

BCE-023	Repair & Rehabilitation of Structures.	3L:0T:0P	3 credits
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Pre-requisites:None


Course Objectives:

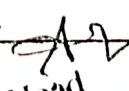
CO1	To learn various distress and damages to concrete and masonry structures.
CO2	To understand the importance of maintenance of structures.
CO3	To study the various types and properties of repair materials.
CO4	To assess the damage to structures using various tests.

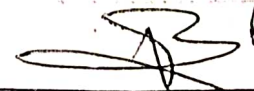
Repair & Rehabilitation of Structures.

Maintenance and 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; Strength and Durability Of Concrete- Quality assurance for concrete – Strength, Durability and Thermal properties, of concrete – Cracks, different types, causes – Effects due to climate, temperature, Sustained elevated temperature, Corrosion – Effects of cover thickness; Special Concretes- Polymer concrete, Sulphur infiltrated concrete, Fibre reinforced concrete, High strength concrete, High performance concrete, Vacuum concrete, Self-compacting concrete, Geopolymer concrete, Reactive powder concrete, Concrete made with industrial wastes; Techniques for Repair and Protection Methods- Non-destructive Testing Techniques, Epoxy injection, Shoring, Underpinning, Corrosion protection techniques – Corrosion inhibitors, Corrosion resistant steels, Coatings to reinforcement, cathodic protection; Repair, Rehabilitation and Retrofitting of Structures- Evaluation of root causes; Underpinning & shoring; some simple systems of rehabilitation of structures; Guniting, shotcreting; Non-Destructive testing systems; Use of external plates, carbon fib rewrapping and carbon composites in repairs. Strengthening of Structural elements, Repair of structures distressed due to corrosion, fire, Leakage, earthquake – Demolition Techniques – Engineered demolition methods –Case studies.

Course Outcomes: After the completion of the course the student will be able to:

CO1	Understand the properties of fresh and hardened concrete.	 Registrar Invertis University Bareilly
CO2	Know the strategies of maintenance and repair.	
CO3	Get an idea of repair techniques.	
CO4	Understand the properties of repair materials.	
CO5	Understand the retrofitting strategies and techniques.	


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