

Lesson Plan

Faculty Name Sahil Bangar
Branch Civil Engg.
Subject Plumbing Service
Teaching Load **Lecture - 2**
Practical - 0

Week	Practical Day	Topic
1st	1	Introduction to the subject
	2	1. Plumber's Tools Selection, use and care of tools required for plumbing work, such as threading die, bit brace, ratchet brace,
2nd	1	Pipe wrench, spanner set, pipe cutter, pipe vice, hacksaw, chisel, files
	2	Other common hand tools, bench drilling machine, soldering iron
3rd	1	2. Pipes and Pipe Fitting Selection and use of different pipes like GI Pipes, Plastic pipes, PVC pipes, HDPE pipes, Cast iron pipes,
	2	Plumbing symbols; Bends, Elbows, Sockets, Tees, Unions, Pipe cutting, Pipe bending,
4th	1	Pipe Threading, Pipe joints, Pipe fitting, Alignment of pipes, Branching of pipes, Safety precautions.
	2	3. Water Supply System Sources of water; Rainwater harvesting; Water supply systems in a town; Water distribution systems;
5th	1	Distribution reservoirs; Pumps; Valves; Fire hydrants; Storage of water in buildings; Types of tanks; Laying water supply pipe lines
	2	Quiz/ Assignment -1
6th	1	Sessional/ Revision
	2	
7th	1	4. Domestic Drainage Drainage system (two pipe, one pipe, single stack and other systems), Trap
	2	Cesspool, Sceptic tank, Cleaning blocked pipes and drains, Laying sanitary and sewer pipes, Manholes
8th	1	Inspection and testing (pressure & leakage test, testing straightness of pipes, ball test etc.);
	2	Fixing accessories
9th	1	Problems in drainage and their solution
	2	Revision
10th	1	Quiz/ Assignment -2

	2	Revision
11th	1	Sessional/ Revision
	2	
12th	1	5. Sanitary Appliances Flush toilet, Squat toilet, Wash basin, Sink
	2	Floor traps, Urinal, Bathtub, Shower, Bidet, Mixing tap, Popup waste
13th	1	Heating System Heat transfer, Water heater, Geyser, Domestic hot water supply system
	2	Central heating, Solar water heater
14th	1	Quiz/ Assignment -3
	2	Revision
15th	1	Sessional/ Revision
	2	

LESSON PLAN

Name of Faculty: Suresh Kumar

Discipline: Civil Engg.

Semester: First

Subject: Engineering Graphics

Lesson Plan Duration: 15 weeks (from Aug 2024 to Nov 2024)

Teaching Load: Practical - 2Turns/week (3 Hrs./ Turn)

WEEK	TURN	TOPIC	Covered on Date
1	1	<p style="text-align: center;">UNIT I</p> <p>1. Introduction to Engineering Drawing and Graphics 1.1 Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.</p>	
	2	1.2 Symbols and conventions a) Conventions of Engineering Materials, Sectional Breaks and Conventional lines.	
2	3	b) Civil Engineering Sanitary fitting symbols c) Electrical fitting symbols for domestic interior installations.	
	4	1.3 Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagons, pentagons bisecting a line and arc, division of line and circle with the help of drawing instruments.	
3	5		
	6	<p>2. Technical Lettering of Alphabet and Numerals Definition and classification of lettering, Free hand (of height of 5,8,12 mm) and instrumental lettering (of height 20 to 35 mm) : upper case and lower case, single and double stroke, vertical and</p>	
4	7	inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4	
	8	<p>3. Dimensioning 3.1 Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). 3.2 Dimensioning of overall sizes, circles, threaded holes,</p>	
5	9	chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.	
	10	<p>4. Scales 4.1 Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.</p>	
6	11	4.2 To draw/construct plain and diagonal scales.	
	12	<p style="text-align: center;">UNIT II</p> <p>1. Orthographic Projections 1.1 Theory of orthographic projections</p>	
7	13	1.2 Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.	

	14	1.3 Projection of Points in different quadrant	
8	15	1.4 Projection of Straight Line (1st angle) i. Line parallel to both the planes. ii. Line perpendicular to any one of the reference plane and parallel to others iii. Line inclined to any one of the references and parallel to another plane.	
	16	1.5 Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).	
9	17	1.6 Identification of surfaces.	
	18	2. Sectioning 2.1 Importance and salient features 2.2 Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).	
10	19		
	20	2.3 Orthographic sectional views of different objects.	
11	21	UNIT III 1. Introduction of projection of right solids such as prism & pyramid (square, Pentagon, Hexagonal) cube, cone & cylinder (Axes perpendicular to H.P and parallel to V.P.)	
	22	2. Introduction of sections of right solids - Section planes, Sections of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to anyone reference planes and perpendicular to V.P. and inclined to H.P.)	
12	23	3. Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)	
	24	UNIT IV 1. Fundamentals of isometric projections and isometric scale.	
13	25	2. Isometric views of different laminas like circle, pentagon and hexagon.	
	26	3. Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism.	
14	27	4. Isometric views from given different orthographic projections(front, side and top view)	
	28	UNIT V	
15	29	Introduction to AutoCAD Basic introduction and operational instructions of various commands in AutoCAD.	
	30	Drawing of different objects on AutoCAD (given pictorial/isometric view of a block).	

LESSON PLAN

Name of Faculty: **Gaurav**

Discipline: **Civil Engineering**

Semester: **Third Semester**

Subject: **Concrete technology**

Lesson Plan Duration: **15 Weeks**

Work Load (Theory) Per Week (In Hours): Theory-02

Week	Day	Theory Topic/ Assignment/ Test
1 st	1	1. Introduction to Concrete 1.1. Definition of concrete, properties of concrete
	2	Advantages and disadvantages of concrete
2 nd	1	2. Ingredients of Concrete 2.1. Cement: Introduction
	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
	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
	2	Revision
5 th	1	3. Water Cement Ratio 3.1 Hydration of cement principle of water-cement ratio Duff Abram's Water-cement ratio law: Limitations of water-cement ratio law and its effects on strength of concrete
	2	SESSIONAL 1
	1	4. Properties of Concrete Properties in the plastic state: Workability, Segregation, Bleeding and Harshness

6 th	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
	2	4.3 Concrete mix design (Introduction only)
8 th	1	4.4 Introduction to Admixtures (chemicals and minerals) for improving the performance of concrete
	2	Revision
9 th	1	5. Concreting Operations 5.1 Storing of Cement: 5.1.1 Storing of cement in a warehouse Storing of cement at site
	2	5.1.3 Effect of storage on the strength of cement 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 Batching of Cement
	2	5.3.2 Batching of aggregate by: selection of <input type="checkbox"/> Volume, using gauge box (farma) 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 SESSIONAL 2
		6.1 Transportation of concrete: Transportation of concrete using wheelbarrows, transit mixers, chutes, belt conveyors, pumps, tower cranes, hoists, etc.

