



London TDM

# Mechanical and Electrical Engineering Training Courses

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

**Course Date:** From 01 March 2026 To 05 March 2026

**Course Place:** Downtown Dubai

**Course Fees:** 5,000 USD

## Introduction

The "Hydraulics and Pneumatics for Engineers" course is designed to provide engineering professionals with a comprehensive understanding of hydraulic and pneumatic systems. Over the course of five days, participants will learn theoretical concepts, practical applications, troubleshooting techniques, and recent advancements in the field. This course combines lectures, hands-on practice, and case studies to ensure participants are well-equipped to utilize these systems effectively in their respective fields.

## Objectives

- Understand the fundamental principles of hydraulics and pneumatics.
- Identify and analyze hydraulic and pneumatic system components and their applications.
- Gain practical experience through hands-on exercises and simulations.
- Learn troubleshooting and maintenance techniques for system optimization.
- Explore advancements and innovations in hydraulic and pneumatic technologies.

## Course Outlines

### Day 1: Introduction to Hydraulics and Pneumatics

- Overview of hydraulic and pneumatic systems
- Fundamental principles and theories
- Comparison of hydraulic and pneumatic systems
- Basic components and their functions
- Safety standards and regulations

### Day 2: Hydraulic Systems in Detail

- Hydraulic power units and pumps
- Valves and actuators in hydraulic systems
- Hydraulic circuit design and analysis
- Troubleshooting common hydraulic issues
- Hands-on session: Building a basic hydraulic circuit

### Day 3: Pneumatic Systems in Detail

- Pneumatic power and air preparation units
- Valves, actuators, and accessories in pneumatic systems
- Pneumatic circuit design and analysis
- Troubleshooting common pneumatic problems
- Hands-on session: Creating a fundamental pneumatic circuit

### Day 4: Advanced Topics and Applications

- Automation and control in hydraulic and pneumatic systems
- Proportional and servo control
- Fluid logic and sequence control
- Energy efficiency and environmental considerations

- Case studies: Industrial applications of hydraulics and pneumatics

**Day 5: Maintenance, Troubleshooting, and Future Trends**

- Preventive maintenance strategies
- Root cause analysis and troubleshooting
- Retrofitting and upgrading existing systems
- Emerging technologies and trends
- Final project: Designing a hydraulic/pneumatic system