



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY  
SERGARH-756060, BALASORE (ODISHA)  
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



## LESSON PLAN

**SUBJECT: Th-3 (BUILDING MATERIALS AND CONSTRUCTION TECHNOLOGY)**

### CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods	No. of periods
	PART :A (BUILDING MATERIALS)		
1	Stone	6	6
2	Bricks	6	6
3	Cement, Mortar and Concrete	7	7
4	Other Construction Materials	7	7
5	Surface Protective Materials	5	5
	PART: B (CONSTRUCTIONS TECHNOLOGY		
1	Introduction	2	2
2	Foundations	4	4
3	Walls & Masonry Works	6	6
4	Doors, Windows And Lintels	4	4
5	Floors, Roofs and Stairs	5	5
6	Protective, Decorative Finishes, Damp and Termite Proofing	5	5
7	Green Buildings, Energy Management and Energy Audit of Buildings & Project	4	4
	TOTAL	61	61

<b>Discipline:</b> CIVIL ENGG.	<b>Semester:</b> 3 <sup>rd</sup>	<b>Name of the Teaching Faculty:</b> ER. DIPTIMAYEE MOHANTY
<b>Week</b>	<b>Class Day</b>	<b>Theory / Practical Topics</b>
<b>1<sup>st</sup></b>	<b>1<sup>st</sup></b>	BUILDING MATERIALS: 1.1 Classification of rock, uses of stone, natural bed of stone
	<b>2<sup>nd</sup></b>	1.2 Qualities of good building stone,
	<b>3<sup>rd</sup></b>	1.3 Dressing of stone
	<b>4<sup>th</sup></b>	1.4 Characteristics of different types of stone and their uses
<b>2<sup>nd</sup></b>	<b>1<sup>st</sup></b>	2.1 Brick earth – its composition
	<b>2<sup>nd</sup></b>	2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)
	<b>3<sup>rd</sup></b>	2.3 Classification of bricks, size of traditional and modular bricks, qualities of good building bricks
	<b>4<sup>th</sup></b>	3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement
<b>3<sup>rd</sup></b>	<b>1<sup>st</sup></b>	3.2 Importance and application of blended cement with fly ash and blast furnace slag.
	<b>2<sup>nd</sup></b>	3.3 Mortar: Definition and types of mortar
	<b>3<sup>rd</sup></b>	3.4 Sources and classification of sand, Bulking of sand
	<b>4<sup>th</sup></b>	3.5 Use of gravel, morrum and fly ash as different building material
<b>4<sup>th</sup></b>	<b>1<sup>st</sup></b>	3.6 Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete.

4	2 <sup>nd</sup>	4.1 Timber: Classification and Structure of timber.
	3 <sup>rd</sup>	4.2 Seasoning of timber – Importance.
4 <sup>th</sup>	4 <sup>th</sup>	4.3 Characteristics of good timber
	1 <sup>st</sup>	4.4 Purpose of use of arches and lintels
5 <sup>th</sup>	2 <sup>nd</sup>	4.5 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel
	3 <sup>rd</sup>	Surface Protective Materials 5.1 Composition of Paints, enamels, varnishes.
	4 <sup>th</sup>	5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
	1 <sup>st</sup>	CONSTRUCTION TECHNOLOGY: Introduction 1.1 Buildings and classification of buildings based on occupancy
6 <sup>th</sup>	2 <sup>nd</sup>	1.2 Different components of a building
	3 <sup>rd</sup>	1.3 Site investigation – objectives, site reconnaissance and explorations
	4 <sup>th</sup>	Foundations 2.1 Concept of foundation and its purpose
7 <sup>th</sup>	1 <sup>st</sup>	2.2 Types of foundations – shallow and deep
	2 <sup>nd</sup>	2.3 Shallow foundation-constructional details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block
	3 <sup>rd</sup>	2.4 Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.
	4 <sup>th</sup>	Walls & Masonry Works : 3.1 Purpose of walls

8 <sup>th</sup>	1 <sup>st</sup>	3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls
8 <sup>th</sup>	2 <sup>nd</sup>	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).
	3 <sup>rd</sup>	3.4 Partition Walls : Suitability and uses of brick and wooden partition walls
	4 <sup>th</sup>	3.5 Brick masonry : Definition of different terms
9 <sup>th</sup>	1 <sup>st</sup>	3.6 Bond – meaning and necessity: English bond for 1and 1-1/2 Brick thick walls. T, X and right angled corner junctions. Thickness for 1and 1-1/2 brick square pillars in English bond
	2 <sup>nd</sup>	3.7 Stone Masonry :
	3 <sup>rd</sup>	3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	4 <sup>th</sup>	Doors, Windows And Lintels 4.1 Glossary of terms used in doors and windows
10 <sup>th</sup>	1 <sup>st</sup>	4.2 Doors – different types of doors
	2 <sup>nd</sup>	4.3 Windows – different types of windows
	3 <sup>rd</sup>	4.4 Purpose of use of arches and lintels
	4 <sup>th</sup>	Floors, Roofs and Stairs 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
11 <sup>th</sup>	1 <sup>st</sup>	5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
	2 <sup>nd</sup>	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
	3 <sup>rd</sup>	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.

	<b>4<sup>th</sup></b>	Protective, Decorative Finishes, Damp and Termite Proofing 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
<b>12<sup>th</sup></b>	<b>1<sup>st</sup></b>	6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
	<b>2<sup>nd</sup></b>	6.3 Pointing – purpose –Types of pointing
	<b>3<sup>rd</sup></b>	6.3 Pointing – purpose –Types of pointing
	<b>4<sup>th</sup></b>	6.3 Pointing – purpose –Types of pointing
<b>13<sup>th</sup></b>	<b>1<sup>st</sup></b>	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
	<b>2<sup>nd</sup></b>	6.5 White washing – Colour washing – Distempering – internal and external walls
	<b>3<sup>rd</sup></b>	6.6 Damp and Termite proofing – Materials and Methods.
	<b>4<sup>th</sup></b>	Green Buildings, Energy Management and Energy Audit Of Buildings & Project 7.1 Concept of green building
<b>14<sup>th</sup></b>	<b>1<sup>st</sup></b>	7.2 Introduction to Energy Management and Energy Audit of Buildings.
	<b>2<sup>nd</sup></b>	7.3 Aims of energy management of buildings
	<b>3<sup>rd</sup></b>	7.3 Aims of energy management of buildings
	<b>4<sup>th</sup></b>	7.3 Aims of energy management of buildings
<b>15<sup>th</sup></b>	<b>1<sup>st</sup></b>	8.4 Types of energy audit, Response energy audit questionnaire
	<b>2<sup>nd</sup></b>	8.4 Types of energy audit, Response energy audit questionnaire

	<b>3<sup>rd</sup></b>	8.5 Energy surveying and audit report.
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