

Lesson Plan

Name of the faculty : Deepak
Discipline : Civil Engg.
Semester : 3rd Semester
Subject : Structural Mechanics
Lesson Plan Duration : 15 Weeks (From Sept 2023 to Dec 2023)
Work Load (Lecture) per week (in hours): Lectures-02, Practicals-04

Week	Lecture Day	Theory Topic (Including assignment/test)	Practical Day	Practical Topic
1 st	1 st	Classification of materials, elastic materials, plastic materials, ductile materials, brittle materials Introduction to tensile test, compressive test, impact test, fatigue test, torsion test on metals.	1 st	Determination of yield stress, ultimate stress, percentage elongation
			2 nd	-----do-----
	2 nd	Concept of stress, normal and shear stresses, Concept of strain and deformation, longitudinal and transverse strain, Numerical Problems on stress and strain.	3 rd	-----do-----
			4 th	-----do-----
2 nd	3 rd	Poisson's ratio, volumetric strain, Hooke's law, moduli of elasticity and rigidity, Bulk modulus of elasticity, relationship between the elastic constants. Stresses and strains in bar subjected to tension and compression. Extension of uniform bar under its own weight, stress produced in compound bars due to axial load.	5 th	-----do-----
			6 th	-----do-----
	4 th	Stress-strain diagram for mild steel and HYSD steel, mechanical properties, Numerical problems	7 th	-----do-----
			8 th	-----do-----
3 rd	5 th	factor of safety. Temperature stresses and strains Concept of a beam and supports (Hinges, Roller and Fixed	9 th	Plot the stress strain diagram and compute the value of young's modulus on mild steel
			10 th	-----do-----
	6 th	types of beams: simply supported, cantilever, propped, over hang, cantilever and continuous beams Revision	11 th	-----do-----
			12 th	-----do-----
4 th	7 th	Types of loads (dead load, live load, snow load, wind load seismic	13 th	-----do-----

		load as per IS Codes etc) and types of loading (point, uniformly distributed and uniformly varying loads)	14 th	-----do-----
	8 th	Concept of bending moment and shear force, sign conventions Numerical problems	15 th 16 th	-----do----- -----do-----
5 th	9 th	Bending Moment and shear force diagrams for cantilever Bending Moment and shear force diagrams for simply supported subjected to concentrated, uniformly distributed load.	17 th 18 th	Testing of HYSD Steel -----do-----
	10 th	Bending Moment and shear force diagrams for overhanging beams subjected to concentrated Numerical problems	19 th 20 th	-----do----- -----do-----
6 th	11 th	Relationship between load, shear force and bending moment.	21 st	-----do-----
		Sessional – 1st	22 nd	-----do-----
	12 th	Problems on above topic Revision	23 rd 24 th	-----do----- -----do-----
7 th	13 th	point of maximum bending moment, and point of contraflexure Concept of moment of inertia and second moment of area and radius of gyration,	25 th 26 th	Determination of Young's modulus of elasticity for steel wire with Searl's apparatus -----do-----
	14 th	theorems of parallel and perpendicular axis Revision	27 th 28 th	-----do----- -----do-----
8 th	15 th	second moment of area of common geometrical sections: rectangle second moment of area of common geometrical sections: triangle, circle	29 th 30 th	-----do----- -----do-----
	16 th	Second moment of area for L, T Numerical problems	31 st 32 nd	-----do----- -----do-----
9 th	17 th	Second moment of area for I sections, section modulus. Concept of pure/simple bending	33 rd 34 th	Determination of modulus of rupture of a concrete beam -----do-----
	18 th	Assumptions made in the theory of simple bending Revision	35 th 36 th	-----do----- -----do-----
10 th	19 th	derivation and application of bending equation to circular cross-section 2 nd Sessional	37 th 38 th	-----do----- -----do-----
	20 th	Assignment, Tutorial	39 th	-----do-----

