



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



## **LESSON PLAN**

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

### **CHAPTER WISE DISTRIBUTION OF PERIODS**

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
	PART:A (BUILDING MATERIALS)		
1	Stone	5	7
2	Bricks	6	8
3	Cement, Mortar and Concrete	7	9
4	Other Construction Materials	7	8
5	Surface Protective Materials	5	7
	PART: B (CONSTRUCTIONS TECHNOLOGY)		
1	Introduction	2	5
2	Foundations	4	6
3	Walls & Masonry Works	6	8
4	Doors, Windows And Lintels	4	5
5	Floors, Roofs and Stairs	5	6
6	Protective, Decorative Finishes, Damp and Termite Proofing	5	6
7	Green Buildings, Energy Management and Energy Audit of Buildings & Project	4	5
	Total Period:	61	80

Discipline: CIVIL ENGINEERING	Semester: 3rd	<b>Name of the Teaching Faculty:</b> Er. Diptimayee Mohanty
		<b>SESSION :</b> 2023-24 <b>EXAMINATION :</b> 2023 (W)
<b>Week</b>	<b>Class Day</b>	<b>Topics to be Covered</b>
<b>1<sup>st</sup></b>	<b>1<sup>st</sup></b>	<b>PART:A (BUILDING MATERIALS)</b> <b>Stone:</b> 1.1 Classification of rock, uses of stone, natural bed of stone
	<b>2<sup>nd</sup></b>	1.1 Classification of rock, uses of stone, natural bed of stone
	<b>3<sup>rd</sup></b>	1.2 Qualities of good building stone
	<b>4<sup>th</sup></b>	1.2 Qualities of good building stone,
	<b>5<sup>th</sup></b>	1.3 Dressing of stone
<b>2<sup>nd</sup></b>	<b>1<sup>st</sup></b>	1.4 Characteristics of different types of stone and their uses
	<b>2<sup>nd</sup></b>	1.4 Characteristics of different types of stone and their uses
	<b>3<sup>rd</sup></b>	<b>Brick:</b> 2.1 Brick earth – its composition
	<b>4<sup>th</sup></b>	2.1 Brick earth – its composition
	<b>5<sup>th</sup></b>	2.1 Brick earth – its composition
<b>3<sup>rd</sup></b>	<b>1<sup>st</sup></b>	2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)
	<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>	2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)
	<b>4<sup>th</sup></b>	2.3 Classification of bricks, size of traditional and modular bricks, qualities of good building bricks
	<b>5<sup>th</sup></b>	<b>Cement,Mortar and Concrete:</b> 3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement
<b>4<sup>th</sup></b>	<b>1<sup>st</sup></b>	3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement

4 <sup>th</sup>	2 <sup>nd</sup>	3.2 Importance and application of blended cement with fly ash and blast furnace slag.
	3 <sup>rd</sup>	3.3 Mortar: Definition and types of mortar
	4 <sup>th</sup>	3.4 Sources and classification of sand, Bulking of sand
	5 <sup>th</sup>	3.4 Sources and classification of sand, Bulking of sand
5 <sup>th</sup>	1 <sup>st</sup>	3.5 Use of gravel, morrum and fly ash as different building material
	2 <sup>nd</sup>	3.5 Use of gravel, morrum and fly ash as different building material
	3 <sup>rd</sup>	3.6 Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete.
	4 <sup>th</sup>	<b>Other construction Material:</b> 4.1 Timber: Classification and Structure of timber.
	5 <sup>th</sup>	4.2 Seasoning of timber – Importance.
6 <sup>th</sup>	1 <sup>st</sup>	4.2 Seasoning of timber – Importance.
	2 <sup>nd</sup>	4.3 Characteristics of good timber.
	3 <sup>rd</sup>	4.4 Clay products and refractory materials – Definition and Classification.
	4 <sup>th</sup>	4.4 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing.
	5 <sup>th</sup>	4.4 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing.
7 <sup>th</sup>	1 <sup>st</sup>	4.5 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel
	2 <sup>nd</sup>	<b>Surface Protective Materials:</b> 5.1 Composition of Paints, enamels, varnishes.
	3 <sup>rd</sup>	5.1 Composition of Paints, enamels, varnishes.
	4 <sup>th</sup>	5.1 Composition of Paints, enamels, varnishes.
	5 <sup>th</sup>	5.1 Composition of Paints, enamels, varnishes.
8 <sup>th</sup>	1 <sup>st</sup>	5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
	2 <sup>nd</sup>	5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
	3 <sup>rd</sup>	5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.

