

Lesson Plan

Name of faculty :- Gourav

Branch: Civil

Semester: 5th

Subject: Construction Management

Lesson Plan Duration : 15 Weeks

Week	Lecture No.	Topic Covered
1	1	Concept of construction management Main objectives of construction management and overview of the subject
	2	Functions of construction management, planning, organising, staffing, directing, controlling and coordinating, meaning of each of these with respect to construction job
2	3	Classification of construction into light, heavy and industrial construction Stages in construction from conception to completion
	4	The construction team: owner, engineer, architect and contractors, their functions and inter-relationship
3	5	Importance of construction planning Stages of construction planning- Pretender stage and Contract stage
	6	Scheduling construction works by bar charts Definition of activity, identification of activities
4	7	Preparation of bar charts for simple construction work Preparation of schedules for labour, materials, machinery and finances for small works
	8	Limitations of bar charts Scheduling by network techniques Introduction to network techniques; PERT and CPM,
5	9	Differences between PERT and CPM terminology
	10	Types of organizations: Line, line and staff, functional and their characteristics Site Organization:
6	11	Principle of storing and stacking materials at site Location of equipment
	12	Preparation of actual job layout for a building Organizing labour at site Construction Labour
7	13	Conditions of construction workers in India, wages paid to workers Important provisions of the following Acts:
	14	Labour Welfare Fund Act 1936 (as amended) b) Payment of Wages Act 1936 (as amended) c) Minimum Wages Act 1948 (as amended) d) Acts relating to Labour Safety
8	15	T-IV 4. Control of Progress: Analysis of progress and methods of recording progress
	16	Taking corrective actions keeping head office informed
9	17	Cost time optimization for simple jobs - Direct and indirect cost, variation with time, cost optimization
	18	Inspection and Quality Control: -Need, Principles and Stages of inspection and quality
10	19	control for- Earth, Masonry, RCC work and Sanitary and water supply services
	20	Accidents and Safety in Construction: Concept, causes and remedies
11	21	Safety measures for: - Excavation work, drilling and blasting, hot bituminous works
	22	Scaffolding, ladders, form work and demolitions. Safety campaign and safety devices, safety training
12	23	Public Work Accounts: Introduction of various technical terms used in public work accounts:
	24	Technical sanction, allotment of funds, re-appropriation of funds bill, contractor ledger

13	25	measurement book running and final account bills complete, preparation of bill of quantities (BOQ), c
	26	completion certificate & report, hand receipt, Aquittance roll. Muster Roll labour, casual labour roll-duties
14	27	and responsibility of different cadres, budget-stores, returns, account of stock, misc. P.W. advances T & P
	28	verification, survey report, road metal material charged direct to works, account - expenditure & revenue head,
15	29	remittance and deposit head, definition of cash, precaution in custody of cash book, imprest account,
	30	temporary advance, treasury challan, preparation of final bills, earnest money, performance security, Students must learn to prepare accounts register.
16	31	class test and revision
	32	class test and revision

LESSON PLAN

Name of Faculty : Gourav
Subject : Estimating and Costing

Discipline: Civil Engineering
Semester: 5th

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Lesson plan Duration: July 2026 - Nov 2026

Week	Lecture Day	THEORY	Delivery Date of Lecture		Whether the Lesson Plan Followed?
		TOPIC			
		(including Assignments/ Seminar/ Group Discussion/ Sessional Tests)	Expected	Actual	Yes /No
1st	1st	UNIT-I 1.1 Introduction to quantity surveying and its importance.			
	2nd	1.2 Duties of quantity surveyor			
	3rd	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	1.3.3 Stages of preparation – details of measurement and calculation of Quantities and abstract			
3rd	1st	UNIT-II 2.1 Measurement, 2.1.1 Units of measurement for various items of work as per BIS: 1200			
	2nd	2.1.2 Rules for measurements			
	3rd	2.1.3 Different methods of taking out quantities – centre line method and Long wall and short wall method			
4th	1st	2.2 Analysis of Rates			
	2nd	2.2.1 Steps involved in the analysis of rates. Requirement of material, labour, sundries, contractor's profit and overheads			
	3rd	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			

5th	1st	Analysis of rates for finished items when data regarding labour rates of material and labour is given: b) Concept of lead and lift			
	2nd	Analysis of rates for finished items when data regarding labour Rates of material land labour is given: c) RCC inroofslab/beam/lintels/columns,			
	3rd	Analysis of rates for finished items when data regarding labour rates of material and labour is given: d) Brick masonry in cement mortar Cement Plaster, Whitewashing, painting			
6th	1st	Numericals Session			
	2nd	Revision			
	3rd	Doubt Session			
7th	1st	Assignment–1/ Group discussion/Technical Quiz/Seminar			
	2nd	Doubt Session			
	3rd	Sessional Test-1			
8th	1st	UNIT-III 3.1 Contractorship-Meaning of contract			
	2nd	3.2 Essential of a contract 3.3 Various Conditions of contractors			
	3rd	3.4 Types of contracts, their advantages, disadvantages and suitability, system of payment			
9th	1st	3.5 Single and two cover-bids; tender, tender forms and documents, 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			
	3rd	UNIT-IV 4.1 Introduction to CSR, HSR and calculation of cost based on premium on CSR & HSR			
	1st	4.2 Preparation of Tender Document based on common schedule rates and Haryana schedule rates (CSR & HSR)			