			40 th-do.....
11 th	21 st	Problem solving, derivation and application of bending equation to I section	41 th	Determination of maximum deflection and young's modulus of elasticity in simply supported beam with load at middle thirdpoint
			42 thdo.....
	22 nd	derivation and application of bending equation to T&L sections	43 th	-----do-----
		Problem solving lecture	44 th	-----do-----
12 th	23 rd	Moment of resistance Calculations of bending stresses in simply supported beam Concept of shear stresses in beams,	45 th	-----do-----
			46 th	-----do-----
	24 th	shear stress (introduction only), Problem solving	47 th	-----do-----
			48 th	-----do-----
13 th	25 th	Determination of slope and deflection using Moment Area Theorem for simply supported beam for pointed load and U.D. L	49 th	Verification of forces in a framed structure
			50 th	-----do-----
	26 th	Numerical problems	51 th	-----do-----
			52 thdo.....
14 th	27 th	Theory of columns Problem solving using Eulers and Rankine Formula Concept of a perfect, redundant and deficient frames	53 rd	-----do-----
			54	-----do-----
	28 th	Assumptions and analysis of trusses by: Method of joints Revision	55 th	-----do-----
			56 th	-----do-----
15 th	29 th	Assumptions and analysis of trusses by:Method of sections Numerical problems	57 th	Problems on above topic
			58 th	-----do-----
	30 th	3 rd Sessional	59 th	-----do-----
		Revision of all sessional exams	60 th	-----do-----

Lesson plan

Name of Faculty	Sahil Bangar
Discipline	Civil Engineering
Semester	3 rd semester
Subject	Concrete Technology
Lesson Plan Duration	15 weeks (from Sept 2023 - Dec 2023)
Work load [Theory + Practical] Per Week	[02+02]

Week	Day	Theory Topic/ Assignment/ Test	No.	Practical
1 st	1	1. Introduction to Concrete 1.1 Definition of concrete, properties of concrete	1	To determine the physical properties of cement such as fineness, consistency, setting time, soundness, and compressive strength of cement as per IS Codes
	2	Advantages and disadvantages of concrete		
2 nd	1	2. Ingredients of Concrete 2.1 Cement: Introduction	2	To determine the physical properties of cement such as fineness, consistency, setting time, soundness, and compressive strength of cement as per IS Codes
	2	2.2 Aggregates: 2.2.1 Classification of aggregates according to size and shape		
3 rd	1	2.2.2 Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate; bulk density, water absorption, surface moisture, bulking of sand, deleterious materials soundness	3	To determine flakiness and elongation Index of coarse aggregate.
	2	2.2.3 Grading of aggregates aggregates: coarse aggregate, fine aggregate; All-in-aggregate; fineness modulus; interpretation of grading charts		
4 th	1	2.3 Water: Water Quality requirements as per IS: 456-2000	4	To determine silt content in fine aggregate.
	2	Revision / Class Test		
5 th	1	3. Water Cement Ratio 3.1 Hydration of cement principle of water-cement ratio,	5	Determination of specific gravity and water absorption of aggregates.
	2	Duff Abram's Water-cement ratio law: Limitations of water-cement ratio law and its effects on strength of concrete		

6 th	1	4. Properties of Concrete 4.1 Properties in the plastic state: Workability, Segregation, Bleeding and Harshness	6	Determination of bulk density and voids of aggregates.
	2	4.1.1 Factors affecting workability, Measurement of workability: slump test, compacting factor; Recommended slumps for placement in various conditions as per IS: 456-2000/SP-23		
7 th	1	4.2 Properties in the hardened state: Strength, Durability, Impermeability, Dimensional changes	7	Determination of particle size distribution of fine, coarse and all-in aggregate by sieve analysis (grading of aggregate).
	2	4.3 Concrete mix design (Introduction only)		
8 th	1	4.4 Introduction to Admixtures (chemicals and minerals) for improving performance of concrete	8	To determine the bulking of fine aggregates.
	2	Revision/ Class Test		
9 th	1	5. Concreting Operations 5.1 Storing of Cement: 5.1.1 Storing of cement in a warehouse 5.1.2 Storing of cement at site	9	To determine workability by slump test and to verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump.
	2	5.1.3 Effect of storage on the strength of cement 5.1.4 Determination of warehouse capacity for storage of Cement		
10 th	1	5.2 Storing of Aggregate: Storing of aggregate at site 5.3 Batching (to be shown during site visit) 5.3.1 Batching of Cement	10	To determine workability by slump test and to verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump.
	2	5.3.2 Batching of aggregate by: <input type="checkbox"/> Volume, using gauge box (farma) selection of proper gauge box <input type="checkbox"/> Weight spring balances and batching machines		
11 th	1	5.3.3 Measurement of water 5.4 Mixing: 5.4.1 Hand mixing 5.4.2 Machine mixing - types of mixers, capacities of mixers, choosing the appropriate size of mixers, operation of mixers. 5.4.3 Maintenance and care of mixers	11	Compaction factor test for workability.
	2	6.1 Transportation of concrete: Transportation of concrete using wheelbarrows, transit mixers, chutes, belt conveyors, pumps, tower cranes, hoists, etc.		

