

€ TRAINING

Concrete Structural Design for Industrial
Sector



28 July - 1 August 2025
Casablanca (Morocco)



Concrete Structural Design for Industrial Sector

REF: E416 DATE: 28 July - 1 August 2025 Venue: Casablanca (Morocco) - Fee: 4675 Euro

Introduction:

Concrete structural design focuses on applying engineering principles to create safe, durable, and efficient concrete structures. It involves analyzing loads, selecting materials, and ensuring that structures meet safety standards and performance requirements. This training program offers specialized instruction tailored for professionals involved in designing concrete structures for industrial applications. It will allow engineers to be familiar with using American Concrete Institute Standard ACI and British standard BS.

Program Objectives:

At the end of this program, participants will be able to:

- Explore reinforced concrete design principles and the differences between design codes ACI, BS, European Code.
- Apply design principles to slabs, beams, and columns, considering various load types.
- Conduct soil investigations and design foundations for static and dynamic loads.
- Design special structures like blast-resistant buildings, control rooms, and pipe racks.
- Design reinforced concrete liquid tanks and manage maintenance and repairs for concrete structures.

Targeted Audience:

- Civil Engineer.
- Structural Engineer.
- Architectural Engineer.

Program Outlines:

Unit 1:

Introduction to Reinforced Concrete:

- The Fundamentals of Concrete Technology.
- Comparison between ACI and BS for Concrete Design.
- Principal, Limitations for Different Codes in Concrete ACI, BS codes, European Code.

- Codes and Standards Philosophy.
- Define the Different Loads on the Building.
- Earthquake and Wind Load Effect.
- Define Loads of Static and Dynamic Equipment, Define the Loads on the Foundation of Tanks.

Unit 2:

First Principals of Structural Reinforced Concrete:

- The Basic Concept of Concrete Design.
- The Principal of Concrete Design and Precaution.
- Different Structure Systems, Different Slab Types.
- Design of Slab, Beam, and Columns.
- Loads Applied in a Horizontal Vessel Separators.
- The Effect of Thermal Loads on Heaters.
- Design of Heater Foundations, Design of Foundation Under Tower.

Unit 3:

Geotechnical Problems & Design of Foundations:

- Soil Investigation.
- Shallow Foundation Design Philosophy.
- Pile Foundation Design Philosophy.
- Anchor Bolt Design.
- Foundation under Machines Design.
- Checklist to Review Foundation under Rotating Equipment.
- Precaution in Design Foundation under Vibrating Machines.

Unit 4:

Design of Special Reinforced Concrete Constructions I:

- Design Blast Resistance Building such as Control Room.

- Control Room Layout and Configuration.
- Pipe Rack Configuration.
- Define Loads which Affect Pipe Rack.
- Pipe Rack Design.
- Retaining Walls Design Principals and Checks.
- Load and Forced in Retaining Walls.

Unit 5:

Design of Special Reinforced Concrete Constructions II:

- Design for Reinforced Concrete Liquid Tanks.
- Structure System for Concrete Tanks.
- Circular and Rectangular Tank.
- Ring Beam Design for the Circular Tank.
- Maintenance and Repair in Concrete Structure.
- Integrity and Maintenance Management System Principal.