

**SEMESTER VIII**

<b>SUBJECT CODE</b>	<b>COURSE TITLE</b>	<b>L</b>	<b>P</b>	<b>M</b>
<b>THEORY</b>				
	Repair and Rehabilitation of Structures	3	0	100
	Elective IV	3	0	100
	Elective V	3	0	100
<b>PRACTICALS</b>				
	Project work	0	12	200

**SEMESTER VIII**  
**REPAIR AND REHABILITATION OF STRUCTURES**

**UNIT -1 GENERAL**

**9**

Quality assurance for concrete construction as built concrete properties, strength, permeability, thermal properties and cracking

**UNIT -2 INFLUENCE ON SERVICEABILITY AND DURABILITY**

**9**

Effects due to climate , temperature , chemicals , wear and erosion , design and construction errors , corrosion mechanism , Effects of cover thickness and cracking, Method of corrosion production., corrosion inhibitors , corrosion resistant steels , coatings , cathodic production

**9**

**UNIT -3 MAINTENANCE AND REPAIR STRATEGIES**

Definitions: Maintenance, Repair , Rehabilitation, Facets of maintenance , Importance of maintenance , preventive measures on various aspects , assessment procedure for evaluating damaged structure, causes of deterioration – Testing techniques .

**9**

**UNIT -4 MATERIALS FOR REPAIR**

Special concrete and mortar , Concrete chemicals , special elements for accelerator , strength gain, expansive cement , polymer concrete , sulphur infiltrated concrete , ferro cement, fibre reinforced concrete.

**UNIT -5 TECHNIQUES FOR REPAIR**

**9**

Rust Eliminators and Polymers coatings for rebars during repair foamed concrete , mortar and dry pack , vacuum concrete , Guniting, shotcrete epoxy injection , mortar repair for cracks, shoring and under pinning. Examples of repairs to structures Repairs to overcome low member strength, deflection , cracking , chemical disruption, weathering wear , fire , leakage , marine exposure

**Total Hours : 45**

**TEXT BOOKS:**

1. Denison Campbell, Allen and Harold Roper , Concrete Structures, materials, maintenance and repair , Long man, Scientific and Technical UK 1991.

**REFERENCES:**

- 1) M.S. Shetty , Concrete Technology – Theory and Practice S.Chand and Company , New Delhi 1992
- 2) Santha kumar A.R. Training Course Notes on Damage Assessment and Repair in Low Cost Housing , “ RHDC – NBO “ , Anna Univ July 91.

## **SEMESTER VIII**

## **ELECTIVE IV**

**The Elective Subject Can be Selected from Elective List**

**SEMESTER VIII**

**ELECTIVE V**

**The Elective Subject Can be Selected from Elective List**

## **SEMESTER VIII PROJECT WORK**

### **OBJECTIVE**

The objective of the project work is to enable the students to work in convenient groups of not more than four members in a group on a project involving theoretical and experimental studies related to Civil Engineering. Every Project Work shall have a Guide who is a member of the faculty of Civil Engineering of the college where the student is registered. The hours allotted for this course shall be utilized by the students to receive directions from the Guide, on library reading, laboratory work, computer analysis or field work and also to present in periodical seminars the progress made in the project.

Each student shall finally produce a comprehensive report covering background information, literature Survey, problem statement, Project work details and conclusions.

This experience of project work shall help the student in expanding his / her knowledge base and also provide opportunity to utilise the creative ability and inference capability.

**Total Hours: 45**

### **EVALUATION PROCEDURE**

The method of evaluation will be as follows:

- 1. Internal Marks** : **20 marks**  
(decided by conducting 3 reviews by the guide appointed by the Institution)
- 2. Evaluation of Project Report** : **30 marks**  
(Evaluated by the external examiner appointed the University).

Every student belonging to the same group gets the same mark

3. **Viva voce examination** : **50 marks**  
(Evaluated by the internal examiner appointed by the HOD with the approval of HOI, external examiner appointed by the University and Guide of the course – with equal Weightage)

**Total** : **100 marks**