

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. Semester I
Civil Engineering (Structural Engineering)

Subject: - Pre-Stressed Concrete (Major Elective I)

Sr. No.	Course Content
1.	Introduction: Principles of pre-stressing - types and systems of pre-stressing, 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 pre-stressed pipes and pre-stressed concrete cylindrical water tanks.
5.	Design of compression members with and without flexure - its application in the design piles.
6.	Composite beams - analysis and design, ultimate strength – their applications. Partial pre-stressing - its advantages and applications.
7.	Application of pre-stressing in continuous beams, concept of linear transformation, Concordant cable profile and cap cables.

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