

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF  
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN  
Session-2022-2023

Discipline: CIVIL Engg. Semester: 3<sup>rd</sup>

Name of the Teaching Faculty: RAJESH KUMAR SAHU

Subject: BUILDING MATERIALS AND CONSTRUCTION TECHNOLOGY No. of Days/per week class allotted 5

Semester From Date: 15-09-2022 To Date: 30-12-2022 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
1	1 <sup>st</sup>	Classification of rock
	2 <sup>nd</sup>	Use of stone, natural bed stone
	3 <sup>rd</sup>	Quality of good building stone
	4 <sup>th</sup>	Dressing of stone
	5 <sup>th</sup>	Characteristics of different types of stone and their uses
2	1 <sup>st</sup>	Brick earth - its composition
	2 <sup>nd</sup>	Brick making - Preparation of brick earth
	3 <sup>rd</sup>	Moulding, Drying
	4 <sup>th</sup>	Burning of kilns (Continuous process)
	5 <sup>th</sup>	Classification of bricks, size of traditional and modular bricks
3	1 <sup>st</sup>	Quality of good building bricks
	2 <sup>nd</sup>	Cement: Types of Cement, preparation of cement

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Week	Class Day	Theory / Practical Topics
	3rd	Manufacture of cement
	4th	Importance and application of blended cement with fly ash and blast furnace slag
	5th	Mortar: Definition and types of mortar
4	1st	sources and classification of sand, bulking of sand
	2nd	Use of gravel, morum and fly ash as different building material
	3rd	Concrete: Definition and composition
	4th	Water cement ratio - workability, Mechanical properties
	5th	Grading of aggregate, mixing, placing
5	1st	Compacting and curing of concrete
	2nd	Timber classification and structure of timber
	3rd	Seasoning of timber - importance
	4th	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	Preparation and uses of refractory material like fire bricks, terracotta
	2nd	Porcelain glazing, iron and steel units of cast iron
	3rd	wrought iron, mild steel and tool 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, Emulsion
	4th	French polish and 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
	2 <sup>nd</sup>	Investigative objective
	3 <sup>rd</sup>	Site reconnaissance and exploration
	4 <sup>th</sup>	Concept of foundation and its purpose
	5 <sup>th</sup>	Types of foundation - shallow and deep
9	1 <sup>st</sup>	Shallow foundation - construction, details of spread foundation of walls
	2 <sup>nd</sup>	Thumb rules for depth and width of foundation and thickness of concrete block
	3 <sup>rd</sup>	Deep foundation : All foundation their stability
	4 <sup>th</sup>	classification of piles based on materials
	5 <sup>th</sup>	Function and method of installation
10	1 <sup>st</sup>	Purpose of walls, classification of walls load bearing
	2 <sup>nd</sup>	Non-load bearing walls, retaining walls
	3 <sup>rd</sup>	classification of walls as per material of construction brick, stone

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Week	Class Day	Theory/Practical Topics
	1 <sup>st</sup>	Reinforced brick, reinforced concrete, precast
	2 <sup>nd</sup>	Hollow and solid concrete block and composite masonry walls.
17	1 <sup>st</sup>	Partition walls, suitability and use of brick and wooden partition wall.
	2 <sup>nd</sup>	Brick masonry, Definition of different terms
	3 <sup>rd</sup>	Bond- means and necessity
	4 <sup>th</sup>	English bond for 1 and 1/2 brick thick walls
	5 <sup>th</sup>	Stone masonry string course, corbel, courses block in course
18	1 <sup>st</sup>	Chimney, moulding, templates, throating through stones
	2 <sup>nd</sup>	Parapet, coping, pilaster and buttresses
	3 <sup>rd</sup>	Glossary of terms used in doors and windows
	4 <sup>th</sup>	Doors: Different types of doors
	5 <sup>th</sup>	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 site
	2nd	Concrete flooring, terrazzo tile flooring, cast in situ terrazzo flooring, timber flooring
	3rd	Roofs types concept and function of flat pitched and slopped roofs.
	4th	Stair case, loadings window stringer, newel, baluster rise, tread width
	5th	Hand rail, nosings, head ram, muntin beam, various types of stair case - straight flights, dog legged, open well
14	1st	Quarter turn, half turn, bifurcated stairs, spiral stairs, cantilever stairs, tread pillar stairs
	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	Painting - purpose - types of painting, painting objective method of painting wall and open wall surface
	5th	Wood surface and metal surfaces - powder coating and spray painting on metal surfaces
15	1st	White washing - colour washing - Distemper painting in internal and external walls
	2nd	Damp and termite proofing - material and methods concept of green building

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

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