

Utility and Infrastructure Maintenance, Rehabilitation and Renovation For Civil Engineers Training

Description

Course Description

This course is designed to develop the knowledge of the engineers' about the building material for finishing and how it can be constructed. The course aims also to increase the knowledge and skill of the participant bout the material used in rehabilitation and repair works from choosing the material till implementation.

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Course Objective

- Understand the various types of damage that can affect concrete and reinforced concrete structures and be familiar with their effects in the assessment and rehabilitation of the structures
- List down the codes and standards used in the assessment and rehabilitation of concrete structures and identify the design precautions for carbonation and chloride ingress
- Know the method of damage assessment including the identification of service and exposure conditions of concrete structures
- Learn how to conduct visual and exploratory investigation of damaged concrete structures and determine ways on how to locate and monitor delaminated concrete, voids, cracks, honeycombs, etc
- Explain the principles of rehabilitation including methods to prevent defects in concrete, rehabilitation methods against corrosion damage and determine the required properties of repair materials and systems in concrete structure
- Explain the surface repair of concrete structures, list material requirements, reinforcing steel cleaning, repair & protection and be familiar with the placement methods that are applied to the concrete structures
- Employ the proper procedure for strengthening and stabilization of concrete structures including the techniques/design considerations, shear transfer strengthening between members, stress reduction techniques and crack stabilization
- Identify and apply the strategies and methods of protection of concrete structures
- Be familiar with risk-based maintenance strategy as well as the required repair time, required

time to start of corrosion, time required to start of deterioration and cost analysis for different protection methods

Course Outline

- Types of finishing materials
- Properties and specifications of the modern finishing materials.
- Durability of the finishing materials
- Steps of application to the finishing materials.
- Common faults in application of finishing materials Types of retrofitting and repairing materials
- Specification and properties to retrofitting and repairing materials.
- The main function of the retrofitting and repairing materials
- Selecting the suitable material of repair.
- Various techniques of repair.
- Common faults of choosing the repairing techniques.
- Application for the repair material.
- Common faults in application of repairing materials
- Up-to-date materials used in repair

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