

€ TRAINING

Structural Design for Non Structural
Engineers





Structural Design for Non Structural Engineers

Introduction:

This training program is equipped to provide participants with fundamental knowledge and skills in structural design principles. It focuses on understanding basic structural concepts, calculations, and applications relevant to various engineering disciplines.

Program Objectives:

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

- Understand basic principles of structural design and analysis.
- Gain proficiency in performing structural calculations and assessments.
- Apply structural engineering concepts to practical design scenarios.
- Interpret structural drawings and specifications.
- Communicate effectively with structural engineers and stakeholders on design considerations.

Program Outlines:

Unit 1:

Introduction to Structural Design:

- Importance and Scope of Structural Engineering.
- Basic Structural Elements: Beams, Columns, and Trusses.
- Load Types and Distribution in Structures.
- Structural Materials: Concrete, Steel, and Timber.
- Overview of Structural Codes and Standards.

Unit 2:

Structural Analysis Fundamentals:

- Types of Structural Loads: Dead, Live, Wind, and Seismic Loads.
- Statics and Forces Analysis in Structural Design.

- Principles of Equilibrium and Stress Distribution.
- Determining Reactions and Internal Forces in Structures.
- Introduction to Structural Analysis Software Tools.

Unit 3:

Design of Structural Elements:

- Design Criteria for Beams and Columns.
- Reinforced Concrete Design Basics.
- Steel Design Principles: Connections and Members.
- Timber Design Considerations.
- Introduction to Foundation Design.

Unit 4:

Practical Applications in Structural Design:

- Structural Design Considerations for Residential and Commercial Buildings.
- Designing for Dynamic Loads and Vibrations.
- Sustainability in Structural Design.
- Introduction to Building Information Modeling BIM in Structural Engineering.
- Case Studies in Structural Failures and Lessons Learned.

Unit 5:

Communication and Collaboration in Structural Design:

- Interpreting Structural Drawings and Specifications.
- Importance of Collaborating with Structural Engineers and Architects.
- Effective Communication of Design Requirements.
- Reviewing and Critiquing Structural Designs.
- Role of Non-Structural Engineers in the Design Process.