10th	2nd	4.3 Various Condition of contractors			
	3rd	4.4 Exercises on writing detailed specification of different types of building works from excavation to foundations, superstructure and finishing operation			
11th	1st	Assignment–2/ Group discussion/Technical Quiz/Seminar			
	2nd	Revision			
	3rd	Sessional Test– 2			
12th	1st	UNIT-V 5.1 Valuation			
	2nd	5.2 Purpose of valuation, principles of valuation			
	3rd	5.3 Definition of various terms related to valuation like depreciation, sinking fund,			
13th	1st	salvage and scrap value, market value,			
	2nd	fair rent, year's purchase etc.			
	3rd	5.4 Methods of valuation (i) replacement cost method (ii) rental return method 5.5 Preparation of comparative statement for item rate contract.			
14th	1st	Methods of valuation (ii) rental return method			
	2nd	5.5 Preparation of comparative statement for item rate contract.			
	3rd	Revision			
15th	1st	Assignment–3/ Group discussion/Technical Quiz/Seminar			
	2nd	Doubt Session			
	3rd	Sessional Test– 3			

LESSON PLAN

Name of Faculty : Shelly Mittal
Subject : Fluid Mechanics Lab

Discipline: Civil Engineering
Semester: 3rd

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Lesson plan Duration: 15 Weeks

Week	Lecture Day	PRACTICAL	Delivery Date of Lecture		Whether the Lesson Plan Followed ?
		TOPIC			Yes/No
		(including Assignments/ Seminar/ Group Discussion/ Sessional Tests)	Expected	Actual	
1st	1st	1. To verify Bernoulli's Theorem			
2nd	2nd	2. To find out Venturimeter Coefficient			
3rd	3rd	2. To find out Venturimeter Coefficient			
4th	4th	3. To determine Coefficient of Velocity (Cv), Coefficient of Discharge (Cd) Coefficient of Contraction (Cc) of an orifice and verify the relation between them			
5th	5th	3. To determine Coefficient of Velocity (Cv), Coefficient of Discharge (Cd) Coefficient of Contraction (Cc) of an orifice and verify the relation between them			
6th	6th	3. To determine Coefficient of Velocity (Cv), Coefficient of Discharge (Cd) Coefficient of Contraction (Cc) of an orifice and verify the relation between them			
7th	7th	4. To perform Reynold's experiment			
8th	8th	5. To verify loss of head in pipe flow due to			
9th	9th	5. a) Sudden enlargement			
10th	10th	5. b) Sudden contraction			
11th	11th	5. c) Sudden bend			
12th	12th	Demonstration of use of current meter and pitot tube			
13th	13th	Demonstration of use of current meter and pitot tube			
14th	14th	To determine coefficient of discharge of a rectangular notch and triangular notch.			
15th	15th	To determine coefficient of discharge of a rectangular notch and triangular notch.			

LESSON PLAN

Name of Faculty : SHELLY MITTAL

Discipline: Civil Engineering

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Subject : Fluid Mechanics

Semester: 3rd

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Lesson plan Duration : 15 weeks

Week	Lecture Day	THEORY	Delivery Date of Lecture		Whether the Lesson Plan Followed ?
		TOPIC			
		(including Assignments/ Seeminar/ Group Discussion/ Sessional Tests)	Expected	Actual	Yes/No
1st	1st	UNIT I 1. Properties of Fluids 1.1 Introduction: Fluid Mechanics, Hydrostatics, Hydrodynamics, Hydraulics			
	2nd	1.2 Density or Mass Density, Specific Weight or Weight Density, Specific Volume, Specific Gravity 1.3 Viscosity: Units of viscosity, Kinematic Viscosity, Newton's Law of viscosity, Variation of viscosity with temperature.			
2nd	3rd	1.4 Types of Fluids: Ideal, Real, Newtonian, Non-Newtonian and ideal Plastic fluids.			
	4th	1.5 Compressibility, Bulk Modulus, Surface Tension, Capillarity, Vapour Pressure and Cavitation			
3rd	5th	2. Pressure and its Measurement Pascal's Law, Fluid pressure at a point and Pressure variation in a fluid at rest.			
	6th	2.2 Types of Pressure: Absolute Pressure, Gauge Pressure, Vacuum Pressure and Atmospheric Pressure			
4th	7th	2.3 Measurement of Pressure: Simple and Differential Manometer (with Numerical Problems)			
	8th	UNIT II 3. Hydrostatic Force on Surfaces			
5th	9th	Assignment-1/ Group discussion/ Technical Quiz/ Seminar			
	10th	Sessional Test-1			
6th	11th	3.1 Total Pressure and Centre of Pressure			
	12th	3.2 Vertical, Horizontal Plane surfaces (Rectangular and Trapezoidal) submerged in liquid (No derivation - Simple Numerical Problems)			
	13th	4. Buoyancy and Floatation Buoyancy and Centre of Buoyancy			

7th	14th	Meta-centre and Meta-centric Height Analytic Method for Meta-centric Height (Concept only – Simple Numerical Problems)			
8th	15th	Conditions of equilibrium of a floating and submerged bodies (Concept only)			
	16th	UNIT III 5. Flow of Fluids			
9th	17th	Types of Flow: Steady and Unsteady Flow, Uniform and Non-Uniform Flow, Laminar and Turbulent Flow, Compressible and Incompressible Flow			
	18th	5.2 Discharge and Continuity Equation (No derivation - Simple Numerical Problems) 5.3 Types of hydraulic energy: Potential energy, kinetic energy, pressure energy			
10th	19th	5.4 Bernoulli's Theorem: Statement and Description (without Proof of Theorem - Simple Numerical Problems)			
	20th	6. Flow Measurements 6.1 Venturimeter and Orificemeter (without Proof) 6.2 Pitot-tube and Current meter			
11th	21st	6.3 Orifices, Hydraulic Co-Efficient (C_v , C_c and C_d) and their relationship 6.4 Discharge over a Rectangular and Trapezoidal Notch (No Derivation)			
	22nd	6.5 Discharge over a Rectangular and Trapezoidal Weir (No Derivation)			
12th	23rd	Assignment–2/Group discussion/ Technical Quiz/Seminar			
	24th	Sessional Test–2			
13th	25th	UNIT IV 7. Flow Through Pipes 7.1 Reynold's number, laminar and turbulent flow - explained through Reynold's experiment			
	26th	7.2 Loss of Energy in Pipes: Major and Minor Energy Losses (No derivation of formula) 7.3 Loss of Energy in Pipes: Simple Numerical Problems 7.4 Hydraulic gradient line and total energy line 7.5 Pipes in series and parallel: Simple Numerical Problems			

