

**LESSON PLAN of BUILDING MATERIALS & CONSTRUCTION
TECHNOLOGY (Th.03) for the session 2022-2023(Winter 2022)**

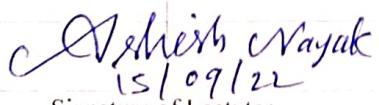
Govt. polytechnic Kandhmal, Phulbani



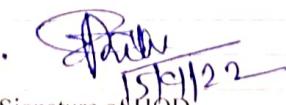
Discipline: Civil Engineering	Semester: 3rd	Name of the Teaching Faculty: Ashish Nayak
Subject: Building materials & Construction Technology (Th.3)	No. of days/ per week class allotted: 5	Semester From Date : 15/09/2022 to Date: 22/12/2022 21/01/2023 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
PART A (BUILDING MATERIALS)		
1. Stone		
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	question answer discussion
	5th	1.4 Characteristics of different types of stone and their uses
2. Brick		
2nd	1st	1.4 Characteristics of different types of stone and their uses
	2nd	Brick earth – its composition
	3rd	2.1 Brick making – Preparation of brick earth
	4th	question answer discussion
	5th	3.2 Brick making – Preparation of brick earth
3rd	1st	2.3 Moulding, Drying, Burning in kilns (continuous Process)
	2nd	2.4 Classification of bricks, size of traditional and modular bricks
	3rd	qualities of good building bricks
3. cement, Mortar and concrete		
	4th	3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement
	5th	3.2 Importance and application of blended cement with fly ash and blast furnace slag.
4th	1st	question answer discussion
	2nd	3.3 Mortar: Definition and types of mortar
	3rd	3.4 Sources and classification of sand, Bulking of sand
	4th	3.5 Use of gravel, morrum and fly ash as different building material
	5th	question answer discussion
5th	1st	3.6 Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete.
	2nd	question answer discussion
4. Other Construction Materials		
	4th	4.1 Timber: Classification and Structure of timber.
	5th	4.2 Seasoning of timber – Importance.
6th	1st	4.3 Characteristics of good timber.
	2nd	4.3 Clay products and refractory materials – Definition and Classification.

	3rd	question answer discussion
	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
7th	1st	5.Surface Protective Materials
	2nd	5.1 Composition of Paints, enamels, varnishes.
	3rd	5.2 Types and uses of surface protective materials like Paints
	4th	question answer discussion
	5th	5.2 Types and uses of surface protective materials like Paints
8th	1st	Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
	2nd	Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
PART:B (CONSTRUCTION TECHNOLOGY)		
	3rd	1.1 Buildings and classification of buildings based on occupancy
	4th	1.2 Different components of a building. 1.3 Site investigation – objectives, site reconnaissance and explorations.
	5th	question answer discussion
		INTRODUCTION
9th	1st	2.1 Concept of foundation and its purpose 2.2 Types of foundations – shallow and deep
	2nd	2.3 Shallow foundation-constructional 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
	4th	classification of piles based on materials, function and method of installation.
		Foundations
	5th	3.1 Purpose of walls 3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls.
10th	1st	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).
	2nd	question answer discussion
	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	3.7 Stone Masonry :
11th	1st	3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	2nd	question answer discussion
		Walls & Masonry Works:

	3rd	4.1 Glossary of terms used in doors and windows
	4th	4.2 Doors – different types of doors
	5th	4.3 Windows – different types of windows
12th	1st	4.4 Purpose of use of arches and lintels
		Floors, Roofs and Stairs
	2nd	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)
	3rd	5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
	4th	question answer discussion
	5th	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.
13th	1st	5.4 Various types of stair case – straight flight, dog legged, open well, quarter turn
	2nd	half turn (newel and geometrical stairs), bifurcated stair, spiral stair, cantilever stair, tread riser stair.
		Protective, Decorative Finishes, Damp and Termite Proofing
	3rd	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.
	4th	6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing 6.3 Pointing – purpose –Types of pointing
	5th	question answer discussion
14th	1st	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.
	2nd	6.5 White washing – Colour washing – Distempering – internal and external walls.
	3rd	6.6 Damp and Termite proofing – Materials and Methods.
		Green Buildings, Energy Management and Energy Audit of Buildings & Project
	4th	8.1 Concept of green building 8.2 Introduction to Energy Management and Energy Audit of Buildings.
	5th	question answer discussion
15th	1st	8.3 Aims of energy management of buildings.
	2nd	8.4 Types of energy audit, Response energy audit questionnaire
	3rd	question answer discussion
	4th	8.5 Energy surveying and audit report.
	5th	question answer discussion


15/09/22

Signature of Lecturer


15/09/22

Signature of HOD

Signature of Principal

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