SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR

APPLIED MECHANICS DEPARTMENT

PDDC-Civil (Semester 7th)

SUBJECT: RETROFITTING OF STRUCTURES

(2970602- PROFESSIONAL ELECTIVE IV)

Unit-I

I. Explain the causes of distress in structures.

II. List various construction and design deficiency which causes distress in the RCC structure.

III. What are the construction errors occurring during concrete construction?

IV. Name the fire damage assessment techniques. Explain any one in detail including its result interpretation.

V. Explain in detail visual inspection.

VI. What are objectives of condition assessment? Explain planning stage of condition assessment?

VII. What is importance of field and laboratory tests for damage assessment of structures?

VIII. List out the Various NDT tests and explain any one in detail.

Unit-II

I. Write the requirements as per IS 456:2000 for durability aspect.

II. Define durability of concrete and major causes of inadequate durability.

III. Describe the factors influencing corrosion of steel in concrete.

IV. What is alkali aggregate reaction? What are the factors affecting on it and how it can be controlled?

V. Explain the factors affecting permeability of concrete.

VI. How can sulphate attack controlled in concrete.

Unit-III

I. What are the essential parameters for good repair material?

II. Write down the short notes:

- **a.** Cathodic protection
- **b.** Corrosion inhibitor
- **c.** Ferrocement
- **d.** Vaccum concrete
- **e.** Underpining
- **f.** Sulphur infitrated concrete.

Unit-IV

I. Distinguish between Rehabilitation and retrofitting.

II. Explain methodology to repair earthquake deficient structres.

III. What is the mean by jecketing? Explian different types of jecketing.

IV. Explain Concrete repairing by grouting.

V. Write down the short notes:

a. External Post Tensioning

b. Span Shortening technique

c. Fiber Reinforced polymer composite.