

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B.E. SEMESTER : VIII

### CIVIL ENGINEERING

Subject Name: **STRUCTURAL DESIGN II**

Sr. No.	Course Contents
	<b>RC Design</b>
1	Loading standards as per I.S, distribution & flow of loads, lateral load due to wind as per IS: 875(Part - III), load combinations, guide lines for preparation of structural layout for building.
2	Analysis, design & detailing of G+3 RC framed building for residential /commercial Purpose including ductile detailing in beams and columns.
3	Design & detailing of underground and elevated circular & rectangular RC water tanks.
4	Design & detailing of cantilever & counter fort retaining wall for various ground Conditions.
	<b>Steel Design</b>
5	Design of bolted / welded plate girder for static and rolling loads, design of supporting systems.
6	Structural layout of industrial building, design of various systems like roofing system, bracing system, columns, gantry girder etc.
7	Structural system for through & deck type's bridges, design of foot over bridge & its Supporting system.
8	Design principles for tall steel structures like microwave towers, transmission line tower, chimney etc.

#### **Term Work:**

Term work shall consist of not less than 2 designs suitably selected from topics of course. The report shall consist of full analytical treatment, design procedure, references and all necessary drawings in form of neat dimensioned sketches. In addition to one detailed working drawing shall be prepared on full imperial size drawing sheet.

#### **Reference Books (RC Design)**

1. Shah & Karve; Limit State Theory & Design of Reinforced Concrete; Structure Pub., Pune
2. Shah & Karve; Design of Multi-storied Building (G+3); Structure Pub., Pune
3. KrishanaRaju N.; Advanced Design of Concrete Structures; Tata Mc-Graw Hill, Delhi
4. KrishanaRaju N.; Prestressed Concrete; Tata Mc-Graw Hill,
5. Dr. H.J. Shah; Reinforced concrete Vol-II; Charotar Pub. Anand,
6. IS: 456 - Code of practice for plain and reinforced concrete
7. IS: 875 (Part I to V) - Code of practice for structural safety of Buildings Loading standards
8. IS: 1893 - Criteria for earthquake resistant design of structures
9. IS: 13920 -Code of Practice for ductile detailing of RC structure subjected to seismic force
10. IS: 3370- Code for concrete Storage tanks.
11. SP: 16 - Design aids for reinforced concrete
12. SP: 34 - Reinforcement detailing

#### **Reference Books (Steel Design)**

1. N.Subramanian; Steel Structures, Oxford Publication
2. Arya A.S. & Ajamani J.L.; Design of Steel Structures; Nemchand & Bros., Roorkee
2. Dayaratnam P.; Design of Steel Structures; Wheelor pub. co., Delhi
3. Ramamrutham S. & Narayanan R.; Design of Steel Structures; Dhanpatrai & Sons, Delhi
4. IS: 800 - Code of practice for General Construction in steel
5. IS: 875 - (Part I to V) - Code of practice for structural safety of building loading standards
6. IS: 226 - Structural steel (Standard Quality)
7. SP: 6(1) - Structural steel section
8. SP: 6(6) - Application of plastic theory in design of steel structures