SPINTRONIC TECHNOLOGY AND ADVANCE RESEARCH,

LESSON PLAN

Name of the Faculty: Mr. Prabhudatta Senapati	
Branch: Civil Engineering (Diploma)	Semester: 5th Semester
Subject: DESIGN OF RCC STRUCTURE (CEPC-303)	Theory / Sessional: Theory

Academic Session: 2026–27	Subject Code: CEPC–303	Total Periods: 45	Subject Name: Design of RCC Structure

Sl. No.	Module	Lecture Topics	Period(s)	Cumulative Period(s)	Remark
1	Module–I: Design Philosophies, Shear, Bond and Development Length in RCC Members	Design Philosophies in RCC – Working Stress vs Limit State Method	1	1	
2		Design of Singly Reinforced Beam for Flexure using LSM	1	2	
3		Design of Doubly Reinforced Beam for Flexure using LSM	1	3	
4		Nominal Shear Stress in RCC Section	1	4	
5		Design Shear Strength of Concrete	1	5	
6		Minimum Shear Reinforcement – Provisions of IS 456:2000	1	6	
7		Forms of Shear Reinforcement	1	7	
8		Types of Bond, Bond Stress and Check for Bond Stress	1	8	
9		Development Length in Tension Members	1	9	
10		Anchorage Value of 90° Hook and Lapping of Bars	1	10	
11	Module–II: Design of Axially Loaded RCC Column	Servicability Limit State Check – Introduction	1	11	
12		Definition and Classification of Column	1	12	
13		Limit State of Compression Members	1	13	
14		Effective Length of Column	1	14	
15		Provisions of IS 456:2000 for Minimum Steel, Cover, etc.	1	15	
16		Spacing of Ties	1	16	
17		Design of Axially Loaded Short Column – Square	1	17	
18		Design of Axially Loaded Short Column – Rectangular	1	18	
19		Design of Axially Loaded Short Column – Circular	1	19	
20		General Features of T and L Beams	1	20	
21	Module–III: Design of RC Flanged Beam	Advantages of Flanged Beams	1	21	
22		Effective Width as per BIS 456:2000	1	22	
23		Design of Singly Reinforced T Beam	1	23	
24		Stress and Strain Diagram, Depth of Neutral Axis	1	24	
25		Moment of Resistance of T and L Beams with NA in Flange	1	25	
26		Design of Simply Supported One–Way Slab – General	1	26	
27		Design of One–Way Slab for Flexure as per BIS 456	1	27	
28		Design of One–Way Cantilever Slab	1	28	
29		Design of Two–Way Simply Supported Slab	1	29	
30		Effective Span and Coefficients for Two–Way Slab	1	30	
31	Module–IV: Design of Slab	Design of Two–Way Slab for Flexure	1	31	
32		Design for Shear and Deflection	1	32	
33		Development Length in Slab	1	33	
34		Design for Shrinkage and Temperature Steel	1	34	
35		Distribution and Placement of Reinforcement in Slab	1	35	
36		Introduction to Design of Dog–Legged Staircase	1	36	
37	Module–V: Design of Footing	Design of Footing for Axially Loaded Column Only – General	1	37	
38		Types of Footing – Isolated, Combined, Strip, Strap, Raft	1	38	
39		Minimum Eccentricity in Footing	1	39	
40		Design of Footing for Uniaxial Bending	1	40	
41		Design of Footing for Biaxial Bending	1	41	
42		Design of Footing with Uniaxial Moment	1	42	
43		Design of Footing with Biaxial Moment	1	43	
44		Check for One–Way Shear	1	44	
45		Check for Two–Way Shear and Punching Shear	1	45	

REFERENCES

1. Shah, V. L. and Gore, V., Limit State Design of Steel Structures, Structures Publications, Pune.
2. Dayaratnam, P., Design of Steel Structures, S. Chand and Company, Delhi.
3. Subramanian, N., Design of Steel Structures, Oxford University Press.
4. Negi, L. S., Design of Steel Structures, Pearson Education, Delhi.