

GOVT. POLYTECHNIC NANAKPUR

Name of the Faculty :
 Discipline : **Civil Engg.** L: 4 P:2
 Semester : **3RD**
 Subject : **STRUCTURAL MECHANICS**
 Lesson Plan Duration : **15 weeks**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical week	Topic
1.	1.	To Introduction about the subject.	1st	Determination of yield stress, ultimate stress, percentage elongation and plot the stress strain diagram and compute the value of young's modulus on mild steel
	2.	Properties of materials.		
	3.	Classification of material, elastic, Plastic, Ductile, brittle materials.		
	4.	Introduction about tensile, compressive, impact, fatigue, torsion test.		
2.	1.	Revision	2nd	Determination of yield stress, ultimate stress, percentage elongation and plot the stress strain diagram and compute the value of young's modulus on mild steel
	2.	Concept of stress, normal and shear stresses.		
	3.	Concept of strain and deformation, Logitudinal and strain.		
	4	Poisson ration and volumetric stress.		
3.	1.	Hook law, moduli of elasticity and rigidity, bulk modulus of elasticity, relation between the elastic constant.	3rd	Testing of HYSD Steel
	2.	Stressess and strains in bars subjected to tension and compression.		
	3.	Stress and strains diagram for mild steel and HYSD steel, mechanical properties, factor of safety.		

	4.	Temperature stresses and strains.		
4.	1.	Extension of uniform bar under its own weight, stress produced in compound bars (w or t Periodsee) due to axial load.	4th	Determination of young's modulus of elasticity for steel wire with searl's apparatus
	2.	Revision		
	3.	Concept of a beam and supports (Hinges, Roller and Fixed)		
	4.	Types of beams : simply supported, cantilever, propped, over hand, cantilever and continuous beams (only concept).		
5.	1.	Sessional 1st		
	2.			
	3.			
	4	Types of loads (dead load, live load, snow load, wind load seismic load as per IS Codes etc)		
6.	1.	and types of loading (point, uniformly distributed and uniformly varying loads)	5th	Determination of young's modulus of elasticity for steel wire with searl's apparatus
	2.	Concept of bending moment and shear force, sign conventions.		
	3.	Bending Moment and shear force diagram for cantilever.		
	4	Simply suported and overhanging beams subjected to concentrated, uniformly distributed.		

7.	1.	Relationship between load, shear force and bending moment, point of maximum bending moment and point of contraflexure.	6th	Determination of modulus of rupture of a concrete beam
	2.	Revision of ch. 3rd and assignment.		
	3.	Concept of moment of inertia and second moment of area and radius of gyration, theorems of parallel		
	4	perpendicular axis, second moment of area of common geometrical sections: rectangle, triangle. Circle.		
8.	1.	Second moment of area for L,T and I sections modulus.	7th	Determination of modulus of rupture of a concrete beam
	2.	Bending stresses in Beams		
	3.	Concept of pure/simple bending		
	4	Assumptions made in the theory of simple bending, derivation		
9.	1.	Application of bending equation to circular cross-section, I section, T & L sections only	8th	Determination of maximum deflection and young's modulus of elasticity in simply supported beam with load at middle third point
	2.	Moment of resistance Calculations of bending stresses in simply supported beam		
	3.	Revision of ch 4th and 5th.		
	4	Class test of ch 5th		
10.	1.	Sessional test 2nd		
	2.			
	3.			
	4.	Explanation of sessional		

