

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

## Construction Engineering & Management

Subject Name     **REPAIR, RETROFITTING AND REHABILITATION**  
(Major Electives – 4)

Sr.No	Course content
1.	<b>Durability of Structure</b> Effect of dampness, heat, frost, precipitation, chemical agents, biological agents on building materials in relation of life, serviceability and strength.
2.	<b>Maintenance, Repair and Rehabilitation of Structures</b> Principles of construction, detection of defects and line of action. Life serviceability and strength of building materials used for the purpose of maintenance and repairs.
3.	<b>Structure Failure</b> Definition, of failure – types of failure, structural, functional and architectural failure of buildings. Investigation – diagnostic testing and line of action.
4.	<b>Damages due to Natural Calamities</b> Damage assessment methods
5.	<b>Structure Repair, Retrofitting and Rehabilitation</b> Technology of repairs for concrete, steel, timber, masonry works, grouting, stitching, jacketing, guniting.
6.	<b>Corrective Maintenance of Structures</b> Problems of cracking, leakage, corrosion, and other forms of deterioration, methods of corrective maintenance.
7.	<b>Preventive Maintenance of Structures</b> Importance of regular maintenance – choice and priorities in preventive maintenance. Structure survey: Structure survey for assessment of damaged of aged structure, fire damaged structures, flood affected structures, structure affected by explosion and earthquake.
8.	<b>Dangerous Structures</b> Liability for injuries to third-parties, liability of owner and occupier to persons coming to building and to adjoining owner. Preparation of specifications and bills of quantity for alteration, maintenance and repairs of residential and public buildings. Machines, tools, instruments for investigation, NDT and repairs.

## **Reference Books:**

1. Deterioration Maintenance and Repair of Buildings by S.M. Jhonson, Mc Graw Hill.
2. Failure and Repair of Buildings by S. Champion, Johy Willey.
3. Technology of Building Repairs by R.N. Raikar, Structural Designers and Consultant Pvt. Ltd., New Bombay.
4. Diagnosis and Treatment of Structures in Distress by R.N. Raikar, Structural Designers and Consultant Pvt. Ltd., New Bombay.
5. Durable Structures through Planning for Preventive Maintenance by R.N. Raikar, Structural Designers and Consultant Pvt. Ltd., New Bombay.
6. Learning from Failures by R.N. Raikar, Structwel Designers and Consultant Pvt. Ltd., New Bombay.
7. Structural Failures in Residential Buildings by Schild Oswal, Crosby Lockwood Staples, Granda Pub.
8. Causes, Prevention and Remedies of Cracks in Building, SP 25, Bureau of Indian Standards