

**Training Title**

**PROCESS CONTROL AND FINAL CONTROL ELEMENT**

**Training Duration**

**5 days**

**Training Venue and Dates**

<b>Ref No.</b> IC104	<b>Process Control and Final Control Element</b>	<b>5</b>	<b>24-28 Feb. 2025</b>	<b>\$5,500</b>	<b>Dubai, UAE</b>
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In any of the 4 or 5 star hotels. The exact venue will be intimated once finalized.

**Training Fees**

US\$ 5,500 per participant including Very useful Materials/ Handouts, Tea/Coffee, Breakfast, Snacks, Refreshments & Lunch.

**Training Certificate**

Define Management Consultants & Training Certificate of course completion will be issued to all attendees.

**TRAINING DESCRIPTION**

**TRAINING OBJECTIVES**

Upon successful completion of this course, the delegates will be able to:

- Explain the theory of process control
- Identify all industrial process applications, control of process variables
- Act safe and efficiently operate the process.
- Recognize the most common variables controlled are pressure, level, temperature, and flow.
- Define many different methods used to control these processes, this monitoring and control is generically called process control. Level, pressure, temperature, and flow are all controlled similarly.
- Discuss the difference between direct- and reverse-acting controllers.
- Define common terms and symbols used in process control.
- Describe the function of self-regulated and non-self-regulated processes."
- Introduction to industrial instrumentation
- Refresh knowledge of basic electricity, electronics and physics
- Sensors and their use in the measurement of a wide variety of physical variables —such as level, pressure, flow, temperature, humidity, and mechanical measurements— are discussed in The use of regulators and actuators for controlling pressure, flow, and the control of the input variables to a process are discussed in Documentation as applied to instrumentation and control is introduced, together with standard symbols

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recommended by the Instrument Society of America (ISA) for use in instrumentation control diagrams.

### **WHO SHOULD ATTEND**

**This course is tailored for:**

- Electrical Operators, Technicians and Engineers.
- Chemical Operators, technicians and Engineers
- Managers, engineers, and technicians working in the field of instrumentation and process control.

It is anticipated that the prospective participant will have a basic understanding of mathematics, electricity, and physics.

### **TRAINING METHODOLOGY**

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### **COURSE PROGRAM**

#### **Chapter 1. Introduction and Review**

- 1.1 Introduction
- 1.2 Process Control
- 1.3 Definitions of the Elements in a Control Loop
- 1.4 Process Facility Considerations
- 1.5 Units and Standards
- 1.6 Instrument Parameters

#### **Chapter 2. Basic Electrical Components**

- 2.1 Introduction
- 2.2 Resistance

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2.3 Capacitance

2.4 Inductance

### **Chapter 3. Documentation and Symbols**

3.1 Introduction

3.2 System Documentation

3.3 Pipe and Identification Diagrams

3.4 Functional Symbols

3.5 P and ID Drawings

### **Chapter 4. Process Control**

4.1 Introduction

4.2 Basic Terms

4.3 Control Modes

4.4 Implementation of Control Loops

4.5 Digital Controllers

### **Chapter 5. Pressure**

5.1 Introduction

5.2 Basic Terms

5.3 Pressure Measurement

5.4 Pressure Formulas

5.5 Measuring Instruments

5.6 Application Considerations

### **Chapter 6. Level**

6.1 Introduction

6.2 Level Formulas

6.3 Level Sensing Devices

6.4 Application Considerations

### **Chapter 7. Flow**

7.1 Introduction

7.2 Basic Terms

7.3 Flow Formulas

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7.4 Flow Measurement Instruments

7.5 Application Considerations

**Chapter 8. Temperature and Heat**

8.1 Introduction

8.2 Basic Terms

8.3 Temperature and Heat Formulas

8.4 Temperature Measuring Devices

8.5 Application Considerations

**Chapter 9. Humidity, Density, Viscosity, and pH**

9.1 Introduction

9.2 Humidity

9.3 Density and Specific Gravity

9.4 Viscosity

9.5 pH Measurements

**Chapter 10. Actuators and Control**

10.1 Introduction

10.2 Pressure Controllers

10.3 Flow Control Actuators

10.4 Power Control

10.5 Motors

10.6 Application Considerations

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**NOTE:**

**Pre-& Post Tests will be conducted.**

**Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.**

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