VALVE TECHNOLOGY: SELECTION, INSTALLATION, UPGRADING, INSPECTION, AND TROUBLESHOOTING

COURSE OVERVIEW

This intensive 5-day training course provides participants with a comprehensive understanding of industrial valve technologies, covering all stages from selection to troubleshooting. Valves are critical components in the control and regulation of fluid flow in various industries, including oil & gas, petrochemical, power generation, and water treatment. Improper valve selection, installation, or maintenance can lead to system failures, safety hazards, and costly downtime.

The course combines theory with hands-on examples and case studies to build practical skills in valve specification, installation procedures, upgrade options, inspection techniques, and failure analysis. Attendees will leave equipped with the knowledge to ensure reliable valve operation, extend service life, and minimize operational risk.

DATES, VENUES AND FEES

07 – 11 December 2025 - Dubai

(5 Days)

Fees US$ 4500

Note: Fee is per participant + 5% VAT (if applicable).
Groups from the same company can enjoy a **discounted** price.

WHO SHOULD ATTEND?

This course is appropriate for a wide range of professionals but not limited to:

- Mechanical, process, and maintenance engineers
- Instrumentation and control engineers
- Piping and plant engineers
- Maintenance supervisors and technicians
- Operations and plant personnel involved in valve maintenance
- Technical procurement and project engineers

CONTACT US NOW

+971 (4) 4539841 – 42 – 43
WhatsApp: +971 52 398 7781

Millennium Solutions Training Center FZ-LLC
Block 2B, 1st Floor, Office 134, Knowledge Park, Dubai, UAE
Email: info@mstcme.com
Website: www.mstcme.com

ACCREDITATION

This training course is certified by CPD.

The CPD Certification Service is the leading independent CPD accreditation institution operating across industry sectors to complement the Continuing Professional Development policies of professional institutes and academic bodies. The CPD Certification Service provides support, advice, and recognised independent CPD accreditation compatible with global CPD principles. CPD is the term used to describe the learning activities professionals engage in to develop and enhance their abilities and keep skills and knowledge up to date. CPD Units are only awarded to programmes after each programme is scrutinised to ensure integrity and quality according to CPD standards and benchmarks.

COURSE CERTIFICATE

MSTC certificate will be issued to all attendees completing a minimum of 80% of the total tuition hours of the course.

CPD internationally recognized certificate will be issued for all participants who will meet the course requirements.
CPD certificates will be issued within a month of the successful completion of the course.

TRAINING METHODOLOGY

- Expert-led sessions with dynamic visual aids
- Comprehensive course manual to support practical application and reinforcement
- Interactive discussions addressing participants' real-world projects and challenges
- Insightful case studies and proven best practices to enhance learning

LEARNING OBJECTIVES

By the end of this course, participants should be able to:

- Understand different types and functions of industrial valves.
- Select valves appropriately based on process conditions and standards.
- Apply proper installation and commissioning techniques to prevent failures.
- Identify upgrading options for improved performance, safety, or emissions compliance.
- Conduct effective inspections and diagnose wear, damage, or malfunction.
- Troubleshoot valve problems and implement corrective measures.
- Develop preventive maintenance and condition monitoring strategies.

CONTACT US NOW

+971 (4) 4539841 – 42 – 43
WhatsApp: +971 52 398 7781

Millennium Solutions Training Center FZ-LLC
Block 2B, 1st Floor, Office 134, Knowledge Park, Dubai, UAE
Email: info@mstcme.com
Website: www.mstcme.com

COURSE OUTLINE

DAY 1

Introduction to Valve Technology and Selection

- Pre test
- Overview of valve types: gate, globe, ball, butterfly, plug, diaphragm, check, safety valves, etc.
- Functions: isolation, regulation, pressure relief, backflow prevention
- Key selection criteria: pressure, temperature, flow rate, media properties
- Valve materials and corrosion resistance
- Relevant standards: API, ASME, ANSI, ISO, DIN
- Valve sizing basics
- Exercise

DAY 2

Valve Installation and Commissioning

- Site preparation and piping requirements
- Mounting, alignment, and flange connection techniques
- Torqueing methods and sealing materials
- Installation mistakes and how to avoid them
- Valve actuator selection: manual, electric, pneumatic, hydraulic
- Commissioning procedures and functional testing
- Case study

DAY 3

Valve Upgrading and Modernization

- Performance limitations in legacy valves
- Retrofit and upgrade options:
    - Low-emission packing
    - Bellow seals
    - Smart actuators and positioners

Cont'd.

- Integration with control systems and digitalization (e.g., HART, Fieldbus)
- Safety Integrity Level (SIL) and functional safety compliance
- Case study

DAY 4

Inspection, Testing, and Condition Monitoring

- Inspection types: visual, dimensional, functional, non-destructive
- Leak testing (API 598, ISO 5208)
- Predictive maintenance tools: ultrasonic, vibration, infrared, acoustic monitoring
- Online vs offline testing
- Failure modes: cavitation, erosion, corrosion, flashing, sticking
- Record keeping and documentation
- Exercise

DAY 5

Troubleshooting and Maintenance Strategies

- Troubleshooting methodologies: identifying symptoms, root cause analysis
- Common valve problems: leakage, chatter, seat wear, actuator failure
- Repair vs replace decisions
- Developing maintenance schedules: preventive, predictive, and reliability-centered
- Integrating valve maintenance into CMMS
- Case study
- Final course review and action planning
- Post test

CONTACT US NOW

+971 (4) 4539841 – 42 – 43
WhatsApp: +971 52 398 7781

Millennium Solutions Training Center FZ-LLC
Block 2B, 1st Floor, Office 134, Knowledge Park, Dubai, UAE
Email: info@mstcme.com
Website: www.mstcme.com