14th	27th	8. Dimensional Homogeneity Secondary and Derived Quantities Dimensional Homogeneity Dimensional Numbers: Reynold's Number, Froude's Number, Euler's Number, Weber's Number, Mach's Number (Only concept)			
	28th	UNIT V 9. Flow in Open Channel Definition and classification of flow in open channels 9.2 Discharge through open channel by Chezy's formula			
15th	29th	9.3 Most economical section of channels (No Derivation - Simple Numerical Problems) i) Rectangular Channel Section ii) Trapezoidal Channel Section 10. Hydraulic Pumps Reciprocating Pump, Centrifugal Pump, Differences between Reciprocating Pump and Centrifugal Pump (No Derivations and Numerical)			
	30th	Sessional Test-3			

Lesson Plan			
Name of faculty :- Mrs. Shelly Mittal			
Branch: Civil			
Semester: 5th			
Subject: HE			
Lesson Plan Duration : 16 Weeks			
Week	Lecture No.	Topic Covered	Practical
1	1	Introduction Importance of Highway engineering Functions of IRC, CRRI, MoRT&H, NHAI IRC Classification of roads	1. Determination of penetration value of bitumen
	2	Elements of Road Geometrics Glossary of terms used in road geo-metrics and their importance: Right- of- way	
	3	Formation width, road margin, road shoulder, carriage way, side slopes, kerbs, formation levels	
2	4	Concept of camber and gradients- their types and functions	1. Determination of penetration value of bitumen
	5	Concept of Design speed, average running speed, stopping and overtaking sight distance.	
	6	Curves- Necessity and types (horizontal and vertical curves including transition curves)Super elevation-Definition,	
3	7	methods of providing super elevation and concept of widening of roads on curves	2. Determination of softening point of bitumen
	8	Sketch of typical cross-sections in cutting and filling on straight alignment and at a curveHighway Surveys, Alignment and Plan	
	9	Topographic Map-Concept and uses Road surveys for highway location-Stages of road surveys (map study,	
4	10	reconnaissance, preliminary surveys, final location and detailed surveys) Highway alignment-Definition and requirements	2. Determination of softening point of bitumen
	11	Standards for preparing highway plans- Stages and objectives.	
	12	Basic considerations governing alignment for a road in plain and hilly areaSetting out alignment of road-	
5	13	Highway location, bench marks and control pegs for embankment and cutting	3. Determination of ductility of bitumen
	14	Highway Materials Different types of road materials – (Soil, Aggregates and Binders) their common types, functions & requirements.	

	15	Introduction to California Bearing Ratio, method of finding CBR value and its significance.	
6	16	Bitumen and Tar their properties as per BIS specifications, penetration, softening point,	3. Determination of ductility of bitumen
	17	ductility and viscosity test of bitumen, procedures and significance. Cut back, emulsion and	
	18	Bitumen modifiers (CRMB, PMB) their functions.T-III 3.1 Highway Pavements Construction Highway pavement: Flexible	
7	19	and rigid pavement, their merits and demerits, typicalcrosssections, functions of various components	4. Determination of impact value of the road aggregate
	20	Sub-grade preparation: - Borrow pits, making profiles of embankment, construction of	
	21	embankment, compaction, preparation of subgrade,and methods of checking camber, gradient	
8	22	alignment as per recommendations of IRC, equipment used for subgrade preparation.	5. Determination of abrasion value (Los Angeles') of road aggregate
	23	Stabilization of subgrade. Types of stabilization mechanical stabilization, lime stabilization,	
	24	cement stabilization; fly ash stabilization etc. (introduction only)Stabilization of sub base & base course: Granular base course:	
9	25	a) Water Bound Macadam (WBM) b) Wet Mix Macadam (WMM) c) Bitumen Courses:	6. Determination of crushing strength of aggregate
	26	Bituminous Macadam (ii) Dense Bituminous Macadam (DBM) *Methods of construction as per	
	27	MoRT&H Surfacing: Definition and types of surfacing a) Prime coat and tack coat b) Surface dressing with seal coat	
10	28	Open graded premix carpet d) Seal coat e) Bituminous Concrete f) Bituminous penetration	7. Determination of flakiness and elongation index of aggregate
	29	macadam. * Methods of constructions as per MORT&H specifications and quality control;equipments used for above	
	30	Rigid Pavements:- Construction of concrete roads as per IRC specifications: Form work laying, mixing and placing the concrete, compacting and	
11	31	finishing, curing, joints inconcrete pavement, equipment used. Roller compacted concrete	8. Determination of the California bearing ratio (CBR)
	32	Hill Roads: Introduction: Typical cross-sections	