11.	1.	Shear stresses in beams	9th	Determination of maximum deflection and young's modulus of elasticity in simply supported beam with load at middle third point
	2.	Concept of shear stresses in beams		
	3	Shear stress distribution in rectangular, circular I,T,L sections for S.S beams and Portland		
	4	Revision		
12.	1.	Slope and Deflection:	10th	Verification of forces in a framed structure
	2.	Determination of slope and deflection using Moment Area Theorem for simply supported beam for pointed load.		
	3.	Determination of slope and deflection using Moment Area theorem for simply supported beam for UDL load.		
	4	Columns		
13.	1.	Theory of Columns	11th	Verification of forces in a framed structure
	2.	Problem Solving using Eulers and Rankine Formula		
	3.	Class test and assignment		
	4.	Analysis of Trusses		
14.	1.	Concept of a perfect, redundant and deficient frames	12th	Repeat any experiment and copy check
	2.	Assumptions and analysis of trusses by : (a) method of joints		
	3.	Assumptions and analysis of trusses by : (a) method of section		
	4	Revision and doubt clear from complete syllabus		
15.	1.	Sessional 3rd		
	2.			
	3.			
	4.	REVISION		

GOVT. POLYTECHNIC NANAHPUR

Name of the Faculty :
 Discipline : Civil Engg. L: 4 P:2
 Semester : 3RD
 Subject : Building Construction
 Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1.	1. Introduction: 1.1 Definition of a building, classification of buildings based on occupancy	1.	1 Demonstration of tools and plants used in building construction
	2.	1.2 Different parts of a building		
	3.	2. Foundations: 2.1 Concept of foundation and its purpose		
	4.	2.2 Types of foundation- shallow and deep		
2.	1.	2.2.1 Shallow foundation constructional details of: Spread foundations for walls, min. depth criteria, thumb rules for depth and width of foundation and thickness of concrete block,	2.	2 To prepare Layout of a building: two rooms building with front verandah
	2.	stepped foundation for masonry pillars and concrete columns		
	3.	2.2.2 Introduction to deep foundation and their types		
	4	2.3. Earthwork 2.3.1 Layout/setting out for surface excavation, cutting and filling		
1.	2.3.2 Excavation of foundation, trenches, shoring, timbering and de-watering.	3.	3 To construct brick bonds (English bond only) in one, one and half and two brick thick: (a) Walls for L, T and cross junction (b) Columns	

3.	2.	3. Walls: 3.1 Purpose of walls 3.2 Classification of walls - load bearing, non-load bearing, dwarf wall, retaining, breast walls and partition walls		
	3.	3.3 Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow and solid concrete block and composite masonry walls		
	4.	3.4 Partition walls: Constructional details, suitability and uses of brick and wooden partition walls		
4.	1.	3.5 Scaffolding, construction details and suitability of various types of tubular scaffolding, shoring, underpinning	4.	4 Demonstration of following items of work at construction site by: a) Timbering of excavated trenching
	2.	4 Masonry 4.1 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		
	3.	4.1.1 Bond – meaning and necessity; English, Flemish bond and other types of bonds		

	4.	4.1.2 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		
5.	1.	4.1.3 Mortars: types, selection of mortar and its preparation	5.	b) Laying damp proof courses
	2.	4.2 Stone Masonry 4.2.1 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		
	3.	4.2.2 Types of stone masonry: rubble masonry - random and coursed; Ashlar masonry, principles to be observed in construction of stone masonry walls		
	4	REVISION		
	1.	FIRST SESSIONAL		c) Construction of masonry walls

6.	2.	5.Arches and Lintels: 5.1 Meaning and use of arches and lintels: 5.2 Glossary of terms used in arches and lintels - abutment, pier, arch ring, intrados, soffit, extrados, voussoirs, springer, springing line, crown, key stone, skew back, span, rise, depth of an arch, haunch, spandril, jambs, bearing, thickness of lintel, effective span	6.	
	3.	5.3 Arches: 5.3.1 Types of Arches - Semi circular, segmental, elliptical and parabolic, flat, inverted and relieving		
	4	5.3.2 Stone arches and their construction 5.3.3 Brick arches and their construction		
	1.	5.4 Lintels 5.4.1Purpose of lintel 5.4.2Materials used for lintels		d) Laying of tile flooring on an already prepared lime concrete base
	2.	5.4.3 Cast-in-situ and pre-cast lintels 5.4.4 Lintel along with sun-shade or chhajja		

