

CIVIL DEPARTMENT

SESSION:

SUBJECT NAME : STRUCTURAL DESIGN AND DRAFTING-I

SUBJECT CODE: 2020572(020)

LECTURE NO.	UNIT NO.	SUB TOPIC TO BE COVERED UNDER THIS UNIT	PLANNED DATE	EXECUTION DATE	REMARK
1	1	UNIT 1- Reinforced Cement Concrete, IS Code 456-2000 and Working Stress Method of Design 1.1 Reinforced Cement Concrete -S.I. Units, structural components, meaning of R.C.C.,	2/9/24	2/18/24	
2		Type of steel used for reinforcement mild steel, tor steel,	2/9/24		
3		Different mixes of concrete to be used for R.C.C. work.	4/9/24	18/9/24	
4		purpose of reinforcement, Materials of reinforcement, Steel as a reinforcing material,	4/9/24		
5		1.2 IS Code 456-2000-Effective span, Control of deflection, Modification factor for Tensile and compressive steel, Cover to reinforcement	9/9/24	20/9/24	
6		Vertical and horizontal, Spacing of reinforcement,	9/9/24	20/9/24	
7		Max and min reinforcement , Development length ,Shear reinforcement, Curtailment and bending of bars,	11/9/24		
8		Min. positive and negative reinforcement at support, Min length of reinforcement inside support Live load and dead load.	11/9/24	23/9/24	
9		1.3 Working Stress Method: Permissible stresses in steel and concrete, assumption for design in flexure, under reinforced, over reinforced and balanced section,	15/9/24	23/9/24	
10		design constants for balanced sections	18/9/24	25/9/24	
11		analysis of singly and doubly reinforced beams.	23/9/24		

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NUMERICALS ON SINGLY REINFORCED BEAM		23/9/24	25/9/24	2 hrs.
NUMERICALS ON DOUBLY REINFORCED BEAM		25/9/24	30/9/24	
UNIT - 2		7/10/24	7/10/24	
2.1 Limit State Method of Design & Design of Rectangular Beams state of collapse, limit state of serviceability, characteristic strength of materials				
, characteristic load, partial safety factors, design values, stress-strain curve for concrete and steel		7/10/24	7/10/24	
2.2 Design and drafting of rectangular beams		7/10/24	8/10/24	
2.2.1 Limit state of collapse for flexure, assumptions, stress block parameters, neutral axis, analysis and design of singly and doubly reinforced section		7/14/10/24	8/10/24	
NUMERICALS		14/10/24	9/10/24	2 hrs
2.2.2 Limit state of collapse for shear, nominal shear stress, design shear strength of concrete with and without reinforcement		16/10/24	18/10/24	
, minimum shear reinforcement, design of shear reinforcement		21/10/24	18/10/24	
2.2.3 Development length & anchorage length: concept and necessity of development length, design bond stress, overlap length, necessity of hook and bend.		21/10/24	19/10/24	

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24	2.2.4 Design singly and doubly reinforced beam and check for deflection, cracking and anchorage length.	22 10 24	19 10 24	
25	2.2.4 Design of lintels – loading on lintel, design of lintel and lintel with chajja	22 10 24	21 10 24	
26	NUMERICALS	23 10 24 23 10 24	21 10 24 22 10 24 22 10 24	
27	UNIT 3 Design of flanged beams, slabs, continuous slab and flanged beams . 3.1 Flanged beam-Properties of flanged beams, moment of resistance and design of singly reinforced Flanged beam	24 10 24	23 10 24	
28	NUMERICALS ON FLANGED BEAM	24 10 24 11 11 24	23 10 24 24 10 24	
29	3.2 Design of slabs : Dead loads, imposed loads, thickness of slabs, modification factors, effective span, reinforcement in slab, design of one way slab and two way slabs, check for cracking, check for development length.	11 11 24	24 10 24	
30	a. Design and drafting of one way simply supported slab b. One way continuous slab – effective span, bending moment and shear force coefficient, design and drafting of three span continuous slab.	6 11 24	6 11 24	
31	NUMERICALS ON SIMPLY SUPPORTED ONE WAY SLAB	8 11 24 5 11 24	6 11 24 16 11 24	
32	NUMERICALS ON ONE WAY CONTINUOUS SLAB	12 11 24	16 11 24	
33	NUMERICALS ON TWO WAY SLAB	12 11 24	18 11 24 19 11 24	
34	UNIT 4 4.1 Column-Types of column- short and long column, axially loaded column, columns subjected to bending, effective length, slenderness limit, columns with helical reinforcement,	18 11 24 12 11 24	19 11 24	
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4	minimum eccentricity, IS code provisions for longitudinal and lateral reinforcement, ultimate load for axially loaded columns, assumptions made for limit state design of column, axial ultimate on a column, design and drafting of axially loaded square, rectangular and circular columns.	21/10/24	20/11/24	
	NUMERICALS ON COLUMNS	23/10/24	20/11/24	
	4.2 Column Footing -isolated footing, square and rectangular , sloped footing, design principles for column footing, thickness of footing, design for one way shear	28/10/24	21/11/24	2 hrs
	, design for two way shear or punching shear, design for flexure, design for load transfer at column	28/10/24	25/11/24	
	base, design of square, rectangular, circular pad and sloped footing.	21/11/24	25/11/24	
	NUMERICALS ON FOOTING	21/11/24	27/11/24	2 hrs
	UNIT-5 Design of Stair Case and Prestressed Concrete	7/11/24	28/11/24	
	5.1 Design of Stair Case -- Components of stairs, IS code provisions for design of staircase, geometrical classification of stair case,	11/21/24	22/11/24	
	structural classification of star, effective span and loading for stairs, design and drafting straight , cantilever stair	13/11/24	22/11/24	
	doglegged stair case and open newel staircase	13/11/24	22/11/24	
5	NUMERICALS OF STAIRS	18/11/24	30/11/24	

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48	5.2 Prestressed Concrete- Principles of pre-stressing, materials for prestressed concrete ,	20/11/24	5/12/24	2 hrs
49	methods of prestressing,	25/11/24		
50	advantages and disadvantages of pre-stressing .	27/11/24	6/12/24	

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