		6.2 Placement of concrete: Checking of formwork, shuttering, and precautions to be taken during placement 6.3.3 Selection of suitable vibrators for different situations		
12 th	1	6.4 Finishing concrete slabs - screeding, floating and trowelling 6.5 Curing: 6.5.1 Objective of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing 6.5.2 Duration for curing and removal of formwork	12	Non-destructive test on concrete by: a) Rebound Hammer Test
	2	6.6 Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings - their importance and location 6.7 Defects in concrete: Identification of defects and methods of removing defects.		
13 th	1	Revision / Class Test	13	Non-destructive test on concrete by: b) Ultrasonic Pulse Velocity Test
	2	7. Special Concretes (only features) 7.1 Concreting under special conditions, difficulties, and precautions before, during and after concreting 7.1.1 Cold weather concreting 7.1.2 Under water concreting 7.1.3 Hot weather concreting		
14 th	1	7.2 Ready mix concrete 7.3 Fly ash concrete	14	To determine the compressive strength of concrete cubes for different grades of concrete
	2	8. Importance and methods of non-destructive tests (introduction only) 8.1. Rebound Hammer Test 8.2. Pulse Velocity method		
15 th	1	Revision / Class Test	15	To determine the flexural strength of the concrete beam.
	2	Revision / Class Test		

Lesson plan

Name of Faculty			Suresh Kumar	
Discipline			Civil Engineering	
Semester			3rd	
Subject			Fluid mechanics	
Lesson Plan Duration			15 Weeks (From Sept 2023 to Dec 2023)	
Work load [Theory + Practical] Per Week			[02+04]	
Week	Day	Theory Topic/ Assignment/ Test	No.	Practical
1 st	1	Properties of Fluids: Introduction: Fluid Mechanics, Hydrostatics, Hydrodynamics, Hydraulics, Density or Mass Density, Specific Weight or Weight Density, Specific Volume, Specific Gravity, Viscosity: Units of viscosity, Kinematic Viscosity, Newton's Law of viscosity, Variation Of viscosity with temperature.	1	-
	2	Types of Fluids: Ideal, Real, Newtonian, Non-Newtonian and ideal Plastic fluids. Compressibility, Bulk Modulus, Surface Tension, Capillarity, Vapour Pressure and Cavitation	2	-
2 nd	1	Revision and copy check	3	To verify Bernoulli's Theorem
	2	Pressure and its Measurement: Pascal's Law, Fluid pressure at a point and Pressure variation in a fluid at rest. Types of Pressure: Absolute Pressure, Gauge Pressure, Vacuum Pressure and Atmospheric Pressure	4	Revision
3 rd	1	Measurement of Pressure: Simple and Differential Manometer (with Numerical Problems)	5	To find out venturimeter coefficient
	2	Hydrostatic Force on Surfaces: Total pressure and centre of pressure on vertical and inclined plane	6	Revision
4 th	1	Sessional Test	7	Revision
	2	Assignment 1	8	Revision
5 th	1	Buoyancy and Floatation: Buoyancy and Centre of Buoyancy, Meta-centre and Meta-	9	To determine coefficient of velocity (C_v), Coefficient of