	2	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 Duration for curing and removal of formwork
	2	6.6 Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings - their importance and location Defects in concrete: Identification of defects and methods of removing defects
13 th	1	Revision
	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 Hot weather concreting
14 th	1	7.2 Ready mix concrete 7.3 Fly ash concrete
	2	8. Importance and methods of non- destructive tests (introduction only) 8.1. Rebound Hammer Test Pulse Velocity method
15 th	1	SESSIONAL 3
	2	Revision

Lesson Plan

Name of the Faculty :	REEMA	Discipline :	Civil Engineering
Subject	Concrete Technology	Semester :	3rd
Lesson Plan Duration :	(15 Weeks)		
Week	Theory		Delivery Date of Lecture
	Lecture Day	Topic	
		(Including Assignments/ Seminar / Group Discussion / Sessional Tests)	
1st	1 st	To determine the physical properties of cement such as fineness, consistency, setting time, soundness, and compressive strength of cement as per IS Codes	
	2 nd	To determine the physical properties of cement such as fineness, consistency, setting time, soundness, and compressive strength of cement as per IS Codes	
2 nd	1 st	To determine flakiness and elongation Index of coarse aggregate.	
	2 nd	To determine flakiness and elongation Index of coarse aggregate.	
3 rd	1 st	To determine silt content in fine aggregate.	
	2 nd	To determine silt content in fine aggregate	
4 th	1 st	Viva- voce	
	2 nd	Determination of specific gravity and water absorption of aggregates	
5 th	1 st	Sessional -1st	
	2 nd	Determination of specific gravity and water absorption of aggregates	
6 th	1 st	Determination of bulk density and voids of aggregates	
	2 nd	. Determination of bulk density and voids of aggregates.	
7 th	1 st	Determination of particle size distribution of fine, coarse and all-in aggregate by sieve analysis (grading of aggregate).	
	2 nd	Determination of particle size distribution of fine, coarse and all-in aggregate by sieve analysis (grading of aggregate)	
8 th	1 st	To determine the bulking of fine aggregates.	
	2 nd	To determine the bulking of fine aggregates.	
9 th	1 st	Viva - voce	
	2 nd	Sessional week-2 nd	
10 th	1 st	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 nd	To determine workability by slump test and to verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump.	
11 th	1 st	Compaction factor test for workability.	
	2 nd	Compaction factor test for workability.	
12 th	1 st	Non-destructive test on concrete by: a) Rebound Hammer Test	
	2 nd	Non-destructive test on concrete by: a) Rebound Hammer Test	
13 th	1 st	Non-destructive test on concrete by: b) Ultrasonic Pulse Velocity Test	
	2 nd	Non-destructive test on concrete by: b) Ultrasonic Pulse Velocity Test	
14 th	1 st	To determine the compressive strength of concrete	

		cubes for different grades of concrete	
	2 nd	To determine the compressive strength of concrete cubes for different grades of concrete	
15 th	1 st	To determine the flexural strength of the concrete beam.	
	2 nd	Sessional week- 3 rd	

LESSON PLANName of Faculty: **Gaurav**Discipline: **Civil Engineering**Semester: **Third Semester**Subject: **STRUCTURAL MECHANICS**Lesson Plan Duration: **15 Weeks**Work Load (Theory) Per Week (In Hours): Theory- **02**

Week	Day	Topic
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)
1st	1	1. Properties of Materials 1.1 Classification of materials, elastic materials, plastic materials, ductile materials, brittle materials.
	2	1.2 Introduction to tensile test, compressive test, impact test, fatigue test, torsion test on metals
2nd	1	2. Simple Stresses and Strains 2.1 Concept of stress, normal and shear stresses, 2.2 Concept of strain and deformation, longitudinal and transverse strain, poisson's ratio, volumetric strain
	2	2.3 Hooke's law, moduli of elasticity and rigidity, Bulk modulus of elasticity, relationship between the elastic constants.
3rd	1	2.4 Stresses and strains in bars subjected to tension and compression.
	2	Extension of uniform bar under its own weight, stress produced in compound bars due to axial load (two or three bars)
4th	1	2.5 Stress-strain diagram for mild steel and HYSD steel, mechanical properties, factor of safety. 2.6 Temperature stresses and strains
	2	3. Shear Force and Bending Moment 3.1 Concept of a beam and supports (Hinges, Roller and Fixed), types of beams: simply supported, cantilever, propped, over-hang, cantilever and continuous beams (only concept).
5th	1	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) 3.3 Concept of bending moment and shear force, sign conventions
	2	3.4 Bending Moment and shear force diagrams for cantilever and simply supported subjected to concentrated, uniformly distributed 3.5 Relationship between load, shear force and bending moment, point of maximum bending moment, and point of contraflexure.
6th	1	Sessional Test-1
	2	4. Moment of Inertia Concept of moment of inertia and second moment of area and radius of gyration
7th	1	Theorems of parallel and perpendicular axis
	2	second moment of area of common geometrical sections: rectangle, triangle, circle (without derivations). Second moment of area for L, T and I sections, section modulus.

8th	1	5. Bending Stresses in Beams 5.1 Concept of pure/simple bending
	2	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 5.2 Moment of resistance
9th	1	5.4 Calculations of bending stresses in simply supported beam 5.5 Concept of shear stresses in beams, shear stress (introduction only)
	2	6. Slope and Deflection Determination of slope and deflection using Moment Area Theorem for simply supported beam for pointed load and U.D.L
10th	1	Numerical problems. (no derivation)
	2	Sessional Test -2
11th	1	UNIT V 7. Columns
	2	7.1 Theory of columns
12th	1	7.1 Theory of columns
	2	7.2 Problem solving using Euler's and Rankine Formula
13th	1	7.2 Problem solving using Euler's and Rankine Formula
	2	8. Analysis of Trusses 8.1 Concept of a perfect, redundant, and deficient Frames
14th	1	8. Analysis of Trusses 8.1 Concept of a perfect, redundant, and deficient Frames
	2	8.2 Assumptions and analysis of trusses by: a) Method of joints b) Method of sections
15th	1	8.2 Assumptions and analysis of trusses by: a) Method of joints b) Method of sections
	2	Sessional Test -3

LESSON PLAN**Name of faculty** Deepak Panwar**Discipline** Civil engineering**Semester** 3rd**Subject** SM Practical (4 Hrs/week)

Week	Practical	
	Practical Day	Topic
1st	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
2nd	2nd	Testing of HYSD Steel
3rd	3rd	Determination of Young's modulus of elasticity for steel wire with searl's apparatus
4th	4th	Determination of modulus of rupture of a concrete concrete beam
5th	5th	Determination of maximum deflection and youngs modulus of elasticity in simply supported beam with load at middle third point
6th	6th	Verification of forces in a framed structure
7th	7th	Testing of HYSD Steel
8th	8th	Determination of modulus of rupture of a concrete concrete beam
9th	9th	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
10th	10th	Determination of Young's modulus of elasticity for steel wire with searl's apparatus
11th	11th	Verification of forces in a framed structure
12th	12th	Determination of maximum deflection and youngs modulus of elasticity in simply supported beam with load at middle third point
13th	13th	Determination of maximum deflection and youngs modulus of elasticity in simply supported beam with load at middle third point
14th	14th	Verification of forces in a framed structure
15th	15th	Testing of HYSD Steel

Lesson plan

Name of Faculty	Suresh Kumar
Discipline	Civil Engineering
Semester	3 rd
Subject	Building Construction
Lesson Plan Duration	15 weeks (August 2024 to Nov 2024)
Work load [Theory] Per Week	02

