

GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2026-27 (WINTER)

Discipline : CIVIL ENGG.		Semester: 3rd		Name of the Teaching Faculty : Anita Pradhan		
Subject : BM&CT		No. of Days / per week class allotted : 03		Semester From date : 01.07.2026 05.11.2026		
To Date :						
MONTH	Week	Day	Unit	Topics		
JULY	1st	3rd	UNIT-I	Overview of Construction Materials		
		5th		Scope of construction materials in Building Construction, Transportation Engineering, Environmental Engineering, and Irrigation Engineering (applications only).		
				Selection of materials for different civil engineering structures on the basis of strength, durability, Eco friendly and economy. Broad classification of materials –, Natural, Artificial, special, finishing and recycled.		
	2nd	1st	UNIT-II	Natural Construction Materials-		
		3rd		Requirements of good building stone; general characteristics of stone; quarrying and dressing methods and tools for stone		
				Structure of timber, general properties and uses of good timber, different methods of seasoning for preservation of timber, defects in timber, use of bamboo in construction.		
	3rd	5th		Asphalt, bitumen and tar used in construction, properties and uses.		
		1st		Properties of lime, its types and uses.		
		3rd		Types of soil and its suitability in construction.		
	4th	5th	Properties of sand and uses			
		5th	Classification of coarse aggregate according to size & Question Discussion			
			Artificial Construction Materials			
	5th		1st	Constituents of brick earth, Conventional / Traditional bricks, Modular and Standard bricks, Special bricks – fly ash bricks, Characteristics of good brick, Field tests on Bricks,		
		3rd	Classification of burnt clay bricks and their suitability, Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks.			
			Flooring tiles – Types, uses			
	AUGUST	2nd	1st	UNIT-III	Pre-cast concrete blocks- hollow, solid, pavement blocks, and their uses.	
			3rd		Plywood, particle board, Veneers, laminated board and their uses.	
Types of glass: soda lime glass, lead glass and borosilicate glass and their uses.						
3rd		5th	Ferrous and non-ferrous metals and their uses & Question Discussion			
		Cement, Aggregates , Water and Admixture				
		Composition of Cement				
4th		5th	Manufacturing process of Cement – dry and wet (only flow chart), types of cement and its uses. Field tests on cement.			
		5th	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength. Different grades of OPC and relevant BIS codes.			
			Testing of cement: Laboratory tests-fineness, standard consistency, setting time, soundness, compressive strength. Storage of cement and effect of storage on properties of cement.			
5th			1st	BIS Specifications and field applications of different types of cements: Rapid hardening, Lowheat, Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and White cement.		
		3rd	Question Discussion			
			Aggregates: Requirements of good aggregate, Classification according to size and shape.			
5th		5th	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.			
		Birthday of Prophet Mohammad				
		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				
1st		3rd	Water: Quality of water, impurities in mixing water and permissible limits for solids as per IS: 456.			
		5th				
	JANMASTAMI					

SEPTEMBER	2nd	1st	UNIT-V	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. (concepts only)
		3rd		Concrete
		5th		Concrete: Different grades of concrete, provisions of IS 456 (Latest).
	3rd	1st		1st Internal Assessment
		3rd		GANESH PUJA
		5th		NUAKHAI
	4th	1st		Duff Abraham water cement (w/c) ratio law, significance of w/c ratio, selection of w/c ratio for different grades, maximum w/c ratio for different grades of concrete for different exposure conditions as per IS 456.
		3rd		Properties of fresh concrete: Workability: Factors affecting workability of concrete.
		5th		Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer.
	5th	1st		Value of workability requirement for different types of concrete works, Segregation, bleeding and preventive measures.
OCTOBER		3rd		Properties of Hardened concrete: Strength, Durability, Impermeability
		5th		Question Discussion
	1st	5th	UNIT-VI	Gandhi Jayanti
	2nd	1st		Concrete Mix Design and Testing of Concrete
		3rd		Concrete mix design: Objectives, methods of mix design,
		5th		Study of mix design as per IS 10262 (only procedural steps).
	3rd	1st		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 & Question Discussion
		3rd		Quality Control of Concrete
	4th	3rd	UNIT-VII	Concreting Operations: Batching, Mixing, Transportation,
		5th		Placing, Compaction, Curing and Finishing of concrete.
		1st		MAHA NAVASMI
	5th	3rd		Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work, requirement of good form work. Stripping time for removal of form works per IS 456.
		5th		2nd Internal Assessment
		1st		Waterproofing: Importance and need of waterproofing, methods of waterproofing and materials used for waterproofing.
		3rd		Joints in concrete construction: Types of joints, methods for joining old and new concrete, materials used for filling joints.
		5th	UNIT-VIII	Special Concrete and Extreme Weather concreting
				Special Concrete: Properties, advantages and limitation of following types of Special concrete: Ready mix Concrete, Fiber Reinforced Concrete, High performance Concrete, Self-compacting concrete and light weight concrete.
				Cold weather concreting: effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition. (only concepts)
				Hot weather concreting: effect of hot weather on concrete, precautions to be taken while concreting in hot weather condition. (only concepts)
NOVEMBER	1st	1st	UNIT-VIII	
		3rd		

SUBJECT EXPERT(CIVIL)

HOD(CIVIL)
G.P.MAYURBHANJ

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