

## **Overview and up-to-date Structure Analysis and Design for Concrete Buildings Training program**

### **Objectives**

This course provides the basics structure analysis and design of reinforced concrete structures. Moreover the attendees will be aware of update technology for the modern technique in structure analysis and design for the reinforced concrete structures for low and high rise building. All the structure system will be presented to enable the engineer to choose the suitable structure system. The comparison between BS and ACI in concrete design will be presented to know the difference between the codes and the philosophy of the codes to choose between the parameter. The design tips and the checklist in review the concrete design will be provided through a case study.

The design of the main concrete structure element will be illustrated to define the design methodology. The soil mechanics principal and the various foundation types will be illustrated.

### **Who Should Attend?**

The site engineers, architects, contractors, developers, and inspectors in both private and public practice will benefit.

### **Methodology**

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

### **Certificate**

**BTS** attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration

## Contents

### Day-1

- Project management overview
- Stages of engineering projects
- The fundamental of concrete technology.
- Concrete quality control.
- Basic concept of concrete design.

### Day-2

- Different type of structure system
- Beam and slab
- Flat slab
- Hollow block slabs
- Frame structures and domes
- High rise building systems
- Shear wall and frame systems
- Tube system
- Basic concept and types of pre-stressed concrete
- Comparison Between different structural systems.
- Overview of using the suitable structure system.
- Overview of different construction types and the required equipment.

### Day-3

- Effect of different loads on the building
- Wind load and earthquake load (BS , UBC, ACI)
- Live load and dynamic loads
- Principal of structure analysis
- Basics of Finite element analysis
- Nonlinear structure analysis
- Pushover analysis technique
- Determine RSR factor
- New software features for structure analysis
- Principal, limitations for different codes ( ACI, BS codes)

### Day- 4

- Design principal for concrete element
- Slab and beam design
- Flat slab design
- Shear wall design
- Philosophy of concrete design in BS and ACI

## Day -5

- Basic Concept of foundation design
- Types of the required soil data
- Types of foundation.
- Shallow foundation design
- Pile foundation design
- Presenting software as SAP2000 and STAAD Pro for structure analysis