

LESSON PLAN

Discipline: Civil Engg.	Semester: Third (3 rd)	Name of the Faculty: Er Malaya Ranjan Sahu
Subject: Building Materials & Construction Technology	No. of days per 4 week class allotted: Five (5)	Semester from Date: 15.09.22 to Date: 22.12.22 No. of Weeks: 15
WEEK	CLASS DAY	THEORY TOPICS
1 st	1 st	Classification of rock, uses of stone, natural bed of stone,
	2 nd	Qualities of good building stone
	3 rd	Dressing of stone
	4 th	Characteristics of different types of stone and their uses
	5 th	Review class
2 nd	1 st	Brick earth – its composition
	2 nd	Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)
	3 rd	Classification of bricks, size of traditional and modular bricks
	4 th	Qualities of good building bricks
	5 th	Review class
3 rd	1 st	Cement: Types of cements, Properties of cements, Manufacturing of cement
	2 nd	Importance and application of blended cement with fly ash and blast furnace slag.

	3 rd	Mortar: Definition and types of mortar
	4 th	sources and classification of sand, Bulking of sand
	5 th	Use of gravel, morrum and fly ash as different building material
4 th	1 st	Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates
	2 nd	mixing, placing, compacting and curing of concrete
	3 rd	Review class
	4 th	Monthly test
	5 th	Timber: Classification and Structure of timber
5 th	1 st	Seasoning of timber – Importance.
	2 nd	Characteristics of good timber.
	3 rd	Clay products and refractory materials – Definition and Classification.
	4 th	Properties and uses of refractory materials- tiles, terracotta, porcelain glazing
	5 th	Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel
6 th	1 st	Review class
	2 nd	Composition of Paints, enamels, varnishes.
	3 rd	Types and uses of surface protective materials like Paints, enamels, varnishes,
	4 th	Distempers. Emulsions, French polish and Wax

		Polish
	5 th	Review class
7 th	1 st	Review class
	2 nd	Buildings and classification of buildings based on occupancy
	3 rd	Different components of a building.
	4 th	Site investigation – objectives, site reconnaissance and explorations.
	5 th	Review class
8 th	1 st	Monthly test
	2 nd	Concept of foundation and its purpose
	3 rd	Types of foundations – shallow and deep
	4 th	Shallow foundation-constructural details of Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block.
	5 th	Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.
9 th	1 st	Review class
	2 nd	Purpose of walls,
	3 rd	Classification of walls – load bearing, non-load bearing walls, retaining walls.).
	4 th	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).
	5 th	Partition Walls : Suitability and uses of brick and

		wooden partition walls,
10 th	1 st	Brick masonry : Definition of different terms
	2 nd	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 rd	Stone Masonry
	4 th	Glossary of terms –String course, corbel, cornice, block-in- course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	5 th	Review class
11 th	1 st	Glossary of terms used in doors and windows
	2 nd	Doors – different types of doors
	3 rd	Windows – different types of windows
	4 th	Purpose of use of arches and lintels
	5 th	Review class
12 th	1 st	Floors: Glossary of terms ,Types of floor finishes – cast-in- situ, concrete flooring(monolithic, bonded), terrazzo tile flooring, cast in situ Terrazzo flooring, timber flooring (Concept only)
	2 nd	Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
	3 rd	Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mumty room.
	4 th	Monthly test
	5 th	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.
13 th	1 st	Review class

	2 nd	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
	3 rd	Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
	4 th	Pointing – purpose –Types of pointing
	5 th	Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces.
14 th	1 st	White washing – Colour washing – Distempering – internal and external walls.
	2 nd	Damp and Termite proofing – Materials and Methods
	3 rd	Review class
	4 th	Concept of green building
	5 th	Introduction to Energy Management and Energy Audit of Buildings
15 th	1 st	Aims of energy management of buildings.
	2 nd	Types of energy audit, Response energy audit questionair .
	3 rd	Energy surveying and audit report.
	4 th	Review class
	5 th	Monthly test