



London TDM

# Mechanical and Electrical Engineering Training Courses

**Course Venue:** United Arab Emirates - Dubai

**Course Date:** From 18 January 2026 To 22 January 2026

**Course Place:** Downtown Dubai

**Course Fees:** 5,000 USD

## Introduction

Instrumentation and Control Engineering is a critical field that focuses on designing, developing, and maintaining systems used to control and measure various industrial processes. This 5-day professional course is designed to equip participants with foundational knowledge and practical skills necessary to excel in this discipline, ensuring smooth and efficient operations in industrial settings.

- Understand the fundamentals of instrumentation and control systems.
- Gain insights into the various types of sensors and transducers used in the industry.
- Learn about the PID control strategy and its applications.
- Develop the ability to design and implement control systems.
- Analyze and troubleshoot instrumentation and control issues effectively.

## Course Outlines

### Day 1: Introduction to Instrumentation and Control Systems

- Overview of Instrumentation and Control Engineering
- Types and Functions of Instruments in Industry
- Basic Concepts of Measurement Systems
- Signal Conversion and Conditioning
- Introduction to Control Systems

### Day 2: Sensors and Transducers

- Types of Sensors and their Applications
- Working Principles of Transducers
- Selection Criteria for Sensors and Transducers
- Calibration and Maintenance of Sensors
- Hands-on Session: Sensor Testing and Calibration

### Day 3: Control Theory and Controllers

- Introduction to Control Theory
- PID Controllers: Proportional, Integral, and Derivative Control
- Tuning of PID Controllers
- Introduction to Advanced Control Strategies
- Practical Session: PID Controller Implementation

### Day 4: Control System Design and Implementation

- Steps in Designing a Control System
- Developing Control Algorithms
- Hardware and Software for Control Systems
- Case Study: Design of a Sample Control System
- Workshop: Building a Simple Control System

### Day 5: Troubleshooting and Maintenance

- Common Issues in Instrumentation and Control Systems
- Diagnostic Tools and Techniques
- Preventive vs Predictive Maintenance
- Developing Maintenance Schedules
- Final Assessment and Course Review