BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY
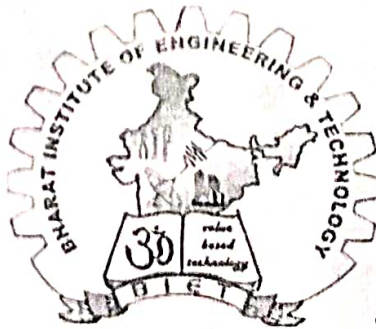
SIVARAM VIHAR, GHATAKESWAR HILLS
MOHADA, BERHAMPUR (GM.)

STUDENT'S ATTENDANCE REGISTER
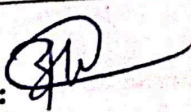
Time / Day	9:05 – 9:55	9:55 – 10:45	11:30 – 12:25		
Mon			✓		
Tues			✓		
WED	✓				
THU	✓				
SAT		✓			

Year/ Session	
Semester & Branch	4th sem, civil department
Subject with Code	Th-01 Structural design -I
Name of the Faculty Member	Bipin kumar Tripathy

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
			CHAPTER-1
			WORKING STRESS METHOD (WSM)
February		13.2.23	Objective of design & detailing. State the different methods of design of concrete structures
February		14.2.23	Introduction to reinforced concrete, R.C sections their behaviour, grades of concrete & steel, Permissible stresses assumption in WSM
		16.2.23	
		16.2.23	Flexural design & analysis of single reinforced sections from first principles
			Concept of under reinforced, Over reinforced & balanced section
		18.2.23	Advantages & disadvantages of WSM reasons for its obsolescence

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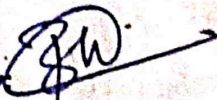| Month	Week	Class Day	Theory/Practical Topic
			CHAPTER -II
			PHILOSOPHY OF LIMIT STATE METHOD (LSM)
		18.2.23	• Definition, Advantages of LSM over WSM, IS code suggestions regarding design philosophy.
		20.2.23	• Types of limit state, partial safety factors for materials strength, characteristic strength, characteristic load, design load, loading on structure as per IS.875
		21.2.23	• Study of IS specification regarding spacing of reinforcement in slab, cover to reinforcement in slab, beam column & footing, minimum reinforcement in slab, beam & column, lapping, anchorage, effective span for beam & slab.

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Month	Week	Class Day	Theory/Practical Topic
			CHAPTER - III
		23·2·23	ANALYSIS & DESIGN OF SINGLE & DOUBLE REINFORCED SECTIONS (LSM) -
		23·2·23	· Limit state of collapse (flexure),
		25·2·23	Assumptions, stress-strain relationship
		27·2·23	for concrete & steel, neutral axis,
		28·2·23	stress block diagram & strain diagram for singly reinforced section.
		2·3·23	
		2·3·23	· Concept of under-reinforced, over reinforced & limiting section, neutral
		4·3·23	axis co-efficient, limiting value of moment of resistance & limiting percce-
		6·3·23	ntage of steel required for limiting singly. R.C. section.
		7·3·23	
		9·3·23	· Analysis & design: Determination of design constants,
		9·3·23	moment of resistance & area of
		11·3·23	Steel for rectangular sections

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Month	Week	Class Day	Theory/Practical Topic
		.3.23	Necessity of Doubly reinforced section, &
		3.23	Design of doubly reinforced section
		.3.23	of rectangular shape.
			CHAPTER-4
			SHEAR, BOND & DEVELOPMENT LENGTH (LSM)
March		16.3.23	Normal 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.
		16.3.23	
March		18.3.23	Bond & types of bond, bond stress, check for bond stress, development length in tension & compression, anchorage value for hooks 90° bend & 45° bend standards lapping

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Month	Week	Class Day	Theory/Practical Topic
March		20.3.23	Of bars, check for development length
		21.3.23	- 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
			CHAPTER - 5 ANALYSIS & DESIGN OF T-beams (LSM)
March		23.3.23 23.3.23 25.3.23 25.3.23	- General features, advantages, effective width of flange as per IS 456-2000 Code provisions
April		27.3.23 28.3.23 30.3.23 30.3.23 1.4.23 3.4.23 4.4.23	- Analysis of singly reinforced T-Beam strain diagram & stress diagram depth of neutral axis, moment of resistance of T-beam section with neutral axis lying within the flange

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Month	Week	Class Day	Theory/Practical Topic
April		6.4.23	- Simple numerical problems on deciding effective flange width
		6.4.23	(Problems only on finding moment of resistance of T-beam section when NA lies within or up to the bottom of flange)
		8.4.23	
		10.4.23	
April		11.4.23	CHAPTER-6. Analysis & Design of Slab
		13.4.23	& Stair Case (LSM) :-
		13.4.23	
		15.4.23	- Design of simply supported one-way slabs for flexure. check for deflection control & Shear
		17.4.23	
		18.4.23	
April		20.4.23	- Design of one way cantilever
		20.4.23	
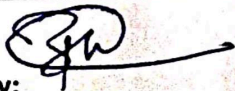
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Month	Week	Class Day	Theory/Practical Topic
April		22·4·23	Chajjas for flexure check for
		24·4·23	deflection control & check for
		25·4·23	development length & Shear
		27·4·23	• Design of two-way simply supported
		27·4·23	Slabs for flexure with corner
			free to lift.
		29·4·23	
			• Design of dog-legged staircase
May		1·5·23	
			• Detailing of reinforcement in stairs spanning longitudinally

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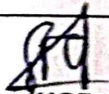# B.I.E.T.,COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
			CHAPTER-7
May		2.5.23	DESIGN OF AXIALLY LOADED COLUMNS & FOOTINGS (LSM
		4.5.23	
		4.5.23	- Assumptions in limit state of
		4.5.23	collapse - compression
		6.5.23	- Definition & classification of col
May		8.5.23	effective length of column, specific
		9.5.23	tions for minimum reinforcemer
		11.5.23	cover, maximum reinforcement,
		11.5.23	number of bars in rectangular
		13.5.23	square & circular sections,
		15.5.23	diameter & spacing of lateral
		16.5.23	ties.
May		18.5.23	- Analysis & design of axially
		18.5.23	loaded short square, rectangular
		20.5.23	& circular columns (with later ties only

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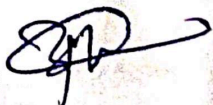
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Month	Week	Class Day	Theory/Practical Topic
May		22·5·23	–Types of footing, Design of isolated
		23·5·23	Square column footing of uniform
		23·5·23	thickness fore flexure & shear

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