		showing all details of a typical hill road, partly in cutting and partly in filling	for the sub-grade soil
	33	Special problems of hill areas Landslides: Causes, prevention and control measures, use of geo-grids, geo-flexibles, geo-synthetics Drainage	
12	34	Soil erosion Snow: Snow clearance, snow avalanches, frost Land Subsidence	9. Determination of stripping value of aggregates.
	35	Highway Drainage: Necessity of road drainage work, cross drainage works	
	36	Surface and subsurface drains and side drains, side ditches for surface drainage.	
13	37	Intercepting drains, pipe drains in hill roads, details of drains in cutting embankment, typical cross sections.	10. Demonstration of working of hot mix plant through a field visit
	38	Pot hole, cracks, rutting, alligator, cracking, upheaval - their causes and remedies (brief description)	
	39	Maintenance of bituminous road such as crack sealing, patch-work and resurfacing.	
14	40	Maintenance of concrete roads-filling cracks, repairing joints, maintenance of shoulders (berms)	11. 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
	41	Highway Safety: Best practices in engineering design for road safety: Geometry of the road, Segregation of local traffic	
	42	Pedestrian facility, Bus bays, Illuminations, Development of junction, Signage and road safety audit.	
15	43	3 Essential road construction safety tips: Wear the proper safety equipment, Control traffic, Avoid blind spots, Be Constantly Aware of Surroundings	12. Demonstration of working of mixing and spraying equipment (Asphalt mixer & tar boiler) through a field visit
	44	Factors to be considered while selecting a site for an airport with respect to zoning laws. Introduction to Runways,	
	45	Taxiways, Apron and Hanger. Types of pavement used in airport runway.	
16	46	revision and class test	
	47	revision and class test	

Lesson Plan			
Name of faculty :- Anisha Mor			
Branch: Civil			
Semester: 3th			
Subject: BC			
Lesson Plan Duration : 16 Weeks			
Week	Lecture No.	Topic Covered	Practical
1	1	Foundation Introduction: Definition of a building, Different parts of a building, classification of buildings	1. Demonstration of tools and plants used in building construction
	2	Types of foundation – Shallow foundation (thumb rules for depth and width of foundation) and Deep foundation	
2	3	Excavation of foundation – Trenches, Shoring, Underpinning, Timbering and Dewatering	2. To prepare Layout of a building: 2BHK with front verandah
	4	Walls Classification of walls based on load - Load bearing, non-load bearing, retaining walls	
3	5	Classification of walls as per materials of construction	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
	6	Partition walls: Constructional details, suitability and uses of brick and wooden partition walls	
4	7	Scaffolding, construction details and suitability of mason's brick layers and tubular scaffolding.	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
	8	Masonry Work Glossary of terms used in brick masonry - Header, Stretcher, Queen closer, King closer etc	
5	9	Brick Masonry Bonds – English and Flemish Bonds	5. Demonstration of “Timbering of Excavated Trenching” through a model and visit at construction site
	10	Construction of brick walls – New wall Construction, Methods of bonding new brick work with old (Toothing and Raking Methods)	
6	11	Mortars: types, selection of mortar and its preparation Arches and Lintels	6. Demonstration of “Laying Damp Proof Courses” through a model and visit at construction site
	12	Glossary of terms used in arches -Intrados, Extrados, Crown, Key stone etc.	

7	13	Types of Arches – Semi-circular, Segmental and Parabolic arches Lintels – Cast-in-situ and pre-cast lintels	7. Demonstration of “Construction of Masonry Walls” through a model and visit at construction site
	14	Doors and Windows Glossary of terms used – Door Frame, Door Shutter, Hold fast, Horns, Jamb, Reveal	
8	15	Soffit, Styles, Rails: Top, Bottom and Lock rails etc. Doors and window frames – Materials and Sections, Fixtures and Fasteners	8. Demonstration of “Brick Layers Scaffolding” through a model and visit at construction site
	16	Doors – Framed and Panelled door, Glazed or sash door, Flush door, Sliding door, Rolling steel shutter doors	
9	17	Windows – Fixed window, Sliding window, Glazed or sash window, Corner window Ventilators	9. Demonstration of “Steel Scaffolding” through a model and visit at construction site
	18	Damp Proofing and Water Proofing Dampness and its ill effects in buildings Sources of dampness in building	
10	19	Damp proofing of basement, Plinth and walls, Kitchen, Washroom, Roof	10. Demonstration of “Laying of Vitrified Tile Flooring” through visit at construction site
	20	Floors Glossary of terms used – Floor finish, Topping, Under layer, Base course, Rubble filling and their purpose	
11	21	Types of floor finishes – Concrete flooring, Ceramic tile flooring, Stone (marble and kota) flooring, Wooden flooring	11. Demonstration of “Plastering and Pointing Exercise” through visit at construction site
	22	Special emphasis on level / slope / reverse slope in bathrooms, toilets, kitchen, balcony	
12	23	Roofs 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
	24	Glossary of terms for pitched roofs – Batten, Eaves, Facia board, Gable, Hip, Lap, Purlin, Rafter, Rag bolt, Ridge, Rain water gutter, Anchoring bolts	
13	25	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
	26	Stairs Glossary of terms used in stairs: Landing, Stringer, Newel, Baluster, Riser, Tread, Width of staircase, Hand-rail, Nosing	
14	27	Types of stairs on the basis of materials used: RCC and Steel stairs Various types of layout – Straight flight, Dog legged, Quarter turn, Half turn	14. Demonstration of “False Ceiling” through visit at construction site

	28	Ramps and Elevators – Excavation and construction Escalators pits and landings – Excavation and construction	
15	29	Surface Finishes Plastering – Plain plaster, Stone cladding and Tile work Pointing – Different types of pointing and their methods	15. Demonstration of “Interlocking Tiles” through visit at construction site
	30	Painting – Preparation of surface, Primer coat and application of paints on wooden, steel and plastered wall surfaces Selection of appropriate paints/finishes for interior and exterior surfaces	
16	31	Revision and class test	
	32	Revision and class test	

