

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Civil Engineering (Computer Aided Structural Analysis & Design)

Subject Name Behaviour of Reinforced Concrete

Sr. No	Course content
1.	Limit State Design Philosophy applicable to Reinforced Concrete, Various stress- strain models for concrete, Behavior of concrete under uniaxial and combined actions, Effect of confinement, Stress-strain curve of different types of steels
2.	Behavior of RC elements under flexure: Basic assumptions and its implication on design, response of RC elements under uniaxial and biaxial bending, Moment curvature relationship, Ductility of unconfined and confined RC sections under flexure, Flexural deformation,
3.	Behavior of RC elements under axial force: Basic assumptions and its implication on design, Effect of slenderness, Analysis of RC section under axial force (compression or tension) with uniaxial or biaxial moments
4.	Behavior of RC elements under shear: Concept of shear stress, Resisting mechanism of RC elements with and without shear reinforcement, Truss model, Interface shear transfer, Interaction between shear and axial force, Behavior of deep beams and corbels.
5.	Behavior of RC elements under torsion: Stresses due to torsion, Effective tubular section, combined shear and torsion, combined torsion and bending
6.	Bond stress and anchorages: Mechanism of resistance, factors affecting bond and anchorages
7.	Deflection of flexural members: Long and short term deflections, governing factors
8.	Yield lines: Concept and various theories to analyze slab elements

Reference Books :

1. Reinforced Concrete Structures – Park and Pauley, John Wiley and Sons
2. Reinforced concrete: mechanics and design – MacGregor & Wight, Prentice-Hall
3. Reinforced and prestressed concrete structures – Kong and Evans, ELBS
4. Reinforced Concrete Structure Structural Elements:
Behavior, Analysis and Design – Purushothaman, Tata McGraw Hill
5. Reinforced Concrete Design – S N Sinha, Tata McGraw Hill