

**Name Of The Faculty** : **G.P.Singh**  
**Discipline** : **Civil Engg.**  
**Semester** : **3<sup>rd</sup> 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.	4. Measurement of Pressure 4.1 Atmospheric pressure, gauge pressure, DO		
	3.	<b>Class Test/ Assignment I</b>		
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.	5. Fundamentals of Fluid Flow: 5.1 Types of Flow: Steady and unsteady flow, laminar and turbulent flow, uniform and non-uniform flow	5.	DO
	2.	Revision		
	3.	<b>1<sup>st</sup> Sessional Test</b>		
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.	<b>Class Test/ Assignment II</b>	9.	To verify loss of head in pipe flow due to a) Sudden enlargement b) Sudden contraction c) Sudden bend

	2.	7.4 Hydraulic gradient line and total energy line		
	3.	7.5 Pipes in series and parallel		
10.	1.	7.6 Water hammer phenomenon and its effects (only definition and description)	10.	DO
	2.	Revision		
	3.	<b>2<sup>nd</sup> Sessional Test</b>		
11.	1.	8. Flow through open channels: 8.1 Definition of an open channel, uniform flow and non-uniform flow	11.	6) Demonstration of use of current meter and pitot tube
	2.	8.2 Discharge through channels using i) Chezy's formula (no derivation)		
	3.	ii) Manning's formula (no derivation)		
12.	1.	8.3 Most economical channel sections (no derivation, only simple numerical problems) i) Rectangular	12.	DO
	2.			
	3.	ii) Trapezoidal		7) To determine coefficient of discharge of a rectangular notch and triangular notch
13.	1.	Revision	13.	DO
	2.	8.4 Head loss in open channel due to friction		
	3.	<b>Class Test/ Assignment III</b>		
14.	1.	9. Hydraulic Pumps: Hydraulic pump	14.	REVISION
	2.	Reciprocating pump,		
	3.	centrifugal pumps (No numerical and derivation (may be demonstrated with the help of working models))		
15.	1.	Revision	15.	
	2.	PREPARATION OF FINAL EXAM		
	3.	<b>3<sup>rd</sup> Sessional Test</b>		

**Name Of The Faculty** : **Suman Yadav**  
**Discipline** : **Civil Engg.**  
**Semester** : **3<sup>rd</sup> Semester**  
**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 1.2 Different parts of a building	1.	1 Demonstration of tools and plants used in building construction
	2.	2. Foundations: 2.1 Concept of foundation and its purpose		
	3.	2.2 Types of foundation- shallow and deep		
	4.	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.	1.	stepped foundation for masonry pillars and concrete columns	2.	2 To prepare Layout of a building: two rooms building with front verandah
	2.	2.2.2 Introduction to deep foundation and their types		
	3.	2.3. Earthwork 2.3.1 Layout/setting out for surface excavation, cutting and filling		

	4	2.3.2 Excavation of foundation, trenches, shoring, timbering and de- watering.	
3.	1.	<p>3. Walls:</p> <p>3.1 Purpose of walls</p> <p>3.2 Classification of walls - load bearing, non-load bearing, dwarf wall, retaining, breast walls and partition walls</p>	<p>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</p>

	2.	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	
	3.	3.4 Partition walls: Constructional details, suitability and uses of brick and wooden partition walls	
	4.	<b>Class test /Assignment I</b>	
4.	1.	3.5 Scaffolding, construction details and suitability of mason's brick layers and tubular scaffolding, shoring, underpinning	4 Demonstration of following items of work at construction site by: a) Timbering of excavated trenching
	2.	4Masonry 4.1Brick 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.	4.1.1Bond – 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 4.2Stone Masonry 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	5. Revision

2.	4.2.2 Types of stone masonry: rubble masonry - random and coursed; Ashlar masonry, principles to be observed in construction of stone masonry walls
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	3.	Revision		
	4	<b>First Sessional Exam</b>		
6.	1.	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.	b) Laying damp proof courses
	2.	5.3 Arches: 5.3.1Types of Arches - Semi circular, segmental, elliptical and parabolic, flat, inverted and relieving		
	3.	5.3.2 Stone arches and their construction 5.3.3 Brick arches and their construction		
	4	5.4 Lintels 5.4.1Purpose of lintel 5.4.2Materials used for lintels		
7.	1.	5.4.3Cast-in-situ and pre-cast 5.4.4lintels Lintel along with sun-shade or chhajja	7.	c) Construction of masonry walls
	2.	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		
3.	6.3 Window – Panel window, glazed windows (fixed and openable) ventilators, sky light window, Louveres shutters, plastic and aluminium windows.		
4	6.4 Door and window frames – materials and sections, fixtures and fasteners, hold fasts		

8.	1.	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.	d) Laying of tile flooring on an already prepared lime concrete base
	2.	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.		
	3.	7.3 Damp proofing materials and their specifications: rich concrete and mortar, bitumen, bitumen mastic, polymer coating, use of chemicals		
	4	7.4. Damp proofing of basement, Ground floors, plinth and walls, water storage tank, kitchen, W.C., roof.		