Week	Day	Theory Topic/ Assignment/ Test
1 ST	1	Foundation Introduction: Definition of a building, Different parts of a building, classification of buildings
	2	Types of foundation – Shallow foundation (thumb rules for depth and width of foundation) and Deep foundation
2 ND	1	Excavation of foundation – Trenches, Shoring, Underpinning, Timbering and De-watering
	2	Walls Classification of walls based on load - Load bearing, non-load bearing, retaining walls Classification of walls as per materials of construction
3 RD	1	Partition walls: Constructional details, suitability and uses of brick and wooden partition Walls
	2	Scaffolding, construction details and suitability of mason's brick layers and tubular scaffolding.
4 TH	1	Masonry Work Glossary of terms used in brick masonry - Header, Stretcher, Queen closer, King closer etc.
	2	Brick Masonry Bonds – English and Flemish Bonds Construction of brick walls – New wall Construction, Methods of bonding new brick work with old (Toothing and Raking Methods)
5 TH	1	Mortars: types, selection of mortar and its preparation
	2	Arches and Lintels Glossary of terms used in arches -Intrados, Extrados, Crown, Key stone etc.
6 TH	1	Types of Arches – Semi-circular, Segmental and Parabolic arches Lintels – Cast-in-situ and pre-cast lintels
	2	Doors and Windows Glossary of terms used – Door Frame, Door Shutter, Hold fast, Horns, Jamb, Reveal, Soffit, Styles, Rails: Top, Bottom and Lock rails etc.
7 TH	1	Doors and window frames – Materials and Sections, Fixtures and Fasteners Doors – Framed and Panelled door, Glazed or sash door, Flush door, Sliding door, Rolling steel shutter doors
	2	Windows – Fixed window, Sliding window, Glazed or sash window, Corner window Ventilators
8 TH	1	Damp Proofing and Water Proofing Dampness and its ill effects in buildings Sources of dampness in building
	2	Damp proofing of basement, Plinth and walls, Kitchen, Washroom, Roof
9 TH	1	Revision/ Assignment
	2	Floors Glossary of terms used – Floor finish, Topping, Under layer, Base course, Rubble filling and their purpose
10 TH	1	Types of floor finishes – Concrete flooring, Ceramic tile flooring, Stone (marble and kota) flooring, Wooden flooring
	2	Special emphasis on level / slope / reverse slope in bathrooms, toilets, kitchen, balcony
11 TH	1	Revision/ Assignment
	2	Types of roofs, concept of flat and pitched roofs

		Glossary of terms for pitched roofs – Batten, Eaves, Facia board, Gable, Hip, Lap, Purlin,
12 TH	1	Rafter, Rag bolt, Ridge, Rain water gutter, Anchoring bolts
	2	False ceilings – Gypsum false ceiling, POP false Ceiling, PVC false ceiling, Wooden false ceiling, Cellotex false ceiling
13 TH	1	Glossary of terms used in stairs: Landing, Stringer, Newel, Baluster, Riser, Tread, Width of staircase, Hand-rail, Nosing
	2	Types of stairs on the basis of materials used: RCC and Steel stairs
14 TH	1	Various types of layout – Straight flight, Dog legged, Quarter turn, Half turn Ramps and Elevators – Excavation and construction
	2	Surface Finishes Plastering – Plain plaster, Stone cladding and Tile work 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
15 TH	1	Selection of appropriate paints/finishes for interior and exterior surfaces
	2	Revision/ Assignment

Lesson Plan

Name of the Faculty :	REEMA / CHETNA		Discipline :	Civil Engineering
Subject	BUILDING CONSTRUCTION (P)		Semester :	3rd
Lesson Plan Duration :	(15 Weeks)			
Week		Theory	Delivery Date of Lecture	
	Lecture Day	Topic		
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
1st	1st	1. Demonstration of tools and plants used in building construction		
	2nd	1. Demonstration of tools and plants used in building construction		
	3rd	1. Demonstration of tools and plants used in building construction		
	4th	1. Demonstration of tools and plants used in building construction		
2nd	1st	2. To prepare Layout of a building: 2BHK with front veranda		
	2nd	2. To prepare Layout of a building: 2BHK with front veranda		
	3rd	2. To prepare Layout of a building: 2BHK with front veranda		
	4th	2. To prepare Layout of a building: 2BHK with front veranda		
3rd	1st	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		
	2nd	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		
	3rd	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		
	4th	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		
4th	1st	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		
	2nd	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	
	3rd	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	
	4th	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	
5th	1st	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site	
	2nd	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site	
	3rd	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site	
	4th	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site	
6th	1st	6. Demonstration of “Laying Damp Proof Courses” through a model and visit at construction site	
	2nd	6. Demonstration of “Laying Damp Proof Courses” through a model and visit at construction site	
	3rd	6. Demonstration of “Laying Damp Proof Courses” through a model and visit at construction site	
	4th	Sessional Test-I	
7th	1st	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site	
	2nd	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site	
	3rd	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site	
	4th	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site	

8th	1st	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site	
	2nd	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site	
	3rd	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site	
	4th	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site	
9th	1st	9. Demonstration of “Steel Scaffolding” through a model and visit at construction site	
	2nd	9. Demonstration of “Steel Scaffolding” through a model and visit at construction site	

	3rd	9. Demonstration of “Steel Scaffolding” through a model and visit at construction site	
	4th	construction site	
10 th	1 st	10. Demonstration of “Laying of Vitrified Tile Flooring” through visit at construction site	
	2 nd	10. Demonstration of “Laying of Vitrified Tile Flooring” through visit at construction site	
	3 rd	10. Demonstration of “Laying of Vitrified Tile Flooring” through visit at construction site	
	4 th	Sessional Test -2	
11 th	1 st	11. Demonstration of “Plastering and Pointing Exercise” through visit at construction site	
	2 nd	11. Demonstration of “Plastering and Pointing Exercise” through visit at construction site	
	3 rd	11. Demonstration of “Plastering and Pointing Exercise” through visit at construction site	
	4 th	11. Demonstration of “Plastering and Pointing Exercise” through visit at construction site	
12 th	1 st	12. Demonstration of “Constructing RCC work – Foundations, Columns, Beams and Slabs” through visit at construction site	
	2 nd	12. Demonstration of “Constructing RCC work – Foundations, Columns, Beams and Slabs” through visit at construction site	
	3 rd	12. Demonstration of “Constructing RCC work – Foundations, Columns, Beams and Slabs” through visit at construction site	
	4 th	12. Demonstration of “Constructing RCC work – Foundations, Columns, Beams and Slabs” through visit at construction site	
13 th	1 st	13. Demonstration of “Pre-construction and post construction termite treatment of building and woodwork” through visit at construction site	
	2 nd	13. Demonstration of “Pre-construction and post construction termite treatment of building and woodwork” through visit at construction site	
	3 rd	13. Demonstration of “Pre-construction and post construction termite treatment of building and woodwork” through visit at construction site	
	4 th	13. Demonstration of “Pre-construction and post construction termite treatment of building and woodwork” through visit at construction site	
14 th	1 st	14. Demonstration of “False Ceiling” through visit at construction site	
	2 nd	14. Demonstration of “False Ceiling” through visit at construction site	
	3 rd	14. Demonstration of “False Ceiling” through visit at construction site	
	4 th	14. Demonstration of “False Ceiling” through visit at construction site	
15 th	1 st	15. Demonstration of “Interlocking Tiles” through visit at construction site	
	2 nd	15. Demonstration of “Interlocking Tiles” through visit at construction site	
	3 rd	15. Demonstration of “Interlocking Tiles” through visit at construction site	

	construction site	
4th	Sessional Test -3	

Name of the Faculty : Deepak Panwar
 Discipline : Civil Engg.
 Semester : 3rd 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: Fluids: Real and ideal fluids 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: Pressure, intensity of pressure , pressure head,	2.	1. To verify Bernoulli's Theore m
	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 Atmospheric pressure, gauge pressure,		
4.	1.	Vacuum pressure and absolute pressure.	4.	2. To find out venturi meter 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 SESSION AL		
	3.	5. Fundamentals of Fluid Flow: 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.	Pitot tube Orifices and mouthpieces		
	3.	Current meters Notches and weirs		
8.	1	7. Flow through Pipes: 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.	5. 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)		
10.	1.	REVISION	10.	DO
	2.	SECOND SESSIONAL		
	3.	8. Flow through open channels: Definition of an open channel, uniform flow and non-uniform flow		
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		

