

Lesson Plan

Name of the Faculty:

Discipline: CIVIL ENGINEERING

Semester: 3rd SEM

Subject: BUILDING CONSTRUCTION

Work Load (Lecture/Practical) per week (in hours): Lectures- , Practical's-

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1 st	1 st	Introduction	1 st	Demonstration of tools and plants used in building construction
	2 nd	Definition of a building, classification of buildings based on occupancy		
	3 rd	Different parts of a building		
	4 th	Concept of foundation and its purpose		
2 nd	5 th	Types of foundation-shallow and deep	2 nd	To prepare Layout of a building: two rooms building with front verandah
	6 th	Shallow foundation - constructional details of: Spread foundations for walls,		
	7 th	thickness of concrete block, stepped foundation,		
	8 th	masonry pillars and concrete columns		
3 rd	9 th	thumb rules for depth and width of foundation	3 rd	To construct brick bonds (English bond only) in one, one and half and two brick thick: (a) Walls for L, T and cross junction
	10 th	Layout/setting out for surface excavation, cutting and filling		
	11 th	Excavation of foundation, trenches, shoring,		
	12 th	timbering and dewatering		
4 th	13 th	Purpose of walls Classification of walls - load bearing, non-load bearing, dwarf wall	4 th	To construct brick bonds (English bond only) in one, one and half and two brick thick (b) Columns
	14 th	retaining, breast walls and partition walls		
	15 th	Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow		
	16 th	solid concrete		

		block and composite masonry walls		
5 th	17 th	Partition walls: Constructional details, suitability and uses of brick	5 th	<p>Demonstration of following items of work at construction site by:</p> <p>a) Timbering of excavated trenching</p> <p>b) Damp proof courses laying</p> <p>g) Pre-construction and post construction termite treatment of building and woodwork</p>
	18 th	wooden partition walls		
	19 th	Mortars: types, selection of mortar and its preparation		
	20 th	Scaffolding, construction details and suitability of mason's brick layers		
6 th	21 st	tubular scaffolding, shoring, underpinning	6 th	<p>c) Construction of masonry walls</p> <p>d) Laying of flooring on an already prepared lime concrete base</p>
	22 nd	Brick Masonry: Definition of terms like header, stretcher, queen closer, king closer, frog and quoin, course, bond, facing, backing, hearting, jambs, reveals, soffit, plinth, pillars and pilasters		
	23 rd	Bond – meaning and necessity; English, flemish bond and other types of bonds		
	24 th	Construction of brick walls – methods of laying bricks in walls, precautions observed in the construction of walls, methods of bonding new brick work with old (toothing, raking, back and block bonding), Expansion and contraction joints		
7 th	25 th	Importance towards special care during execution on: soaking of bricks, maintenance of bonds and plumb, filling of horizontal and vertical joints, masonry work, restriction height of construction on a given day, every fourth course, earthquake resistance measure, making of joints to receive finishes	7 th	<p>e) Plastering and pointing exercise</p> <p>f) Constructing RCC work</p>
	26 th	Glossary of terms – natural bed, bedding planes, string course, corbel, cornice, block in course grouting, moulding, templates, corner stone, bond stone, throating, through stone, parapet, coping, pilasters and buttress		
	27 th	Types of stone masonry: rubble		

		masonry - random and coursed; Ashlar masonry, principles to be observed in construction of stone masonry walls		
	28 th	Importance towards special care during execution of stone masonry work on dressing of stone, size and placing of bond and corner stones, filling joints, proper packing of internal cavities of rubble masonry wall, raking of joints to receive finishes		
8 th	29 th	Meaning and use of arches and lintels: 5.2 Glossary of terms used in arches and lintels - abutment, pier, arch ring, intrados, soffit, extrados, voussoiers, springer, springing line, crown, key stone, skew back, span, rise, depth of an arch, haunch, spandril, jambs, bearing, thickness of lintel, effective span	8 th	g) Pre-construction and post construction termite treatment of building and woodwork
	30 th	Arches: 5.3.1 Types of Arches - Semi circular, segmental, elliptical and parabolic, flat, inverted and relieving 5.3.2 Stone arches and their construction 5.3.3 Brick arches and their construction		
	31 st	Lintels 5.4.1 Purpose of lintel 5.4.2 Materials used for lintels 5.4.3 Cast-in-situ and pre-cast lintels 5.4.4 Lintel along with sun-shade or chhajja		
	32 nd	Doors, Windows and Ventilators: (05 hrs) 6.1 Glossary of terms with neat sketches 6.2 Classification based on materials i.e. wood, metal and plastic and their suitability for different situations. Different type of doors- panel door,		