9.	1.	<b>Class Test/Assignment II</b>	9.	e) Plastering and pointing exercise
	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.	batten, eaves, fascia board, gable, hip, lap, purlin, rafter, rag bolt, valley, ridge, rain water gutter, anchoring bolts	10.	Revision
	2.	9.3 False ceilings using gypsum, plaster boards, cellotex, fibre boards		

	3.	Revision		
	4.	<b>Second Sessional Exam</b>		
11.	1.	10. Stairs 10.1 Glossary of terms: Staircase, winders, landing, stringer, newel, baluster, riser, tread, width of staircase, hand-rail, nosing	11.	f) Constructing RCC work
	2.	10.2 Classification of staircase on the basis of material – RCC, timber, steel, Aluminium		
	3	10.3 Planning and layout of staircase: Relations between rise and tread, determination of width of stair, landing etc		
	4	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.	1.	11. Surface Finishes 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	12.	g) Pre-construction and post construction termite treatment of building and woodwork
	2.	11.2 Pointing - different types of pointing and their methods		
	3.	11.3 Painting - preparation of surface, primer coat and application of paints on wooden, steel and plastered wall surfaces		
	4	11.4 Application of white washing, colour washing and distempering, polishing, application of cement and plastic paints		
13.	1.	11.5 Selection of appropriate paints/finishes for interior and exterior surfaces	13.	h) Interlocking tiles
	2	11.6 Importance of preparation of surfaces such as hacking, grooving etc before application of surface finishes		

3	11.5 Selection of appropriate paints/finishes for interior and exterior surfaces		
4	<b>Class Test/ Assignment III</b>		

14.	1.	11.6 Importance of preparation of surfaces such as hacking, grooving etc before application of surface finishes	14.	REVISION
	2.	Revision		
	3.	12Anti Termite Measures as per IS 6.313- I-III 12.1Anti Termite Treatment to Foundation, Masonary, RCC, Floors, Junction of walls and Floors.		
	4	12.2Treatment to wooden joinery 12.3Treatment to existing building		
15.	1.	Revision	15.	REVISION
	2.	Revision		
	3.	<b>Third Sessional Exam</b>		
	4.	Preparation For Final Exam		

**Name Of Faculty** : **Dheeraj Sahni/ Kuldeep Singh**  
**Discipline** : **Civil Engg.**  
**Semester** : **3<sup>rd</sup>**  
**Subject** : **Surveying-I**  
**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	2.	iv)Chain Survey of a

		correction		small area.
	3	<b>Class Test/Assignment I</b>		
4.	1.	3.Compass surveying: 3.1 Purpose of compass surveying. Use of prismatic compass: Setting and taking observations	1.	III Compass Surveying: i) a) Study of prismatic compass
	2.	3.2 Concept of following with simple numerical problems: a) Meridian - Magnetic and true, Arbitrary	2.	b) Setting the compass and taking observations
	3	b) Bearing - Magnetic, True and Arbitrary Whole circle bearing and reduced bearing		
5.	1.	d) Fore and back bearing e) Magnetic dip and declination	1	c) Measuring angles between the lines meeting at a point
	2.	-----Do-----	2.	III. Levelling: i) a) Study of dumpy level and levelling staff b) Temporary adjustments of various levels
	3	<b>1<sup>st</sup> Sessional Exam</b>		
6.	1.	3.3 Local attraction - causes, detection 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 instrument
	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	4.2 Identification of various parts of Dumpy level and use of Dumpy level, Engineer' level, Auto level: advantages and disadvantages, use of auto level.		
8	1.	<b>Class Test/ Assignment II</b>	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		
10.	1.	Revision	1.	ii) a) Orientation by - Trough compass - Back sighting
	2.	<b>2<sup>nd</sup> Sessional Exam</b>		
	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.	b) Plotting few points by intersection, radiation and resection method
11.	1.	4.9 Computations of Areas of regular figures and irregular figures. Simpson's rule: prismatic 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		
	1.	(c) Orientation	1.	REVISION
12.	2.	5.3 Methods of plane table surveying (a) Radiation, (b) Intersection	2.	
	3	(c) Traversing (d) Resection		REVISION
	1.	-----Do-----	1.	REVISION
13.	2.	Revision	2.	
	3	<b>Class Test/Assignment III</b>		REVISION
14.	1.	5.4 Concept of Two point and Three point problems (Concept only)	1.	REVISION
	2.	5.5 Errors in plane table survey and precautions to control them. Testing and adjustment of plane table and alidade	2.	REVISION
	3	-----Do-----		
15.	1.	Revision	1.	REVISION
	2	Third Sessional		
	3	Preparation For Final Exam	2	REVISION

