



## Assessment, Evaluation and Repair of Reinforced Concrete Structure

| Date                | Venues  | (\$)Fees | Book your seat               |
|---------------------|---------|----------|------------------------------|
| 23 Feb -27 Feb 2025 | Bahrain | 2900     | <a href="#">Register Now</a> |

### Introduction

The assessment of the reinforced concrete structure is now a main challenge to the civil engineer. The repair of the reinforced concrete structures has developed in the recent years due to the new technology of the materials and the techniques of maintenance and repair.

This seminar will present the methods of inspection and evaluation of buildings and will diagnose the reason of concrete deterioration or the corrosion of the steel bars to develop preventive maintenance program. The causes of structure deterioration will be discussed in deeply and concentrate on the reason of corrosion and new protection methods to the steel bars. The repair of the reinforced concrete structures recently developed by using new materials will be discussed theoretically and practically, its advantages and disadvantages and how to use the suitable method.

The preventive maintenance strategy with its target and plan in scope of economic point of view will be illustrated in this seminar, as well as the background of the new software used in the area maintenance management system. Risk based inspection technique will be presented in scope of likelihood of building failure, consequences of failure and the building risk matrix.

#### **This training seminar will feature:**

- Assessment and evaluation technique for concrete and steel structures
- The importance of inspection and testing activity
- Applying the inspection and testing in many construction areas
- Focusing on practical and theoretical ways of inspection
- How to integrate new inspection technique into the work domain

### Objectives

#### **By the end of this training seminar, participants will be familiar with:**

- Testing and inspection techniques of engineering materials
- Workmanship in building construction
- NDE for the steel and welding
- The capability to inspect the finishing work activity
- Testing and inspection for road construction
- The ways and skills for the inspector

### Training Methodology

This training seminar will also benefit owners, contractors and building owners, who wish to become more effective by

better understanding the requirements for assessment, inspections and repair for concrete structure.

## **Organizational Impact**

- Improve the maintenance cost by Enhance the engineering review process
- Improve the maintenance cost by Enhance the construction and materials selection process
- Reduce the maintenance cost by using new approach for structure assessment
- Increase the structure capital investment by increasing its life time
- Improve the organization investment by providing a durable structure by better design, construction or maintenance

## **Personal Impact**

- Enhance the skills of inspection of the trainee
- Increase knowledge of up to date of execution phase
- Increase the skill for maintenance approach
- Increase the skill to design CFRP

## **Who Should Attend?**

**This training seminar is suitable to a wide range of professionals:**

- Architects
- Engineers
- Practicing Building Construction Inspectors
- Project Engineers
- Technicians and Technologists involved with building maintenance

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## **SEMINAR OUTLINE**

### **DAY 1**

#### **Building Assessment**

- Introduction to mature structure
- Codes and standard deficiency
- Inspection and evaluate the buildings
- Methods of Inspection
- Visual inspection criteria
- Inspect the building using new techniques
- Using ultrasonic and infrared for inspection
- Evaluate the building risk
- Diagnoses the reason of deterioration
- Workshop: Define the cracks types
- Workshop: cracks in miscellaneous foundations

### **DAY 2**

#### **Problems in Design, Materials and Construction**

- Concrete materials problems
- Construction ways affect concrete durability
- Design error affect structure integrity
- Corrosion and protection of steel structure in concrete
- Protection of reinforcing bars
- Define the method of repair
- Videos presenting a repair methods
- From inspection and analysis predict the structure lifetime

## DAY 3

### Properties of Protective Coating

- Precaution during repair
- Selecting the materials repair
- Step by step repair procedure
- Methods of protection
- Cathodic protection
- Comparison between different type of protection
  - Evaluate the current protective coating
  - Types of protective coating
  - Properties of each type
  - Precautions in using the coating

## DAY 4

### Methods of Repairing the Cracked Structure Corrosion

- Types of cracks in R. C. structures
- Comparison between different cracks
- Reasons for each type
- Methods of repair and prevent for each type
- Materials using to repair corroded structure
- Methods of repair
- Using polymer bonding materials
- Types of polymer
- Properties of these materials
- Ways of using steel sections in repair

## DAY 5

### Maintenance Strategy

- CFRP design
- CFRP applications
- Likelihood of building failure
- Define consequences of failure
- Provide risk matrix
- Risk based inspection (RBI)
- Maintenance plan and strategy
- Maintenance plan based economic cost
- Preparing priority lists
- Software for maintenance strategy
- Case study



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