

REPAIR & RETROFIT OF CONCRETE STRUCTURES

COURSE OVERVIEW

This course is an extension of the Mastering Structural Inspections course - CESA-1759-08/2023. Before attempting any repair procedures, a thorough technical inspection and understanding of the behavior of the structural component is required.

The aim of this short course is to provide professionals who are responsible for such a specialized role with a solid understanding of new materials, methodologies, their limitations, and structural engineering principles in order to ensure the structure's integrity and serviceability during and after repair and retrofitting.

BENEFITS OF ATTENDING

- By the end of the course, you will be able to examine, design and assess rational strengthening or repair solutions for existing reinforced concrete structures based on sound engineering principles

COURSE OUTCOMES

- Detect defects and deterioration in structures.
- Survey and assess structural conditions in R.C.C. structures.
- Understand and apply rehabilitation and retrofitting techniques.
- Understand the various materials used for repairs of deteriorating structures
- Understand the available methods for underwater repairs of R.C.C

COURSE OBJECTIVE

To get the knowledge on quality of concrete, durability aspects, causes of deterioration, assessment of distressed structures, repairing of structures and demolition procedures

COURSE OUTLINE

- 1. Maintenance & Repair Strategies:**
Maintenance, repair and rehabilitation, Facets of Maintenance, importance of Maintenance various aspects of Inspection, Assessment procedure for evaluating a damaged structure, causes of deterioration
- 2. Serviceability and Durability of Concrete**
Quality assurance for concrete construction concrete properties- strength, permeability, thermal properties and cracking. - Effects due to climate, temperature, chemicals, corrosion – design and construction errors - Effects of cover thickness and cracking
- 3. Materials for Repair**
Special concretes and mortar, concrete chemicals, special elements for accelerated strength gain, Expansive cement, polymer concrete, sulphur infiltrated concrete, ferro cement, Fibre reinforced concrete.
- 4. Techniques for Repair and Demolition**
Rust eliminators and polymers coating for rebars during repair, foamed concrete, mortar and drypack, vacuum concrete, Guniting and Shotcrete, Epoxy injection, Mortar repair for cracks, shoring and underpinning. Methods of corrosion protection, corrosion inhibitors, corrosion resistant steels, coatings and cathodic protection. Engineered demolition techniques for dilapidated structures - case studies.
- 5. Repairs, Rehabilitation and Retrofitting of Structures**
Repairs to overcome low member strength, Deflection, Cracking, Chemical disruption, weathering corrosion, wear, fire leakage and marine exposure

WHO SHOULD ATTEND

This course will benefit:

- Civil Engineers, Architects, Project Managers, Health & Safety Professionals.