**Name Of The Faculty** : **Anisha Mor**  
**Discipline** : **Civil Engg.**  
**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.	<b>Class Test /Assignment I</b>	4	DO
	2.	2.6 Tiles 2.6.1 Building tiles; Types of tiles-wall, ceiling, roofing and flooring tiles 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
	2.	3.2 Various types of Cements, their uses and testing: Ordinary portland cement,		
	3.	Revision		
	4.	<b>First Sessional Exam</b>		

6.	1.	Rapid hardening cement, low heat cement, white and coloured cement, portland pozzolana cement 3.3 Properties of cement	6	DO
	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		
7.	1.	4.3 Seasoning of timber: Purpose, methods of seasoning as per BIS Code	7	iv) To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only
	2.	4.4 Properties of timber and specifications of structural timber 4.5 Defects in timber, decay in timber		
	3.	4.6 Preservation of timber and methods of treatment as per BIS		
8.	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,	8	DO
	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.	<b>Class test /Assignment II</b>		
9.	1.	5. Paints and Varnishes: 5.1 Introduction, purpose and use of paints	9	v) The students should submit a report work on the

			construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market.
	2.	5.2 Types, ingredients, properties and uses of oil paints, water paints and cement paints	
	3.	5.3 Covering capacity of various paints	
10.	1.	-----Do-----	
	2.	Revision	
	3.	<b>Second Sessional Exam</b>	10 DO
11	1.	5.4 Types, properties and uses of varnishes	
	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.	11 DO

	4.	DO		
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		
	4.	7.2 Fibre Sheets and their size and uses		
13	1.	7.3 Types and uses of insulating materials for sound and thermal insulation	13	DO
	2.	7.4 Construction chemicals like water proofing compound, epoxies, polymers		
	3.	7.5 Water proofing, termite proofing and fire resistance materials – types and uses		
	4.	-----Do-----		
14	1.	7.6 Materials used in interior decoration works like POP, methods of doing POP, PVC paneling	14	DO
	2.	-----Do-----		
	3.	7.7 Eco friendly materials for construction of buildings		
15	1.	Revision	15	DO
	2.	Preparation For Final Exam		
	3.	<b>Third Sessional Exam</b>		

**Name Of The Faculty** : **Suman Yadav**  
**Discipline** : **Civil Engg.**  
**Semester** : **3rd Sem.**  
**Subject** : **Building Drwaing**  
**Lesson Plan Duration** : **15 Weeks**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	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.			2.	Drawing No. 2(one sheet) Plans of 'T' and Corner junction of walls of 1 Brick, 1-1/2 Brick and 2 brick thick in English bond Drawing No. 3(one sheet) Drawing plan, elevation of arches: circular arch, segmental arch
3.			3.	<b>Class Test/Assignment I</b>
4.			4.	Drawing No. 4 (3 sheets) Elevation, sectional plan and sectional side elevation of flush door, glazed door, panelled door with wire gauge shutter.DO



5.			5.	<b>Revision First Sessional Exam</b>
6.			6.	Drawing No. 5 (2 sheet) Drawing plan, elevation of a small building by measurement and foundation detail and sectional elevation.
7.			7.	<b>Drawing No. 6:</b> (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
8.			8.	<b>Class Test/ Assignment II</b>
9.			9.	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.			10.	<b>Revision Second Sessional Exam</b>

11.			11.	Drawing No. 8(one sheet) Drawing of flat roof, showing the heat/thermal insulation provisions.
12.			12.	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.
13.			13.	<b>Class Test/ Assignment III</b>
14.			14.	Drawing No 10 Drawing Damp Proofing details in basement of buildings. Drawing No.11-Drawing Damp proofing details in water/soil retaining structures
15.			15.	<b>Third Sessional Exam Preparation For Final Exam</b>

