MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

Phone: +601116373203 | **Email:** info@mawaevents.net

CONTROL VALVES ENGINEERING

"Master the Selection, Sizing, Operation & Maintenance of Control Valves in Complex Industrial Systems."

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** In-House Training

Introduction

Control valves are essential components in regulating flow, pressure, temperature, and level in industrial processes. This comprehensive 5-day course covers the design, selection, sizing, installation, calibration, and troubleshooting of control valves. Participants will gain hands-on skills and technical insight necessary for ensuring efficient and safe valve operation across various industries, including oil & gas, petrochemical, power generation, and water treatment.

Objectives

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

- Understand the principles of control valve operation and flow dynamics
- Correctly select and size control valves for specific applications
- Analyze valve characteristics and performance under different conditions
- Identify and troubleshoot valve faults, cavitation, and noise issues
- Interpret actuator types, positioners, and smart valve diagnostics
- Apply best practices in maintenance and safety

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Why Attend

Proper control valve engineering ensures system stability, process efficiency, and safety. Attending this course helps you avoid costly shutdowns and improve control loop performance through better understanding of valve behavior and diagnostics.

Target Audience

- Instrumentation and Control Engineers
- Mechanical & Process Engineers
- Maintenance and Reliability Professionals
- Automation Specialists
- Technical Supervisors & Operators
- EPC and Plant Design Engineers

Individual Benefits

- Hands-on valve diagnostics and selection practice
- Better understanding of flow control principles
- Improved decision-making in valve sizing and troubleshooting
- Enhanced skills in predictive and preventive valve maintenance

Organizational Benefits

- Reduced downtime from faulty or mismatched valves
- Improved plant efficiency and product quality
- Increased safety and reliability of operations
- Cost savings through optimized control strategies

Instructional Methodology

- Instructor-led presentations with real-world examples
- Interactive technical workshops and simulations
- Hands-on exercises with valve sizing tools
- Troubleshooting case studies
- Maintenance best practices and condition monitoring

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Course Outline

DETAILED 5-DAY COURSE OUTLINE (Customizable) Training Hours: 07:30 AM – 03:30 PM Daily Format: 3–4 Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

DAY 1 – CONTROL VALVE FUNDAMENTALS

- Module 1: Introduction to Control Systems and Flow Control Devices (07:30 – 09:30)
- Module 2: Types of Control Valves and Their Applications (09:45 – 11:15)
- Module 3: Valve Body Styles, Materials & End Connections (11:30 – 01:00)
- Module 4: Flow Characteristics: Linear, Equal %, Quick Opening (02:00 – 03:30)

DAY 2 – VALVE SIZING AND SELECTION

- Module 1: Valve Sizing Methodologies and Cv Calculations (07:30 – 09:30)
- Module 2: Factors Affecting Valve Selection (Process Media, Pressure, Temp) (09:45 – 11:15)
- Module 3: Cavitation, Flashing, and Noise – Analysis & Prevention (11:30 – 01:00)
- Module 4: Hands-On Valve Sizing Exercise Using Software/Manual Tools (02:00 – 03:30)

DAY 3 – ACTUATORS, POSITIONERS & ACCESSORIES

- Module 1: Pneumatic, Electric, and Hydraulic Actuators: Selection & Control (07:30 – 09:30)
- Module 2: Smart Positioners, Feedback, and Control Signal Handling (09:45 – 11:15)
- Module 3: Solenoid Valves, Air Sets, Limit Switches & Position Feedback (11:30 – 01:00)
- Module 4: Workshop: Configuration & Tuning of Actuator-Positioner Systems (02:00 – 03:30)

DAY 4 – INSTALLATION, COMMISSIONING & MAINTENANCE

- Module 1: Best Practices in Valve Installation & Orientation (07:30 – 09:30)
- Module 2: Commissioning & Calibration of Control Valves (09:45 – 11:15)
- Module 3: Preventive Maintenance and Valve Inspection Checklists (11:30 – 01:00)
- Module 4: Hands-On Troubleshooting Scenarios (02:00 – 03:30)

DAY 5 – ADVANCED TOPICS & PERFORMANCE OPTIMIZATION

- Module 1: Control Loop Dynamics & Interaction with PID Controllers (07:30 – 09:30)
- Module 2: Smart Valves & Diagnostics (HART, Foundation Fieldbus, IIoT) (09:45 – 11:15)
- Module 3: Failure Modes & Root Cause Analysis (11:30 – 01:00)
- Module 4: Case Study: Optimizing Control Valves in Process Systems + Wrap-Up (02:00 – 03:30)

Certification

Participants who complete this training will receive a Certificate of Completion in Control Valves Engineering, demonstrating competence in valve specification, operation, and maintenance aligned with industry standards.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**