

## LESSON PLAN

Discipline:

Civil Engg. ,UGMIT Rayagada

Semester:

3<sup>RD</sup>

Subject:

Th 3. BUILDING MATERIALS AND CONSTRUCTIONS TECHNOLOGY

Class allotted:

5P/week

Session:

2022 Winter

Week	Class Day	Theory Topics	Remarks
1	1-5	1. Stone 1.1 Classification of rock, uses of stone, natural bed of stone, 1.2 Qualities of good building stone 1.3 Dressing of stone 1.4 Characteristics of different types of stone and their uses	
2	6-10	2. Bricks 2.1 Brick earth – its composition 2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process) 2.3 Classification of bricks	
3	11-15	size of traditional and modular bricks, qualities of good building bricks Cement, Mortar and Concrete 3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement 3.2 Importance and application of blended cement with fly ash and blast furnace slag. 3.3 Mortar: Definition	
4	16-20	and types of mortar 3.4 Sources and classification of sand, Bulking of sand 3.5 Use of gravel, morrum and fly ash as different building material 3.6 Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing,	
5	21-25	compacting and curing of concrete. 4. Other Construction Materials 4.1 Timber: Classification and Structure of timber. 4.2 Seasoning of timber – Importance. 4.3 Characteristics of good timber.	
6	26-30	4.3 Clay products and refractory materials – Definition and Classification. 4.4 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing.	

		4.5 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel	
7	31-35	5. Surface Protective Materials 5.1 Composition of Paints, enamels, varnishes. 5.2 Types and uses of surface protective materials like Paints, Enamels, Varnishes,	
8	36-40	Distempers, Emulsion, French polish and Wax Polish. PART: B (CONSTRUCTIONS TECHNOLOGY) 1 Introduction 1.1 Buildings and classification of buildings based on occupancy 1.2 Different components of a building. 1.3 Site investigation – objectives, site reconnaissance and explorations. 2. Foundations 2.1 Concept of foundation and its purpose	
9	41-45	2.2 Types of foundations – shallow and deep 2.3 Shallow foundation-constructural details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block 2.4 Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation. 3. Walls & Masonry Works : 3.1 Purpose of walls	
10	46-50	3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls. 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). 3.4 Partition Walls : Suitability and uses of brick and wooden partition walls 3.5 Brick masonry : Definition of different terms 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 3.7 Stone Masonry :	
11	51-55	3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress 4. Doors, Windows And Lintels 4.1 Glossary of terms used in doors and windows 4.2 Doors – different types of doors 4.3 Windows – different types of windows 4.4 Purpose of use of arches and lintels	
12	56-60	5. Floors, Roofs and Stairs 5.1 Floors: Glossary of terms ,Types of floor finishes – cast-	

		<p>in-situ, concrete flooring(monolithic, bonded), terrazzo tile flooring, cast in situ Terrazzo flooring, timber flooring (Concept only)</p> <p>5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs</p> <p>5.3 Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mummy room.</p>	
13	61-65	<p>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.</p> <p>6 Protective, Decorative Finishes, Damp and Termite Proofing</p> <p>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.</p> <p>6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing</p> <p>6.3 Pointing – purpose –Types of pointing</p> <p>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.</p>	
14	66-70	<p>6.5 White washing – Colour washing — Distemping – internal and external walls.</p> <p>6.6 Damp and Termite proofing – Materials and Methods</p> <p>7. Green Buildings, Energy Management and Energy Audit Of Buildings &amp; Project</p> <p>7.1 Concept of green building</p>	
15	71-75	<p>7.2 Introduction to Energy Management and Energy Audit of Buildings.</p> <p>7.3 Aims of energy management of buildings.</p> <p>7.4 Types of energy audit, Response energy audit questionnaire</p> <p>7.5 Energy surveying and audit report.</p>	

Signature of Faculty:

*Somya Karmahere*  
16/09/22

Signature of HOD:

*Manas Ranjan Pradhan*  
16/9/2022