



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT : Th-4 (CONCRETE TECHNOLOGY)

Name Of The Faculty :- Er. Kumar Swatiranjan

Branch :- Civil Engineering

Semester :- 6TH

Session :- 2024-25

Examination :- 2025 (S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Concrete as a construction material	2	2
2	Cement	4	6
3	Aggregate, Water and Admixtures	6	6
4	Properties of fresh concrete	6	6
5	Properties of hardened concrete	7	9
6	Concrete mix Design	5	5
7	Production of concrete	6	8
8	Inspection and Quality Control of Concrete	6	8
9	Special Concrete	6	8
10	Deterioration of concrete and its prevention	6	8
11	Repair technology for concrete structures	6	6
	Total Period:	60	72

Sign of Faculty

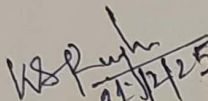
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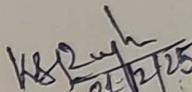
Discipline: CIVIL ENGINEERING	Semester: 6th	Name of the Teaching Faculty: Er. Kumar Swatiranjan	
		SESSION : 2024-25	EXAMINATION : 2025(S)
Week	Class Day	Topics to be Covered	
1 st	1 st	1.Concrete as a construction material: 1.1 Grades of concrete.	
	2 nd	1.2 Advantages and disadvantages of concrete.	
	3 rd	2.Cement: 2.1 Composition, hydration of cement,	
	4 th	2.1Water cement ratio and compressive strength	
	5 th	2.1Water cement ratio and compressive strength	
2 nd	1 st	2.1 Fineness of cement, setting time,	
	2 nd	2.1 Fineness of cement, setting time,	
	3 rd	2.1Soundness, types of cement	
	4 th	3.Aggregate, Water and Admixtures: 3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383	
	5 th	3.Aggregate, Water and Admixtures: 3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383	
3 rd	1 st	3.2 Quality of water for mixing and curing.	
	2 nd	3.2 Quality of water for mixing and curing.	
	3 rd	3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures	
	4 th	3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures	
	5 th	4.Properties of fresh concrete: 4.1 Concept of fresh concrete.	
4 th	1 st	4.1 workability test.	
	2 nd	4.1slump test,	
	3 rd	4.1compacting factor test.	
	4 th	4.1V- bee consistency test and flow test.	
	5 th	4.1requirement of workability,I.S.1199.	

5 th	1 st	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths
	2 nd	5.1 Flexural strength of concrete,
	3 rd	5.1 Stress- strain and elasticity,
	4 th	5.1 Phenomena of creep and shrinkage
	5 th	5.1 Permeability
6 th	1 st	5.1 Durability of concrete
	2 nd	5.1 Sulphate
	3 rd	5.1 Chloride and acid attack on concrete,
	4 th	5.1 Efflorescence
	5 th	6.Concrete mix Design 6.1 a) Introduction
7 th	1 st	b) Data or input required for mix design.
	2 nd	6.2 Nominal mix concrete & design mix concrete.
	3 rd	6.3 Basic consideration for concrete mix design.
	4 th	6.3 Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)
	5 th	7.Production of concrete: 7.1 Batching of materials
8 th	1 st	7.1mixing of concrete materials
	2 nd	7.1transportation
	3 rd	7.1placing of concrete
	4 th	7.1compaction of concrete (vibrators)
	5 th	7.1 Curing of concrete
9 th	1 st	7.1Formwork- requirements and types
	2 nd	7.1stripping of forms. (Concepts only)
	3 rd	10.Inspection and Quality Control of Concrete 10.1 Quality control of Concrete as per I.S.456
	4 th	10.1 Factors causing the variations in the quality of concrete
	5 th	10.2 Mixing, Transporting, Placing & curing requirements of Concrete as per I.S.456.

10 th	1 st	10.2 Mixing, Transporting, Placing & curing requirements of Concrete as per I.S.456.
	2 nd	10.3 Inspection and Testing as per Clause 17 of IS:456.
	3 rd	10.3 Inspection and Testing as per Clause 17 of IS:456.
	4 th	10.4 Durability requirements of Concrete as per I.S:456.
	5 th	10.4 Durability requirements of Concrete as per I.S:456.
11 th	1 st	11.Special Concrete 11.1 Introduction to ready mix concrete
	2 nd	11.1 Introduction to ready mix concrete
11 th	3 rd	INTERNAL ASSESMENT.
	4 th	INTERNAL ASSESMENT.
	5 th	11.1high performance concrete
12 th	1 st	11.1high performance concrete
	2 nd	11.1 silica fume concrete
	3 rd	11.1 silica fume concrete
	4 th	11.1shot-crete concrete or gunitting (Concepts only).
	5 th	11.1shot-crete concrete or gunitting (Concepts only).
13 th	1 st	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration
	2 nd	12.1 Types of deterioration
	3 rd	12.1prevention of concrete deterioration
	4 th	12.1prevention of concrete deterioration
	5 th	12.1 corrosion of reinforcement
14 th	1 st	12.1 corrosion of reinforcement
	2 nd	12.1effects and prevention
	3 rd	12.1effects and prevention
	4 th	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction
	5 th	13.1cracking of concrete due to different reasons.

15 th	1 st	13.1 Repair of cracks for different purposes
	2 nd	13.1 selection of techniques
	3 rd	13.1 polymer based repairs
	4 th	13.1 common types of repairs.
	5 th	Revision


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