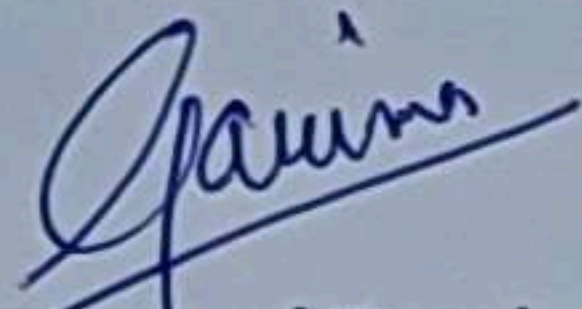



DEPARTMENT OF CIVIL ENGINEERING
GOVERNMENT POLYTECHNIC SUNDERNAGAR

LESSON PLAN FOR Concrete Technology (SEMESTER-3rd)SESSION: (Aug-Dec 2025)

| S.No. | MONTH | WEEK | CONTENTS | REMARKS |
|-------|-----------|--------|--|---------|
| 1 | August | Week 1 | Unit – I Cement, Aggregates and Water :Physical properties of OPC and PPC: fineness, standard consistency, setting time,soundness, compressive strength. | |
| | | Week 2 | Different grades of OPC and relevant BIS codes Storage of cement and effect of storage on properties of cement. BIS Specifications and field applications of different types of cements: Rapid hardening, Low heat, Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and Whitecement. | |
| | | Week 3 | Aggregates: Requirements of good aggregate, Classification according to size and shape. Fine aggregates: Properties, size, specific gravity, bulk density, water absorption and bulking, fineness modulus and grading zone of sand, silt content and their specification as per IS 383. Concept of crushed Sand. | |
| | | Week 4 | Coarse aggregates: Properties, size, shape, surface texture, water absorption, soundness, specific gravity and bulk density, fineness modulus of coarse aggregate, grading of coarse aggregates, crushing value, impact value and abrasion value of coarse aggregates with specifications. | |
| | | Week 5 | Water: Quality of water, impurities in mixing water and permissible limits for solids as per IS: 456. | |
| 2 | September | Week 1 | Unit– II Concrete Concrete: Different grades of concrete, provisions of IS 456. Duff Abraham water cement (w/c) ratio law, significance of w/c ratio, selection of w/c ratio for different grades, | |
| | | Week 2 | maximum w/c ratio for different grades of concrete for different exposure conditions as per IS 456. . Class Test -1 Will be held this week. | |
| | | Week 3 | Properties of fresh concrete: Workability: Factors affecting workability of concrete. Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer. | |
| | | Week 4 | Value of workability requirement for different types of concrete works. Segregation, bleeding, and preventive measures. Properties of Hardened concrete: Strength, Durability, Impermeability | |
| | | Week 5 | Unit– III Concrete Mix Design and Testing of Concrete : Concrete mix design: Objectives, methods of mix design, study of mix design as per IS 10262 (only procedural steps). Testing of concrete, determination of compressive strength of concrete cubes at different ages, | |

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| 3 | October | Week 1 | Interpretation, and co-relation of test results. Non- destructive testing of concrete: Rebound hammer test, working principle of rebound hammer and factor affecting the rebound index, Ultrasonic pulse velocity test as per IS 13311 (part 1 and 2), Importance of NDT tests. | |
| | | Week 2 | Unit– IV Quality Control of Concrete Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction, Curing and Finishing of concrete. Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work, requirement of good form work. | |
| | | Week 3 | Stripping time for removal of form works per IS 456. Waterproofing: Importance and need of waterproofing, methods of waterproofing and materials used for waterproofing. Class Test -2 Will be held this week. | |
| | | Week 4 | Joints in concrete construction: Types of joints, methods for joining old and new concrete, materials used for filling joints. | |
| | | Week 5 | Unit– V Chemical Admixture, Special Concrete and Extreme Weather concreting Admixtures in concrete: Purpose, properties and application for different types of admixtures such as accelerating admixtures, retarding admixtures, water reducing admixtures, air entraining admixtures and super plasticizers. | |
| 4 | November | Week 1 | Special Concrete: Properties, advantages and limitation of following types of Special concrete: Ready mix Concrete, Fibre Reinforced Concrete, High performance Concrete Self-compacting concrete and light weight concrete. | |
| | | Week 2 | House Test will be held this week | |
| | | Week 3 | Cold weather concreting: effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition. | |
| | | Week 4 | Hot weather concreting: effect of hot weather on concrete, precautions to be taken while concreting in hot weather condition. | |
| | | Week 5 | Revision of Previous Year Question Papers | |


 Signature of Teacher
 (Er Garima Sharma)


 Signature of H.O.D
 (Er Anita Joshi)