



**LESSON PLAN : Th 4(a). CONCRETE TECHNOLOGY (ELECTIVE ), SESSION -2023-2024 (SUMMER 2023) BATCH,  
2020-2023(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 : 14-02-23 to Date: 31-05-2023 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
		<b>1 Introduction</b>
1ST	1	<b>1 Concrete as a construction material:</b> 1.1 Grades of concrete.
	2	1.2 Advantages and disadvantages of concrete.
	3	<b>2 Cement:</b> Composition, hydration of cement
	4	water cement ratio and compressive strength
2ND	1	fineness of cement
	2	setting time, soundness, types of cement.
	3	<b>3 Aggregate, Water and Admixtures:</b> 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
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.
	3	<b>5 Properties of hardened concrete:</b> 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
	2	<b>6 Concrete mix Design</b> 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 mix – I.S Code
	3	<b>7 Production of concrete:</b> 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
		<b>8. Inspection and Quality Control of Concrete</b>
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
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.
3	<b>9 Special Concrete</b>
4	9..1 Introduction to ready mix concrete
1	high performance concrete
2	silica fume concrete
3	shotcrete concrete or gunniting (Concepts only)
4	shotcrete concrete or gunniting (Concepts only)
	<b>10. Deterioration of concrete and its prevention</b>
1	Types of deterioration
2	Types of deterioration
3	prevention of concrete deterioration
4	prevention of concrete deterioration
1	corrosion of reinforcement
2	effects and prevention
	<b>11. Repair technology for concrete structures:</b>
3	1 Symptom, cause and prevention and remedy of defects during construction
4	cracking of concrete due to different reasons
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

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