NAME OF FACULTY : Sunita
 Discipline : Civil Engg. L: 2
 Semester : 3rd
 Subject : Surveying-I
 Lesson Plan Duration : 15 weeks

Week	Theory	
	Lecture Day	Topic (including assignment / test)
1.	1.	1.1 Definition and Purpose of Surveying 1.2 Primary Division of Surveying 1.3 Basic principles of surveying
	2	1.4 Measurements-linear and angular 1.5 Units of measurements 1.6 Instruments used for taking these measurements
2.	1.	1.7 Classification of surveying 1.8 Scales: Engineering Scale, Representative Fraction (RF) and diagonal scale 2.1 Purpose and principles of chain surveying 2.2 Operations in Chain Surveying (Ranging, Measurement, Offsetting)
	2.	2.3 Purpose of compass surveying 2.4 Use of prismatic compass: Setting and taking observations
3.	1.	2.5 Concept of following with simple numerical problems: a) Meridian - Magnetic and true, Arbitrary
	2.	b) Bearing - Magnetic, True and Arbitrary c) Whole circle bearing and reduced bearing
4.	1.	d) Fore and back bearing e) Magnetic dip and declination
	2.	2.6 Local attraction – Problems, causes, detection, errors and corrections,
5.	1.	Revision
	2.	FIRST SESSIONAL
6.	1.	3.1 Definition and Purpose of levelling 3.2 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)
	2.	3.3 Identification of various parts of Auto level, leveling staff types, uses and least count of leveling staff 3.4 Temporary adjustment and permanent adjustment of Auto level
7.	1.	3.5 Concept of back sight, foresight, intermediate sight, change point, to determine reduced levels
	2.	3.6 Level book and reduction of levels by 3.7.1 Height of collimation method and 3.7.2 Rise and fall method (Numerical problems)

8	1.	3.7 Methods of Leveling (Simple levelling, differential levelling, fly levelling, check leveling and profile levelling (L-section and X-section) only (Numerical problems)
	2.	3.8 Problem on reduction of levels, Errors in levelling
9.	1.	4.1 Introduction and Definition of plane table surveying
	2.	4.2 Advantages & Disadvantages of plane table surveying
10.	1.	REVISION
	2.	SECOND SESSIONAL
11.	1.	4.3 Equipment used in plane table survey 4.4 Setting of a plane table: (a) Centering (b) Levelling (c) Orientation
	2.	4.5 Methods of plane table surveying (a) Radiation, (b) Traversing 4.6 Errors in plane table survey
12.	1.	5.1 Definition and Purpose of contours 5.2 Contour interval and horizontal equivalent
	2.	5.3 Factors effecting contour interval 5.4 Characteristics of contours
13.	1.	5.5 Methods of contouring: Direct and indirect 5.6 Use of stadia measurements in contour survey
	2.	5.7 Interpolation of contours; use of contour map 5.8 Drawing cross section from a contour map; marking alignment of a road, railway line and a canal on a contour map
14.	1.	THIRD SESSIONAL
	2.	PREPARATION FOR FINAL EXAM
15.	1.	DO
	2.	DO

Lesson Plan

Name of the Faculty :	Sunita		Discipline :	Civil Engineering
Subject	SURVEY -I		Semester :	3rd
Lesson Plan Duration :	15 WEEKS			
				L T P
				- - 6
Week	PRACTICAL		Delivery Date of Lecture	Whether the Lesson Plan
	Practical Day	Topic		
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
1 st	1 st	Demonstration of chain surveying.		
	2 nd	I Compass Surveying i) a) Study of prismatic compass		
2 nd	1 st	a) Study of prismatic compass b) Setting the compass and taking observations		
	2 nd	b) Setting the compass and taking observations		
3 rd	1 st	c) Measuring angles between the lines meeting at a point		
	2 nd	c) Measuring angles between the lines meeting at a point		
4 th	1 st	II. Levelling i) a) Study of Auto level and levelling staff b) Temporary adjustments of Auto levels		
	2 nd	a) Study of Auto level and levelling staff		
5 th	1 st	b) Temporary adjustments of Auto levels		
	2 nd	c) Taking staff readings on different stations from the single setting and finding differences of level between them		
6 th	1 st	Internal Viva		
	2 nd	Sessional Test-1		
7 th	1 st	ii) To find out difference of level between two distant points by shifting the instrument		
	2 nd	III. Plane Table Surveying		
8 th	1 st	i) a) Study of the plane table survey equipment		
	2 nd	b) Setting the plane table		
th	1 st	c) Marking the North direction		

9	2 nd	d) Plotting a few points by radiation method		
10 th	1 st	ii) a) Orientation by - Trough compass - Back sighting		
	2 nd	b) Plotting few points by intersection, radiation and resection method		
11 th	1 st	iii) Traversing an area with a plane table (at least five lines) IV. Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments.		
	2 nd	Internal Viva		
12 th	1 st	Sessional Test -2		
	2 nd	V. Contouring: i) Preparing a contour plan by radial line method by the use of a Auto level.		
13 th	1 st	V. Contouring: i) Preparing a contour plan by radial line method by the use of a Auto level.		
	2 nd	iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections.		
14 th	1 st	iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections.		
	2 nd	iv) Computation of earth work and reservoir capacity from a contour map		
15 th	1 st	Internal Viva		
	2 nd	Sessional Test -3		

Lesson plan

Name of the Faculty		DEEPAK PANWAR		Semester	5th	
Discipline		Civil Engineering		Lecture per week	2	
Subject		CONSTRUCTION MANAGEMENT AND ACCOUNTS		Delivery Date of Lecture	Remarks	
Lesson plan Duration		20/08/2024 – 29/11/2024 (15 weeks)				
Week	Lecture Day	Topic (including assignment / test)				
Unit-1-Introduction						
1st	1st	1. Introduction 1.1 Concept of construction management 1.2 Main objectives of construction management and overview of the subject				
	2nd	1.3 Functions of construction management, planning, organising, staffing, directing, controlling and coordinating, meaning of each of these with respect to construction job.				
2nd	1st	1.4 Classification of construction into light, heavy and industrial construction 1.5 Stages in construction from conception to completion 1.6 The construction team: owner, engineer, architect and contractors, their functions and inter-relationship				
	Unit-2 - Construction Planning					
	2nd	2.1 Importance of construction planning 2.2 Stages of construction planning- Pretender stage and Contract stage				
3rd	1st	2.3 Scheduling construction works by bar charts				
	2nd	2.3.1 Definition of activity, identification of activities 2.3.2 Preparation of bar charts for simple construction work 2.3.3 Preparation of schedules for labour, materials, machinery and finances for small works				
4th	1st	2.3.4 Limitations of bar charts				
	2nd	2.2 Scheduling by network techniques 2.2.1 Introduction to network techniques; PERT and CPM, 2.2.2 Differences between PERT and CPM terminology				
1st Sessional Test						
Unit-3-Organization						
6th	1st	3.1 Types of organizations: Line, line and staff, functional and their characteristics 3.2 Site Organization: 3.2.1 Principle of storing and stacking materials at site 3.2.2 Location of equipment				
	2nd	3.2.3 Preparation of actual job layout for a building 3.2.4 Organizing labour at site				