7.	3.	6. Doors, Windows and Ventilators: 6.1Glossary of terms with neat sketches 6.2Classification based on materials i.e. wood, metal and plastic and their suitability for different situations. Different type of doors- panel door, flush door, glazed door, rolling shutter, steel door, sliding door, plastic and aluminium doors	7.	
	4	6.3Window – Panel window, glazed windows (fixed and openable) ventilators, sky light window, Louveres shutters, plastic and aluminium windows.		
	1.	6.4Door and window frames – materials and sections, fixtures and fasteners, hold fasts		e) Plastering and pointing exercise
	2.	7. Damp Proofing and Water Proofing 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		

8.	3.	7.2 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.	8.	
	4	7.3 Damp proofing materials and their specifications: rich concrete and mortar, bitumen, bitumen mastic, polymer coating, use of chemicals		
9.	1.	7.4. Damp proofing of basement, Ground floors, plinth and walls, water storage tank, kitchen, W.C., roof.	9.	f) Constructing RCC work
	2.	8. Floors 8.1 Glossary of terms-floor finish, topping, under layer, base course, rubble filling and their purpose		
	3.	8.2 Types of floor finishes - concrete flooring, ceramic tile flooring, stone (marble and kota) flooring. Wooden flooring		
	4	8.3 Special emphasis on level/slope/reverse slope in bathrooms, toilets, kitchen, balcony and staircase		

10.	1.	9. Roofs 9.1Types of roofs, concept of flat, pitched and arched roofs	10.	g)Pre-construction and post construction termite treatment of building and woodwork
	2.	9.2 Glossary of terms for pitched roofs -		
		batten, eaves, fascia board, gable, hip,		
	3.	lap, purlin, rafter, rag bolt, valley, ridge, rain water gutter, anchoring bolts		
	4.	9.3 False ceilings using gypsum, plaster boards, cellotex, fibre boards		
11.	1.	REVISION	11.	h)Interlocking tiles
	2.	SECOND SESSIONAL		
	3	10. Stairs 10.1Glossary of terms: Staircase, winders, landing, stringer, newel, baluster, riser, tread, width of staircase, hand-rail, nosing		
	4	10.2 Classification of staircase on the basis of material – RCC, timber, steel, Aluminium		
	1.	10.3Planning and layout of staircase: Relations between rise and tread, determination of width of stair, landing etc		REVISION
	2.	10.4 Various types of layout - straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair		

12.	3.	<p>11. Surface Finishes</p> <p>11.1 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</p>	12.	
		<p>11.2 Pointing - different types of pointing and their methods</p>		
13.	1.	<p>11.3 Painting - preparation of surface, primer coat and application of paints on wooden, steel and plastered wall surfaces</p>	13.	REVISION
	2.	<p>11.4 Application of white washing, colour washing and distempering, polishing, application of cement and plastic paints</p>		
	3.	<p>11.5 Selection of appropriate paints/finishes for interior and exterior surfaces</p>		
	4.	<p>11.6 Importance of preparation of surfaces such as hacking, grooving etc before application of surface finishes</p>		

14.	1.	12Anti Termite Measures as per IS 6.313- I-III 12.1Anti Termite Treatment to Foundation, Masonary, RCC, Floors, Junction of walls and Floors.	14.	REVISION
	2.	12.2Treatment to wooden joinery 12.3Treatment to existing building		
	3.	REVISION		
	4	THIRD SESSIONAL		
15.	1.	REVISION	15.	REVISION
	2.	REVISION		
	3.	REVISION		
	4.	REVISION		