Lesson Plan			
Name of faculty :- Mr. Gourav			
Branch: Civil			
Semester: 3th			
Subject: CT			
Lesson Plan Duration : 15 Weeks			
Week	Lecture No.	Topic Covered	Practical
1	1	Introduction to Concrete Definition of concrete, properties of concrete. Advantages and disadvantages 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	Ingredients of Concrete Cement: Introduction only Aggregates: Classification of aggregates according to size and shape	
2	3	Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate;	1. To determine the physical properties of cement such as fineness, consistency, setting time, soundness, and compressive strength of cement as per IS Codes
	4	Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate;	
3	5	Grading of aggregates: coarse aggregate, fine aggregate; All-in- aggregate; fineness modulus; interpretation of grading charts Water: Water Quality requirements as per IS:456-2000	2. To determine flakiness at elongation Index of coarse aggregate
	6	Water Cement Ratio 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	
4	7	Properties of Concrete Properties in plastic state: Workability, Segregation, Bleeding and Harshness Factors affecting workability, Measurement of workability:	2. To determine flakiness at elongation Index of coarse aggregate
	8	slump test, compacting factor; Recommended slumps for placement in various conditions as per IS:456-2000/SP-23	
5	9	Properties in hardened state: Strength, Durability, Impermeability, Dimensional changes. Concrete mix design (Introduction only)	3. To determine silt content in fine aggregate
	10	Introduction to Admixtures (chemicals and minerals) for improving performance of concrete	

6	11	Concreting Operations Storing of Cement: Storing of cement in a warehouse Storing of cement at site Effect of storage on strength of cement	3. To determine silt content in fine aggregate
	12	Determination of warehouse capacity for storage of Cement Storing of Aggregate: Storing of aggregate at site Batching (to be shown during site visit	
7	13	Batching of Cement Batching of aggregate by: § Volume, using gauge box (farma) selection of proper gauge box § Weight spring balances and batching machines Measurement of water	4. Determination of specific gravity and water absorption of aggregates
	14	Mixing: Hand mixing Machine mixing - types of mixers, capacities of mixers, choosing appropriate size	
8	15	of mixers, operation of mixers. Maintenance and care of mixers	5. Determination of bulk density and voids of aggregates
	16	Transportation of concrete: Transportation of concrete using: wheel barrows, transit	
9	17	mixers, chutes, belt conveyors, pumps, tower crane and hoists etc. Placement of concrete:	6. Determination of particle size distribution of fine, coarse and all-in aggregate by sieve analysis (grading of aggregate)
	18	Checking of form work, shuttering and precautions to be taken during placement Compaction: Hand compaction	
10	19	Machine compaction - types of vibrators, internal screed vibrators and form vibrators	7. To determine bulking of fine aggregates
	20	Selection of suitable vibrators for different situations Finishing concrete slabs - screeding, floating and trowelling	
11	21	Curing: Objective of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing Duration for curing and removal of form work	8. To determine workability by slump test and to verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump
	22		
12	23	Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings -	9. Compaction factor test for workability
	24	- their importance and location 6.7 Defects in concrete: Identification of defects and methods of removing defects.	
13	25	Special Concretes (only features) Concreting under special conditions, difficulties, and precautions before	10. Non destructive test on concrete by:

	26	during and after concreting Cold weather concreting Under water concreting	a) Rebound Hammer Test b) Ultrasonic Pulse Velocity Test
14	27	Hot weather concreting Ready mix concrete Fly ash concrete	11. To determine compressive strength of concrete cubes for different grades of concrete
	28	Importance and methods of non-destructive tests (introduction only)	
15	29	Rebound Hammer Test Pulse Velocity method	12. To determine flexural strength of concrete beam
	30	A field visit may be planned to explain and show the relevant things	
16	31	revision and class test	
	32	revision and class test	

Lesson Plan			
Name of faculty :- Ms. Annu			
Branch: Civil			
Semester: 5th			
Subject: RCC D&D			
Lesson Plan Duration : 16 Weeks			
Week	Lecture No.	Topic Covered	Practical
1	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	
	3	Properties of mild steel and HYSD steel Loading on structures as per IS: 875	
2	4	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.
	5	Limit state method: Definition and basic assumptions	
	6	Difference between W.S.M and L.S.M.	
3	7	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.
	8	Shear strength of concrete without shear reinforcement, nominal shear stress,	
	9	maximum shear stress and shear reinforcement, functions of vertical stirrups.	
4	10	Conditions and different forms of providing shear reinforcement	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	11	Concept, purpose and methods for achieving development length	
	12	Concept of bond and bond stress.	
5	13	Concept of Limit State Method Definitions, methods and assumptions made in limit state of collapse (flexure)	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	14	Characteristics strength of materials	
	15	Characteristics loads Design value for material & loads	
6	16	Stress blocks parameters.	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All
	17	Singly Reinforced beam Concept of singly R/F beam, neutral axis, depth of	

		Neutral axis, maximum	beams with vertical stirrups)
	18	depth of neutral axis, limiting percentage of steel, limiting moment of resistance, value of limiting moment of resistance.	
7	19	Types of beam sections- Balanced, under and over R/F sections.	Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings
	20	Details of reinforced in beam as per IS: 456	
	21	Design of singly reinforced beam by limit state method and types of problems. Doubly Reinforced Beams	
8	22	Concept of doubly reinforced beam, 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
	23	Circumstances under which doubly R/F beam are provided.	
	24	Concept depth of neutral axis of doubly R/F beam, area of tensile steel	
9	25	and compression steel, ultimate moment of resistance, maximum design stress in compression.	Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings
	26	Design of simply supported doubly reinforced rectangular beam by limit state method and types of problems	
	27	Behaviour of T beam, Concept of isolated T-beam and L-beam	
10	28	One Way Slab Concept of one way slab	Drawing No. 4 : Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	29	General considerations of design of slabs as per IS: 456	
	30	Design steps of simply supported one way slab including sketches s	
11	31	howing 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.
	32	Two Way Slab Concept of two way slab Difference between one-way slab and two way slab	
	33	Design steps of two-way simply supported slab with corners free to lift, no provisions for	
12	34	Torsional reinforcement by Limit State Method	Drawing No. 4 : Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	35	including sketches showing R/F details (plan and two sections)	

