

शासकीय पॉलिटेक्निक गरियाबंद



शासकीय पॉलिटेक्निक गरियाबंद

Subject : Concrete Technology

Semester : 4th

Session : Jan - June - 2025

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GOVERNMENT POLYTECHNIC GARIYABAND

DEPARTMENT OF CIVIL ENGINEERING

LESSON PLAN

Session:- Jan-June 20....

Session start date as per University Calendar:

Subject Name:- **CONCRETE TECHNOLOGY**

Name of Subject teacher:- Nagendra patel

Course Code:- **2020474(020)**

Lecture plus Tutorial/Week:- 02

| Lecture No. | No. & Name of chapter | Topic/Subtopics to be covered under this unit | No. of period planned | Actual no. of period taken | Date of class conduction | Remarks |
|-------------|---|---|-----------------------|----------------------------|--------------------------|---------|
| 01 | UNIT-01 Introduction to Concrete | Concrete and its ingredients and their functions, Various mixes and grades, Various types of concrete and their uses Advantages and disadvantages of concrete | 01 | 01 | 06/02/25 | |
| 02 | | Ingredients of concrete Water: Requirements of quality of water in concrete as per IS:456-2000 and its function. Cement, Function of cement in concrete, Ingredients of ordinary Portland cement and their function | 01 | 01 01 | 07/02/25 08/02/25 | |
| 03 | | Bogue's compounds and its functions test on cement: fineness, standard consistency, initial & final setting times, compressive strength & soundness, Different types and Grades of cement as per IS Codes | 01 | 02 | 14/02/25 18/02/25 | |
| 04-05 | | Classification: According to size, shape, texture and source. Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate; bulk density, water absorption, surface moisture, bulking of sand, deleterious materials soundness | 02 | 02 | 20/02/25 24/02/25 | |
| 06 | | Grading of aggregates: coarse aggregate, fine aggregate; All-in-aggregate; fineness modulus; interpretation of grading charts | 01 | 01 | 25/02/25 | |
| 07 | | Fresh concrete and its properties - water cement ratio, Workability, hardness, Segregation and bleeding | 01 | 01 | 27/02/25 | |
| 08-09 | | Factors affecting workability Methods of measurement of workability Slump Test & | 02 | 02 | 03/03/25 04/03/25 | |

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| 10 | UNIT-02 Fresh concrete | Recommended slumps for placement in various conditions as per IS:456- 2000/SP-23 Relation between workability and strength of concrete | 01 | 02 | 10/03/25 11/03/25 | |
| 11 | | Batching of materials. Methods of mixing of concrete – Hand & Machine Mixing, mixing time , Transportation and Placing of concrete | 01 | 02 | 17/03/25 18/03/25 | |
| 12 | | Ready mixed concrete ,proportioning ready mixed concrete. production of ready mixed concrete | 01 | 01 | 20/03/25 | |
| 13 | | Methods of compaction of concrete and its suitability. Factors affecting compaction Finishing of concrete Curing and its importance , its methods and suitability, Effect of curing on development of strength of concrete | 01 | 03 | 22/03/25 28/03/25 01/04/25 | |
| 14 | | Admixtures and its benefits , Types of Admixtures - Accelerator and Retarder Plasticizer and Super Plasticizer and Air entraining admixture , Utility of Admixtures | 01 | 02 | 03/04/25 07/04/25 | |
| 15 | Unit-03 Hardened Concrete | Compressive Strength ,Tensile Strength, Bond Strength, Flexure Strength Durability, impermeability Factors affecting Compressive Strength | 01 | 02 | 08/04/25 15/04/25 | |
| 16 | | IS Test Procedure to find Compressive & Tensile Strength of Concrete, Acceptance Criteria, Mean Strength & Standard Deviation | 01 | 02 | 17/04/25 21/04/25 | |
| 17 | | Durability of Concrete & factors affecting it, Economy of Concrete & factors affecting it | 01 | 02 | 22/04/25 24/04/25 | |
| 18 | | Methods of Non Destructive Test of Concrete Rebound Hammer Test, Ultrasonic Pulse Velocity Test | 01 | 02 + | 25/04/25 25/04/25 | |
| 19-20 | | Introduction to Special concrete: Light weight concrete, Mass concrete, Fibre reinforced concrete, Polymer concrete, | 02 | 02 01 | 02/05/25 06/05/25 08/05/25 | |
| 21 | | High density concrete, No fines concrete, Ferro cement, Shortcrete | 01 | 02 01 | 09/05/25 10/05/25 | |
| 22 | | Factors causing variation in quality of concrete, Field Control , Advantages of Quality control. | 01 | 01 01 | 13/05/25 15/05/25 | |
| 23 | Unit-04 Concrete Mix design | Statistical Quality control. Concrete Mix Design and its importance | 01 | 01 | 16/05/25 | |
| 24 | | Nominal Mix and Design Mix. | 01 | | | |
| 25 | | Factors affecting concrete mix design | 01 | | | |
| 26 | | Different methods of Mix Design | 01 | | | |

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| | | Mix As per IS 10262- 2009. Example of Mix design as per I.S. method safety precautions observed | | | | |
| 29 | Unit-05 Defects and Repair of concrete | Deterioration of concrete, Types of deteriorations and its effects, Prevention of concrete deterioration. | 01 | | | |
| 30 | | Corrosion of reinforcement, Effect of corrosion of reinforcement in concrete and remedial measures | 01 | | | |
| 31 | | Types, causes and remedies of concrete cracks before hardening and after hardening | 01 | | | |
| 32 | | Evaluation of cracks, methods of evaluation of cracks | 01 | | | |
| 33 | | Prevention of cracks , Materials for repair of cracks, Methods used for repair of cracked Concrete | 01 | | | |
| 34 | | Repair and strengthening of column, repair of concrete floor slab system, overlays and surface treatments, underwater repairs | 01 | | | |
| 35 | | Strengthening of damaged structures, section enlargement, Strengthening of beams and slabs | 01 | | | |
| | | Total | 35 | | | |

M. Patel

Signature of teacher

[Signature]
HOD

Defects

Topics to

Unit No.

Lecture No.