Name of Faculty	Suresh Kumar
Discipline	Civil Engineering
Semester	5 th
Subject	RCC Design and Drawing
Lesson Plan Duration	15 weeks (August 2024 to Nov 2024)
Work load [Theory + Practical] Per Week	[04+06]

Week	Day	Theory Topic/ Assignment/ Test	Practical
1 ST	1	Introduction Concept of RCC and PCC. Difference between RCC and PCC	Drawing No. 1: RC Slabs - One way slab, Two way slab and Cantilever Slab.
	2	Reinforcement Materials: Suitability of steel as reinforcing material Properties of mild steel and HYSD steel	
	3	Loading on structures as per IS: 875	
	4	Revision	
2 ND	1	Introduction to following methods of RCC design Working stress method: Definition and basic assumptions.	Drawing No. 1: RC Slabs - One way slab, Two way slab and Cantilever Slab.
	2	Limit state method: Definition and basic assumptions	
	3	Difference between W.S.M and L.S.M.	
	4	Revision	
3 RD	1	Shear and Development Length Shear as per IS: 456 by working stress method	Drawing No. 1: RC Slabs – One way slab, Two way slab and Cantilever Slab.
	2	Shear strength of concrete without shear reinforcement, nominal shear stress, Maximum shear stress and shear reinforcement, functions of vertical stirrups.	
	3	Conditions and different forms of providing shear reinforcement	
	4	Revision/Assignment	
4 TH	1	Concept, purpose and methods for achieving development length Concept of bond and bond stress.	Drawing No.2: Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	2	Concept of Limit State Method Definitions, methods and assumptions made in limit state of collapse (flexure)	
	3	Characteristics strength of materials Characteristics loads	
	4	Revision/Assignment	
5 TH	1	Design value for material & loads Stress blocks parameters.	Drawing No.2: Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	2	Singly Reinforced beam Concept of singly R/F beam, neutral axis, depth of Neutral axis, maximum depth of neutral axis, limiting percentage of steel,	
	3	limiting moment of resistance, value of limiting moment of resistance.	
	4	Revision/Assignment	
6 TH	1	Types of beam sections- Balanced, under and over R/F sections.	Drawing No.2: Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	2	Details of reinforced in beam as per IS: 456	
	3	Design of singly reinforced beam by limit state method and types of problems.	
	4	Revision/Assignment	
7 TH	1	Design of singly reinforced beam by limit state method and types of problems.	Drawing No.3: Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.
	2	Design of singly reinforced beam by limit state method and types of problems.	
	3	Doubly Reinforced Beams	

		Concept of doubly reinforced beam,	
	4	Revision/Assignment	
8 TH	1	Difference between doubly and singly R/F beam.	Drawing No.3: Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.
	2	Circumstances under which doubly R/F beam are provided.	
	3	Concept depth of neutral axis of doubly R/F beam, area of tensile steel and compression steel,	
	4	Revision/Assignment	
9 TH	1	Concept depth of neutral axis of doubly R/F beam, area of tensile steel and compression steel,	Drawing No.3: Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.
	2	Ultimate moment of resistance,	
	3	Maximum design stress in compression.	
	4	Revision/Assignment	
10 TH	1	Design of simply supported doubly reinforced rectangular beam by limit state method and types of problems	Drawing No. 4: Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	2	Design of simply supported doubly reinforced rectangular beam by limit state method and types of problems	
	3	Behaviour of T beam,	
	4	Revision/ Assignment	
11 TH	1	Concept of isolated T-beam and L-beam	Drawing No. 4: Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	2	One Way Slab- Concept of one way slab	
	3	General considerations of design of slabs as per IS: 456	
	4	Revision/ Assignment	
12 TH	1	Design steps of simply supported one way slab including sketches showing enforcement details (plan and section) by Limit State Method.	Drawing No. 4: Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	2	Design steps of simply supported one way slab including sketches showing enforcement details (plan and section) by Limit State Method.	
	3	Two Way Slab- Concept of two way slab	
	4	Revision/ Assignment	
13 TH	1	Difference between one-way slab and two way slab	Drawing No. 5: Draw at least two sheet using AutoCAD software
	2	Design steps of two-way simply supported slab with corners free to lift, no provisions for Torsional reinforcement by Limit State Method including sketches showing R/F details (plan and two sections)	
	3	Design steps of two-way simply supported slab with corners free to lift, no provisions for Torsional reinforcement by Limit State Method including sketches showing R/F details (plan and two sections)	
	4	Revision/ Assignment	
14 TH	1	Axially Loaded Column Definition and classification of columns Effective length of column,	Drawing No. 5: Draw at least two sheet using AutoCAD software
	2	Specifications for longitudinal and lateral reinforcement as per IS: 456	
	3	Design of axially loaded square, rectangular and circular short columns by Limit State Method including sketching of reinforcement (sectional elevation and plan)	
	4	Revision/ Assignment	
15 TH	1	Pre-stressed Concrete Concept of pre-stressed concrete	Drawing No. 5: Draw at least two sheet using AutoCAD software
	2	Methods of pre-stressing: pre-tensioning and post-tensioning	
	3	Advantages and disadvantages of pre-stressing Losses in pre-stress	
	4	Revision	

Lesson Plan

Faculty Name Sahil Bangar
Branch Civil Engg.
Subject Highway Engg. (Theory)
Teaching Load **Lecture - 3**
Practical - 4

Week	Lecture Day	Theory Topic
1st	1	Introduction to the subject
	2	1.1 Introduction 1.1.1 Importance of Highway engineering 1.1.2 Functions of IRC and CRRI
	3	1.1.2 Functions of MoRTH & NHAI 1.1.3 IRC Classification of roads
2nd	1	1.2 Elements of Road Geometrics 1.2.1 Glossary of terms used in road geometrics and their importance
	2	1.2.2 Concept of camber and gradients- their types and functions 1.2.3 Concept of Design speed, average running speed, stopping and overtaking sight distance.
	3	1.2.4 Curves- Necessity and types (horizontal and vertical curves including transition curves) 1.2.5 Super elevation-Definition, methods of providing super elevation and concept of widening of roads on curves
3rd	1	1.2.6 Sketch of typical cross-sections in cutting and filling on straight alignment and at a curve
	2	2.1 Highway Surveys, Alignment and Plan 2.1.1 Topographic Map-Concept and uses 2.1.2 Road surveys for highway location-Stages of road surveys (map study, reconnaissance, preliminary surveys, final location and detailed surveys)
	3	2.1.3 Highway alignment-Definition and requirements 2.1.4 Standards for preparing highway plans- Stages and objectives.
4th	1	2.1.5 Basic considerations governing alignment for a road in plain and hilly area 2.1.6 Setting out alignment of road- Highway location, bench marks and control pegs for embankment and cutting.
	2	2.2 Highway Materials 2.2.1 Different types of road materials – (Soil, Aggregates and Binders) their common types, functions & requirements.
	3	2.2.2 Introduction to California Bearing Ratio, method of finding CBR value and its significance.