		flush door, flazed door, rolling shutter, steel door, sliding door, plastic and aluminium doors		
9 th	33 rd	Window – Panel window, glazed windows (fixed and openable) ventilators, sky light window, Louvres shutters, plastic and aluminium windows. 6.4 Door and window frames – materials and sections, door closures, hold fasts	9 th	
	34 th	Damp Proofing and Water Proofing (08 hrs) 7.1 Dampness and its ill effects on bricks, plaster, wooden fixtures, metal fixtures and reinforcement, damage to aesthetic appearance, damage to heat insulating materials, damage to stored articles and health, sources and causes of dampness		
	35 th	Sources of dampness - moisture penetrating the building from outside e.g. rainwater, surface water, ground moisture. Moisture entrapped during construction i.e. moisture in concrete, masonry construction and plastering work etc. Moisture which originates in the building itself i.e. water in kitchen and bathrooms etc.		
	36 th	Damp proofing materials and their specifications: rich concrete and mortar, bitumen, bitumen mastic, polymer coating, use of chemicals		
10 th	37 th	CH. 4,5,6 TEST	10 th	
	38 th	Damp proofing of : basement, ground floors, plinth and walls, special damp proofing arrangements in bathrooms, WC and kitchen, damp proofing for roofs and window sills		

	39 th	Glossary of terms-floor finish, topping, under layer, base course, rubble filling and their purpose		
	40 th	Types of floor finishes - cast-in-situ, concrete flooring (monolithic, bonded) Terrazzo tile flooring, stone (marble and kota) flooring, PVC flooring, Terrazzo flooring, glazed tiles flooring, Timber flooring, description with sketches. The methods of construction of concrete, terrazzo and timber floors and their BIS specifications		
11 th	41 st	Special emphasis on level/slope/reverse slope in bathrooms, toilets, kitchen, balcony and staircase	11 th	
	42 nd	Types of roofs, concept of flat, pitched and arched roofs Glossary of terms for pitched roofs - batten, eaves, fascia board, gable, hip,		
	43 rd	False ceilings using gypsum, plaster boards, cellotex, fibre boards Special emphasis on maintenance of slopes, overlaps of roofing materials, applicability and problems of wind ties, size of anchoring bolts		
	44 th	Glossary of terms: Staircase, winders, landing, stringer, newel, baluster, riser, tread, width of staircase, hand-rail, nosing Classification of staircase on the basis of material – RCC, timber, steel, Aluminium		
12 th	45 th	Planning and layout of staircase: Relations between rise and tread, determination of width of stair, landing etc Various types of layout - straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair	12 th	

	46 th	<p>Plastering - classification according to use and finishes like plain plaster, grit finish, rough cast, pebble dashed, concrete and stone cladding etc., dubbing, proportion of mortars used for different plasters, techniques of plastering and curing Pointing - different types of pointing and their methods Painting - preparation of surface, primer coat and application of paints on wooden, steel and plastered wall surfaces</p>		
	47 th	<p>Application of white washing, colour washing and distempering, polishing, application of cement and plastic paints Selection of appropriate paints/finishes for interior and exterior surfaces Importance of preparation of surfaces such as hacking, grooving etc before application of surface finishes</p>		
	48 th	<p>Introduction, site preparation and chemicals used in anti-termite treatment Treatment of masonry foundation Treatment of RCC foundation Treatment of top surface of earth filling Treatment of junction of walls and floors</p>		
13 th	49 th	<p>Treatment along external perimeter of building Treatment and selection of timber Treatment in existing buildings</p>	13 th	
	50 th	<p>Building Planning Site selection: Factors to be considered for selection of site for residential, commercial, industrial and public building Basic principles of building planning, arrangement of doors, windows,</p>		

		cupboards etc for residential building		
	51 st	Orientation of building as per IS: 7662 in relation to sun and wind direction, rains, internal circulation and placement of rooms within the available area, concept of Vastu-Shastra.		
	52 nd	Introduction to fire fighting systems, Ducting for Air-conditioning, service lines for cable telephone, and electrical wiring		
14 th	53 rd	CH. 7,8,9 TEST	14 th	
	54 th	Elementary idea of interior decoration, wall paneling, false ceiling, (02 hrs) flooring etc.		
	55 th	field/industry for extension lecture		
	56 th	garbage disposal systems. Water supply system (internal and external).		
15 th	57 th	Introduction to National Building code.	15 th	
	58 th	1 ST SESIONAL REVISION		
	59 th	2 ND SESIONAL REVISION		
	60 th	3 RD SESIONAL REVISION		