GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 1

Civil Engineering (Computer Aided Structural Analysis & Design)

Subject Name Prestressed Concrete (Major Elective -I)

Sr. No	Course content
1.	Introduction: Principles of prestressing - types and systems of prestressing, need for High Strength materials, Loading stages, Determination of losses, deflection (short-long term), camber, cable layouts.
2.	Behavior under flexure - IS codal provisions, ultimate strength, Design of flexural members including large span slabs and beams.
3.	Design for Shear, bond and torsion. Design of End blocks
4.	Design of tension members - application in the design of prestressed pipes and prestressed concrete cylindrical water tanks.
5.	Design of compression members with and without flexure - its application in the design piles, flag masts and similar structures.
6.	Composite beams - analysis and design, ultimate strength - their applications. Partial prestressing - its advantages and applications.
7.	Application of prestressing in continuous beams, concept of linear transformation, Concordant cable profile and cap cables.
8.	Introduction to the special prestressed structures like prestressed folded plates, prestressed cylindrical shells, prestressed concrete poles.

Reference Books:

1. Prestressed concrete - Krishna Raju
2. Design of Prestressed Concrete Structures - T.Y.Lin
3. Fundamentals of Prestressed Concrete - N.C.Sinha & S.K.Roy S.Chand & Co., 1985.
4. Prestressed Concrete- Design and Construction - Leonhardt.F., Wilhelm Ernst and Shon, Berlin
5. Prestressed Concrete - Freyssinet
6. Prestressed Concrete, - Evans, R.H. and Bennett, E.W., Chapman and Hall