Process Control Valves And Actuators: Sizing, Selection

Course Title	**Process Control Valves And Actuators: Sizing, Selection**
Country	**U.A.E, Dubai**
Location	**4-5 Star Hotel**
Time	**8AM - 2PM**
Date	**2026 - 2027**

Program Overview

This program delivers comprehensive technical knowledge and hands-on expertise in the sizing, selection, installation, and maintenance of process control valves and actuators, with a strong focus on petroleum and gas industry applications. The course ensures participants gain the ability to improve system performance, operational safety, and equipment reliability in refineries, pipelines, and petrochemical plants.

Key Learning Objectives

Participants will be able to:

- Understand the principles of valves and actuators in petroleum operations.
- Apply international standards (ISA, API, IEC) in valve sizing and selection.
- Choose the correct valve and actuator type based on process conditions.
- Perform installation, commissioning, and calibration effectively.
- Troubleshoot common problems in field operations.
- Implement maintenance and reliability strategies for long-term efficiency.

Target Audience (Petroleum Sector)

- Process & Instrumentation Engineers in oil and gas plants
- Maintenance & Reliability Engineers
- Plant Supervisors and Operations Staff
- Project Engineers responsible for equipment installation
- HSE & Technical staff involved in petroleum process control

Proposed 5-Day Timetable

Day 1 – Fundamentals of Control Valves & Actuators

- Role of valves in process control
- Types of control valves (globe, gate, butterfly, ball)
- Overview of actuator types (pneumatic, electric, hydraulic)

Day 2 – Valve Sizing & Selection

- Flow characteristics (Cv, Kv, pressure drop)
- Fluid considerations (liquids, gases, multiphase flow)
- Standards & best practices (ISA, API, IEC)

Day 3 – Actuator Technologies & Integration

- Pneumatic vs. electric vs. hydraulic actuators
- Smart actuators & digital communication (HART, Fieldbus)
- Integration with DCS/PLC systems

Day 4 – Installation, Commissioning & Troubleshooting

- Installation guidelines in petroleum facilities
- Commissioning steps & calibration methods
- Troubleshooting common failures

Day 5 – Reliability, Maintenance & Case Studies

- Preventive & predictive maintenance strategies
- Extending service life in petroleum plants
- Case studies from oil & gas industries
- Final assessment, group exercise & wrap-up