

Assessment Of Defects In Concrete Structures and Evaluation Of Safety Of Concrete Infrastructure

Venue Information

Venue: London UK

Place:

Start Date: 2025-12-08

End Date: 2025-12-12

Course Details

Net Fee: £4750.00

Duration: 1 Week

Category ID: CACETC

Course Code: CACETC-3

Syllabus

Concrete Defect Assessment and Infrastructure Safety Evaluation

Course Description

Skilllinkx offers a comprehensive training course on Concrete Defect Assessment and Infrastructure Safety Evaluation. This course equips participants with the knowledge, skills, and expertise to identify durability issues in concrete structures, understand their causes, assess associated risks, and develop cost-effective and efficient rehabilitation strategies. The course emphasizes practical approaches suitable for hot and humid environments.

Course Objectives

Participants will learn to:

- Design effective repair strategies, including the use of composites.
- Develop stabilization and strengthening techniques for reinforced concrete elements.

Who Should Attend?

This course is ideal for:

- Civil Engineers
- Construction Engineers
- Maintenance Engineers
- Design Structural Engineers
- Supervision Engineers
- Planners

Course Outline and 5-Day Plan

Day One: Properties of Cement and Concrete

- **Cement Manufacturing:** Understanding the production process.
- **Cement Hydration:** Examining the chemical process of hydration.
- **Cement and Concrete Microstructure:** Analyzing the microstructure.
- **Blended Cements:** Exploring different types of blended cements.
- **Chemical Admixtures:** Learning about admixtures and their uses.
- **Special Concretes:** Overview of high-performance and special concretes.

Day Two: Causes and Mechanisms of Degradation

- **Corrosion of Reinforcing Steel:** Understanding the corrosion process.
- **Sulphate Attack:** Identifying and mitigating sulphate attack.
- **Marine Environments:** Challenges of concrete in marine conditions.
- **Alkali-Silica Reaction:** Recognizing and addressing ASR.
- **Cavitation and Abrasion:** Effects and preventive measures.
- **Moisture Effects:** Issues like drying shrinkage and creep.
- **Thermal Effects:** Impact of temperature changes.
- **Load Effects:** How loads affect concrete durability.
- **Faulty Workmanship:** Addressing common construction defects.

Day Three: Monitoring and Evaluation of Concrete Structures

- **Condition Assessment:** Techniques for assessing the condition of structures.

- **In-Situ Tests:** Performing tests on-site.
- **Monitoring Movement:** Techniques for monitoring structural movement.
- **Evaluating Safety:** Assessing the overall safety of concrete structures.

Day Four: Surface Repair of Concrete Structures

- **Strategy and Design:** Planning and designing repair strategies.
- **Material Requirements and Selection:** Choosing appropriate repair materials.
- **Surface Preparation:** Preparing surfaces for repair.
- **Bond of Repair Materials:** Ensuring strong adhesion to existing concrete.
- **Implementation Methods:** Techniques for effective repair implementation.

Day Five: Stabilization and Strengthening Techniques

- **Flexural Strengthening of Beams:** Methods for enhancing beam strength.
- **Shear Strengthening of Beams:** Techniques for improving shear capacity.
- **Strengthening of Columns:** Reinforcement strategies for columns.
- **Seismic Retrofit of Columns:** Upgrading columns for seismic resistance.
- **Strengthening with Composite Materials:** Using advanced materials for strengthening.
- **Litigation and Forensic Engineering:** Legal aspects and forensic analysis.
- **Case Studies:** Reviewing real-world examples and lessons learned.

Elevate your professional skills in concrete defect assessment and infrastructure safety with Skilllinkx's advanced training course, designed to meet the latest industry demands and standards.