

Regional Center for Consulting & Training



5 Days External Training Course:

**Process Control Valves and Actuators
(Sizing, Selection, Installation & Maintenance)**

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Regional Center for Training & Consulting Invite You To Participate With Us
Throw Our Special Training Course As Under Below Details:

Name	Process Control Valves and Actuators			
Period	Start	End	Location	Fees
5 Days	26/05/2025	30/05/2025	Hotel Metropolitan Tokyo Ikebukuro Tokyo - Japan	1850 KD

Introduction

Grab the opportunity to attend an exciting Process Control Valves and Actuators training course that equips you with all the necessary knowledge to enter the world of valves and actuators. This training course is highly interactive, and is suitable for all delegates, regardless of their background. Whether you are part of the team purchasing the valves, or a key member involved in implementing maintenance activities, or a process control specialist, this is the one training course that you should not miss out on! Valves, actuators, associated equipment, process control using valves – this and much, much more are covered in 5 knowledge-filled days. The Process Control Valves and Actuators training course focuses on applications and examples deemed to be relevant to your industry and is cognizant of your working environment. At least 50% of the training course is devoted to practical exercises and discussions, to keep attention spans at optimal levels. This training course will feature:

- Essentials of control valves.
- Actuators and associated valve equipment.
- Theoretical and practical sizing aspects.
- Selection, installation and maintenance essentials.
- Tuning and optimizing a process using control valves.

Objectives

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

- Comprehend valve operation.
- Understand and appreciate assorted common valve types.
- Size and select the correct valve set (including actuators), suited to each specific application.
- Choose suitable positioners, based on prevailing conditions.
- Use multiple techniques to tune a valve-controlled process.

Training Methodology

This training course starts off from basics and builds up to an advanced level, as far as control and using valves and actuators, are concerned. None-the-less, it is presented in such a way that even total novices will feel comfortable from the very beginning. No-one is left behind and the instructor takes pride in guiding all delegates along the way, with personal assistance, where required. Delegates are encouraged to keep an open mind and to immerse themselves in all exercises and discussions, to ensure that maximum learning takes place. Preference will always be given to applications and examples that tie up with the working environment encountered by the delegates.



Who Should Attend?

It is irrelevant whether delegate valve knowledge and experience ranges from novice to advanced. The training course starts from first principles, and builds up, with the emphasis on delegate participation. Instructor guidance is delivered on a personal level, and delegates are encouraged to ask as many questions as necessary.

This training course is suitable to a wide range of professionals but will greatly benefit:

- Instrumentation, electrical, mechanical, process and maintenance engineers, specialists and staff.
- Management.
- Design teams.
- Budgeting and financial staff.
- Team leaders, supervisors and foremen.

Course Outline

DAY 1: Introduction and Theory

- Control valve purpose and principles.
- Flow conditions and pressure drops inside a valve.
- Control valve and actuator signals.
- Types of flow, Reynold numbers, vortices, gas vs liquid flow, Cv, Choked flow, etc.
- Cavitation and flashing.
- Valve classification, associated hardware and an introduction to valve type.

DAY 2: Valve Specifics, Characteristics and Sizing

- Continuation of valve types.
- Valve selection and valves in P&IDs.
- Valve leakage.
- Valve characteristics (including equal percentage, linear, etc.).
- The relationship between inherent versus installed characteristics.
- Calculations pertaining to valve sizing for a liquid application.

DAY 3: Actuators, Positioners, Trims, Maintenance and Safety

- Valve sizing, using software.
- Actuators, and the choices available.
- Valve positioners.
- Cavitation and noise control.
- Valve installation and maintenance.
- Pressure relief and SIS valves.

DAY 4: Process Control Using Control Valves

- Introduction to process control.
- The PID controller.
- Open-loop tuning.
- Closed-loop tuning.
- Trial & error tuning (open and closed loop).

DAY 5: Optimum Control, Using Control Valves

- Valves in cascade loops.
- Valves in ratio loops.
- Valves in non-linear loops.
- Valves in loops with long time delays.
- Valves used in conjunction with PLCs.
- New innovations in control valve technology.



Process Control Valves and Actuators Hotel Metropolitan Tokyo Ikebukuro, Tokyo, Japan 26/05/2025 To 30/05/2025

Day	Date	Topics of Training Day
Training Day Usually (Starting From 9:00 AM To 2:00 PM) First Break From 11:00 AM To 11:30 AM & Second Break From 1:00 PM To 1.15 PM End Training Day At 2:00 PM		
Monday	26/05/2025	<u>Introduction and Theory:</u> - Control valve purpose and principles. - Flow conditions and pressure drops inside a valve. - Control valve and actuator signals. - Types of flow, Reynold numbers, vortices, gas vs liquid flow, Cv, Choked flow, etc. - Cavitation and flashing. - Valve classification, associated hardware and an introduction to valve type.
Tuesday	27/05/2025	<u>Valve Specifics, Characteristics and Sizing:</u> - Continuation of valve types. - Valve selection and valves in P&IDs. - Valve leakage. - Valve characteristics (including equal percentage, linear, etc.). - The relationship between inherent versus installed characteristics. - Calculations pertaining to valve sizing for a liquid application.
Wednesday	28/05/2025	<u>Actuators, Positioners, Trims, Maintenance and Safety:</u> - Valve sizing, using software. - Actuators, and the choices available. - Valve positioners. - Cavitation and noise control. - Valve installation and maintenance. - Pressure relief and SIS valves.
Thernesday	29/05/2025	<u>Process Control Using Control Valves:</u> - Introduction to process control. - The PID controller. - Open-loop tuning. - Closed-loop tuning. - Trial & error tuning (open and closed loop).
Friday	30/05/2025	<u>Optimum Control, Using Control Valves:</u> - Valves in cascade loops. - Valves in ratio loops. - Valves in non-linear loops. - Valves in loops with long time delays. - Valves used in conjunction with PLCs. - New innovations in control valve technology.