MODERN VALVE TECHNOLOGY: SELECTION, INSTALLATION, UPGRADING, INSPECTION & TROUBLESHOOTING

MUE203
Mechanical & Utility Engineering

TRAINIT ACADEMY

COURSE TITLE

MODERN VALVE TECHNOLOGY: SELECTION, INSTALLATION, UPGRADING, INSPECTION & TROUBLESHOOTING

COURSE DATE/ VENUE

16 - 20 November 2020

London, UK

COURSE REFERENCE

MUE203

COURSE DURATION

05 Days

DISCIPLINE

Mechanical & Utility Engineering

COURSE INTRODUCTION

This course has been design to show the basic types of Valves operate such as gate, globe, plug, ball, butterfly, check and relief valves and how they are configured for their many applications. It will be shown how valves should be specified and selected.

In light of the many liability cases held throughout the world, selecting the proper valve can have major consequences for a company's safety, economy and viability.

This course presents a practical approach to valve selection for the function, Servicing, sizing, installation, repair, overhaul, upgrading and modifications of these components.

Valves usually appear to be simple in form and operation, such as those of a manual Off-On Valve, Check Valve, or the Fixed Valve type such as an Orifice, Blind, etc. You will learn how components such as Safety and Relief Valves can become highly complicated and dangerous.

The course is constructed for three different groups, i.e., Valve Selection & Specification, valves end connection, Valve Manufacturing & Maintenance, and Valve Design &

Application Theory, it is always difficult to meet all the objectives of anyone group due to the diverse and completely different backgrounds in both education and experience.

COURSE OBJECTIVE

Upon successful completion of this course, the delegates will be able to:

- ✓ Demonstrate and apply good working knowledge on the selection, installation, upgrading, inspection & troubleshooting of valves
- ✓ Apply the proper steps, techniques and practices related to the maintenance, repair, sizing and selection of valves.
- ✓ Apply the principles of pressure, temperature, flow and fluid mechanics on the design and use of valves

COURSE AUDIENCE

This course is intended for Maintenance Engineers, Application Engineers, Inspection Engineers, Mechanical Engineers, Under-Development Engineers, Elect/Electronics Engineers, Production Engineers, and the new Valve Designers. Also this Course is essential for Supervisors, Foremen and Technicians.

COURSE CONTENT

Day 1

Types of Valves

- Valve Materials
- Valve Components

Day 2

Introduction to Control Valve Theory

- Definition of a Control Valve
- Types of Energy
- What is Happening Inside a Control Valve
- Choked Flow
- Cavitation

- Flashing

Day 3

- Check Valves
- Definitions
- Operational Detail
- Main Types
- Design Considerations
- Selection
- Pressure Relief Valves
    - Introduction
    - Principles of Operation
    - Main Types
    - Case Study-Three Mile Island

Day 4

- End Connections
- Face to Face Criteria
- Materials Selection
- Leakage Rates
- General Review
- Installation
- Maintenance
- Troubleshooting
- Corrosion
- Valve Failures
    - Introduction
    - Physical Failures
    - Velocity Problems
    - Erosion by Cavitation
    - Erosion (by Abrasion / Noise / Vibration)

Day 5

- General
- Valve Coefficient (CV)
- ISA Sizing Equation
- Simplified Sizing Equation
- Actuators
    - Introduction
    - Types of Actuators
    - Linear Actuators
    - Rotary Actuators
    - Actuator Forces
- Common Valve Problems
- Water Hammer Effects
- High Noise Levels
- Noise Attenuation
- Fugitive Emissions
- Valve Testing & Inspection

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

$6,150 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation,

discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions