

GOVERNMENT POLYTECHNIC JAIPUR

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DEPARTMENT OF CIVIL ENGINEERING

LESSON PLAN

Discipline: Civil Engg.	Semester: 6th	Name of the Teaching faculty: Smt. Sushree Souravi Rout
Subject: Concrete Technology Th-4	No of Days/Week class allotted: 4	Semester From Date: 04.02.2025 To Date: 17.05.2025 No of weeks: 15
Week	Class Day	Topics
1st	1st	Concrete as a construction material: Grades of concrete.
	2nd	Advantages and disadvantages of concrete.
	3rd	Cement: Composition, hydration of cement
	4th	water cement ratio and compressive strength
2nd	1st	fineness of cement, setting time
	2nd	soundness, types of cement.
	3rd	Aggregate, Water and Admixtures: Classification and characteristics of aggregate
	4th	fineness modulus, grading of aggregate, I.S. 383
3rd	1st	Quality of water for mixing and curing.
	2nd	Important functions, classification of admixtures
	3rd	accelerating admixtures, retarding admixtures,
	4th	water reducing admixtures, air containing admixtures
4th	1st	Properties of fresh concrete: Concept of fresh concrete, workability
	2nd	slump test, compacting factor test
	3rd	slump test, compacting factor test
	4th	slump test, compacting factor test
5th	1st	V-bee consistency test and flow test, requirement of workability
	2nd	V-bee consistency test and flow test, requirement of workability
	3rd	Properties of hardened concrete: Cube and cylinder compressive strengths
	4th	flexural strength of concrete
6th	1st	stress-strain and elasticity, phenomena of creep and shrinkage
	2nd	stress-strain and elasticity, phenomena of creep and shrinkage
	3rd	permeability, durability of concrete
	4th	sulphate, chloride and acid attack on concrete, efflorescence
7th	1st	sulphate, chloride and acid attack on concrete, efflorescence
	2nd	Concrete mix Design a) Introduction
	3rd	b) Data or input required for mix design
	4th	Nominal mix concrete & design mix concrete.

8th	1st	Basic consideration for concrete mix design
	2nd	Methods of proportioning concrete mix – I.S. Code method of mix design (I.S. 10262)
	3rd	Production of concrete: Batching of materials
	4th	mixing of concrete materials, transportation
9th	1st	placing of concrete, compaction of concrete (vibrators)
	2nd	Curing of concrete, Formwork-requirements and types, stripping of forms.
	3rd	Curing of concrete, Formwork-requirements and types, stripping of forms.
	4th	Curing of concrete, Formwork-requirements and types, stripping of forms.
10th	1st	Inspection and Quality Control of Concrete Quality control of Concrete as per I.S. 456,
	2nd	Factors causing the variations in the quality of concrete
	3rd	Mixing, Transporting, Placing & curing requirements of Concrete as per I.S. 456.
	4th	Mixing, Transporting, Placing & curing requirements of Concrete as per I.S. 456.
11th	1st	Inspection and Testing as per Clause 17 of IS: 456.
	2nd	Durability requirements of Concrete as per I.S: 456
	3rd	Special Concrete Introduction to ready mix concrete
	4th	high performance concrete
12th	1st	high performance concrete
	2nd	silica fume concrete
	3rd	shotcrete or gunite (Concept only).
	4th	shotcrete or gunite (Concept only).
13th	1st	Deterioration of concrete and its prevention: Types of deterioration,
	2nd	prevention of concrete deterioration
	3rd	prevention of concrete deterioration
	4th	corrosion of reinforcement
14th	1st	effects and prevention
	2nd	effects and prevention
	3rd	Repair technology for concrete structures: Symptom, cause and prevention and remedy of defects during construction
	4th	Symptom, cause and prevention and remedy of defects during construction
15th	1st	cracking of concrete due to different reasons.
	2nd	Repair of cracks for different purposes
	3rd	selection of techniques, polymer based repairs, common types of repairs.
	4th	selection of techniques, polymer based repairs, common types of repairs.
16th	1st	PREVIOUS YEAR QUESTIONS & ANSWERS PRACTICE.

LearningResources:

SINo.	AuthorName	NameoftheBook
1	M.SShetty&A.K.Jain	ConcreteTechnology
2	M.L.Gambhir	ConcreteTechnology
3	ARSanthakumar	ConcreteTechnology

Smt.SushreeSouravi Rout

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