5th	1	2.3.3 Bitumen and Tar their properties as per BIS specifications, penetration, softening point, ductility and viscosity test of bitumen, procedures and significance.
	2	2.3.4 Cut back, emulsion and Bitumen modifiers (CRMB, PMB) their functions.
	3	3.1 Highway Pavements Construction 3.1.1 Highway pavement: Flexible and rigid pavement, their merits and demerits, typical crosssections, functions of various components
6th	1	3.1.2 Sub-grade preparation: - Borrow pits, making profiles of embankment, construction of embankment, compaction, preparation of subgrade, and methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation.
	2	Assignment/ Quiz/ Revision
	3	Sessional Test
7th	1	3.1.3 Stabilization of subgrade. Types of stabilization mechanical stabilization, lime stabilization, cement stabilization; fly ash stabilization etc. (introduction only)
	2	3.1.4 Stabilization of sub base & base course: Granular base course: a) Water Bound Macadam (WBM) b) Wet Mix Macadam (WMM)
	3	c) Bitumen Courses: (i) Bituminous Macadam (ii) Dense Bituminous Macadam (DBM)
8th	1	3.1.5 Surfacing: Definition and types of surfacing a) Prime coat and tack coat b) Surface dressing with seal coat c) Open graded premix carpet
	2	d) Seal coat e) Bituminous Concrete f) Bituminous penetration macadam.
	3	3.1.6 Rigid Pavements:- Construction of concrete roads as per IRC specifications: Form work laying, mixing and placing the concrete, compacting and finishing, curing, joints in concrete pavement, equipment used. Roller compacted concrete.
9th	1	4.1 Hill Roads: 4.1.1 Introduction: Typical cross-sections showing all details of a typical hill road, partly in cutting and partly in filling
	2	4.2 Special problems of hill areas 4.2.1 Landslides: Causes, prevention and control measures, use of geo-grids, geo-flexibles, geo-synthetics
	3	4.2.2 Drainage 4.2.4 Snow: Snow clearance, snow avalanches, frost 4.2.3 Soil erosion
10th	1	4.2.5 Land Subsidence

	2	Assignment/ Quiz/ Revision
	3	Sessional Test
11th	1	4.3 Highway Drainage: 4.3.1 Necessity of road drainage work, cross drainage works
	2	4.3.2 Surface and subsurface drains and storm water drains: - Location, spacing and typical details of side drains, side ditches for surface drainage.
	3	4.3.3 Intercepting drains, pipe drains in hill roads, details of drains in cutting embankment, typical cross sections.
12th	1	5.1 Highway Maintenance: 5.1.1 Common types of road failures of flexible pavements: Pot hole, cracks, rutting, alligator, cracking, upheaval - their causes and remedies
	2	5.1.2 Maintenance of bituminous road such as crack sealing, patch-work and resurfacing. 5.1.3 Maintenance of concrete roads-filling cracks, repairing joints, maintenance of shoulders (berms)
	3	5.2 Highway Safety: 5.2.1 Best practices in engineering design for road safety: Geometry of the road, Segregation of local traffic, Pedestrian facility, Bus bays, Illuminations, Development of junction, Signage and road safety audit.
13th	1	5.2.3 Essential road construction safety tips: Wear the proper safety equipment, Control traffic, Avoid blind spots, Be Constantly Aware of Surroundings
	2	5.3 Airport Engineering:- 5.3.1 Concept of Airport engineering.
	3	5.3.2 Factors to be considered while selecting a site for an airport with respect to zoning laws.
14th	1	5.3.3 Introduction to Runways, Taxiways, Apron and Hanger.
	2	5.3.4 Types of pavement used in airport runway.
	3	Revision
15th	1	Revision
	2	Assignment/ Quiz/ Revision
	3	Sessional Test

Lesson Plan

Faculty Name Sahil Bangar
Branch Civil Engg.
Subject Highway Engg. (Practical)
Teaching Load **Lecture - 3**
Practical - 4

Week	Practical Day	Practical Topic
1st	1	Determination of penetration value of bitumen
	2	Determination of penetration value of bitumen
2nd	1	Determination of softening point of bitumen
	2	Determination of softening point of bitumen
3rd	1	Determination of ductility of bitumen
	2	Determination of ductility of bitumen
4th	1	Determination of impact value of the road aggregate
	2	Determination of impact value of the road aggregate
5th	1	Determination of abrasion value (Los Angeles') of road aggregate
	2	Determination of abrasion value (Los Angeles') of road aggregate
6th	1	Internal Viva Voice
	2	
7th	1	Determination of crushing strength of aggregate
	2	Determination of crushing strength of aggregate
8th	1	Determination of flakiness and elongation index of aggregate
	2	Determination of flakiness and elongation index of aggregate
9th	1	Determination of the California bearing ratio (CBR) for the sub-grade soil
	2	Determination of the California bearing ratio (CBR) for the sub-grade soil
10th	1	Determination of stripping value of aggregates.
	2	Determination of stripping value of aggregates.
11th	1	Internal Viva Voice
	2	
12th	1	Demonstration of working of hot mix plant through a field visit
	2	Discussion on field visit
13th	1	Visit to highway construction site for demonstration of operation of: Tipper, tractors (wheel and crawler), scraper, bulldozer, dumpers, shovels, grader, roller, dragline, road pavers, paver finisher JCB
	2	Discussion on construction site Trip

14th	1	Demonstration of working of mixing and spraying equipment (Asphalt mixer & tar boiler) through a field visit
	2	Discussion on field Trip
15th	1	Internal Viva Voice
	2	

Lesson plan

Name of the Faculty		Reema	Semester	5th
Discipline		Civil Engineering	Lecture per week	3
Subject		Railways, Bridge and Tunnels	Delivery Date of Lecture	Remarks
Duration		20 August 2024 - 29 Nov. 2024 (15 weeks)		
Week	Lecture Day	Topic (including assignment / test)		
1st	1st	Introduction to the subject and its necessity / Learning outcomes of the subject e-Lecture/Video Lecture /PPTs on the subject matters.		
	2nd	Unit – 1: Introduction e-Lecture/Video Lecture /PPTs on Railway Introduction to Indian Railways, Advantages of Railways: Political, Social, Economic and Techno-Economic Advantages		
	3rd	Classification of Indian Railways: On the basis of the Importance of Route, Traffic Carried and Maximum Permissible Speed on the routes		
2nd	1st	Railway surveys: Traffic surveys, Reconnaissance survey, Preliminary Survey and Detailed Survey		
	2nd	Permanent Way: Requirement of an ideal permanent way, Capacity of railway track, Gauges in railway track – Broad, Meter and Narrow Gauges, Selection and Uniformity of gauges, Conning of wheels.		
	3rd	Subgrade and Embankment for Railway Tracks: Functions of subgrade, Subgrade materials and its improvement - use of geo-synthetics, Slopes of embankment their protection, Stability of embankment – Control of erosion, Toe Wall		
3rd	1st	Track Alignment: Basic requirements of good alignment, Factors influencing the track alignment		
	2nd	Geometric Design of the Railway Track: Necessity of geometric design of a railway track, Gradient and Grade compensation, Speed of the train, Degree of curve, Super-elevation and Negative super-elevation. (Simple Numerical Problems		
	3rd	UNIT – II: Construction of Track: e-Lecture/Video Lecture /PPTs on Construction of Track		
4th	1st	Earth work - formation and consolidation, Plate laying – laying of a railway track, laying of ballast on the track, Track Drainage: Sources of moisture in a railway track		
	2nd	, Drainage systems – Surface drainage and subsurface drainage. Maintenance of Track: Necessity of maintenance, Daily and Periodic maintenance		
	3rd	, Maintenance of track alignment, Maintenance of gauge, Maintenance of proper drainage, maintenance of sleepers.		
5th	1st	Rails: Functions of rails, Requirements of rails, Types of rails – Double Headed Rails, Bull Headed Rails, Flat Footed Rails, Selection of rails, Length of rails		
	2nd	Ballast: Functions of ballast, Requirement of the good ballast, Types of ballast, Size and section of ballast, Quantity of ballast		
	3rd	Sleepers: Functions of sleepers, Requirements of sleepers, Reinforced and Prestressed Concrete Sleepers. Stations and Platforms: Site selection for railway station, Requirement of a railway station, Platforms – Passenger		

