MAHAMAYA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCE, NUAPADA

LESSON PLAN (MONTH: FEBRUARY TO MAY 2023)

NAME OF THE FACULTY: Er.Priyabrata sahu BRANCH: CIVIL ENGG. SESSION:2022-23

Subject:- SD-1	Semester:-4TH	
Week	**Class Day**	**Theory Topics**
1st	1st	Working stress method (WSM) 1.1 Objectives of design and detailing. S tate the different methods of design of concrete structures.
	2nd	Introduction to reinforced concrete, R.C. sections their behavior, grades of concrete and steel. Permissible stresses, assumption in W.S.M.
	3rd	Flexural design and analysis of single reinforced sections from first principles.
	4th	Concept of under reinforced, over reinforced and balanced sections.
	5th	Advantages and disadvantages of WSM, reasons for its obsolescence
2nd	1st	Philosophy Of Limit State Method (LSM) 2.1 Definition, Advantages of LSM over WSM,
	2nd	IS code suggestions regarding design philosophy.
	3rd	Types of limit states, partial safety factors for materials strength,
	4th	characteristic strength, characteristic load, design load,
	5th	loading on structure as per I.S. 875
3rd	1st	Study of I.S specification regarding spacing of reinforcement in slab, ,
	2nd	cover to reinforcement in slab
	3rd	beam column & footing, minimum reinforcement in slab, beam & column,
	4th	lapping, anchorage, effective span for beam & slab.
	5th	Analysis and Design of Single and Double Reinforced Sections (LSM) 3.1 Limit state of collapse (flexure), Assumptions,
4th	1st	Stress-Strain relationship for concrete and steel, neutral axis, stress block diagram and strain diagram for singly reinforced section.
	2nd	Concept of under- reinforced, over-reinforced and limiting section, neutral axis co-efficient
	3rd	limiting value of moment of resistance and limiting percentage of steel required for limiting singly R.C. section.
	4th	Analysis and design: determination of design constants, moment of resistance and area of steel for rectangular sections
	5th	Necessity of doubly reinforced section
	1st	design of doubly reinforced rectangular section
	2nd	Shear, Bond and Development Length (LSM) 4.1 Nominal shear stress in R.C. section,

5th	3rd	design shear strength of concrete, maximum shear stress, design of shear reinforcement,
	4th	minimum shear reinforcement, forms of shear reinforcement.
	5th	Bond and types of bond, bond stress, check for bond stress,
6th	1st	development length in tension and compression, anchorage value for hooks 900 bend
	2nd	450 bend standards lapping of bars, check for development length.
	3rd	Numerical problems on deciding whether shear reinforcement is required or not, check for adequacy of the section in shear.
	4th	Design of shear reinforcement; Minimum shear reinforcement in beams (Explain through examples only).
	5th	Analysis and Design of T-Beam (LSM) 5.1 General features, advantages,
7th	1st	effective width of flange as per IS: 456-2000 code provisions.
	2nd	Analysis of singly reinforced T-Beam,
	3rd	strain diagram & stress diagram, depth of neutral axis,
	4th	moment of resistance of T-beam section with neutral axis lying within the flange.
	5th	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 in written examination).
8th	1st	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 in written examination).
	2nd	Analysis and Design of Slab and Stair case (LSM).
	3rd	6.1 Design of simply supported one-way slabs for flexure check for deflection control and shear
	4th	Design of one-way cantilever slabs
	5th	cantilevers chajjas for flexure check for deflection contro
9th	1st	check for development length and shear.
	2nd	Design of two-way simply supported slabs for flexure with corner free to lift
	3rd	Design of dog-legged staircase
	4th	CONTD..
	5th	Detailing of reinforcement in stairs spanning longitudinally.
10th	1st	Design of Axially loaded columns and Footings (LSM)
	2nd	Assumptions in limit state of collapse- compression.
	3rd	Definition and classification of columns
	4th	effective length of column.
	5th	Specification for minimum reinforcement
11th	1st	cover, maximum reinforcement
	2nd	number of bars in rectangular
	3rd	number of bars in square and circular section
	4th	diameter and spacing of lateral ties.

	5th	Analysis and design of axially loaded short square
12th	1st	Analysis and design of axially loaded short square, rectangular
	2nd	Analysis and design of axially loaded short square, rectangular and circular columns (with lateral ties only)
	3rd	Types of footing,
	4th	Design of isolated square column footing of uniform thickness for flexure and shear
	5th	Design of isolated square column footing of uniform thickness for flexure and shear
13th	1st	Design of isolated square column footing of uniform thickness for shear
	2nd	Design of isolated square column footing of uniform thickness for shear
	3rd	Doubt clearing
	4th	Doubt clearing
	5th	Revision
14th	1st	Revision
	2nd	Question discussion
	3rd	Question discussion
	4th	
	5th	
15th	1st	
	2nd	
	3rd	
	4th	
	5th	

Signature of faculty member

counter-signature of HOD