

CONTROL VALVES AND ACTUATORS



OUR ACCREDITATION & PARTNERS



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OVERALL DESCRIPTION:

A practical course on selecting, sizing, operating, and maintaining control valves and actuators. You'll cover valve bodies and trims, actuator types, positioners/I-P converters, diagnostics, calibration, and preventive maintenance—so you can improve control loop performance, reliability, and safety without the fluff.

Course Objectives:

Upon completion of this course, participants will have the knowledge and skills to:

- **Identify** the foundational principles of control valve operation and their pivotal role within modern process control systems.
- **Differentiate** between the various types of valve bodies, actuators, and accessories, confidently selecting the optimal combination for specific applications.
- **Understand** the critical function of valve positioners and transducers, and their impact on control loop performance.
- **Diagnose** and troubleshoot common performance issues such as valve sticking, hunting, and hysteresis, using systematic and practical methods.
- **Apply** industry best practices for the installation, commissioning, and preventive maintenance of control valves to ensure peak reliability and extend asset lifespan.

Course Outline:

- **Foundations of Control Valves:** The anatomy and function of a control valve. Understanding flow characteristics and valve sizing principles.
- **Valve Body and Trim Selection:** A practical comparison of globe, ball, butterfly, and plug valves; their respective applications, advantages, and limitations.

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Course Outline:

- **Actuators and Control Accessories:** In-depth analysis of pneumatic, electric, and hydraulic actuators. The role of digital and analog positioners, limit switches, and I/P converters.
- **Valve Diagnostics and Performance Analysis:** Introduction to valve signature analysis. Identifying and rectifying common failure modes and performance degradation.
- **Installation, Commissioning, and Calibration:** Best practices for proper mounting, alignment, and piping. Step-by-step procedures for accurate valve calibration.
- **Maintenance Strategies and Troubleshooting:** Developing a proactive maintenance schedule. Hands-on troubleshooting techniques for real-world operational challenges.

WHO SHOULD ATTEND?

This course is essential for a wide range of professionals involved in the daily operations and long-term health of industrial facilities. This includes, but is not limited to: Process Engineers, Instrumentation and Control Technicians, Maintenance and Reliability Professionals, Plant Operators, and Engineering and Maintenance Supervisors.

Course Methodology:

We utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This training course will be conducted as a highly interactive workshop session. A variety of training methodologies will be used Before and during the course whenever applicable. Some of these methods are gamification, online pre-post test, role plays, self-assessment instruments, group exercises & case studies.