

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP
SEMESTER: V

Subject Name: **Structure III**

Sr. No.	Course Content
1.	Introduction to Structural Design Process 1.1 Design process. 1.2 Functional design. 1.3 Structural design. 1.4 Design method based on experimental investigation. 1.5 Working stress method. 1.6 Limit state method. 1.7 Assumptions of R.C.C. design (limit state). 1.8 Concept of bond.
2.	Properties of Structural Materials 2.1 Properties of concrete. 2.2 Various grades of cement & concrete. 2.3 Various types of reinforcing steel & its importance in using concrete.
3.	Types of Load 3.1 Various types of loads borne by Structure & its determination. (Dead load, Live load, Impact load, Wind load, Seismic load, etc.)
4.	Reinforcement Details in Different Types of Slab 4.1 Details of reinforcement in one way & two way SLAB. 4.2 Continuous slab. 4.3 Cantilever slab. 4.4 Flat slab.
5.	Arrangements of Reinforcement in R.C.C. Beam 5.1 Singly reinforced beam. 5.2 Doubly Reinforced. Beam. 5.3 T & L. beam. 5.4 Lap length in Tension & Compression.
6.	Arrangement of Reinforcement in R.C.C. Column & Column Footings 6.1 Isolated & combined. 6.2 Continuous. 6.3 Raft. 6.4 Pile (precast & cast in situ). 6.5 concept of ductile detailing.
7.	Arrangement of Reinforcement in Miscellaneous Structures 7.1 Cantilevered Retaining wall. 7.2 Water tank (under ground and overhead). 7.3 Dome. 7.4 Portal frame.

8.	Use and Arrangement of Various Steel Section in Steel Structures 8.1 Various types of Rolled Steel Sections, Stanchions, beam, trusses. etc. 8.2 Various methods of connection of steel sections.
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Reference Books & code:

1. Design of R.C.C. structure, K.L.Rao.
2. Design of R.C.C. structure I &II, Jai and Jain.
3. R.C.C. Design, P. Pursottam.
4. R.C.C. Design, Shah & Karve.
5. Steel Structure, Ajamani & Arya.

For ductile detailing refer IS code no. 13920