	36	Axially Loaded Column Definition and classification of columns	
13	37	Effective length of column, Specifications for longitudinal	Drawing No. 5 : Draw at least two sheet using AutoCAD software
	38	lateral reinforcement as per IS: Design of axially loaded square, rectangular	
14	39	circular short columnsby Limit State Method	Drawing No. 5 : Draw at least two sheet using AutoCAD software
	40	including sketching of reinforcement (sectional elevation and plan)	
	41	Pre-stressed Concrete	
15	42	Concept of pre-stressed concrete	Drawing No. 5 : Draw at least two sheet using AutoCAD software
	43	Methods of pre-stressing: pre-tensioning and post-tensioning	
	44	Advantages and disadvantages of pre-stressing ,Losses in pre-stress	
16	45	Revision	
	46	Revision	
	47	Class test	

Lesson Plan			
Name of faculty :- Mr. Parveen Kumar			
Branch: Civil			
Semester: 3th			
Subject: SM			
Lesson Plan Duration : 16 Weeks			
Week	Lecture No.	Topic Covered	Practical
1	1	Properties of Materials Classification of materials, elastic materials,	1. Determination of yield stress, ultimate stress, percentage elongation and plot the stress strain diagram and compute the value of young's modulus on mild steel
	2	plastic materials, ductile materials, brittle materials.	
2	3	Introduction to tensile test, compressive test,	1. 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
	4	impact test, fatigue test, torsion test on metals.Simple Stresses and Strains	
3	5	Concept of stress, normal and shear stresses,	1. 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
	6	Concept of strain and deformation, longitudinal	
4	7	transverse strain, poisson's ratio, volumetric strain Hooke's law, moduli of	2. Testing of HYSD Steel
	8	elasticity and rigidity, Bulk modulus of elasticity, relationship between the elastic constants.	
5	9	Stresses and strains in bars subjected to tension and compression. Extension of uniform	2. Testing of HYSD Steel
	10	bar under its own weight, stress produced in compound bars due to axial load (two or three bars)	
6	11	Stress-strain diagram for mild steel and HYSD steel, mechanical properties,	2. Testing of HYSD Steel
	12	factor of safety. Temperature stresses and strainsShear Force and Bending Moment	
7	13	Concept of a beam and supports (Hinges, Roller and Fixed), types of beams: simply	3. Determination of Young's modulus of elasticity for steel wire with sear's

	14	supported, cantilever, propped, over hang, cantilever and continuous beams (only concept).	apparatus
8	15	Types of loads (dead load, live load, snow load, wind load seismic load as per IS Codes etc.) and types of loading	3. Determination of Young's modulus of elasticity for steel wire with searl's apparatus
	16	(point, uniformly distributed and uniformly varying loads) Concept of bending moment and shear force, sign conventions	
9	17	Bending Moment and shear force diagrams for cantilever and simply	3. Determination of Young's modulus of elasticity for steel wire with searl's apparatus
	18	supported subjected to concentrated,	
10	19	uniformly distributed Relationship between load,	3. Determination of Young's modulus of elasticity for steel wire with searl's apparatus
	20	shear force and bending moment,	4. Determination of modulus of rupture of a concrete beam
11	21	point of maximum bending moment, and point of contraflexure.	4. Determination of modulus of rupture of a concrete beam
	22	Moment of Inertia Concept of moment of inertia and second moment of area and radius of gyration, theorems of	
12	23	parallel and perpendicular axis, second moment of area of common geometrical sections: rectangle, triangle,	4. Determination of modulus of rupture of a concrete beam
	24	circle (without derivations). Second moment of area for L, T and I sections, section modulus.	
13	25	Bending Stresses in Beams Concept of pure/simple bending	5. Determination of maximum deflection and young's modulus of elasticity in simply supported beam with load at middle third point
	26	Assumptions made in the theory of simple bending, derivation and application of bending	
14	27	equation to circular cross-section, I section, T&L sections only Moment of resistance	5. Determination of maximum deflection and young's modulus of elasticity in simply supported beam with load at middle third poin
	28	Calculations of bending stresses in simply supported beam Concept of shear stresses in beams, shear stress (introduction only)	

15	29	Slope and Deflection Determination of slope and deflection using Moment Area Theorem for	6. Verification of forces in a framed structure
	30	simply supported beam for pointed load and U.D.L numerical problems. (no derivation,)	
16	31	Columns Theory of columns Problem solving using Euler's and Rankine Formula	6. Verification of forces in a framed structure
	32	Analysis of Trusses Concept of a perfect, redundant, and deficient frames Assumptions and analysis of trusses by: a) Method of joints b) Method of sections	