**Name Of The Faculty** : Rakesh Kumar  
**Discipline** : Civil Engg.  
**Semester** : 3<sup>RD</sup> Sem.  
**Subject** : Structural Mechanics  
**Lesson Plan Duration** : 15 Weeks

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1.	1	1. Properties of Materials 1.1 Classification of materials, elastic materials, plastic materials, ductile materials, brittle materials.	1.	i) 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.	1.2 Introduction to tensile test, compressive test, impact test, fatigue test, torsion test on metals.		
	3.	2. Simple Stresses and Strains 2.1 Concept of stress, normal and shear stresses		
	4	-----Do-----		
2.	1.	2.2 Concept of strain and deformation, longitudinal and transverse strain,	2.	DO
	2.	poisson's ratio, volumetric strain		
	3.	2.3 Hooke's law, moduli of elasticity and rigidity, Bulk modulus of elasticity, relationship between the elastic constants.		
	4.	Revision		
3.	1.	2.4 Stresses and strains in bars subjected to tension and compression. Extension of uniform bar under its own weight	3.	ii) Testing of HYSD Steel
	2.	stress produced in compound bars (two or tPeriodsee) due to axial load		
	3.	2.5 Stress-strain diagram for mild steel and HYSD steel, mechanical properties, factor of safety.		
	4.	<b>Class Test /Assignment I</b>		
4.	1.	2.6 Temperature stresses and strains	4.	DO

		3. Shear Force and Bending Moment: 3.1 Concept of a beam and supports (Hinges, Roller and Fixed),		
	2.			
	3.	types of beams: simply supported, cantilever, propped, over hang, cantilever and continuous beams (only concept).		
	4.	3.2 Types of loads (dead load, live load, snow load, wind load seismic load as per IS Codes etc) and types of loading (point, uniformly distributed and uniformly varying loads)		
5.	1.	Revision	5.	iii) Determination of Young's modulus of elasticity for steel wire with searl's apparatus
	2.	Revision		
	3.	<b>First Sessional</b>		
6.	1.	3.3 Concept of bending moment and shear force, sign conventions	6.	DO
	2.	3.4 Bending Moment and shear force diagrams for cantilever, simply supported and overhanging beams subjected to concentrated, uniformly distributed		
	3.	DO		
	4.	Numerical Practice		
7.	1.	3.5 Relationship between load, shear force and bending moment, point of maximum bending moment, and point of contraflexure.	7.	iv) Determination of modulus of rupture of a concrete beam
	2.	DO		
	3.	4. Moment of Inertia: Concept of moment of inertia and second moment of area and radius of gyration, theorems of parallel and perpendicular axis		
	4.	Numerical Practice		
8.	1.	Second moment of area of common geometrical sections: rectangle, triangle, circle ( <i>without derivations</i> ).	8.	DO
	2.	Second moment of area for L, T and I sections, section modulus.		

	3.	5.Bending Stresses in Beams: 5.1 Concept of pure/simple bending		
	4.	5.2 Assumptions made in the theory of simple bending, derivation and application of bending equation to circular cross-section, I section, T&L sections only		
9.	1.	<b>Class Test/Assignment II</b>	9.	v)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.	6.Shear Stresses in Beams 6.1Concept of shear stresses in beams,		
	4.	shear stress distribution in rectangular, circular I, T, L sections for S.S. beams and Portland		
10.	1.	-----Do-----	10.	DO
	2.	<b>Revision</b>		
	3.	<b>Second Sessional</b>		
11.	1.	7.Slope and Deflection:Determination of slope and deflection using Moment Area Theorem for simply supported beam for pointed load and U.D.L.(no derivation, numerical problems)	11.	DO
	2.	DO		
	3.	DO		
12	1.	8.Columns: 8.1Theory of columns	12.	vi)Verification of forces in a framed structure
	2.	8.2 Problem solving using Eulers and Rankine Formula		
	3	-----Do-----		
	4.	-----DO-----		
13.	1.	9.Analysis of Trusses: 9.1Concept of a perfect, redundant and deficient frames	13.	DO

	2.	9.2 Assumptions and analysis of trusses by: a) Method of joints		
	3.	b)Method of sections		
	4.	<b>Class Test /Assignment III</b>		
14.	1.	Revision	14.	DO
	2.	Revision		
	3.	Full Syllabus Test		
15.	1.	Revision	15.	Revision
		<b>Preparation of final exam</b>		
		<b>Third Sessional</b>		

