

GOVT. POLYTECHNIC, ARWAL

TEACHING PLAN

SUBJECT – BUILDING CONSTRUCTION

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BRANCH – CIVIL ENGINEERING (3RD SEM)

TOTAL PERIOD – 49 Hours

UNIT	TOPIC NAME	ALLOTTED PERIOD
UNIT -1	BUILDING COMPONENTS AND MATERIALS	7 hours
1.1	BUILDING COMPONENTS AND TYPES OF STRUCTURE Building Components and their Function Substructure – Foundation, Plinth Superstructure – Walls, Sill, Lintel, Doors & Windows, Floor, Roof, Parapet, Beams, Columns. Types of Structures – Load Bearing Structures, Framed Structures, Composite Structures.	1 Hour
1.2	MASONRY MATERIALS A) Building Stones- Classification of Rocks, Requirement of Good Building Stone, Dressing of Stones, Quarrying of Stones, Artificial or Cast Stones. B) Bricks- Conventional Bricks, Standard Bricks, Composition of Clay Bricks, Strength of Bricks, Proportion of Burnt Clay Bricks, Testing of Bricks, Special Bricks, Hollow Blocks, Fly Ash Bricks. C) Mortars – Classifications, Lime Mortar, Cement Mortar, Special Mortars, Functions of Mortar, Proportions, Properties of Mortar and Tests for Mortar.	3 hours
1.3	TIMBER BASED MATERIAL Use of Timber, Characteristics of Good Timber, Defects in Timber, Plywood, Particle Board, Veneer, Sun Mica, Fore Mica, Nu-wood, Artificial Timber, Rubber Wood.	1 Hour
1.4	MISCELLANEOUS MATERIALS Glass, Plastic, Fibers, Aluminium, Steel, Galvanized Iron, Asphalt, Bitumen, etc., Micro Silica, PVC, CPVC, PPF. Waterproofing and Termite Proofing Materials, Admixtures in Concrete, Bonding Agents, Epoxy Resins, Polishing Materials.	2 Hours

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UNIT-2	CONSTRUCTION OF SUBSTRUCTURE	6 Hours
2.1	JOB LAYOUT Site Clearance, Preparing Job Layout, Layout for Load Bearing Structure and Framed Structure by Center Line and Face Line Method, Precautions while marking Layout on Ground	2 Hours
2.2	EARTHWORK Excavation for Foundation, Timbering and Strutting, Earthwork for Embankment Material for Plinth Filling, Tools and Plants used for Excavation and Earthwork.	2 Hours
2.3	FOUNDATION Types of foundation- Open Foundations, Shallow Foundation, Stepped foundation, Isolated and Combined Column Footing, Raft Foundation, Deep Foundation and Pile Foundation. Pumping Method of Dewatering, Cofferdams. Bearing Capacity of Foundation Soil, Under Reamed Pile Foundation	2 Hours

UNIT-3	CONSTRUCTION OF SUPERSTRUCTURE	20 Hours
3.1	STONE MASONRY Terms used in Stone Masonry- Facing, Backing, Hearting, Through Stone, Corner Stone. Uncoursed Rubble Masonry, Coursed Rubble Masonry, point to be observed in construction of stone masonry, Mortars for stone masonry, Tools and Plants used for stone masonry, COL-Grout Masonry.	4 Hours
3.2	BRICK MASONRY Common terms used in Brick Masonry, Requirements of good brickwork, Bonds in brick masonry, English, Flemish, Stretcher and Header Bonds only. Brick Laying, Line level and plumb of brickwork, striking and raking of joints, lead and lift, precautions in brick masonry, tools and plants used in brick masonry. Comparison between Brick and Stone Masonry, Hollow concrete block masonry, Composite Masonry. Cavity Wall – Purpose and Construction	4 Hours
3.3	DOORS AND WINDOWS Doors- Components and Construction of panelled doors, battened doors, flush doors, collapsible doors, rolling shutters, Revolving doors, Glazed doors, Sizes of door. Windows- Components and Construction of fully panelled, partly panelled and glazed, glazed wooden, steel, Aluminium windows, sliding windows, louvered window, ventilators, cement grills. Protective treatment for doors and windows, fixtures and fastenings for doors and windows. Sill, Lintel and Weather Shed- Functions, types and construction.	4 Hours

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3.4	VERTICAL COMMUNICATION Means of vertical communication- Stair Case, Elevator or of good staircase, types of staircase, fabricated stair.	4 Hours
3.5	SCAFFOLDING AND SHORING Purpose, types of scaffolding, process of Erection and Dismantling, Purpose and types of shoring, Underpinning, Safety precautions.	4 Hours

UNIT-4	BUILDING FINISHES	12 Hours
4.1	FLOORS AND ROOFS Floor Finishes- Shahabad, Kota, Marble, Granite, Kadappa, Ceramic Tiles, Vitrified, Mosaic Tiles, Chequered Tiles, Glazed Tiles. Pavement Blocks, Concrete Floors, Tremix Floor, Skirting and Dado. Process of Laying- Process of Laying and Construction, Finishing and Polishing of Floors. Roofing Materials- AC Sheets, G.I. Sheets, Plastic Sheets, Fibre Sheets, Mangalore Tiles etc., Steel Trusses, R.C.C. Slab	6 Hours
4.2	WALL FINISHES Plastering- Necessity of Plastering, Single Coat Plaster, Double Coat Plaster, Neeru Finishing and POP, Special Plasters, Stucco Plaster, Plaster Board and Wall Claddings, Precautions to be taken while plastering, Defects in Plaster. Pointing- Necessity and procedure of pointing. Painting- Necessity, Surface Preparation, method of application, selecting suitable painting material, White Wash and Colour Wash.	6 Hours

UNIT-5	BUILDING MAINTENANCE	4 Hours
5.1	CRACKS Causes and Types of Cracks, Identification and Repair of Cracks, Guniting and Grouting, Use of Epoxy and Crack Fills.	1 Hour
5.2	SETTLEMENT Settlement- Causes and Remedial Measures. Plinth Protection- Necessity and Materials used.	1 Hour
5.3	DEMOLITION Necessity, Method of Demolition- Hand Demolition, Machine Demolition, Controlled Blasting Demolition, Precautions during Demolition.	1 Hour
5.4	REBARING TECHNIQUES Necessity and Equipment for Rebaring Techniques.	1 Hour

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