

Batch - 2022-25

Session - 2023-24 (Winter - 2023)

**LESSON PLAN FOR BUILDING MATERIALS & CONSTRUCTION TECHNOLOGY (Th.03)**

Discipline: Civil Engineering	Semester: 3rd	Name of the Teaching Faculty: Ashish Nayak, Lecturer in Civil Engineering
Subject: Building materials & Construction Technology (Th.3)	No. of days/ per week class allotted: 5	Semester From Date : 01/08/2023 to Date: 30/11/2023 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
		<b>1. Stone</b>
1st	1st	1.1 Classification of rock, uses of stone, natural bed of stone,
	2nd	1.2 Qualities of good building stone,
	3rd	1.3 Dressing of stone
	4th	1.4 Characteristics of different types of stone and their uses
	5th	Unit Test -01
2nd	1st	<b>2. Bricks</b>
	2nd	2.1 Brick earth – its composition
	3rd	2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)
	4th	2.3 Classification of bricks, size of traditional and modular bricks, qualities of good building bricks
	5th	Unit Test -02
		<b>3. Cement, Mortar and Concrete</b>
3rd	1st	3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement
	2nd	3.2 Importance and application of blended cement with fly ash and blast furnace slag.
	3rd	question answer discussion of OD SKILL
	4th	3.3 Mortar: Definition and types of mortar
	5th	3.4 Sources and classification of sand, Bulking of sand
4th	1st	3.5 Use of gravel, morrum and fly ash as different building material
	2nd	3.6 Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates,
	3rd	mixing, placing, compacting and curing of concrete.
	4th	question answer discussion of OD SKILL
	5th	Unit Test -03
		<b>4. Other Construction Materials</b>
5th	1st	4.1 Timber: Classification and Structure of timber.
	2nd	4.2 Seasoning of timber – Importance. Characteristics of good timber.
	3rd	4.3 Clay products and refractory materials – Definition and Classification.
	4th	4.4 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing
	5th	4.5 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel
		<b>5. Surface Protective Materials</b>
6th	1st	Unit Test -04
	2nd	5.1 Composition of Paints, enamels, varnishes.
	3rd	5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
	4th	question answer discussion

	5th	Unit Test -05 <b>PART B (CONSTRUCTION TECHNOLOGY)</b>
		<b>1. Introduction</b>
7th	1st	1.1 Buildings and classification of buildings based on occupancy
	2nd	1.2 Different components of a building.
	3rd	1.3 Site investigation – objectives, site reconnaissance and explorations.
	4th	question answer discussion
	5th	Unit Test -06
		<b>2. Foundation</b>
8th	1st	2.1 Concept of foundation and its purpose 2.2 Types of foundations – shallow and deep
	2nd	2.3 Shallow foundation-constructural details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block
	3rd	2.4 Deep foundations: Pile foundations-their suitability,classification of piles based on materials, function and method of installation.
	4th	question answer discussion
	5th	Unit Test -07
		<b>3. Walls and Masonry Works</b>
9th	1st	3.1 Purpose of walls 3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls.
	2nd	3.3 Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow and solid concrete block and composite masonry walls (Concept Only).
	3rd	3.4 Partition Walls : Suitability and uses of brick and wooden partition walls
	4th	3.5 Brick masonry : Definition of different terms 3.6 Bond – meaning and necessity: English bond for 1 and 1-1/2 Brick thick walls. T, X and right angled corner junctions. Thickness for 1 and 1-1/2 brick square pillars in English bond
	5th	question answer discussion
10th	1st	3.7 Stone Masonry :
	2nd	3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	3rd	question answer discussion
	4th	Unit Test -07
	5th	Field Visit of Construction Site
		<b>4. Doors Windows And Lintels</b>
11th	1st	4.1 Glossary of terms used in doors and windows
	2nd	4.2 Doors – different types of doors
	3rd	4.3 Windows – different types of windows
	4th	4.4 Purpose of use of arches and lintels
	5th	Unit Test -08
		<b>5. Floors , Roofs and Stairs</b>
12th	1st	5.1 Floors: Glossary of terms ,Types of floor finishes – cast-in-situ, concrete flooring(monolithic, bonded), terrazzo tile flooring, cast in situ Terrazzo flooring, timber flooring (Concept only)
	2nd	5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
	3rd	5.3 Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mumty room.

		5.4 Various types of stair case – straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair, cantilever stair, tread riser stair.
4th		Unit Test -08
5th		<b>6. Protective , Decorative Finishes, Damp and Termite Proofing</b>
3rd	1st	6.1 Plastering – purpose – Types of plastering, Types of plaster finishes – Grit finish, rough cast, smooth cast, sand faced, pebble dash, acoustic plastering and plain plaster etc.
	2nd	6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
	3rd	6.3 Pointing – purpose –Types of pointing
	3rd	6.4 Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces.
	4th	6.5 White washing – Colour washing – Distempering – internal and external walls. 6.6 Damp and Termite proofing – Materials and Methods.
	5th	Unit Test -09
		<b>7. Green Building , Energy Management and Energy Audit of Buildings and Projects.</b>
th	1st	7.1 Concept of green building
	2nd	7.2 Introduction to Energy Management and Energy Audit of Buildings.
	3rd	7.3 Aims of energy management of buildings.
	4th	7.4 Types of energy audit, Response energy audit questionnaire
	5th	7.5 Energy surveying and audit report.
th	1st	Unit Test -10
	2nd	Revision of Part A
	3rd	Revision of Part B
	4th	Sample Semester Exam Practice Test
	5th	question answer discussion

Arshish Nayak.

31/08/2023

