



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	4
3	Aggregate, Water and Admixtures:	6	6
4	Properties of fresh concrete	6	6
5	Properties of hardened concrete	7	7
6	Concrete mix Design	5	5
7	Production of concrete	6	6
8	Inspection and Quality Control of Concrete	6	6
9	Special Concrete	6	6
10	Deterioration of concrete and its prevention	6	6
11	Repair technology for concrete structures	6	6

	Total Period:	60	60
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Discipline: CIVIL ENGINEERING	Semester: 6TH	Name of the Teaching Faculty: KUMAR SWATIRANJAN
Week	Class Day	Theory / Practical Topics
1st	1st	1.Concrete as a construction material: 1.1 Grades of concrete.
	2nd	1.2 Advantages and disadvantages of concrete.
	3rd	2.Cement: 2.1 Composition, hydration of cement, water cement ratio and compressive strength, fineness of cement, setting time, soundness, types of cement
	4th	2.Cement: 2.1 Composition, hydration of cement, water cement ratio and compressive strength, fineness of cement, setting time, soundness, types of cement
	1st	2.Cement: 2.1 Composition, hydration of cement, water cement ratio and compressive strength, fineness of cement, setting time, soundness, types of cement

2nd	2nd	2.Cement: 2.1 Composition, hydration of cement, water cement ratio and compressive strength, fineness of cement, setting time, soundness, types of cement
	3rd	3.Aggregate, Water and Admixtures: 3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383
	4th	3.Aggregate, Water and Admixtures: 3.1 Classification and characteristics of aggregate, fineness modulus, grading of aggregate,I.S.383
3rd	1st	3.2 Quality of water for mixing and curing.
	2nd	3.2 Quality of water for mixing and curing.
	3rd	3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures
	4th	3.3 Important functions, classification of admixtures, I.S 9103, accelerating admixtures, retarding admixtures, water reducing admixtures, air containing admixtures
	1st	4.Properties of fresh concrete: 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V- bee consistency test and flow test, requirement of workability,I.S.1199.

4 th	2 nd	4.Properties of fresh concrete: 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V-bee consistency test and flow test, requirement of workability,I.S.1199.
	3 rd	4.Properties of fresh concrete: 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V-bee consistency test and flow test, requirement of workability,I.S.1199.
	4 th	4.Properties of fresh concrete: 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V-bee consistency test and flow test, requirement of workability,I.S.1199.
5 th	1 st	4.Properties of fresh concrete: 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V-bee consistency test and flow test, requirement of workability,I.S.1199.
	2 nd	4.Properties of fresh concrete: 4.1 Concept of fresh concrete, workability, slump test, compacting factor test, V-bee consistency test and flow test, requirement of workability,I.S.1199.
	3 rd	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence
	4 th	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence
	1 st	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence

6 th	2 nd	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence
	3 rd	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence
	4 th	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence
7 th	1 st	5.Properties of hardened concrete: 5.1 Cube and cylinder compressive strengths, flexural strength of concrete, stress-strain and elasticity, phenomena of creep and shrinkage, permeability, durability of concrete, sulphate, chloride and acid attack on concrete, efflorescence
	2 nd	6.Concrete mix Design 6.1 a) Introduction
	3 rd	b) Data or input required for mix design.
	4 th	6.2 Nominal mix concrete & design mix concrete.
8 th	1 st	6.3 Basic consideration for concrete mix design, Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)

8 th	2 nd	6.3 Basic consideration for concrete mix design, Methods of proportioning concrete mix – I.S Code method of mix design(I.S.10262)
	3 rd	7.Production of concrete: 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types ,stripping of forms. (Concepts only
	4 th	7.Production of concrete: 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types ,stripping of forms. (Concepts only
9 th	1 st	7 Production of concrete: 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types ,stripping of forms. (Concepts only
	2 nd	7.Production of concrete: 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types ,stripping of forms. (Concepts only
	3 rd	7.Production of concrete: 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types ,stripping of forms. (Concepts only
	4 th	7.Production of concrete: 7.1 Batching of materials, mixing of concrete materials, transportation, placing of concrete, compaction of concrete (vibrators), Curing of concrete, Formwork-requirements and types ,stripping of forms. (Concepts only
	1 st	10 Inspection and Quality Control of Concrete 10.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete

10 th	2 nd	10. Inspection and Quality Control of Concrete 10.1 Quality control of Concrete as per I.S.456, Factors causing the variations in the quality of concrete
	3 rd	10.2 Mixing, Transporting, Placing & curing requirements of Concrete as per I.S.456.
	4 th	10.2 Mixing, Transporting, Placing & curing requirements of Concrete as per I.S.456.
11 th	1 st	10.3 Inspection and Testing as per Clause 17 of IS:456.
	2 nd	10.4 Durability requirements of Concrete as per I.S:456.
	3 rd	11. Special Concrete 11.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunnitting (Concepts only).
	4 th	11. Special Concrete 11.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunnitting (Concepts only).
	1 st	11. Special Concrete 11.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunnitting (Concepts only).

12 th	2 nd	11.Special Concrete 11.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunnitting (Concepts only).
	3 rd	11.Special Concrete 11.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunnitting (Concepts only).
	4 th	11 Special Concrete 11.1 Introduction to ready mix concrete, high performance concrete, silica fume concrete, shot-crete concrete or gunnitting (Concepts only).
13 th	1 st	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention
	2 nd	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention
	3 rd	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention
	4 th	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention
	1 st	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention

14th	2nd	12.Deterioration of concrete and its prevention: 12.1 Types of deterioration, prevention of concrete deterioration, corrosion of reinforcement, effects and prevention
	3rd	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. Repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.
	4th	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. Repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.
15th	1st	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. Repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.
	2nd	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. Repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.
	3rd	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. Repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.
	4th	13.Repair technology for concrete structures: 13.1 Symptom, cause and prevention and remedy of defects during construction, cracking of concrete due to different reasons. Repair of cracks for different purposes, selection of techniques, polymer based repairs, common types of repairs.