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Lesson Plan/ Course Break – up

PCC-CVE 307-T- DESIGN OF CONCRETE STRUCTERES-I

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Name of the Faculty	:	Mr. Manik Goyal
Discipline	:	B.Tech in Civil Engineering
Semester	:	V (3rd Year)
Subject	:	Design of Concrete Structeres-I
Lesson Plan Duration	:	15 Weeks (from August to December2022)

Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 03

Week	Theory		
	Lecture Day	Topic (Including assignment / Test)	
1ˢᵗ	1	**Introduction***: Reinforced concrete- definition- properties of materials	
	2	Grades of concrete and reinforcing steel	
	3	Stress-strain curves	
2ⁿᵈ	4	Permissible stresses- shrinkage	
	5	Creep- design philosophies working stress design	
	6	Ultimate strength and limit state design method	
3ʳᵈ	7	**Limit State Design Method**: Introduction	
	8	Limit States- Characteristic values	
	9	Characteristic strength- characteristicloads	
4ᵗʰ	10	Design values for materials and loads- factored loads	
	11	**Limit State of Collapse (Flexure)**: Types of failures	
	12	Assumptions for analysis and design of singly reinforced	
5ᵗʰ	13	Doubly reinforced sections	
	14	Flanged sections	
	15	Design of Lintels- Design of one-way slabs	
6ᵗʰ	16	Design of Lintels- Design of one-way slabs	
	17	Two-way rectangular slabs	
	18	Circular slabs: Slabs with different edge conditions	
7ᵗʰ	**1ˢᵗ Minor Test**		
8ᵗʰ	19	**Limit State of Collapse (Shear- bond and torsion):** Introduction	
	20	Design for shear- structural components subjected to torsion	
	21	Design of rectangular beam section for torsion	
9ᵗʰ	22	Development length- continuation of reinforcement (beyond cut off points)	
	23	Development length- continuation of reinforcement (beyond cut off points)	
	24	**Limit State of Collapse (Compression)**: Columns and their classification	

10th	25	Reinforcement in columns- assumptions-	
	26	Short and long (both tied and helical) columns subjected to axial load-	
	27	Short and long (both tied and helical) columns subjected to axial load-	
11th	28	Short columns subject to axial- uniaxial and biaxial bending- Interaction Diagrams	
	29	Short columns subject to axial- uniaxial and biaxial bending- Interaction Diagrams	
	30	**Limit State of Serviceability***:* Deflection	
12th	31	Effective span to effective depth ratio-	
	32	Modification factors for singly reinforced	
	33	Doubly reinforcement and flanged beams-	
13th	34	Crack formation and its control.	
	35	**Limit State Design of miscellaneous structures**	
	36	Design of isolated footings- Design of staircases	
14th		**2nd Minor test**	
15th	37	**Introduction to Working Stress Design Method**	
	38	Application of SP 16 and Detailing of Reinforcement	
	39	Use of SP: 34- Codal Provision for RC Elements: (I) General (II) for ductility	