



London TDM

# Mechanical and Electrical Engineering Training Courses

**Course Venue:** United Kingdom - London

**Course Date:** From 08 March 2026 To 12 March 2026

**Course Place:** London Paddington

**Course Fees:** 7,500 USD

## Introduction

Mechanical vibration and balancing are critical aspects of engineering and maintenance that ensure the longevity and efficient performance of mechanical systems. This 5-day professional course is designed to provide participants with in-depth knowledge and practical skills in analyzing, diagnosing, and solving vibration issues, as well as mastering balancing techniques for rotating machinery.

## Objectives

- Understand the fundamental principles of mechanical vibrations.
- Identify and analyze various types of vibration and their causes.
- Learn diagnostic techniques for vibration-related issues.
- Apply balancing methods to reduce or eliminate unwanted vibrations.
- Develop problem-solving skills to enhance machinery reliability and efficiency.

## Course Outlines

### Day 1: Basic Concepts of Mechanical Vibration

- Introduction to vibration theory and terminology
- Types of vibrations: Free and forced vibrations
- Simple harmonic motion and its applications in mechanical systems
- Damping: Concepts and calculations
- Natural frequency: Significance and determination

### Day 2: Vibration Analysis and Measurement Techniques

- Introduction to vibration analysis techniques
- Common tools and equipment used in vibration measurement
- Understanding vibration signals and spectra
- Vibration monitoring systems and their applications
- Case studies on successful vibration analysis and solutions

### Day 3: Vibration Diagnostic and Troubleshooting

- Identifying causes of excessive machinery vibration
- Common vibration problems and their solutions
- Using vibration diagnostics to enhance maintenance strategies
- Root cause analysis for vibration issues
- Hands-on exercises in diagnostic techniques

### Day 4: Introduction to Balancing of Rotating Machinery

- Principles of rotor balancing
- Common causes of unbalance in rotating machinery
- Balancing machines and tools
- Single-plane vs multi-plane balancing: Techniques and methods
- Practical workshop on balancing exercises

## **Day 5: Advanced Balancing Techniques and Applications**

- Corrective measures for unbalance in machinery
- Advanced field balancing techniques
- Heavy and large machinery balancing considerations
- Industry-specific balancing applications
- Final project: Solve a real-world balancing problem