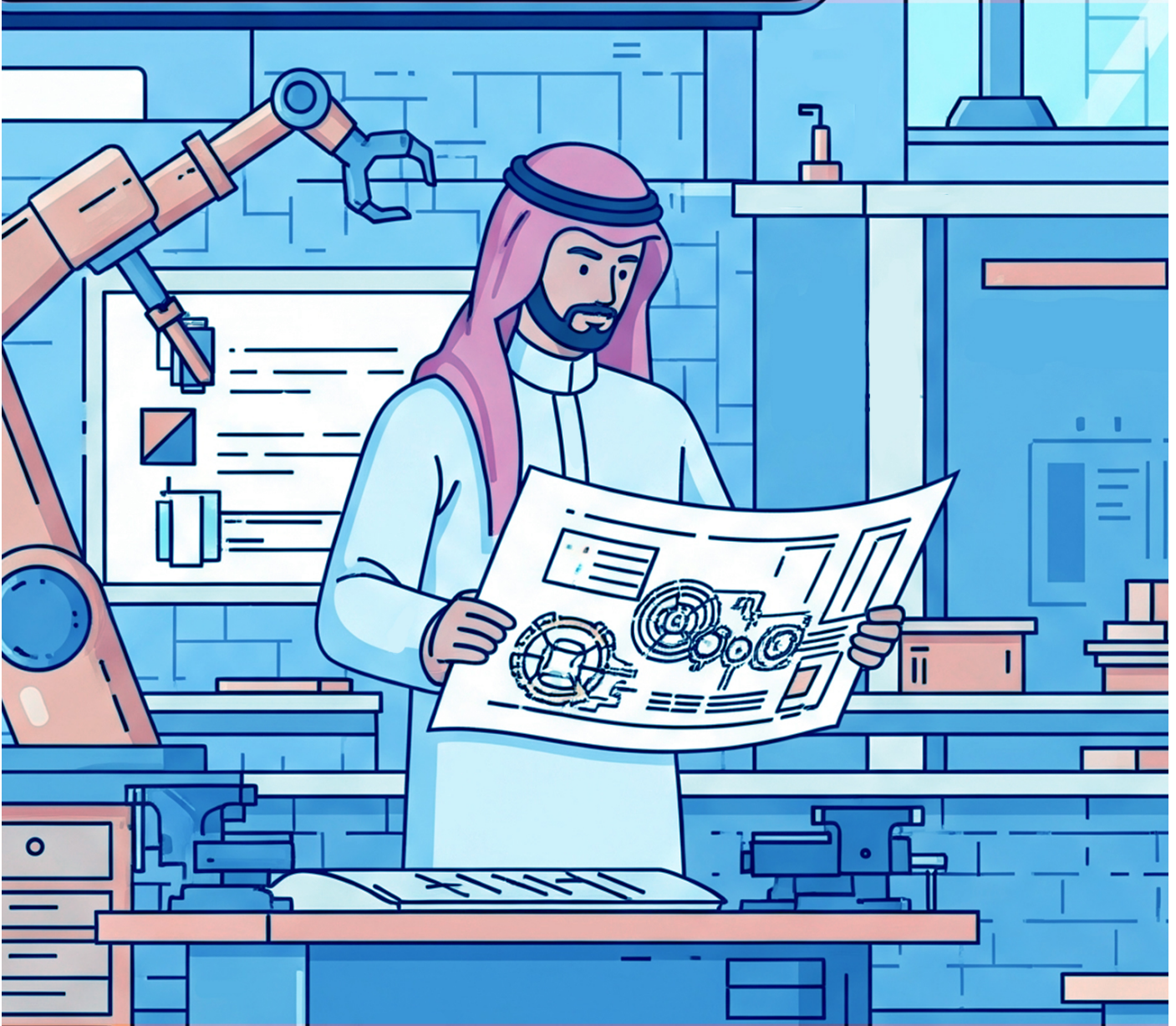




Mechanical Engineering

Valve Technology

Course Introduction

The course is designed for participants to understand the principles of the Types, function, Specification and classification of valves. Then cover the valves maintenance, troubleshooting and repair This course presents a practical approach to the function, servicing, 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

Target Audience

- Automotive Engineer
- Boiler Engineer
- Ceramics Engineer
- Equipment Engineer
- High-Pressure Engineer
- Marine Engineer
- Mechanical Design Engineer
- Mechanical Engineer
- Naval Architect
- Pipeline Engineer
- Power Engineer
- Rotating Equipment Engineer
- Senior Mechanical Engineer
- Turbine Engineer
- Validation Engineer

Learning Objectives

- Types of Valves.
- Valve materials.
- Valve components.
- Valve testing and inspection.
- Valve failure.
- Safety valve component and design.
- Valve maintenance
- Case studies. and troubleshooting
- Group Discussions.
- Course summary and evaluation

Course Outline

• 01 DAY ONE

Valves Technology

- Types of Valves
- Valves characteristics
- Sealing performance
- Leakage Criterion
- Leakage Classifications
- Sealing Mechanisms
- Valve stem seals
- Flow characteristics
- Flow through valves
- Valve flow characteristics

• 02 DAY TWO

Manual Valves

- Functions of manual valves
- Methods of regulation

- Valve Types:
- Stopping/starting valves
- Control valves
- Valve end connections
- Valves rating
- Valves seating
- Types of manual valves
- Gate Valves
- Plug Valves
- Ball Valves
- Butterfly Valves
- Pinch Valves
- Diaphragm Valves
- Chuck valve

Check Valves

- Applications
- Types of Check Valves
- Lift check valves
- Swing check valves
- Tilting-disc check valves
- Diaphragm check valves
- Check Valves Operation
- Selection of Check Valves

• 03 DAY THREE

Relief and Safety Valves

- Relief Valves Types
- Pressure-relieving devices
- Automatically operated valves
- Direct-acting & piloted pressure relief valves
- Modulating, full-lift, and ordinary pressure relief valves
- Valve Loading
- Safety Valves
- Operation of Direct-acting pressure relief valves
- Relief valves problems

• 04 DAY FOUR

Valves Problems, and Troubleshooting

- High Pressure Drop
- Pressure Recovery Characteristics
- Cavitation in Valves
- Incipient and choked cavitation
- Flow curve cavitation index
- Cavitation-elimination devices
- Flashing versus Cavitation
- Flow Choking
- High Velocities
- Water Hammer
- What causes water hammer?
- Water Hammer Calculations
- Solutions for water hammer
- Surge Protection
- Check valve slamming
- Noise problems
- Clean air standards
- Life loading
- Packing for fugitive-emission control
- Troubleshooting the Control Valves

• 05 DAY FIVE

Valve Testing & Repair Facilities

- Hydrostatic testing
- Gas testing
- Low Temperature (cryogenic) and Fugitive Emission testing
- Testing of engineering materials and Metallurgical investigations.
- On-line test

Area of Testing:

- **Mechanical**
- **Electrical**
- **Environmental**
- **Fire**
- **Dimensional Measurement**
- **Materials**
- **Noise and vibration.**

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 26, 2025	May 30, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Sept. 1, 2025	Sept. 5, 2025	5 days	4950.00 \$	Spain - Barcelona
Dec. 22, 2025	Dec. 26, 2025	5 days	4250.00 \$	UAE - Dubai