		and Goods platforms.		
6th	1st	Group discussion / Technical Quiz / Seminar (Assignment – 1)		
	2nd	Sessional Test – 1		
	3rd	PART – B: BRIDGES e-Lecture/Video Lecture /PPTs on BRIDGES		
7th	1st	UNIT-III Bridges: Definition and Basic forms, Components of a bridge, Difference between a bridge and a culvert		
	2nd	Classifications of bridges (only names), Importance of bridges, Standard specifications.		
	3rd	Investigation for Bridges: Need of investigation, Selection of bridge site, Linear waterway, Economical Span, Location of Piers and Abutments,		
8th	1st	Vertical clearance above highest flood level, Scour Depth. Factors influencing the choice of the bridge type and its basic features		
	2nd	UNIT-IV Reinforced Concrete Bridges: e-Lecture/Video Lecture /PPTs		
	3rd	Bridge Foundations: Well foundations – Components and Sinking of wells, Pneumatic Caissons, Cofferdams for bridge piers, Box Caissons		
9th	1st	Bridge Substructure: Pier and Abutment Caps, Materials for Piers and Abutments, Pier – Loads and Forces to be considered in the design of piers,		
	2nd	Abutments - Loads and Forces to be considered in the design of abutments, Back-fill behind the abutments, Wing walls – Straight, Splayed, Return and Curved wing walls		
	3rd	Slab bridges – Components of a slab bridge, Number and spacing of main girders, Cross beams.		
10th	1st	Introduction only for the: Balanced Cantilever Bridges, Continuous Girder Bridges, Rigid Frame Bridges.		
	2nd	Prestressed Concrete Bridges: Types of prestressed concrete bridges, Erection of precast girders, Segmental cantilever construction, Cast-in-place segments, Precast segments, Connection at mid-span, Advantages		
	3rd	Construction of Bridges: Incremental Push Launching Method, Bridge Bearings: Purpose of bearings,		
11th	1st	Types of Bearing – Sliding Plate Bearing, Slidingcum-Rocker Bearing, Steel Roller-cum-Rocker Bearing, Elastomeric Bearing		
	2nd	Maintenance of Bridges: Inspection of bridges, Maintenance – Routine, Preventive, Repairs and Strengthening / Replacement Maintenances, Maintenance of Bearings.		
	3rd	Group discussion / Technical Quiz / Seminar (Assignment – 2)		
12th	1st	Sessional Test – 2		
	2nd	PART - III: TUNNEL e-Lecture/Video Lecture /PPTs on TUNNEL		
	3rd	Necessity, Advantages and Classifications of tunnels, Size and shape of tunnel, Site investigation for tunnels, Geotechnical considerations of tunneling.		
13th	1st	Alignment of tunnel, Portals and shafts, Bored Tunnel method of Tunnel Construction		
	2nd	Typical section of tunnels for a national highway		
	3rd	Typical section of tunnels for single and double broad gauge railway track		
	1st	Ventilation – Necessity and methods of ventilation: by blowing, exhaust		

14th		and combination of blowing and exhaust, Dust control in tunnels		
	2nd	Drainage method of draining water from tunnels		
	3rd	Lighting of tunnels, Uses of geo-synthetics in tunnels.		
15th	1st	e-Lecture/Video Lecture /PPTs on Tunnel/ Quarries / Revision		
	2nd	Group discussion / Technical Quiz / Seminar (Assignment – 3)		
	3rd	Sessional Test – 3		

Lesson plan

Name of the Faculty		Sunita	Semester	5th
Discipline		Civil Engineering	Lecture per week	3
Subject		Sustainable Development	Delivery Date of Lecture	Remarks
Duration		20 August 2024 - 29 Nov. 2024 (15 weeks)		
Week	Lecture Day	Topic (including assignment / test)		
1st	1st	UNIT-I 1.1 Introduction to Sustainability.		
	2nd	1.1.1 Concept and types of sustainable development 1.1.2 Triple Bottom Line Approach		
	3rd	1.1.3 Sustainable Development Goals (SDGs)		
2nd	1st	1.2 Environmental Considerations 1.2.1 Environmental Impact Assessment (EIA)		
	2nd	1.2.2 Sustainable Site Planning and Design		
	3rd	1.2.3 Sustainable Water Management		
3rd	1st	UNIT-II 2.1 Green Building and Infrastructure		
	2nd	2.1.1 Principles of Green Building Design		
	3rd	2.1.2 Sustainable Materials Selection		
4th	1st	2.1.3 Energy-Efficient Building Design		
	2nd	2.1.4 Sustainable materials selection and use in construction.		
	3rd	2.2 Transportation Planning and Sustainable Mobility		
5th	1st	Revision		
	2nd	1 st Sessional Test.		
	3rd	2.2.1 Sustainable Transportation Infrastructure		
6th	1st	2.2.2 Carbon Emission Reduction Strategies.		
	2nd	2.2.3 Strategies for promoting sustainable mobility.		
	3rd	UNIT-III 3.1 Waste Management and Recycling		
7th	1st	3.1.1 Principles of Solid Waste Management		
	2nd	3.1.2 Designing Sustainable Waste Treatment Facilities		
	3rd	3.1.3 Incorporating Recycled Materials		
	1st	3.1.4 Techniques for using recycled materials in civil engineering projects		

8th	2nd	3.2 Climate Change Mitigation and Adaptation		
	3rd	3.2.1 Impacts of Climate Change on Infrastructure		
9th	1st	3.2.2 Mitigation Strategies		
	2nd	3.2.3 Resilience Building Measures		
	3rd	Revision		
10th	1st	Revision		
	2nd	2 nd Sessional Test		
	3rd	UNIT-IV 4.1 Social Aspects of Sustainable Development		
11th	1st	4.1.1 Concept of social aspects of sustainable development		
	2nd	4.1.2 Social Equity Considerations		
	3rd	4.1.3 Community Engagement 4.1.4 Environmental Justice		
12th	1st	4.2 Life Cycle Assessment and Sustainable Design Evaluation		
	2nd	4.2.1 Life Cycle Assessment (LCA), 4.2.2 Concept of sustainable design evaluation,		
	3rd	4.2.3 Sustainability Assessment Tools		
13th	1st	UNIT-V 5.1 Regulatory Frameworks and Policies		
	2nd	5.1 Regulatory Frameworks and Policies 5.1.1 Concept of regulatory frameworks and Policies		
	3rd	5.1.2 National and International Policies, 5.1.3 Regulatory Requirements		
14th	1st	5.2 Professional Ethics and Responsibilities 5.2.1 Ethical Considerations		
	2nd	5.2.2 Professional Responsibilities,		
	3rd	5.2.3 Case Studies on Ethical Dilemmas		
15th	1st	Revision		
	2nd	Revision		
	3rd	3 rd Sessional Test		