GOVT. POLYTECHNIC NANAKPUR

Name of the Faculty :
 Discipline : Civil Engg. L: 3 P:2
 Semester : 3 rd Sem.
 Subject : FLUID MECHANICS
 Lesson Plan Duration : 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1	1. Introduction: 1.1 Fluids: Real and ideal fluids 1.2 Fluid Mechanics, Hydrostatics, Hydrodynamics, Hydraulics	1.	Brief Introduction of Practicals.
	2.	2. Properties of Fluids (definition only 2.1 Mass density, specific weight, specific gravity, viscosity, surface tension - cohesion, adhesion and, capillarity, vapour pressure and compressibility		
	3.	DO		
2.	1.	3. Hydrostatic Pressure: 3.1 Pressure, intensity of pressure, pressure head,	2.	1 To verify Bernoulli's Theorem
	2.	Pascal's law and its applications.		
	3.	3.2 Total pressure, resultant pressure, and centre of pressure.		
3.	1.	3.3 Total pressure and centre of pressure on horizontal, vertical and inclined plane surfaces of rectangular, triangular, trapezoidal shapes and circular. (No derivation - Simple Numerical Problems)	3.	DO
	2.	DO		

	3.	4. Measurement of Pressure 4.1 Atmospheric pressure, gauge pressure,		
4.	1.	Vacuum pressure and absolute pressure.	4.	2 To find out venturimeter coefficient
	2.	4.2 Piezometer, simple manometer and differential manometer		
	3.	Bourden gauge and dead weight pressure gauge.		
5.	1.	REVISION	5.	DO
	2.	FIRST SESSIONAL		
	3.	5. Fundamentals of Fluid Flow: 5.1 Types of Flow: Steady and unsteady flow, laminar and turbulent flow, uniform and non-uniform flow		
6.	1.	5.2 Discharge and continuity Equation (flow equation) {No derivation}, Simple numerical problems. Equation (flow equation) {No derivation}, Simple numerical problems.	6.	3 To determine coefficient of velocity (C_v), Coefficient of discharge (C_d) Coefficient of contraction (C_c) of an orifice and verify the relation between them
	2.	5.3 Types of hydraulic energy: Potential energy, kinetic energy, pressure energy		
	3.	5.4 Bernoulli's theorem; statement and description (without proof of theorem), Simple numerical problems.		

7.	1.	6. Flow Measurements Brief description with simple numerical problem of 6.1: Venturimeter and orifice meter	7.	DO
	2.	6.2 Pitot tube 6.3 Orifices and mouthpieces		
	3.	6.4 Current meters 6.5 Notches and weirs		
8.	1	7. Flow through Pipes: 7.1 Definition of pipe flow; Reynolds number, laminar and turbulent flow - explained through Reynold's experiment	8.	4 To perform Reynold's experiment
	2.	7.2 Critical velocity and velocity distributions in a pipe for laminar flow		
	3.	7.3 Head loss in pipe lines due to friction, sudden expansion and sudden contraction, entrance, exit, obstruction and change of direction (No derivation of formula), Simple numerical problems		
9.	1.	7.4 Hydraulic gradient line and total energy line	9.	To verify loss of head in pipe flow due to a) Sudden enlargement b) Sudden contraction c) Sudden bend
	2.	7.5 Pipes in series and parallel		
	3.	7.6 Water hammer phenomenon and its effects (only definition and description)		
	1.	REVISION		
	2.	SECOND SESSIONAL		

10.	3.	8. Flow through open channels: 8.1 Definition of an open channel, uniform flow and non-uniform flow	10.	DO
11.	1.	8.2 Discharge through channels using i) Chezy's formula (no derivation)	11.	6) Demonstration of use of current meter and pitot tube
	2.	ii) Manning's formula (no derivation)		
	3.	8.3 Most economical channel sections (no derivation, only simple numerical problems) i) Rectangular ii) Trapezoidal		
12.	1.	DO	12.	DO
	2.	REVISION		
	3	8.4 Head loss in open channel due to friction		7) To determine coefficient of discharge of a rectangular notch and triangular notch
13.	1.	9. Hydraulic Pumps: Hydraulic pump	13.	DO
	2.	Reciprocating pump,		
	3.	centrifugal pumps (No numerical and derivation (may be demonstrated with the help of working models))		
14.	1.	REVISION	14.	REVISION
	2.	REVISION		
	3.	THIRD SESSIONAL		
15.	1.	PREPARATION OF FINAL EXAM	15.	
	2.	DO		
	3.	DO		

GOVT. POLYTECHNIC NANAHPUR

NAME OF FACULTY :

