

B.K.N. GOVT. POLYTECHNIC NARNAUL

Name of the Faculty: Sh. Amit Sandhu
Discipline : Civil Engg.
Semester : 3rd Sem.
Subject : Construction Materials
Lesson Plan Duration: 15 weeks (Sept 2020- Dec 2020) L: 3 P:2

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	1. Building Stones: 1.1 Classification of Rocks: (General Review) 1.1.1 Geological classification: Igneous, sedimentary and metamorphic rocks	1	i) To identify the stones used in building works by visual examination
	2.	1.1.2 Chemical classification; Calcareous, argillaceous and siliceous rock 1.1.3 Physical classification: Unstratified, stratified and foliated rocks		
	3.	1.2 General characteristics of stones – Marble, Kota stone, Granite, Sand, Trap, Basalt stone, Limestone and Slate		
		1.3 Requirements of good building stones 1.4 Identification of common building stones		
2.	1.	1.5 Various uses of stones in construction 1.6 Quarrying of stones by blasting and its effect on environment	2	DO
	2.	2. Bricks and Tiles: 2.1 Introduction to bricks		
	3.	2.2 Raw materials for brick manufacturing and properties of good brick making earth 2.3 Manufacturing of bricks		

		2.3.1 Preparation of clay (manual/mechanically)		
3.	1.	2.3.2 Moulding: hand moulding and machine moulding brick table; drying of bricks, burning of bricks, types of kilns (Bull's Trench Kiln and Hoffman's Kiln), process of burning, size and weight of standard brick;	3	ii) To determine the crushing strength of bricks
	2.	traditional brick, refractory brick, clay-flyash bricks, sun dried bricks, only line diagram of kilns 2.4 Classification and specifications of bricks as per BIS: 1077		
	3	2.5 Testing of common building bricks as per BIS: 3495 Compressive strength, water absorption – hot and cold water test, efflorescence, Dimensional tolerance, soundness		
4.	1.	2.6 Tiles 2.6.1 Building tiles; Types of tiles-wall, ceiling, roofing and flooring tiles	4	DO
	2.	2.6.2 Ceramic, terrazzo and PVC tiles, : their properties and uses,		
	3.	2.6.3 Vitrified tiles, Paver blocks, interlocking tiles 2.7 Stacking of bricks and tiles at site		
	1.	3. Cement: 3.1 Introduction, raw materials, flow diagram of manufacturing of cement	5	iii) To determine the water absorption of bricks and efflorescence of bricks

5.	2	3.2 Various types of Cements, their uses and testing: Ordinary portland cement,		
	3.	FIRST SESSIONAL		
6.	1.	rapid hardening cement, low heat cement, white and colored cement, portland pozzolana cement	6	DO
	2.	DO		
	3.	DO		
7.	1.	3.3 Properties of cement	7	iv) To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only
	2.	4. Timber and Wood Based Products: 4.1 Identification and uses of different types of timber: Teak, Deodar, Shisham, Sal, Mango, Kail, Chir, Fir, Hollock, Champ		
	3.	4.2 Market forms of converted timber as per BIS Code		
8.	1.	4.3 Seasoning of timber: Purpose, methods of seasoning as per BIS Code 4.4 Properties of timber and specifications of structural timber	8	DO
	2.	4.5 Defects in timber, decay in timber		
	3.	4.6 Preservation of timber and methods of treatment as per BIS		
9.	1.	4.7 Other wood based products, their brief description of manufacture and uses: laminated board, gypsum board, block board, fibre board, hard board, sunmica, plywood, veneers,	9	v) The students should submit a report work on the

	2.	Nu-wood and study of the brand name and cost of the wood based products available in the market, Cement Panel Board, Moulded Doors.		
	3.	5. Paints and Varnishes: 5.1 Introduction, purpose and use of paints		
10.	1.	5.2 Types, ingredients, properties and uses of oil paints, water paints and cement paints	10	DO
	2.	SECOND SESSIONAL		
	3.	5.3 Covering capacity of various paints		
11	1.	5.4 Types, properties and uses of varnishes	11	DO
	2.	5.5 Trade name of different products.		
	3.	6. Metals: 6.1 Ferrous metals: Composition, properties and uses of cast iron, mild steel, HYSD steel, high tension steel as per BIS.		
12	1.	6.2 Commercial forms of ferrous, metals.	12	DO
	2.	Aluminium & Stainless Steel		
	3.	7. Miscellaneous Materials: 7.1 Plastics – Introduction and uses of various plastic products in buildings such as doors, water tanks and PVC pipes 7.2 Fibre Sheets and their size and uses		
		7.3 Types and uses of insulating materials for sound and thermal insulation		

13	1.	7.4 Construction chemicals like water proofing compound, epoxies, polymers	13	DO
	2.	7.5 Water proofing, termite proofing and fire resistance materials – types and uses		
	3.	7.6 Materials used in interior decoration works like POP, methods of doing POP, PVC paneling		
14	1.	7.7 Eco friendly materials for construction of buildings.	14	DO
	2.	REVISION		
	3.	THIRD SESSIONAL		
15	1.	EXAM PREPARATION	15	DO