



London TDM

# Civil and Construction Engineering Training Courses

**Course Venue:** United Kingdom - London

**Course Date:** From 19 April 2026 To 23 April 2026

**Course Place:** London Paddington

**Course Fees:** 7,500 USD

## Introduction

The "Structural Design and Analysis" professional course is designed to provide engineers, architects, and construction professionals with a comprehensive understanding of modern structural engineering principles. Participants will gain insights into key design elements, analytical techniques, and practical applications to enhance their ability to develop safe and efficient structures. This course combines theory with practical exercises, ensuring a well-rounded and applicable learning experience.

## Objectives

- Understand the fundamental principles of structural design and analysis.
- Apply analytical techniques to assess structural integrity and performance.
- Utilize modern tools and software for structural analysis and design.
- Incorporate sustainability considerations into structural engineering projects.
- Develop solutions for complex structural challenges through case studies.

## Course Outlines

### Day 1: Introduction to Structural Engineering

- Overview of Structural Engineering Principles
- Types of Structures and Materials
- Structural Loads and Their Impacts
- Introduction to Building Codes and Standards
- Basic Tools for Structural Analysis

### Day 2: Structural Analysis Techniques

- Static and Dynamic Analysis Methods
- Load Path and Stress Distribution
- Introduction to Finite Element Analysis (FEA)
- Using Software for Structural Analysis
- Practical Exercises and Examples

### Day 3: Design of Steel Structures

- Material Properties and Behavior of Steel
- Design Considerations for Steel Structures
- Connections and Joint Design
- Buckling and Stability Issues
- Case Study: Design of a Steel Frame Building

### Day 4: Concrete and Composite Structures

- Properties of Concrete and Reinforcement
- Design Principles for Reinforced Concrete Structures
- Composite Materials and Their Applications
- Advanced Topics: Pre-stressed and Post-tensioned Concrete
- Workshop: Concrete Structure Design Session

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

- Sustainability in Structural Engineering
- Seismic Design Considerations
- Retrofit and Rehabilitation of Structures
- Emerging Materials and Technologies
- Final Project: Innovative Structural Design Solution