

Badriprasad Institute of Technology, Sambalpur

Lesson plan for Theory -3, Building Materials & Construction Technology

Semester & Branch : 3rd Sem Civil Engineering

Total Periods-60

Name of the faculty : Mr. Firoz Kumar Patel

No of periods /week-4

WEEK	CLASS DAY	THEORY TOPICS
1ST	1st	STONES
		Classification of rock, uses of stone, natural bed of stone,
	2nd	Qualities of good building stone,
	3rd	Dressing of stone
2ND	4th	Characteristics of different types of stone and their uses
	1st	Bricks
		Brick earth – its composition
	2nd	Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)
3rd	Classification of bricks, size of traditional and modular bricks, qualities of good building bricks	
3RD	4th	Continue of 3rd class
	1st	Cement, Mortar and Concrete
		Cement: Types of cements, Properties of cements, Manufacturing of cement
	2nd	Continue of 1st class
3rd	Importance and application of blended cement with fly ash and blast furnace slag.	
4TH	4th	Mortar: Definition and types of mortar
	1st	Sources and classification of sand, Bulking of sand
	2nd	Use of gravel, morrum and fly ash as different building material
	3rd	Concrete: Definition and composition- Water cement ratio- Workability, mechanical
5TH	4th	properties and grading of aggregates, mixing, placing, compacting and curing
	1st	Other Construction Materials
		Timber: Classification and Structure of timber.
	2nd	Seasoning of timber – Importance.
3rd	Characteristics of good timber.	
6TH	4th	Clay products and refractory materials – Definition and Classification.
	1st	Properties and uses of refractory materials- tiles, terracotta, porcelain glazing.
	2nd	Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel
	3rd	Surface Protective Materials
6TH	3rd	Composition of Paints, enamels, varnishes.
	4th	Types and uses of surface protective materials like Paints, Enamels, Varnishes.

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7TH	1st	Distempers, Emulsion, French polish and Wax Polish.
		PART: B (CONSTRUCTIONS TECHNOLOGY)
	2nd	Introduction Buildings and classification of buildings based on occupancy
	3rd	Different components of a building.
	4th	Site investigation – objectives, site reconnaissance and explorations
8TH	1st	Foundations Concept of foundation and its purpose
	2nd	Types of foundations – shallow and deep
	3rd	Shallow foundation-constructural details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block
	4th	Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.
	1st	Walls & Masonry Works : Purpose of walls
9TH	2nd	Classification of walls – load bearing, non-load bearing walls, retaining walls.
	3rd	Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, walls .
	4th	precast, hollow and solid concrete block and composite masonry
10TH	1st	Partition Walls : Suitability and uses of brick and wooden partition walls
	2nd	Brick masonry : Definition of different terms Bond – meaning and necessity: English bond for 1 and 1-1/2 Brick thick walls.
	3rd	T, X and right angled corner junctions. Thickness for 1 and 1-1/2 brick square pillars in English bond
	4th	Stone Masonry : Glossary of terms –String course, corbel, cornice, block-in-course, grouting,
11TH	1st	Mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	2nd	Doors, Windows And Lintels Glossary of terms used in doors and windows
	3rd	Doors – different types of doors
	4th	Windows – different types of windows

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12TH	1st	Purpose of use of arches and lintels
	2nd	Floors, Roofs and Stairs
		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.
		Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
4th	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	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.
	2nd	Protective, Decorative Finishes, Damp and Termite Proofing
		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.
		Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
4th	Pointing – purpose –Types of pointing	
14TH	1st	Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces.
	2nd	White washing – Colour washing – Distempering – internal and external walls.
	3rd	Damp and Termite proofing – Materials and Methods.
	4th	Green Buildings, Energy Management and Energy Audit Of Buildings & Project
Concept of green building		
15TH	1st	Introduction to Energy Management and Energy Audit of Buildings.
	2nd	Aims of energy management of buildings.
	3rd	Types of energy audit, Response energy audit questionnaire
	4th	Energy surveying and audit report.

Sign of Faculty

Sign of HOD