LESSON PLAN

Academic Session :- 2022-2023

Discipline: Civil.Engineering				**Name of teaching faculty: Swagatika Dani**	
Subject: Structural Design-1(TH1) **Semester: 4th**				**Semester from Date:14/02/2023 to 23/05/2023**	
				No. of weeks: 15	**5P/week**
No. of Days/ week class allotted: 05period per week(Monday:1p , Tuesday :1p, Wednesday: 2 periods, Thursday:1p)					**Total period: 75**
MONTH	**Week**	**DATE**	**DAYS/PERIOD**	**Syllabus to be covered**	**NO. OF PERIODS AVAILABLE**
				CHAPTER:1:WORKING STRESS METHOD(WSM)5P	**5**
		14/02/2023	Tuesday	1.1.Objective of design and detailing. state the different method of design of concrete structures.	1
		15/02/2023	Wednesday	1.2.Introduction to reinforced concrete, R.C. sections their behaviour, grades of concrete and steel. Permissible stresses, assumption in WSM	1
		15/02/2023	Wednesday	1.3. Flexural design and analysis of single reinforced sections from first principles.	1
	3rd	16/02/2023	Thursday	1.4.Concept of under reinforced, over reinforced and balanced sections	1
		20/02/2023	Monday	1.5. Advantages and disadvantages of WSM, reasons for its obsolescence	1
				CHAPTER:2: Philosophy of limit state Method(LSM). 3P	3
		21/02/2023	Tuesday	2.1. Definition, Advantages of LSM over WSM, IS code suggestions regarding design philosophy	1
EBRUAR		22/02/2023	Wednesday	2.2. Type of limit states, partial safety factors for material strength, characteristic load, design load,loading on structure as per I.S. 875	1

		22/02/2023	Wednesday	2.3.Study of I.S. specification regarding spacing of reinforcement in slab, cover to reinforcement in slab, beam column and footing, minimum reinforcement in slab, beam and column lapping, anchorage, effective span for beam and slab	1
				CHAPTER:3: Analysis and Design of Single and double Reinforced section (LSM) 15P	15
	4th	23/02/2023	Thursday	3.1.limit state of collapse(flexure), Assumptions, Stress-Strain relationship for concrete	1
		27/02/2023	Monday	3.2.Stress-Strain relationship for steel, neutral axis, stress block diagram for single reinforced section	1
	5th	28/02/2023	Tuesday	3.3.Stain diagram for singly reinforced section; Concept of under reinforced, over reinforced and limiting section.	1
		01/03/2023	Wednesday	3.4. Neutral axis coefficient, limiting value of moment of resistance.	1
		01/03/2023	Wednesday	3.5. limiting percentage of steel required for limiting single R.C. section	1
	1st	02/03/2023	Thursday	3.6.Analysis and design:Determination of design constants. Moment of resistance and area of steel for rectangular sections	1
		06/03/2023	Monday	3.7. Numericals	1
	2nd	09/03/2023	Thursday	3.8.Numericals	1
		13/03/2023	Monday	3.9. Numericals	1
		14/02/2023	Tuesday	3.10.Numericals	1
		15/03/2023	Wednesday	3.11. Necessity of doubly reinforced section, Design of doubly reinforced rectangular section	1
		15/03/2023	Wednesday	3.12.Numericals	1
	3rd	16/03/2023	Thursday	3.13. Numericals	1
		20/03/2023	Monday	3.14.Numericals	1
		21/03/2023	Tuesday	3.15.Numericals.	1
				CHAPTER: 4: Shear, Bond and Development length(LSM)-04P	4