		centric Height, Analytic Method for Meta-centric Height (Concept only – Simple Numerical Problems),		discharge (C_d) Coefficient of contraction (C_c) of an orifice and verify the relation between them
	2	Conditions of equilibrium of a floating and submerged bodies (Concept only)	10	Revision
6 th	1	Flow of Fluids: Types of Flow: Steady and Unsteady Flow, Uniform and Non-Uniform Flow, Laminar and Turbulent Flow, Compressible and Incompressible Flow	11	Revision
	2	Revision and copy check	12	Revision
7 th	1	Discharge and Continuity Equation (No derivation - Simple Numerical Problems)	13	To perform Reynolds's experiment
	2	Types of hydraulic energy: Potential energy, kinetic energy, pressure energy, Bernoulli's Theorem: Statement and Description (without Proof of Theorem – Simple Numerical Problems)	14	Revision
8 th	1	Flow Measurements: Venturimeter and Orificemeter (without Proof), Pitot-tube and Current meter, Orifices, Hydraulic Co-Efficient (C_v , C_c and C_d) and their relationship	15	Revision
	2	Discharge over a Rectangular and Trapezoidal Notch (No Derivation), Discharge over a Rectangular and Trapezoidal Weir (No Derivation)	16	Revision
9 th	1	Flow Through Pipes: Reynold's number, laminar and turbulent flow - explained through Reynold's experiment,	17	To verify loss of head in pipe flow due to a. Sudden enlargement b. Sudden contraction c. Sudden bend
	2	Revision and copy check	18	Revision
10 th	1	Loss of Energy in Pipes	19	To verify loss of head in pipe flow due to a. Sudden enlargement b. Sudden contraction c. Sudden bend
	2	Sessional Test Assignment	20	Revision
11 th	1	Major and Minor Energy Losses (No derivation of formula)	21	Revision

	2	Loss of Energy in Pipes: Simple Numerical Problems	22	Revision
12 th	1	Hydraulic gradient line and total energy line, Pipes in series and parallel: Simple Numerical Problems	23	Revision
	2	Dimensional Homogeneity: Secondary and Derived Quantities, Dimensional Homogeneity	24	Revision
13 th	1	Revision and copy check	25	Revision
	2	Dimensional Numbers: Reynold's Number, Froude's Number, Euler's Number, Weber's Number, Mach's Number (Only concept)	26	Revision
14 th	1	Flow in Open Channel: Definition and classification of flow in open channels, Discharge through open channel by Chezy's formula	27	To determine coefficient of discharge of a rectangular notch and triangular notch.
	2	Most economical channel sections (no derivation, only simple numerical problems) ii) Trapezoidal	28	Revision
15 th	1	Hydraulic Pumps: Reciprocating Pump, Centrifugal Pump, Differences between Reciprocating Pump and Centrifugal Pump (No Derivations and Numerical)	29	Revision
	2	Test Sessional	30	Revision

Lesson Plan

Name of Faculty : Sunita

Discipline : Civil Engg.

Semester : 3rd Semester.

Subject : Building Construction

Lesson Plan Duration : 15 Weeks (From Sep.2023 to Dec. 2023)

Week	Day	Theory	Practical
1 st	1 st	UNIT I 1. Foundation 1.1 Introduction: Definition of a building, Different parts of a building, classification of buildings	1. Demonstration of tools and plants used in building construction G1
	2 nd	1.2 Types of foundation – Shallow foundation (thumb rules for depth and width of foundation) and Deep foundation	1. Demonstration of tools and plants used in building construction G2
2 nd	1 st	1.3 Excavation of foundation – Trenches, Shoring, Underpinning, Timbering and De- watering	2. To prepare Layout of a building: 2BHK with front veranda G1
	2 nd	2. Walls 2.1 Classification of walls based on load - Load bearing, non-load bearing, retaining walls	2. To prepare Layout of a building: 2BHK with front veranda G2
3 rd	1 st	2.2 Classification of walls as per materials of construction 2.3 Partition walls: Constructional details, suitability and uses of brick and wooden partition walls	3. To construct brick bonds (English Bond) in One, One & half and Two brick thick: (a) Walls for L, T and Cross Junction (b) Columns G1
	2 nd	2.4 Scaffolding, construction details and suitability of mason's brick layers and tubular scaffolding.	3. To construct brick bonds (English Bond) in One, One & half and Two brick thick:

			(a) Walls for L, T and Cross Junction (b) Columns G2
4 th	1 st	UNIT II 3. Masonry 3.1 Glossary of terms used in brick masonry - Header, Stretcher, Queen closer, King closer etc.	4. To construct brick bonds (Flemish Bond) in One, One & half and Two brick thick: (a) Walls for L, T and Cross Junction (b) Columns G1
	2 nd	3.2 Brick Masonry Bonds – English and Flemish Bonds 3.3 Construction of brick walls – New wall Construction	4. To construct brick bonds (Flemish Bond) in One, One & half and Two brick thick: (a) Walls for L, T and Cross Junction (b) Columns G2
5 th	1 st	, Methods of bonding new brick work with old (Toothing and Raking Methods) 3.4 Mortars: types, selection of mortar and its preparation	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site G1
	2 nd	1 ST Sessional Test	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site G2
6 th	1 st	4. Arches and Lintels 4.1 Glossary of terms used in arches - Intrados, Extrados, Crown, Key stone etc. 4.2 Types of Arches – Semi-circular, Segmental and Parabolic arches	6. Demonstration of “Laying Damp Proof Courses” through a model and visit at construction site G1
	2 nd	4.3 Lintels – Cast-in-situ and pre-cast lintels	6. Demonstration of “Laying Damp Proof Courses” through a model and visit at construction site G2

