

Course Title: DESIGN OF PRE STRESSED CONCRETE ELEMENTS As per Choice Based Credit System (CBCS) scheme] SEMESTER:VIII			
Subject Code	17CV82	IA Marks	40
Number of Lecture Hours/Week	04	Exam Marks	60
Total Number of Lecture Hours	50	Exam Hours	03
CREDITS -04		Total Marks- 100	
Course objectives: This course will enable students to learn Design of Pre Stressed Concrete Elements			
Module -1			
Introduction and Analysis of Members: Concept of Prestressing - Types of Prestressing - Advantages - Limitations –Prestressing systems - Anchoring devices - Materials - Mechanical Properties of high strength concrete - high strength steel - Stress-Strain curve for High strength concrete. Analysis of members at transfer - Stress concept - Comparison of behavior of reinforced concrete - prestressed concrete - Force concept - Load balancing concept - Kern point - Pressure line.			
L1,L2			
Module -2			
Losses in Prestress: Loss of Prestress due to Elastic shortening, Friction, Anchorage slip, Creep of concrete, Shrinkage of concrete and Relaxation of steel - Total Loss. Deflection and Crack Width Calculations of Deflection due to gravity loads - Deflection due to prestressing force -Total deflection - Limits of deflection - Limits of span-to-effective depth ratio -Calculation of Crack Width - Limits of crack width.			
L1,L2			
Module -3			
Design of Sections for Flexure: Analysis of members at ultimate strength - Preliminary Design - Final Design for Type 1members			
L1,L2,L3			
Module -4			
Design for Shear: Analysis for shear - Components of shear resistance - Modes of Failure - Limit State of collapse for shear - Design of transverse reinforcement.			
L1,L2,L3			
Module -5			
Composite Sections: Types of composite construction - Analysis of composite sections - Deflection –Flexural and shear strength of composite sections.			
L1,L2,L3			
Course outcomes: After studying this course, students will be able to:			
<ul style="list-style-type: none"> • Understand the requirement of PSC members for present scenario. • Analyse the stresses encountered in PSC element during transfer and at working. • Understand the effectiveness of the design of PSC after studying losses • Capable of analyzing the PSC element and finding its efficiency. • Design PSC beam for different requirements. 			