

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.

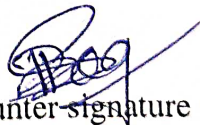
SESSION:2022-23

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

5th	3 rd	design shear strength of concrete, maximum shear stress, design of shear reinforcement,
	4 th	minimum shear reinforcement, forms of shear reinforcement.
	5 th	Bond and types of bond, bond stress, check for bond stress,
6th	1 st	development length in tension and compression, anchorage value for hooks 90° bend
	2 nd	45° bend standards lapping of bars, check for development length.
	3 rd	Numerical problems on deciding whether shear reinforcement is required or not, check for adequacy of the section in shear.
	4 th	Design of shear reinforcement; Minimum shear reinforcement in beams (Explain through examples only).
	5 th	Analysis and Design of T-Beam (LSM) 5.1 General features, advantages,
7th	1 st	effective width of flange as per IS: 456-2000 code provisions.
	2 nd	Analysis of singly reinforced T-Beam,
	3 rd	strain diagram & stress diagram, depth of neutral axis,
	4 th	moment of resistance of T-beam section with neutral axis lying within the flange.
	5 th	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	1 st	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).
	2 nd	Analysis and Design of Slab and Stair case (LSM).
	3 rd	6.1 Design of simply supported one-way slabs for flexure check for deflection control and shear
	4 th	Design of one-way cantilever slabs
	5 th	cantilevers chajjas for flexure check for deflection control
9th	1 st	check for development length and shear.
	2 nd	Design of two-way simply supported slabs for flexure with corner free to lift
	3 rd	Design of dog-legged staircase
	4 th	CONTD..
	5 th	Detailing of reinforcement in stairs spanning longitudinally.
10th	1 st	Design of Axially loaded columns and Footings (LSM)
	2 nd	Assumptions in limit state of collapse- compression.
	3 rd	Definition and classification of columns
	4 th	effective length of column.
	5 th	Specification for minimum reinforcement
11th	1 st	cover, maximum reinforcement
	2 nd	number of bars in rectangular
	3 rd	number of bars in square and circular section
	4 th	diameter and spacing of lateral ties.

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


Signature of faculty member


counter-signature of HOD