7 th	1 st	5 Doors and Windows 5.1 Glossary of terms used – Door Frame, Door Shutter, Hold fast, Horns, Jamb, Reveal, Soffit, Styles, Rails: Top, Bottom and Lock rails etc.	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site G1
	2 nd	5.2 Doors and window frames – Materials and Sections, Fixtures and Fasteners	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site G2
8 th	1 st	5.3 Doors – Framed and Panelled door, Glazed or sash door, Flush door, Sliding door, Rolling steel shutter doors	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site G1
	2 nd	5.4 Windows – Fixed window, Sliding window, Glazed or sash window, Corner window 5.5 Ventilators	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site G2
9 th	1 st	6. Damp Proofing and Water Proofing 6.1 Dampness and its ill effects in buildings 6.2 Sources of dampness in building	9. Demonstration of “Steel Scaffolding” through a model and visit at construction site G1
	2 nd	6.3 Damp proofing of basement, Plinth and walls, Kitchen, Washroom, Roof	9. Demonstration of “Steel Scaffolding” through a model and visit at construction site G2
10 TH	1 st	UNIT IV 7. Floors 7.1 Glossary of terms used – Floor finish, Topping, Under layer, Base course, Rubble filling and their purpose	10. Demonstration of “Laying of Vitrified Tile Flooring” through visit at construction site G1
	2 nd	Revision ,2 nd sessional test	10. Demonstration of “Laying of Vitrified Tile Flooring” through visit at construction site G2
11 TH	1 st	7.2 Types of floor finishes – Concrete flooring, Ceramic tile flooring, Stone	11. Demonstration of “Plastering and Pointing

		(marble and kota) flooring, Wooden flooring	Exercise” through visit at construction site G1
	2 nd	7.3 Special emphasis on level / slope / reverse slope in bathrooms, toilets, kitchen, balcony	11. Demonstration of “Plastering and Pointing Exercise” through visit at construction site G2
12 TH	1 st	8. Roofs 8.1 Types of roofs, concept of flat and pitched roofs	12. Demonstration of “Constructing RCC work – Foundations, Columns, Beams and Slabs” through visit at construction site G1
	2 nd	8.2 Glossary of terms for pitched roofs – Batten, Eaves, Facia board, Gable, Hip, Lap, Purlin, Rafter, Rag bolt, Ridge, Rain water gutter, Anchoring bolts	12. Demonstration of “Constructing RCC work – Foundations, Columns, Beams and Slabs” through visit at construction site G2
13 TH	1 st	8.3 False ceilings – Gypsum false ceiling, POP false Ceiling, PVC false ceiling, Wooden false ceiling, Cellotex false ceiling	13. Demonstration of “Pre-construction and post construction termite treatment of building and woodwork” through visit at construction site G1
	2 nd	UNIT V 9. Stairs 9.1 Glossary of terms used in stairs: Landing, Stringer, Newel, Baluster, Riser, Tread, Width of staircase, Hand-rail, Nosing 9.2 Types of stairs on the basis of materials used: RCC and Steel stairs	13. Demonstration of “Pre-construction and post construction termite treatment of building and woodwork” through visit at construction site G2
14 TH	1 st	9.3 Various types of layout – Straight flight, Dog legged, Quarter turn, Half turn 9.4 Ramps and Elevators – Excavation and construction 9.5 Escalators pits and landings – Excavation and construction	14. Demonstration of “False Ceiling” through visit at construction site G1
	2 nd	10. Surface Finishes	14. Demonstration of

		10.1 Plastering – Plain plaster, Stone cladding and Tile work 10.2 Pointing – Different types of pointing and their methods	“False Ceiling” through visit at construction site G2
15 TH	1 st	10.3 Painting – Preparation of surface, Primer coat and application of paints on wooden, steel and plastered wall surfaces 10.4 Selection of appropriate paints/finishes for interior and exterior surfaces	15. Demonstration of “Interlocking Tiles” through visit at construction site G1
	2 nd	Revision , 3 rd sessional	15. Demonstration of “Interlocking Tiles” through visit at construction site G2

