



London TDM

# Mechanical and Electrical Engineering Training Courses

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

**Course Date:** From 11 January 2026 To 15 January 2026

**Course Place:** Downtown Dubai

**Course Fees:** 5,000 USD

## Introduction

Welcome to the "Mechatronics and Electro-Mechanical Systems" course, designed to provide professionals with comprehensive knowledge and practical skills in integrating mechanical, electronic, and computing systems. This five-day course will explore the fundamentals and advanced concepts of mechatronics, preparing participants to design, implement, and troubleshoot complex systems effectively.

## Objectives

- Understand the fundamental principles of mechatronics and electro-mechanical systems.
- Learn to integrate mechanical and electronic components using control systems.
- Develop problem-solving skills for designing and troubleshooting mechatronic systems.
- Gain hands-on experience with sensors, actuators, and controllers.
- Explore advanced topics in robotics, automation, and IoT applications in mechatronics.

## Course Outlines

### Day 1: Introduction to Mechatronics

- Overview of Mechatronics and Electro-Mechanical Systems
- Key Components: Sensors, Actuators, and Controllers
- Basic Principles of Electronics and Mechanics
- System Design and Integration
- Introduction to Software Tools and Simulation

### Day 2: Mechanical Systems and Components

- Fundamentals of Mechanical Systems
- Types of Actuators and Their Applications
- Mechanical Drives and Couplings
- Dynamics and Control of Mechanical Systems
- Practical Workshop: Building Simple Mechanical Systems

### Day 3: Electronic Systems and Control

- Basic Electronic Components and Circuits
- Microcontrollers and their Integration in Mechatronics
- Control System Design and Analysis
- Implementation of PID Controllers
- Hands-on Lab: Building and Testing Control Circuits

### Day 4: Sensors, Signal Processing, and Interfaces

- Types of Sensors and Their Applications
- Data Acquisition and Signal Processing
- Communication Interfaces and Protocols
- Interfacing Sensors with Microcontrollers
- Workshop: Sensor Integration and Data Analysis

## **Day 5: Advanced Topics and Applications**

- Robotics and Automation in Mechatronics
- Introduction to Internet of Things (IoT) in Mechatronic Systems
- Case Studies of Mechatronic Systems in Industry
- Future Trends and Innovations
- Capstone Project: Designing a Mechatronic System