Lesson Plan			
Name of faculty :- Sh. Parveen Kumar			
Branch: Civil			
Semester: 3rd			
Subject: Survey-1			
Lesson Plan Duration : 16 Weeks			
Week	Lecture No.	Topic Covered	Practical
1	1	Introduction and Basic Concepts Definition	I Demonstration of chain surveying
	2	Purpose of Surveying Primary Division of Surveying	
2	3	Basic principles of surveying Measurements-linear	I Demonstration of chain surveying
	4	angular Units of measurements	
3	5	Instruments used for taking these measurements Classification of surveying	II Compass Surveying i) a) Study of prismatic compass
	6	Chain and Compass Surveying Purpose and principles of chain surveying	
4	7	Operations in Chain Surveying (Ranging, Measurement, Offsetting) Purpose of compass surveying	b) Setting the compass and taking observations c) Measuring angles between the lines meeting at a point
	8	Use of prismatic compass: Setting and taking observations Concept of following with simple numerical problems:	
5	9	Meridian - Magnetic and true, Arbitrary b) Bearing - Magnetic, True and Arbitrary c) Whole circle bearing and reduced bearing	II Compass Surveying i) a) Study of prismatic compass b) Setting the compass and taking observations c) Measuring angles between the lines meeting at a point
	10	Fore and back bearing e) Magnetic dip and declination Local attraction – Problems, causes, detection, errors and corrections,	
6	11	Levelling Definition and Purpose of levelling Various technical terms used in levelling	III Levelling i) a) Study of Auto level and levelling staff b) Temporary adjustments of Auto levels c) Taking staff readings on different stations from the single setting and finding differences of level between them
	12	(level surface, horizontal surface, vertical surface, datum, reduced level, bench marks	

7	13	line of collimation, axis of the bubble tube, axis of the telescope and vertical axis)	III Levelling i) a) Study of Auto level and levelling staff b) Temporary adjustments of Auto levels c) Taking staff readings on different stations from the single setting and finding differences of level between them
	14	Identification of various parts of Auto level, leveling staff types, uses and least count of leveling staff	
8	15	Temporary adjustment and permanent adjustment of Auto level	ii) To find out difference of level between two distant points by shifting the instrument iii) Longitudinal and cross sectioning of a road/railway/canal iv) Setting a gradient by auto-level.
	16	Concept of back sight, foresight, intermediate sight, change point, to determine reduce levels	
9	17	Level book and reduction of levels by Height of collimation method and Rise and fall method (Numerical problems)	ii) To find out difference of level between two distant points by shifting the instrument iii) Longitudinal and cross sectioning of a road/railway/canal iv) Setting a gradient by auto-level.
	18	Methods of Leveling (Simple levelling, differential levelling, fly levelling, check leveling and profile	
10	19	levelling (L-section and X-section) only (Numerical problems) Problem on reduction of levels, Errors in levelling	IV 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
	20	Plane Table Surveying Introduction and Definition of plane table surveying	
11	21	Advantages & Disadvantages of plane table surveying	IV 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
	22	Equipment used in plane table survey Setting of a plane table: (a) Centering (b) Levelling (c) Orientation	
12	23	Methods of plane table surveying (a) Radiation, (b) Traversing Errors in plane table survey	ii) a) Orientation by - Trough compass - Back sighting

	24	Definition and Purpose of contours	b) Plotting few points by intersection, radiation and resection method iii) Traversing an area with a plane table (at least five lines)
13	25	Contour interval and horizontal equivalent	V Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments.
	26	Factors effecting contour interval	
14	27	Characteristics of contours	V Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments.
	28	Methods of contouring: Direct and indirect	
15	29	Use of stadia measurements in contour survey	VI Contouring: i) Preparing a contour plan by radial line method by the use of a Auto level. ii) Preparing a contour plan by method of squares
	30	Interpolation of contours; use of contour map	
16	31	Drawing cross section from a contour map; marking alignment of road	iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections. iv) Computation of earth work and reservoir capacity from a contour map
	32	railway line and a canal on a contour map	

LESSON PLAN

NAME OF FACULTY:- ANISHA MOR
 SUBJECT:- SOLID WASTE MANAGEMENT
 BRANCH:- CIVIL ENGG.
 SEMESTER:- 5TH
 DURATION:- 16 WEEKS

Week	lecture	Topic
1.	1.	Definition of solid waste, different solid waste – domestic Waste, biomedical waste, E-waste, hazardous waste, market waste, agricultural waste
	2.	Sources of solid waste
	3.	commercial waste, industrial waste, Classification of solid waste – hazardous and non- hazardous waste
2.	1.	Physical and chemical characteristics of municipal solid waste.
	2.	Storage, Collection and Transportation of Municipal Solid Waste
	3.	revision
3.	1.	Collection, segregation,
	2.	storage and transportation of solid waste
	3.	Tools and Equipment - Litter Bin, Broom
4.	1.	Shovels, Handcarts, Mechanical road sweepers
	2.	Community bin - like movable and stationary bin.
	3.	Revision
5.		1ST SESSIONAL TEST
6.	1	Transportation vehicles with their working capacity
	2	Transfer station- meaning, necessity, location
	3	Factors affecting the composting process.
7.	1.	-Animal carts, Auto vehicles, Tractors or Trailers, Trucks, Dumpers, Compactor vehicles.
	2.	Role of rag pickers and their utility for society.
	3.	revision
8.	1.	Concept of composting of waste, Principles of composting process.
	2.	Methods of composting – Manual Composting – Bangalore method, Indore Method, Mechanical Composting – Dano Process, Vermi composting.
	3.	Revision
9.	1.	Solid waste management techniques
	2.	Land filling technique, Factors to be considered for site selection
	3.	Land filling methods-Area method

10.	1.	solid waste management hierarchy, waste prevention and waste reduction techniques
	2.	Trench method and Ramp method, Leachate and its control, Biogas from landfill, Advantages and disadvantages of landfill method, Recycling of municipal solid waste
	3.	Revision
11.		2ND SESSIONAL TEST
12.	1.	Incineration of waste: Introduction of incineration process,
	2.	Types of incinerators - Flash, Multiple chamber Incinerators,
	3.	Revision
13.	1.	Products of incineration process with their use, Pyrolysis of waste – Definition, Methods.
	2.	Definition of Bio medical Waste.
	3.	Revision
14.	1.	Sources and generation of Biomedical Waste and its classification
	2.	Bio medical waste Management technologies.
	3.	revision
15.	1.	Definition, varieties and ill effects of E- waste
	2.	Recycling and disposal of E- waste.
	3.	Revision
16.		3RD SESSIONAL TEST

LESSON PLAN

Name of Faculty: Anisha Mor

Discipline: Common for all branches.