8 <sup>th</sup>	4 <sup>th</sup>	<b>PART: B (CONSTRUCTIONS TECHNOLOGY)</b> <b>Introduction:</b> 1.1 Buildings and classification of buildings based on occupancy
	5 <sup>th</sup>	1.1 Buildings and classification of buildings based on occupancy
9 <sup>th</sup>	1 <sup>st</sup>	1.2 Different components of a building.
	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>	<b>Foundations:</b> 2.1 Concept of foundation and its purpose
	5 <sup>th</sup>	2.1 Concept of foundation and its purpose
10 <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>	2.4 Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.
	5 <sup>th</sup>	REVISION
11 <sup>th</sup>	1 <sup>st</sup>	REVISION
	2 <sup>nd</sup>	REVISION
	3 <sup>rd</sup>	<b>INTERNAL ASSESSMENT</b>
	4 <sup>th</sup>	<b>INTERNAL ASSESSMENT</b>
	5 <sup>th</sup>	<b>Walls &amp; Masonry Works :</b> 3.1 Purpose of walls
12 <sup>th</sup>	1 <sup>st</sup>	3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls.
	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

12 <sup>th</sup>	5 <sup>th</sup>	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
13 <sup>th</sup>	1 <sup>st</sup>	3.7 Stone Masonry :
	2 <sup>nd</sup>	3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	3 <sup>rd</sup>	<b>Doors, Windows And Lintels:</b> 4.1 Glossary of terms used in doors and windows
	4 <sup>th</sup>	4.1 Glossary of terms used in doors and windows
	5 <sup>th</sup>	4.2 Doors – different types of doors
14 <sup>th</sup>	1 <sup>st</sup>	4.3 Windows – different types of windows
	2 <sup>nd</sup>	4.4 Purpose of use of arches and lintels
	3 <sup>rd</sup>	<b>Floors, Roofs and Stairs:</b> 5.1 Floors: Glossary of terms ,Types of floor finishes – cast-in-situ,
	4 <sup>th</sup>	5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
	5 <sup>th</sup>	5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
15 <sup>th</sup>	1 <sup>st</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.
	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.
	4 <sup>th</sup>	<b>Protective, Decorative Finishes, Damp and Termite Proofing:</b> 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.
	5 <sup>th</sup>	6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
16 <sup>th</sup>	1 <sup>st</sup>	6.3 Pointing – purpose –Types of pointing

16 <sup>th</sup>	2 <sup>nd</sup>	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.
	3 <sup>rd</sup>	6.5 White washing – Colour washing – Distempering – internal and external walls.
	4 <sup>th</sup>	6.6 Damp and Termite proofing – Materials and Methods.
	5 <sup>th</sup>	<b>Green Buildings, Energy Management and Energy Audit Of Buildings &amp; Project:</b> 8.1 Concept of green building
17 <sup>th</sup>	1 <sup>st</sup>	8.2 Introduction to Energy Management and Energy Audit of Buildings.
	2 <sup>nd</sup>	8.3 Aims of energy management of buildings.
	3 <sup>rd</sup>	8.4 Types of energy audit, Response energy audit questionnaire
	4 <sup>th</sup>	8.5 Energy surveying and audit report.
	5 <sup>th</sup>	REVISION



