London TDM

Engineering and Technical Skills Training Courses

Course Venue: United Kingdom - London

Course Date: From 17 May 2026 To 21 May 2026

Course Place: London Paddington

Course Fees: 7,500 USD

Introduction

This 5-day professional course on "Structural Analysis for Mechanical Engineers" is designed to equip participants with essential skills and knowledge in structural analysis. This course will focus on practical applications, theoretical understanding, and the use of advanced tools and techniques necessary to analyze and solve complex structural challenges in mechanical engineering.

Objectives

- Understand the basic principles of structural analysis.
- Learn to apply analytical techniques to solve structural problems.
- Become proficient with industry-standard software for structural analysis.
- Gain insights into modern methods for assessing structural integrity.
- Develop proficiency in interpreting and utilizing structural data effectively.

Course Outlines

Day 1: Fundamentals of Structural Analysis

- Introduction to Structural Analysis and its Importance
- Basic Concepts: Loads, Reactions, and Equilibrium
- Understanding Stress and Strain Relationships
- Material Properties and Behavioral Characteristics
- Case Studies: Real-World Structural Analysis Examples

Day 2: Analytical and Computational Techniques

- Overview of Analytical Methods in Structural Analysis
- Matrix Methods for Structural Frameworks
- Introduction to Finite Element Method (FEM) in Structures
- Software Tools for Structural Analysis: An Introduction
- Hands-on Session: Simple Structural Analysis Problems

Day 3: Advanced Topics in Structural Analysis

- Nonlinear Analysis of Structural Systems
- Dynamic Analysis for Mechanical Structures
- Stability Assessment and Buckling Analysis
- Fatigue and Fracture Mechanics in Structural Engineering
- Practical Exercise: Implementing Advanced Techniques

Day 4: Design and Optimization in Structural Engineering

- Principles of Structural Design and Optimization
- Weight and Cost Optimization Techniques
- Designing for Resilience and Sustainability
- Integration of Structural Analysis in Product Design
- Case Study: Optimized Structural Design Projects

Day 5: Real-World Application and Future Trends

- Modern Challenges in Structural Engineering
- Emerging Trends and Technologies in Structural Analysis
- Application of AI and Machine Learning in Structural Analysis
- Workshop: Solving Complex Structural Problems
- Course Review and Feedback Session