Advanced Materials & Technology in Concrete Industry

Date	Venues	($)Fees	Book your seat
15 Dec -19 Dec 2024	Cairo	2900	Register Now

Introduction

Concrete is used throughout the world for a wide range of applications. In order to improve the properties of concrete, recent advances in material science introduce new materials or admixtures to be added to or replace conventional concrete materials. Such materials could be used in new concrete construction and/or in repairing new or existing structures.

These materials could cause more harm than benefit or at least be ineffective if not properly used. This five-day seminar will introduce newly developed concrete materials as well as the repair materials utilized in most repair works in concrete structures either for those needed during construction or for rehabilitation of existing structures. The seminar will also cover test methods and technical specifications for such materials as well as troubleshooting for their most common problems. At the end of this seminar, participants will know the necessary information about the different advanced concrete materials, what tests should be performed and how to interpret their results, what to look for in specifications and define the advantage and disadvantages for each new material.

This training seminar will feature:

- Advanced technique in codes and standard
- Advanced materials in concrete construction
- New materials to increase concrete durability
- Advanced construction method to have a sustainable structure
- Advanced materials and technique for concrete repair
- CFRP in concrete structure repair and strengthening
- Corrosion protection up to date ways

Objectives

At the end of this seminar, participants will:

- Be familiar new project management approach for brown field project
- New design methods and differentiates between codes and standard
- Familiar with new materials in concrete industry
- Be familiar with advanced method s of construction
- Be familiar with HPC, HSC and SCC
- Be familiar with all up to date materials and method of repair
- Capable to design and execute CFRP for concrete strengthening

Training Methodology

This training seminar will utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily workshops will be highly interactive and participative. Videos and photos will be used for illustration.

Organizational Impact

- Reduce the project capex and opex by using new materials in construction.
- Improve the project performance by using the better materials and new technique
- Improve organization investment by knowing the advanced materials and technology and its practically in real project
- Improve the organization investment by having an effective structure along its life time

Personal Impact

- Enhance the material properties understanding
- Increase knowledge of up-to-date of materials use in construction and repair
- Increase the skill for maintenance approach
- Increase the skill to enhance quality of all phases of the oil and gas projects

Who Should Attend?

This seminar is designed for people in construction, oil and gas industry and government who are involved in building construction and maintenance and repair programs. This is also designed for those who are involved in preparing maintenance document package and diagnosis the reasons of failure and also the engineers who define and choose the methods of repair.

- Civil and structure engineer
- Project engineer
- Construction engineer
- Project manager, engineering manager and construction manager

SEMINAR OUTLINE

DAY 1

Introduction to Advanced Materials

- Conventional Concrete Materials Limitations and Problems
- Concrete quality control
- Concrete design mix
- High Strength Concrete and High Performance Concrete
- Special Constituent materials and Admixtures
- Construction Practices for Concrete in the Gulf area
- Specifics of Gulf Environment
- Definition of hot weather for concreting processes
- Precautions for different concreting operations in the hot weather of Gulf region
- Standard Test Methods for Non-Conventional Concretes and Reinforcement
- Total Quality management system

DAY 2

HSC and UHPC Characteristic

- High Strength Concrete: General
- Importance and Economy
- Durability Improvement
- Structural Improvement
- High Strength Concrete: Materials
- Slag (GGBS), Fly Ash, and Silica fume
- High Strength Concrete: Production
- Batching and Mixing High Strength Concrete
- Placing and Compacting High Strength Concrete
- Corrosion phenomena in steel bars
- Chloride cause corrosion
- Carbonation process

DAY 3

Corrosion and Advanced Technique and Materials for Protection

- Standard test methods for properties of FRP rods
- Technical Specifications for Concrete and Reinforcement
- Sample concrete and reinforcement specifications
- Protecting steel reinforcement from corrosion by advanced materials
- Non-Traditional Types of Reinforcement Used in Concrete Structures
- Galvanized and epoxy coated bars
- Fiber Reinforced Plastic (FRP) reinforcement for concrete
- Anodic inhibitor
- Cathodic protection system
- Standard test methods for fresh and Hardened Special concretes
- Standard specifications for epoxy coated bars

DAY 4

Advanced Materials and Technique for Concrete Repair

- Rubber concrete
- Light weight concrete
- Concrete with fiper
- Evaluating the existing structure
- Define repair procedure
- Convention repair methods to slab and beam
- Foundation repair by new materials
- Using steel section to repair Latex Modified Concrete
- Standard Specifications and Guides
- Latex Modified Concrete: Production
- Mix Proportioning
- Mixing and Placing
- Finishing and Curing
- Latex Modified Concrete: Properties and Applications
- Applications and Recent Development

DAY 5

Using CFRP for Repair

- Repair technique by using CFRP
- Design of the CFRP philosophy
- Selecting the reasonable materials
- Execution of the CFRP
- Advanced programs for inspection and repair

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