Discipline : **Civil Engg.** L: 3 P:5

Semester : **3rd**

Subject : **Surveying**

Lesson Plan Duration : **15 weeks**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1	1.	1 Introduction: 1.1 Basic principles of surveying	1	Brief Introduction To Practicals.
	2	1.2 Concept and purpose of surveying, measurements-linear and angular, units of measurements	2.	I. Chain surveying i) a) Ranging a line b) Chaining a line and recording in the field book.
	3	1.3 Instruments used for taking these measurements, classification based on surveying instruments		
2.	1.	2. Chain surveying: 2.1.Purpose and principles of Chain Surveying	1.	c) Taking offsets - perpendicular and oblique (with a tape only) d) Setting out right angle with a tape
	2.	2.2 Introduction, advantages and disadvantages	2.	ii) Chaining of a line involving reciprocal ranging
	3	2.3 Direct and indirect ranging, offsets and recording of field notes		
3.	1.	2.4 Obstacles in Chain Surveying	1.	iii)Chaining a line involving obstacles to ranging
	2.	2.5Errors in Chain Surveying and their correction	2.	iv)Chain Survey of a
	3	3. Compass surveying: 3.1Purpose of compass surveying. Use of prismatic compass: Setting and taking observations		

4.	1.	3.2 Concept of following with simple numerical problems: a) Meridian - Magnetic and true, Arbitrary	1.	III Compass Surveying: i) a) Study of prismatic compass
	2.	b) Bearing - Magnetic, True and Arbitrary c) Whole circle bearing and reduced bearing	2.	b) Setting the compass and taking observations
	3	d) Fore and back bearing e) Magnetic dip and declination		
5.	1.	REVISION	1	c) Measuring angles between the lines meeting at a point
	2.	FIRST SESSIONAL	2.	III. Levelling: i) a) Study of dumpy level and levelling staff
	3	3.3 Local attraction - causes, detection		
6.	1.	errors and corrections	1.	c) Taking staff readings on different stations from the single setting and finding differences of level between them
	2.	problems on local attraction	2.	ii) a) To find out difference of level between two distant points by shifting the
	3	DO		
7.	1	magnetic declination and calculation of included angles in a compass traverse (Simple Numerical Problems)	1.	iii) Longitudinal and cross sectioning of a road/railway/canal
	2.	4. Levelling: 4.1 Purpose of levelling, concept of a level surface, horizontal surface, vertical surface, datum, reduced level and bench marks	2.	iv) Setting a gradient by dumpy and auto-level
	3	DO		

8	1.	4.2 Identification of various parts of Dumpy level and use of Dumpy level, Auto level: advantages and disadvantages, use of auto level.	1.	IV. Plane Table Surveying: i) a) Study of the plane table survey equipment
	2.	4.3 Concepts of line of collimation, axis of the bubble tube, axis of the telescope and vertical axis	2.	b) Setting the plane table
	3	4.4 Levelling staff: single piece, folding, invar precision staff, telescopic		
9.	1.	4.5 Temporary adjustment and permanent adjustment of dumpy level by two peg method.	1.	c) Marking the North direction
	2.	4.6 Concept of back sight, foresight, intermediate sight, change point, to determine reduce levels	2.	d) Plotting a few points by radiation method
	3	4.7 Level book and reduction of levels by 4.7.1 Height of collimation method and 4.7.2 Rise and fall method		
	1.	REVISION	1.	ii) a) Orientation by - Trough compass - Back sighting
	2.	SECOND SESSIONAL		b) Plotting few points by