Lesson plan

Name of Faculty			Gaurav	
Discipline			Civil Engineering	
Semester			3 rd	
Subject			Surveying-1	
Lesson Plan Duration			15 weeks (from Sept 2023 to Dec 2023)	
Work load [Theory + Practical] Per Week			[02+06]	
Week	Day	Theory Topic/ Assignment/ Test	No.	Practical
1 st	1	Introduction and Basic Concepts Definition and Purpose of Surveying, Primary Division of Surveying, Basic principles of surveying, Measurements-linear and angular	1	Compass Surveying a) Study of prismatic compass
	2	Units of measurements, Instruments used for taking these measurements, Classification of surveying, Scales: Engineering Scale, Representative Fraction (RF) and diagonal scale		
2 nd	1	Chain and Compass Surveying Purpose and principles of chain surveying, Operations in Chain Surveying (Ranging, Measurement, Offsetting)	2	b) Setting the compass and taking observations
	2	Purpose of compass surveying, Use of prismatic compass: Setting and taking observations		
3 rd	1	Concept of following with simple numerical problems: a) Meridian - Magnetic and true, Arbitrary b) Bearing - Magnetic, True and Arbitrary	3	c) Measuring angles between the lines meeting at a point
	2	c) Whole circle bearing and reduced bearing		
4 th	1	d) Fore and back bearing	4	Levelling i) a) Study of Auto level and levelling staff b) Temporary adjustments of Auto levels
	2	e) Magnetic dip and declination Assignment		
5 th	1	Local attraction – Problems, causes, detection, errors and corrections	5	c) Taking staff readings on different stations from the single setting and finding differences of level between them ii) To find out difference of level between two distant points by shifting the instrument
	2	-do- Revision		
	1	Levelling Definition and Purpose of levelling	6	iii) Longitudinal and cross

6 th	2	Various technical terms used in levelling (level surface, horizontal surface, vertical surface, datum, reduced level, bench marks, line of collimation, axis of the bubble tube, axis of the telescope and vertical axis)		sectioning of a road/railway/canal iv) Setting a gradient by auto-level.
7 th	1	Identification of various parts of Auto level, leveling staff types, uses and least count of leveling staff	7	III. Plane Table Surveying i) a) Study of the plane table survey equipment b) Setting the plane table c) Marking the North direction d) Plotting a few points by radiation method
	2	Temporary adjustment and permanent adjustment of Auto level		
8 th	1	Concept of back sight, foresight, intermediate sight, change point, to determine reduce levels	8	ii) a) Orientation by - Trough compass - Back sighting b) Plotting few points by intersection, radiation and resection method
	2	Level book and reduction of levels by a) Height of collimation method		

9 th	1	b) Rise and fall method (Numerical problems)	9	iii) Traversing an area with a plane table (at least five lines)
	2	Methods of Leveling (Simple levelling, differential levelling, fly levelling, check leveling and profile levelling (L-section and X-section) only (Numerical problems)		
10 th	1	Problem on reduction of levels, Errors in levelling Assignment	10	IV. Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments.
	2	Plane Table Surveying Introduction and Definition of plane table surveying, Advantages & Disadvantages of plane table surveying Revision		
11 th	1	Equipment used in plane table survey, Setting of a plane table: (a) Centering (b) Levelling (c) Orientation	11	-Do-
	2	Methods of plane table surveying (a) Radiation, (b) Traversing		
12 th	1	Errors in plane table survey	12	-Do-
	2	Contouring Definition and Purpose of contours, Contour interval and horizontal equivalent		
	1	Factors effecting contour interval	13	V. Contouring: i) Preparing a contour
	2	Characteristics of contours		

13 th				plan by radial line method by the use of a Auto level. ii) Preparing a contour plan by method of squares
14 th	1	Methods of contouring: Direct and indirect	14	iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections.
	2	Use of stadia measurements in contour survey Assignment		
15 th	1	Interpolation of contours; use of contour map	15	iv) Computation of earth work and reservoir capacity from a contour map
	2	Drawing cross section from a contour map; marking alignment of a road, railway line and a canal on a contour map Revision		

