Construction & Civil Engineering Fundamentals Training

22 – 26 February 2027
Barcelona (Spain)

UK Traininig
PARTNER



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Ref: 321721_168889 **Date:** 22 – 26 February 2027 **Location:** Barcelona (Spain) **Fees:** 5200 GBP

Why This Course

A strong grasp of construction and civil engineering principles is essential for professionals involved in infrastructure and development projects. This intensive 1-week program equips participants—especially non-engineers and early-career professionals—with the knowledge and practical skills to understand materials, structural systems, and project management processes. Through a combination of theory, case studies, and hands-on exercises, attendees will gain confidence in contributing effectively to construction and engineering projects.

What You'll Learn and Practice

By attending this course, you will be able to:

- Understand the fundamental principles of construction and civil engineering.
- Identify key construction materials and their properties, including concrete, steel, and geotechnical materials.
- Apply basic structural analysis concepts and understand how structures carry loads.
- Plan and manage construction projects, including scheduling, budgeting, and risk management.
- Utilize surveying techniques and basic engineering applications in infrastructure projects.
- Incorporate sustainable practices into construction and civil engineering decisions.

The Program Flow

Day 1: Introduction to Construction and Civil Engineering

- Overview of construction and civil engineering disciplines
- Key components in infrastructure projects
- Health, safety, and environmental considerations
- Principles of sustainable construction
- Case study: Analysis of a major infrastructure project

Day 2: Materials Science and Properties

- Common construction materials and their properties
- Concrete technology and mix design fundamentals
- Steel and other metals in construction
- Geotechnical materials and soil mechanics basics
- Material testing and quality control practices



Day 3: Structural Analysis and Design Basics

- Fundamentals of structural mechanics
- Load types and load paths in structures
- Basic structural elements: beams, columns, trusses
- Introduction to reinforced concrete design
- Essentials of steel structure design

Day 4: Construction Project Management

- Project lifecycle and delivery methods
- Planning, scheduling, and resource allocation
- Cost estimation, budgeting, and financial considerations
- Contract administration and documentation
- Risk identification and mitigation in construction projects

Day 5: Surveying and Civil Engineering Applications

- Fundamentals of surveying for construction
- GPS and GIS applications in civil engineering
- Introduction to transportation engineering principles
- Basics of water resources and environmental engineering
- Future trends in construction and civil engineering

Individual Impact

Participants will leave this program with:

- Confidence in communicating effectively with engineering and project teams.
- Practical skills to support project planning and management tasks.
- Knowledge to identify potential issues in materials, design, and construction methods.
- Improved decision-making capabilities in construction and infrastructure projects.

Organizational Impact

Organizations will benefit from:

- Teams better equipped to contribute to construction and infrastructure projects.
- Improved oversight and understanding of engineering tasks and materials.
- Enhanced project planning, scheduling, and risk management processes.
- Integration of sustainable and efficient practices into construction operations.



Training Methodology

- Interactive lectures with real-world examples
- Case studies and scenario-based exercises
- Hands-on workshops to reinforce practical applications
- Group discussions to enhance problem-solving and decision-making skills

Beyond the Course

By the end of this 1-week program, participants will be ready to:

- Contribute effectively to construction and civil engineering projects.
- Support project planning, management, and material evaluation tasks.
- Communicate confidently with engineers, contractors, and stakeholders.
- Apply sustainable and best practice principles in infrastructure projects.

