

PROGRAMME : CIVIL ENGINEERING
COURSE NAME : BUILDING MATERIALS AND CONSTRUCTIONS TECHNOLOGY

NAME OF THE FACULTY: MANASI PRADHAN
SESSION : 2022-2023
DATE : 15-09-2022 TO 21-01-2023

COURSE CODE : TH-3
SEMESTER : 3rd
PERIODS/WEEK: 5
TOTAL PERIODS: 75

WEEK	CLASS	TOPICS
1	1	Stone: Classification of rock, uses of stone, natural bed of stone
	2	Qualities of good building stone, Dressing of stone.
	3	Characteristics of different types of stone and their uses.
	4	Bricks: Brick earth – its composition.
	5	Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns
2	1	Classification of bricks, size of traditional and modular bricks, qualities of good building bricks.
	2	Cement, Mortar and Concrete, Cement: Types of cements, Properties of cements
	3	Manufacturing of cement
	4	Importance and application of blended cement with fly ash and blast furnace slag.
	5	Mortar: Definition and types of mortar
3	1	Sources and classification of sand, Bulking of sand
	2	Use of gravel, morrum and fly ash as different building material.
	3	Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete.
	4	Timber: Classification and Structure of timber
	5	Seasoning of timber – Importance
4	1	Characteristics of good timber
	2	Clay products and refractory materials – Definition and Classification. Properties and uses of refractory materials- tiles, terracotta, porcelain glazing.
	3	Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel
	4	Surface Protective Materials, Composition of Paints, enamels, varnishes
	5	Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish.
5	1	Introduction-Buildings and classification of buildings based on occupancy
	2	Different components of a building.
	3	Site investigation – objectives, site reconnaissance and explorations
	4	Foundations: Concept of foundation and its purpose
	5	Types of foundations – shallow and deep
6	1	Shallow foundation-constructural details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block

	2	Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.
	3	Walls & Masonry Works :Purpose of walls.
	4	Classification of walls – load bearing, non-load bearing walls, retaining walls.
	5	Classification of walls as per materials of construction: brick, stone, reinforced brick,
7	1	reinforced concrete, precast, hollow and solid concrete block and composite masonry walls.
	2	Partition Walls : Suitability and uses of brick and wooden partition walls Brick masonry : Definition of different terms
	3	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
	4	Stone Masonry :Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress
	5	Doors, Windows And Lintels
8	1	1Glossary of terms used in doors and windows,Doors – different types of doors
	2	Windows – different types of windows ,Purpose of use of arches and lintels
	3	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
	4	Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs
	5	Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mumty room
9	1	4Various 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.
	2	Protective, Decorative Finishes, Damp and Termite Proofing
	3	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.
	4	Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing
	5	Pointing – purpose –Types of pointing
10	1	Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces
	2	White washing – Colour washing
	3	Distempering – internal and external walls.
	4	Damp and Termite proofing – Materials and Methods.
	5	Green Buildings, Energy Management
11	1	Energy Audit Of Buildings & Project
	2	Concept of green building.
	3	Introduction to Energy Management and Energy Audit of Buildings
	4	Aims of energy management of buildings.Types of energy audit, Response energy audit questionnaire

	5	Energy surveying and audit report
12	1	Revision of chapter-1&2:stone and brick
	2	Revision of chapter-3&4: Cement, Mortar and Concrete and other construction materials
	3	Revision of chapter-5&6:Surface Protective Materials , classification of buildings
	4	Revision of chapter-7&8: foundations,walls and mesonary
	5	Revision of chapter-9&10:Doors, Windows And Lintels,Floors, Roofs and Stairs
13	1	Revision of chapter-10&11:Protective, Decorative Finishes, Damp and Termite Proofing.
	2	Revision of chapter-12:Green Buildings, Energy Management and Energy Audit Of Buildings & Project
	3	Discussion of most probable questions (long types)
	4	Discussion of most probable questions (short types)
	5	Discussion of most probable questions (long types)
14	1	Discussion of previous year question papers
	2	Discussion of previous year question papers
	3	Discussion of previous year question papers
	4	Discussion of previous year question papers
	5	Discussion of previous year question papers
15	1	Discussion of previous year question papers
	2	Class test-1 short type questions
	3	Class test-2 long types questions
	4	Class test- 3 both short and long types questions
	5	Class test-4 long types questions