



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



LESSON PLAN

SUBJECT : Th-4 (CONCRETE TECHNOLOGY)

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

Discipline: CIVIL ENGINEERING	Semester: 6th	Name of the Teaching Faculty: Er. Kumar Swatiranjan	
		SESSION : 2023-24	EXAMINATION : 2024(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	4.1 requirement 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	7.1 mixing of concrete materials
	2 nd	7.1 transportation
	3 rd	7.1 placing of concrete
	4 th	7.1 compaction of concrete (vibrators)
	5 th	7.1 Curing of concrete
9 th	1 st	7.1 Formwork- requirements and types
	2 nd	7.1 stripping 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
	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
	1 st	12.1 corrosion of reinforcement
	2 nd	12.1effects and prevention
	3 rd	12.1effects and prevention

14th	4th	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction
	5th	13.1cracking of concrete due to different reasons.
15th	1st	13.1Repair of cracks for different purposes
	2nd	13.1selection of techniques
	3rd	13.1 polymer based repairs
	4th	13.1common types of repairs.
	5th	Revision