LESSON PLAN : Th 4(a). CONCRETE TECHNOLOGY (ELECTIVE),SESSION -2025-2026 (SUMMER-2026)BATCH-2023-2026(6th Semester)

Discipline: civil engineering	Semester: 6TH	Name of the Teaching Faculty: GOURANG CHARAN PRADHAN,Sr.Lect. In civil Engg.
Subject: Th 4(a). CONCRETE TECHNOLOGY (ELECTIVE)	No. of days/ per week class allotted: 4	Semester From Date : 22-12-2025 to Date: 18-04-2026 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
		1 Introduction
		1 Concrete as a construction material:
1ST	1	1.1 Grades of concrete.
	2	1.2 Advantages and disadvantages of concrete.
		2 Cement:
	3	Composition, hydration of cemen
	4	water cement ratio and compressive strength
2ND	1	fineness of cement
	2	setting time, soundness, types of cement.
		3 Aggregate, Water and Admixtures:
	3	3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383
	4	3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383
3RD	1	3.2 Quality of water for mixing and curing.
	2	3.2 Quality of water for mixing and curing.
	3	3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures
	4	3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures
		4 Properties of fresh concrete:
4TH	1	Concept of fresh concrete, workability
	2	slump test, compacting factor test
	3	V-bee consistency test
	4	flow test
5TH	1	requirement of workability,I.S.1199.
	2	requirement of workability,I.S.1199.

		5 Properties of hardened concrete:
	3	Cube and cylinder compressive strengths
	4	Introduction – Characteristics, Structure, importance.
6TH	1	flexural strength of concrete
	2	stress-strain and elasticity
	3	phenomena of creep and shrinkage
	4	permeability, durability of concrete
7TH	1	sulphate, chloride and acid attack on concrete efflorescence
		6 Concrete mix Design
	2	6.1 a) Introduction
	3	b) Data or input required for mix design.
	4	6.2 Nominal mix concrete &design mix concrete.
8TH	1	6.2 Nominal mix concrete &design mix concrete.
	2	6.3 Basic consideration for concrete mix design, Methods of
		7 Production of concrete:
	3	Batching of materials
	4	mixing of concrete materials, transportation
9TH	1	placing of concrete, compaction of concrete (vibrators)
	2	Curing of concrete, Formwork
	3	Curing of concrete, Formwork -requirements and types
	4	stripping of forms
		8. Inspection and Quality Control of Concrete
10TH	1	8.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete
	2	8.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete
	3	8.2 Mixing, Transporting, Placing &curing requirements of Concrete as per I.S.456
	4	8.2 Mixing, Transporting, Placing &curing requirements of Concrete as per I.S.456
11TH	1	8.3 Inspection and Testing as per Clause 17 of IS:456
	2	8.4 Durability requirements of Concrete as per I.S:456.
		9 Special Concrete
	3	9..1 Introduction to ready mix concrete
	4	9..1 Introduction to ready mix concrete
12TH	1	high performance concrete
	2	silica fume concrete
	3	shot-crete concrete or gunitting (Concepts only)
	4	shot-crete concrete or gunitting (Concepts only)
		10.Deterioration of concrete and its prevention

13TH	1	Types of deterioration
	2	Types of deterioration
	3	prevention of concrete deterioration
	4	prevention of concrete deterioration
14TH	1	corrosion of reinforcement
	2	effects and prevention
		11. Repair technology for concrete structures:
	3	1 Symptom, cause and prevention and remedy of defects during construction
	4	cracking of concrete due to different reasons
15TH	1	Repair of cracks for different purposes
	2	polymer based repairs, common types of repairs
	3	polymer based repairs, common types of repairs
	4	polymer based repairs, common types of repairs

20/12/25

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