DEPARTMENT OF CIVIL ENGINEERING
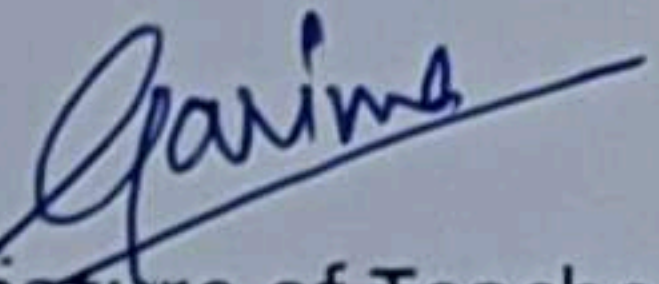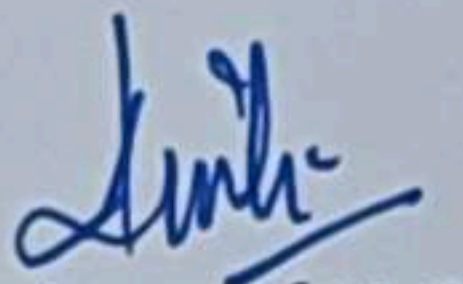## GOVERNMENT POLYTECHNIC SUNDERNAGAR

LESSON PLAN FOR Design of RCC Structures (SEMESTER-5TH)SESSION: (Aug-Dec 2025)

S.No.	MONTH	WEEK	CONTENTS	REMARKS
1	August	Week 2	UNIT-I Introduction to R.C.C Designing using Limit State Method :Design Philosophies: Working Stress Theory, Ultimate Design Theory, Limit	
		Week 3	Concept of Reinforced Cement Concrete (RCC) Reinforcement Materials:Suitability of Steel as reinforcing material. Properties of mild steel and HYSD steel, Loading on structure as per I.S 875	
		Week 4	Study of BIS:456-2000-clause5, clause6, clause9, Clause18, clause19, clause22, clause 23.0, 23.2, 23.3, Clause25, clause26, clause35, clause36, clause37, clause 38, clause 39, clause 40, clause 41, clause42, clause 43, Annexure–B, C, D, E, G	
		Week 5	UNIT-II Shear, Bond, and Development Length (LSM) : Nominal Shear stress in R.C. Section, Design shear strength of concrete, maximum shear stress, Design of shear reinforcement, Minimum shear reinforcement, Forms of shear reinforcement with numerical problems	
2	September	Week 1	Bond and types of bonds, Bond Stress, check for bond stress, Development length in tension and compression, anchorage value for hooks 90° bend and 45° bend. Standard Lapping of bars, check for development length.	
		Week 2	Determination of development length required for tension reinforcement of cantilevers beam and slab, check for development length. **Class Test -1 Will be held this week.**	
		Week 3	UNIT-III Analysis and Design of Singly Reinforced Sections: Limit State of collapse (Flexure), Assumption stress. Strain relationship for concrete and steel, neutral axis, Stress block diagram and Strain diagram for singly reinforced section.	
		Week 4	Concept of under- reinforced, over-reinforced and balanced section, neutral axis, limiting value of moment of resistance and limiting percentage of steel required for balanced singly R.C. Section. Simple numerical problems on determining design constants , moment of resistance and area of steel.Design of Singly reinforced simply supported beam and cantilever beam.	
		Week 5	UNIT-IV Analysis and Design of Doubly Reinforced Sections (LSM): General features, necessity of providing doubly reinforced reinforcement, limitations. Analysis of doubly reinforced section, strain diagram, stress diagram, depth of neutral axis, moment of resistance of the section.Numerical problems on finding moment of resistance.	

3	October	Week 1	**UNIT-V Design of One-Way Slab (LSM):** Analysis of simply supported one-way slab.	
		Week 2	Design of simply supported one-way slab.	
		Week 3	**UNIT-VI Two Way Slab (LSM):** Design of two-way simply supported slab with corners free & no provision for torsion reinforcement.**Class Test -2 Will be held this week.**	
		Week 4	Numerical problems on two way slab	
		Week 5	**UNIT-VII Design of Axially Loaded Column (LSM) :**	
4	November	Week 1	Assumptions in limit state of collapse–compression : Definition and classification of columns, effective length of column. Specification for minimum reinforcement; cover, maximum reinforcement, number of bars in rectangular, square, and circular sections, diameter and spacing of lateral ties. (No numerical on helical ties).	
		Week 2	**House Test will be held this week**	
		Week 3	Analysis and Design of axially loaded: Uniaxial & Biaxial Bending along with axial loading: short, square, rectangular, and circular columns with lateral ties only; check for short column and check for minimum eccentricity may be applied.	
		Week 4	Revision of Previous Year Question Papers	
		Week 5	Revision of Previous Year Question Papers	

Signature of Teacher
(Er. Garima Sharma)

Signature of H.O.D
(Er. Anita Joshi)