10.	3	4.8 Arithmetic checks, problem on reduction of levels, fly levelling, check leveling and profile levelling (L-section and X-section), errors in levelling, permissible limits, reciprocal leveling. Numerical problems.	2.	intersection, radiation and resection method
11.	1.	4.9 Computations of Areas of regular figures and irregular figures. Simpson's rule: prismoidal formula and graphical method use of planimeter for computation of areas, numerical problems	1.	iii) Traversing an area with a plane table (at least five lines)
	2.	5. Plane Table Surveying 5.1 Purpose of plane table surveying, equipment used in plane table survey:	2.	V. Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments
	3	5.2 Setting of a plane table: (a) Centering (b) Levelling		
12.	1.	(c) Orientation	1.	REVISION
	2.	5.3 Methods of plane table surveying (a) Radiation, (b) Intersection	2.	REVISION
	3	(c) Traversing (d) Resection		
	1.	5.4 Concept of Two point and Three point problems (Concept only)	1.	REVISION

13.	2.	5.Errors in plane table survey and precautions to control them. Testing and adjustment of plane table and alidade	2.	
	3	REVISION		REVISION
14.	1.	THIRD SESSIONAL	1.	REVISION
	2.	PREPARATION FOR FINAL EXAM	2.	
	3	DO		REVISION
15.	1.	DO	1.	REVISION
	2	DO	2	
	3	DO		.

GOVT. POLYTECHNIC NANAKPUR

Name of the Faculty :

Discipline : Civil Engg. L: 3 P:2

Semester : 3rd Sem.

Subject : CONSTRUCTION MATERIALS

Lesson Plan Duration : 15 weeks

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, Lime stone 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, terrazo 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		
5	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,	5.	
	3.	FIRST SESSIONAL		
6.	1.	rapid hardening cement, low heat cement, white and coloured 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		
	1	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
	2.	DO		
	3.	DO		

GOVT. POLYTECHNIC NANAKPUR

Name of the Faculty :
 Discipline : Civil Engg. P:3
 Semester : 3rd Sem.
 Subject : Building Drawing
 Lesson Plan Duration : 15 weeks

Week	Practical	
	Practical Day	Topic
1	1.	Drawing No. 1(2 sheets) Details of spread footing foundations, load bearing and non- load bearing wall for given thickness of walls with the help of given data or rule of the thumb, showing offsets, position of DPC. The details of the concrete and brick apron have to be shown in the drawing.
	2.	DO
	3.	DO
2.	1.	Drawing No. 2(one sheet) Plaÿs of ŧ aÿd Corÿer juÿDtioÿ of walls of 1 Brick, 1-1/2 Brick and 2 brick thick in English bond
	2.	DO
	3.	Drawing No. 3(one sheet) Drawing plan, elevation of arches: circular arch, segmental arch
3.	1.	Drawing No. 4 (3 sheets) Elevation, sectional plan and sectional side elevation of flush door, glazed door, panelled door with wire gauge shutter.
	2.	DO
	3.	DO
4.	1.	DO
	2.	DO
	3.	Drawing No. 5 (2 sheet) Drawing plan, elevation of a small building by measurement and foundation detail and sectional elevation.
5.	1.	DO
	2.	
	3.	REVISION
6.	1.	REVISION
	2.	
	3.	REVISION
7.	1.	FIRST SESSIONAL
	2.	Drawing No. 6: (4 sheets) Drawing detailed plan, elevation and section of a two room residential building from a given line plan, showing details of foundations, roof and parapet

	3.	DO
8.	1.	DO
	2.	
	3.	DO
9.	17.	DO
	18.	Drawing No. 7 (one sheet) Drawings of following floors Cement concrete floors on ground and at first floor i)Wooden flooring ii)Bonded cement concrete flooring iii)Ceramic/vitrified tile flooring
10.	19.	SECOND SESSIONAL
	20.	Drawing No. 8(one sheet) Drawing of flat roof, showing the heat/thermal insulation provisions.
11.	21.	Drawing No. 9 (one sheet) Drawing details of damp proofing arrangement of roofs and walls as per BIS Code. Show the rain water drainage arrangement also.
	22.	Drawing No 10 Drawing Damp Proofing details in basement of buildings.
12.	23.	Drawing No.11 Drawing Damp proofing details in water/soil retaining structures
13.	25.	PREPARATION FOR FINAL EXAM
	26.	DO
14.	27.	DO
	28.	DO
15.	29.	DO
	30.	DO