Tel No:+97126654546 |Fax No:+97126654182|Email: training@cmc-me.com|www.cmc-me.com



SC099:
Advanced Materials & Technology in Concrete Industry

Tel No:+97126654546 | Fax No:+97126654182 | Email: training@cmc-me.com | www.cmc-me.com

Training Description:

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 Advanced Materials & Technology in Concrete Industry course 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 course 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 course, 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.

The course will discuss:

- 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

Training Objectives:

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

- ✓ Familiarise new project management approach for brown field project
- ✓ Acquire new design methods and differentiates between codes and standard
- ✓ Familiarise new materials in concrete industry
- ✓ Familiarise advanced methods of construction
- ✓ Familiarise HPC, HSC and SCC
- ✓ Familiarise all up to date materials and method of repair
- ✓ Design and execute CFRP for concrete strengthening

Training Designed for:

This course is intended 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. This course is suitable to a wide range of Professionals including Civil Engineers, Structure Engineers, Project Engineers, Construction Engineers, Project Managers, Engineering Managers, and Construction Managers.

Tel No:+97126654546 | Fax No:+97126654182 | Email: training@cmc-me.com | www.cmc-me.com

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- PRE-TEST
- 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 TWO:

- HSC and UHPC Characteristics
  - 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 THREE:

- 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 FOUR:

❖ 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 FIVE:

❖ 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

❖ Course Conclusion

❖ POST-TEST and EVALUATION

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, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

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

Training Fees:

TBA 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 01st 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 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

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

Aisha Relativo - Training & Career Development Manager
aisha@cmc-me.com / training@cmc-me.com
Tel.: +971 2 665 3945 or +971 2 643 6653 | Mob.: +971 52 2954615