



LESSON PLAN :Th 4(a). CONCRETE TECHNOLOGY (ELECTIVE),SESSION -2024-2025 (SUMMER 2024)BATCH-2021-2024(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 : 16/01/2024 to Date: 26/04/2024 . 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 cement	
	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	
	4	3.1 Classification and characteristics of aggregate, fineness modulus, grading of	
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	
	4	3.3 Important functions, classification of admixtures, I.S 9103, accelerating	
		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 proportioning concrete	
		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	
	2	8.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the	
	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 gunnitting (Concepts only)
	4	shot-crete concrete or gunnitting (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


15/01/2024.