MARCH		22/03/2023	Wednesday	4.1.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	1
		22/03/2023	Wednesday	4.2. Bond and types of bond, bond stress, check for bond stress, development length in tension and compression	1
		23/03/2023	Thursday	4.3. Anchorage value for hooks 90 degree bend and 45degree bend standards lapping of barsa, check for development length.	1
	4th	27/03/2023	Monday	4.4.Numerical problems on deciding whether shear reinforcement is required or not, check for adequacy of the section in shear. Design of shear reinforcement; minimum shear reinforcement in beams(Explain through examples only)	1
				CHAPTER:5:ANALYSIS AND DESIGN OF T-BEAM(LSM)-15P	15
		28/03/2023	Tuesday	5.1.General features, advantages	1
		29/03/2023	Wednesday	5.2.Effective width of flange as per I.S. 456-2000 code provisions	1
	5th	29/03/2023	Wednesday	4.2.Buckling class of cross sections	1
APRIL		03/04/2023	Monday	5.3.Analysis of singly reinforced T-beam	1
		04/04/2023	Tuesday	5.4. stress diagram and strain diagram	1
		05/04/2023	Wednesday	5.5.Depth of neutral axis	1
		05/04/2023	Wednesday	5.6.Moment of resistance of T-beam section with neutral axis lying within the flange	1
	2nd	06/04/2023	Thursday	5.7.Simple numerical problems on deciding effective flange width.(Problems only on finding moment of resistance of T-beam section when N.A. lies within or up to the bottom of flange shall be asked)	1
		10/04/2023	Monday	5.8. Numericals	1
		11/04/2023	Tuesday	5.9.Numericals	1
		12/04/2023	Monday	5.10. Numericals	1
		12/04/2023	Wednesday	5.11.Numericals	1
	3rd	13/04/2023	Thursday	5.12.Numericals	1
		17/04/2023	Monday	5.13 Numericals	1
		18/04/2023	Tuesday	5.14. Numericals	1
		19/04/2023	Wednesday	5.15.Class test	1

				CHAPTER:6.ANALYSIS AND DESIGN OF SLAB AND STAIR CASE(LSM)-15P	15
		19/04/2023	Wednesday	6.1.Design of simply supported one - way slabs for flexure check for deflection control and shear.	1
	4th	20/04/2023	Thursday	6.2.Numericals	1
		24/04/2023	Monday	6.3.Numericals	1
		25/04/2023	Tuesday	6.4.Design of one-way cantilever slabs and cantilevers chajjas for flexure check deflection control	1
		26/04/2023	Wednesday	6.5.Check for development length and shear	1
		26/04/2023	Wednesday	6.6.Numericals	1
	5th	27/04/2023	Thursday	6.7.Numericals	1
		01/05/2023	Monday	6.8.Design of two-way simply supported slabs for flexure with corner free to lift	1
		02/05/2023	Tuesday	6.9.Numericals	1
		03/05/2023	Wednesday	6.9.Numericals	1
		03/05/2023	Wednesday	6.10.Design of dog-legged staircase	1
	1st	04/05/2023	Thursday	6.11. Numericals	1
		08/05/2023	Monday	6.12. Numericals	1
		09/05/2023	Tuesday	6.13. Detailing of reinforcement in stairs spanning longitudinally	1
		10/05/2023	Wednesday	6.14. Numericals	1
		10/05/2023	Wednesday	6.15. Numericals	1
MAY				**CHAPTER:7.DESIGN OF AXIALLY LOADED COLUMNS AND FOOTINGS(LSM)18P**	18
	2nd	11/05/2023	Thursday	7.1. Assumption in limit state of collapse-compression	1
		15/05/2023	Monday	7.2.Definition and classification of columns	1
		16/05/2023	Tuesday	7.3.effective length of column, cover	1
		17/05/2023	Wednesday	7.4.Specification for minimum reinforcements	1
		17/05/2023	Wednesday	7.5.Maximum reinforcement	1
	3rd	18/05/2023	Thursday	7.6.Number of bars in rectangular, square section	1
		22/05/2023	Monday	7.7.Number of bars in Circular sections	1
	4th	23/05/2023	Tuesday	7.8.Diameter and spacing of lateral ties	1
				7.9.Analysis and design of axially loaded short square, rectangular columns	1

				7.10.Analysis and design of axially loaded circular columns(with lateral ties only)	1
				7.11.Type of footing	1
				7.12.Design of isolated square column footing of uniform thickness for flexure and shear	1
				7.13.Design of isolated square column footing of uniform thickness for flexure and shear	1
				7.14.Numericals	1
				7.15. Numericals	1
				7.16. Numericals	1
			EXTRA	7.17.Numericals	1
			CLASS	7.18.Class test	1