London TDM

Civil and Construction Engineering Training Courses

Course Venue: United Kingdom - London

Course Date: From 14 June 2026 To 18 June 2026

Course Place: London Paddington

Course Fees: 7,500 USD

Introduction

This comprehensive 5-day course is designed to equip professionals with advanced knowledge and practical skills in structural integrity and failure assessment. Participants will explore the principles of structural analysis, learn to identify potential failure mechanisms, and apply diagnostic techniques to prevent structural failures. By the end of the course, attendees will have enhanced their ability to evaluate and ensure the safety and longevity of engineering structures.

Objectives

- Understand the fundamental concepts of structural integrity.
- Identify various types of structural failures and their causes.
- Learn methodologies for assessing and predicting structural failure.
- Develop skills to apply non-destructive testing techniques.
- Gain proficiency in designing solutions to mitigate structural risks.

Course Outlines

Day 1: Fundamentals of Structural Integrity

- Introduction to structural engineering principles
- Material properties and their impact on structural integrity
- Basic concepts of stress, strain, and deformation
- Overview of load calculations and safety factors
- Introduction to structural failure modes

Day 2: Types and Causes of Structural Failures

- Classification of structural failures
- Case studies on common structural failure incidents
- Factors contributing to structural failures
- Environmental and operational influences on structures
- Impact of design and construction errors

Day 3: Failure Assessment Methodologies

- Introduction to failure analysis techniques
- Fracture mechanics and fatigue analysis
- Finite element analysis (FEA) in failure assessment
- Probabilistic risk assessment approaches
- Fault tree analysis and root cause analysis

Day 4: Diagnostic Techniques and Tools

- Non-destructive testing (NDT) methods
- Advanced diagnostic tools and technologies
- Real-time monitoring and sensor applications
- Data analysis and interpretation for condition assessment
- Application of diagnostic tools in real-world scenarios

Day 5: Mitigation and Design Solutions

- Strategies for enhancing structural resilience
- Design principles for failure prevention
- Rehabilitation and strengthening of existing structures
- Innovative materials and technologies in structural design
- Interactive session: Case study analysis and solution design