: 5.5 hours (approx.)

$395.00