

Lesson Plan

Course - Building Material and Concrete Technology (Th-5)

Semester- 3rd

Program- Civil Engineering

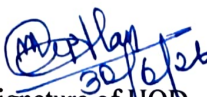
Institute - Govt. Polytechnic, Sonpur

Session - 2026-2027

Sl. No.	Week No.	Class No.	Topic to be Covered
1	1	Class 1	Unit I: Scope of Construction Materials in Building, Transportation, Environmental and Irrigation Engineering
2	1	Class 2	Selection of Materials based on Strength, Durability, Economy and Eco-friendliness
3	1	Class 3	Classification of Construction Materials – Natural, Artificial, Special, Finishing and Recycled
4	2	Class 1	Unit II: Building Stones – Requirements, Characteristics
5	2	Class 2	Quarrying, Dressing Methods and Tools for Stone
6	2	Class 3	Timber – Structure, Properties and Uses
7	3	Class 1	Seasoning and Preservation of Timber, Defects in Timber
8	3	Class 2	Bamboo in Construction, Asphalt, Bitumen and Tar – Properties and Uses
9	3	Class 3	Lime – Types, Properties and Uses; Soil Types, Sand Properties and Classification of Coarse Aggregate
10	4	Class 1	Unit III: Constituents of Brick Earth
11	4	Class 2	Traditional, Modular, Standard and Fly Ash Bricks
12	4	Class 3	Characteristics of Good Brick, Field Tests and Classification of Burnt Clay Bricks
13	5	Class 1	Manufacturing of Burnt Clay Bricks, Fly Ash Bricks and Aerated Concrete Blocks
14	5	Class 2	Flooring Tiles, Precast Concrete Blocks and Their Uses
15	5	Class 3	Plywood, Particle Board, Veneers, Laminated Boards, Glass, Ferrous and Non-Ferrous Metals
16	6	Class 1	Unit IV: Composition of Cement
17	6	Class 2	Manufacturing Process of Cement (Dry & Wet Process), Types and Uses of Cement
18	6	Class 3	Field Tests on Cement, Physical Properties of OPC & PPC
19	7	Class 1	Cement Tests – Fineness, Standard Consistency and Setting Time
20	7	Class 2	Soundness, Compressive Strength, Grades of OPC and BIS Codes
21	7	Class 3	Storage of Cement and Effect of Storage
22	8	Class 1	Special Cements – Rapid Hardening, Low Heat, PPC, Sulphate Resisting
23	8	Class 2	Blast Furnace Slag, High Alumina and White Cement
24	8	Class 3	Aggregates – Requirements, Classification According to Size and Shape

25	9	Class 1	Fine Aggregates – Properties, Specific Gravity, Bulk Density, Water Absorption
26	9	Class 2	Bulking, Fineness Modulus, Grading Zone, Silt Content, IS 383 and Crushed Sand
27	9	Class 3	Coarse Aggregates – Properties, Shape, Texture, Water Absorption, Soundness
28	10	Class 1	Grading, Crushing Value, Impact Value and Abrasion Value of Coarse Aggregate
29	10	Class 2	Water for Concrete – Quality, Impurities and IS 456 Requirements
30	10	Class 3	Admixtures – Accelerating, Retarding, Water Reducing, Air Entraining and Superplasticizers
31	11	Class 1	Unit V: Concrete – Grades of Concrete and IS 456 Provisions
32	11	Class 2	Duff Abram's Water-Cement Ratio Law, Selection of W/C Ratio
33	11	Class 3	Maximum W/C Ratio for Different Exposure Conditions
34	12	Class 1	Fresh Concrete – Workability and Factors Affecting Workability
35	12	Class 2	Slump Test, Compaction Factor Test and Vee-Bee Consistometer
36	12	Class 3	Segregation, Bleeding and Properties of Hardened Concrete – Strength, Durability and Impermeability
37	13	Class 1	Unit VI: Concrete Mix Design – Objectives and Methods
38	13	Class 2	Mix Design Procedure as per IS 10262
39	13	Class 3	Non-Destructive Testing – Rebound Hammer Test, Ultrasonic Pulse Velocity Test and Importance of NDT
40	14	Class 1	Unit VII: Concreting Operations – Batching, Mixing, Transportation and Placing
41	14	Class 2	Compaction, Curing, Finishing, Formwork, Requirements and Stripping Time as per IS 456
42	14	Class 3	Waterproofing – Importance, Methods, Materials, Joints in Concrete and Repair of Old & New Concrete
43	15	Class 1	Unit VIII: Special Concrete – RMC, Fibre Reinforced Concrete, High Performance Concrete
44	15	Class 2	Self-Compacting Concrete, Lightweight Concrete – Properties, Advantages and Limitations
45	15	Class 3	Cold Weather Concreting, Hot Weather Concreting, Precautions and Overall Course Revision


 Signature of Faculty
 Civil Engg, GP Sonpur


 Signature of MOD
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