Lesson plan

Name of the Faculty		Chetna	Semester	5th
Discipline		Civil Engineering	Lecture per week	2
Subject		Estimation & Costing	Delivery Date of Lecture	Remarks
Duration		20 August 2024 - 29 Nov. 2024 (15 weeks)		
Week	Lecture Day	Topic (including assignment / test)		
1st	1st	1.1 Introduction to quantity surveying and its importance.		
	2nd	1.2 Duties of quantity surveyor, 1.3 Types of estimates		
2nd	1st	1.3.1 Preliminary estimates: - Plinth area estimate and Cubic content estimate		
	2nd	1.3.2 Detailed estimates: - Concept, difference between preliminary and detailed estimate		
3rd	1st	1.3.3 Stages of preparation – details of measurement and calculation of quantities and abstract		
	2nd	2.1 Measurement 2.1.1 Units of measurement for various items of work as per BIS: 1200 2.1.2 Rules for measurements		
4th	1st	2.1.3 Different methods of taking out quantities – centre line method and long wall and short wall method		
	2nd	2.1.3 Different methods of taking out quantities – centre line method and long wall and short wall method		
5th	1st	2.2 Analysis of Rates 2.2.1 Steps involved in the analysis of rates. Requirement of material, labour, sundries, contractor's profit and overheads		
	2nd	2.2.2 Analysis of rates for finished items when data regarding labour, rates of material and labour is given: a) Earthwork in excavation in hard/ordinary soil and filling		
6th	1st	b) Concept of lead and lift, c) RCC in roof slab/beam/lintels/columns,		
	2nd	1st Sessional Test		
7th	1st	d) Brick masonry in cement mortar Cement Plaster, White washing, painting		
	2nd	3.1 Contractor ship- Meaning of contract, 3.2 Essentials of a contract, 3.3 Various Conditions of contractors		
8th	1st	3.4 Types of contracts, their advantages, dis-advantages and suitability, system of payment.		
	2nd	3.5 Single and two cover-bids; tender, tender forms and documents,		

9th	1st	Tender notice, submission of tender and deposit of earnest money, security deposit, retention money, maintenance period		
	2nd	3.6 Classification and types of contracting firms/construction companies		
10th	1st	4.1 Introduction to CSR, HSR and calculation of cost based on premium on CSR & HSR		
	2nd	2nd Sessional Test		
11th	1st	4.2 Preparation of Tender Document based on common schedule rates and Haryana schedule rates (CSR & HSR)		
	2nd	4.3 Various Condition of contractors		
12th	1st	4.4 Exercises on writing detailed specifications of different types of building		
	2nd	4.4 Exercises on writing detailed specifications of different types of building		
13th	1st	5.1 Valuation		
	2nd	5.2 Purpose of valuation, principles of valuation		
14th	1st	5.3 Definition of various terms related to valuation like depreciation, sinking fund, salvage and scrap value, market value, fair rent, year's purchase etc.		
	2nd	5.4 Methods of valuation (i) replacement cost method (ii) rental return method		
15th	1st	5.5 Preparation of comparative statement for item rate contract.		
	2nd	3rd Sessional Test		

LESSON PLAN

NAME OF FACULTY: - SHISH PAL SINGH /CHETNA

DISCIPLINE: - CIVILENGG.

LESSON PLAN DURATION: - 15 WEEKS

TEACHING LOAD: - 8 HOURS

Week	Practical Day	Practicals:-	Covered on Date
1	1	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: A small residential building with a flat roof comprising of two rooms with W.C., bath, kitchen and verandah	
	2	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: A small residential building with a flat roof comprising of two rooms with W.C., bath, kitchen and verandah	
	3	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: Earthwork for unlined channel	
	4	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: Earthwork for unlined channel	
2	1	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: WBM road and pre-mix carpeting	
	2	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: WBM road and pre-mix carpeting	
	3	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: Single span RCC slab culvert	
	4	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: Single span RCC slab culvert	
3	1	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: Earthwork for plain and hill roads	
	2	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: Earthwork for plain and hill roads	

	3	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: RCC work in beams, slab	
	4	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: RCC work in beams, slab	
4	1	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: column and lintel, foundations	
	2	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for: column and lintel, foundations	
	3	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for 10 users septic tank	
	4	Preparation of Detailed and Abstract Estimates from Drawings by following (CSR& HSR) rates for 10 users septic tank	
5	1	Calculation of quantities of materials for Cement mortars of different proportion	
	2	Calculation of quantities of materials for Cement mortars of different proportion	
	3	Calculation of quantities of materials for Cement concrete of different proportion	
	4	Calculation of quantities of materials for Cement concrete of different proportion	
6	1	Calculation of quantities of materials for Brick/stone masonry in cement mortar of different proportion	
	2	Calculation of quantities of materials for Brick/stone masonry in cement mortar of different proportion	
	3	Calculation of quantities of materials for Plastering, pointing and painting	
	4	Calculation of quantities of materials for Plastering, pointing and painting	
7	1	Calculation of quantities of materials for D.P.C. and flooring	
	2	Calculation of quantities of materials for D.P.C. and flooring	
	3	Exercises on preparing tender documents for the following Earth work	

	4	Exercises on preparing tender documents for the following Earth work	
8	1	Exercises on preparing tender documents for the following Earth work	
	2	Exercises on preparing tender documents for the following Earth work	
	3	Revision on above topics	
	4	Revision on above topics	

9	1	Internal Viva Voice	
	2	Internal Viva Voice	
	3	Exercises on preparing tender documents for the following Construction of a small house as per given drawing	
	4	Exercises on preparing tender documents for the following Construction of a small house as per given drawing	
10	1	Exercises on preparing tender documents for the following RCC works	
	2	Exercises on preparing tender documents for the following RCC works	
	3	Exercises on preparing tender documents for the following Pointing, plastering and flooring	
	4	Exercises on preparing tender documents for the following Pointing, plastering and flooring	
11	1	Exercises on preparing tender documents for the following Wood work including polishing	
	2	Exercises on preparing tender documents for the following Wood work including polishing	
	3	Exercises on preparing tender documents for the following Sanitary and water supply installations	
	4	Exercises on preparing tender documents for the following	

		Sanitary and water supply installations	
12	1	Revision on above topics	
	2	Revision on above topics	
	3	Internal Viva Voice	
	4	Internal Viva Voice	
13	1	Exercises on preparing tender documentsfor the following False ceiling	
	2	Exercises on preparing tender documentsfor the following False ceiling	
	3	Exercises on preparing tender documentsfor the following aluminum (glazed)partitioning	
	4	Exercises on preparing tender documentsfor the following aluminum (glazed)partitioning	
14	1	Doubt Session	
	2	Doubt Session	
	3	Exercises on preparing tender documentsfor the following Tile flooring including base course	
	4	Exercises on preparing tender documentsfor the following Tile flooring including base course	
15	1	Revision on above topics	
	2	Revision on above topics	
	3	Internal Viva Voice	
	4	Internal Viva Voice	