



# SC033: Assessment and Rehabilitation of Concrete Structure





## Training Description:

This course will provide tools to assess the service ability and the life span of concrete structures, to evaluate the actual capacity of the structure versus life span and life cost, and define the best strategy for assessment and rehabilitation of concrete structures as well as the maintenance or repair through practical applications. The structural dysfunction and failure is the result of human error originating from oversight, negligence, ignorance or the lack of knowledge.

Structural malfunction may be characterized as the unacceptable difference between intended and actual structural performance. A better knowledge and a deeper consciousness of our professional, human and social responsibilities can lead to the construction of safer and better performance buildings.

## Training Objectives:

**By the end of the training, participants will be able to:**

- ✓ Identify the critical characteristics of a given structure, types and causes of common deficiencies (even failures) of structures
- ✓ Explain the methods of observation, instrumentation and testing
- ✓ Apply preventive measures to counteract deterioration of structures
- ✓ Comprehend workable temporary and permanent repairs for any particular structure
- ✓ Use a comprehensive practical guide on the practice and business of assessment of site conditions and evaluation and repair strategies and techniques of concrete structures, or others structures
- ✓ Understand the nature of innovative technology and provide an overview for the role of effective management
- ✓ Recognize the important role of the designer, the contractor and the supervision in producing sound structures

## Training Designed for:

This course is intended for all Design Structural Engineers, Supervision Engineers, Construction Engineers, Material Engineers, Maintenance Engineers and Technicians and Inspectors responsible for the integrity of reinforced concrete structures.

## Training Program:

### DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ Types of Damage Affecting Concrete and Reinforced Concrete Structures Systematic Material Take-Off and Measurement
- ❖ Effects in the Assessment and Rehabilitation of the Structures
- ❖ Codes and Standards used in the Assessment and Rehabilitation of Concrete Structures
- ❖ Precautions for Carbonation and Chloride Ingress

### DAY TWO:

- ❖ Technical principle of Gas Turbine





- ❖ Method of Damage Assessment
- ❖ Identification of Service and Exposure Conditions of Concrete Structures
- ❖ Visual and Exploratory Investigation of Damaged Concrete Structures
- ❖ Delaminated Concrete, Voids, Cracks, Honeycombs, etc.

#### DAY THREE:

- ❖ Principles of Rehabilitation
- ❖ Methods to Prevent Defects in Concrete, Rehabilitation Methods against Corrosion and Damage
- ❖ Properties of Repair Materials and Systems in Concrete Structure
- ❖ Surface Repair of Concrete Structures, Material Requirements, Reinforcing Steel Cleaning, Repair & Protection

#### DAY FOUR:

- ❖ Lubrication System
- ❖ Placement Methods applied to the Concrete Structures
- ❖ Procedure for Strengthening and Stabilization of Concrete Structures:
  - Techniques/Design Considerations
  - Shear Transfer Strengthening between Members
  - Stress Reduction Techniques
  - Crack Stabilization
- ❖ Strategies of Protection of Concrete Structures

#### DAY FIVE:

- ❖ Risk-based Maintenance Strategy
- ❖ Repair time, Start of Corrosion, Start of Deterioration
- ❖ Cost Analysis for different Protection Methods
- ❖ Course Conclusion
- ❖ POST-TEST and EVALUATION

### Training Requirements:

“Hands -on practical sessions, equipment and software will be applied during the course if required and as per the client’s request”.

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

### Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test





## Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

## Training Fees:

**As per the course location** - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01<sup>st</sup> of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

## Training Timings:

### Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

**For training registrations or in-house enquiries, please contact:**

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Training & Career Development Department

