

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN

• Session-2023-2024

Discipline: CIVIL Engg. Semester: 3rd

Subject: BUILDING MATERIALS & CONSTRUCTION TECHNOLOGY

Name of the Teaching Faculty: RAJESH KUMAR SAHU

Subject: BUILDING MATERIALS AND CONSTRUCTION TECHNOLOGY No. of Days/per week class allotted 05

Semester From Date : 01.08.2023 To Date : 30.11.2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1 st	Classification of rock
	2 nd	Use of stone, natural bed stone
	3 rd	Quality of good building stone
	4 th	Dressing of stone
	5 th	Characteristics of different types of stones and their uses.
2	1 st	Brick earth - It's composition
	2 nd	Brick making: - Preparation of brick earth
	3 rd	Moulding and Drying
	4 th	Burning of kilns (continuous process)
	5 th	Classification of bricks; (size of traditional and modular bricks)
3	1 st	Quality of good building bricks
	2 nd	Cement: Types of cements: properties of cement

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Week	Class Day	Theory /Practical Topics
	3 rd	Manufacturing of cement
	4 th	Importance and application of blended cement with fly ash and blast furnace slag
	5 th	Mortar: Definition and types of mortar.
4	1 st	Sources and classification of sand, Bulking of sand
	2 nd	Use of gravel, M-sand and flyash as different building material
	3 rd	Concrete: Definition and composition.
	4 th	Water cement ratio: workability, mechanical properties
	5 th	Grading of aggregate, mixing, placing
5	1 st	Compacting and curing of concrete
	2 nd	Timber: classification and structure of timber
	3 rd	Seasoning of timber - importance
	4 th	Characteristics of good timber

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Week	Class Day	Theory /Practical Topics
	5th	Clay products and refractory materials - Definition and classification.
6	1st	Properties and uses of refractory materials like tiles, terracotta.
	2nd	Porcelain glazing, Iron and steel uses of cast iron
	3rd	wrought iron, mild steel and tor steel
	4th	Composition of paints, enamels
	5th	Composition of varnishes.
7	1st	Types and uses of surface protective materials like paints.
	2nd	Enamels, varnishes
	3rd	Distempers, Emulsions.
	4th	French polish & wax polish
	5th	Buildings and classification of buildings based on occupancy.
8	1st	Different components of building site.

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Week	Class Day	Theory/Practical Topics
	2nd	Investigation objective
	3rd	Site reconnaissance and explorations
	4th	Concept of foundation and its purpose
	5th	Types of foundation - Shallow and deep.
9	1st	Shallow: foundation: Constructional details of spread foundation of walls
	2nd	Thumb rules for Depth and width of foundation and thickness of concrete block
	3rd	Deep foundation: Pile foundation and their suitability
	4th	Classification of piles based on materials
	5th	Function and methods of installation.
10	1st	Purpose of walls, classification of walls load bearing
	2nd	Non load bearing walls, retaining walls.
	3rd	Classification of walls as per materials of construction, brick, stone

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Week	Class Day	Theory /Practical Topics
	4th	Reinforced brick, Reinforced concrete , Precast
	5th	Hollow and solid concrete block and composite masonry wall
11	1st	Partition walls suitability and use of brick and wooden partition walls
	2nd	Brick masonry, Definition of different terms
	3rd	Bond - meaning and necessity
	4th	English bond for 1 and 1 1/2 bricks thick walls.
	5th	stone masonry string courses, corbel, cornices block in course.
12	1st	Grouting, moulding, templates, throating through stones
	2nd	Parapet, coping, pilaster and buttress.
	3rd	Glossary of terms used in doors and windows Doors: - Different types of doors.
	4th	Doors: Different types of doors
	5th	Windows: Different types of windows

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Week	Class Day	Theory /Practical Topics
13	1st	Purpose of use of arches and lintels, floors, types of floor finishes - cast situ.
	2nd	Concrete flooring, terrazzo tile flooring cast in situ terrazzo flooring, timber flooring.
	3rd	Roofs, types, concepts and function of flat pitched and stopped roofs.
	4th	Stair case, Landing, winder, stringer, newel, baluster nosing, tread, width
	5th	Hand rail, nosing, head room, landing room, various types of stairs case - straight flight, dog legged, open well
14	1st	Quarter turn, half turn, bifurcated stair, spiral stair, cantilever stairs, tread riser stair
	2nd	Plastering: - Purpose - Types of plastering, Types of plaster finishes
	3rd	Proportion of mortar of plaster, preparation of mortars, Techniques of plastering and curing
	4th	Pointing: - Purpose, Types of pointing, pointing - objective method of pointing new and old wall surface
	5th	wood surface and metal surface - powder coating and spray painting on metal surfaces.
15	1st	white washing, colour washing, Distempereing - internal and external walls.
	2nd	Damp & termite proofing - materials & methods Concept of green building.

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Week	Class Day	Theory /Practical Topics
	3rd	Introduction to energy management and energy audit of building.
	4th	Aims of energy management of buildings. Types of energy audit.
	5th	Response energy audit questionnaires Energy surveying and audit report.

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