Semester: Second

Subject: Engineering Graphics

Lesson Plan Duration: 15 weeks (From 30/07/2026 to 23/11/2026)

Teaching Load: Practical (6)

WEEK	Lec.	TOPIC	Covered on Date
1	1	UNIT-I 1. Introduction to Engineering Drawing and Graphics Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.	
	2	1.2 Symbols and conventions a) Conventions of Engineering Materials, Sectional Breaks and Conventional lines. b) Civil Engineering Sanitary fittings symbols c) Electrical fittings symbols for domestic interior installations.	
2	3	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.	
	4	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):	
3	5	uppercase and lowercase, single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4	
	6	3. Dimensioning Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counterbored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.	
4	7	4. Scales Scales – Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.	
	8	To draw/construct plain and diagonal scales.	
5	9	REVISION/ASSIGNMENT 1	
	10	SESSIONAL TESTS	

6	11	UNIT-II 2. Orthographic Projections Theory of orthographic projections	
	12	Projection of Points in different quadrant	
7	13	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.	
	14	Projection of Plane – Different lamina like square, rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).	
8	15	Identification of surfaces.	
	16	2. Sectioning Importance and salient features	
9	17	2.2 Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).	
	18	Orthographic sectional views of different objects.	
10	19	REVISION/ASSIGNMENT 2	
	20	SESSIONAL TESTS	
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, Section of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to any one reference plane and perpendicular to V.P. and inclined to H.P.)	
12	23	2. Isometric views of different laminas like circle, pentagon and hexagon.	
	24	3. Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism.	
13	25	4. Isometric views from given different orthographic projections (front, side and top view)	
	26		
14	27	Introduction to AutoCAD Basic introduction and operational instructions of various commands in AutoCAD. Drawing of different objects on AutoCAD (given pictorial/isometric view of a block).	
	28	REVISION/ASSIGNMENT 3	
15	29	SESSIONAL TESTS	
16	30/31	checking of drawing sheets and revision classes	

NAME OF FACULTY :	Ms. Annu	
DISCIPLINE	Civil Engg	
SEMESTER	1st	
SUBJECT	Plumbing Service	
LESSON PLAN DURATION	16 weeks L-2, P-0/WEEK	
Week	LECTURE DAY	<i>TOPIC (INCLUDING ASSIGNMENT/TEST)</i>
1ST	1ST	SELECTION, USE AND CARE OF TOOLS REQUIRED FOR PLUMBING WORK
	2ND	, SUCH AS THREADING DIE, BIT BRACE, RATCHET BRACE, PIPE WRENCH,
2ND	1ST	SPANNER SET, PIPE CUTTER, PIPE VICE, HACKSAW,
	2nd	CHISEL, FILES AND OTHER COMMON HAND TOOLS, BENCH DRILLING MACHINE, SOLDERING IRON
3RD	1ST	1. PIPES AND PIPE FITTING SELECTION AND USE OF DIFFERENT PIPES LIKE GI PIPES, PLASTIC PIPES,
	2nd	PVC PIPES, HDPE PIPES, CAST IRON PIPES,

4TH	1ST	PLUMBING SYMBOLS; BENDS, ELBOWS, SOCKETS, TEES, UNIONS, PIPE CUTTING,
	2nd	PIPE BENDING, PIPE THREADING, PIPE JOINTS, PIPE FITTING, ALIGNMENT OF PIPES, BRANCHING OF PIPES,
5TH	1ST	SAFETY PRECAUTIONS 2. WATER SUPPLY SYSTEM SOURCES OF WATER
	2nd	; RAINWATER HARVESTING; WATER SUPPLY SYSTEMS IN A TOWN;
6TH	1ST	WATER DISTRIBUTION SYSTEMS; DISTRIBUTION RESERVOIRS
	2nd	; PUMPS; VALVES; FIRE HYDRANTS; STORAGE OF WATER IN BUILDINGS;
7TH	1ST	TYPES OF TANKS; LAYING WATER SUPPLY PIPE LINES
	2nd	DOMESTIC DRAINAGE DRAINAGE SYSTEM (TWO PIPE, ONE PIPE, SINGLE STACK
8TH	1ST	AND OTHER SYSTEMS), TRAP, CESSPOOL,

	2nd	SCEPTIC TANK, CLEANING BLOCKED PIPES AND	
9TH		1ST	MANHOLES,
		2nd	SEWER PIPES
10TH	1ST	DRAINS, LAYING SANITARY	
	2nd	INSPECTION AND TESTING	
11th	1ST	1ST	PRESSURE & LEAKAGE TEST
		2nd	ACCESSORIES, PROBLEMS IN DRAINAGE AND THEIR SOLUTION
12TH		1ST	SANITARY APPLIANCES INTRODUCTION FLUSH TOILET, SQUAT TOILET,
		2nd	WASH BASIN, SINK,
13TH		1ST	FLOOR TRAPS, URINAL, BATHTUB, SHOWER,
		2nd	BIDET, MIXING TAP, POPUW WASTE

14TH		1ST	HEATING SYSTEM INTRODUCTI ON
		2nd	HEAT TRANSFER,
15TH		1ST	WATER HEATER,
		2nd	GEYSER, DOMESTIC HOT WATER SUPPLY SYSTEM,
16TH		1ST	CENTRAL HEATING, SOLAR WATER HEATER
		2ND	Revision

Lesson Plan		
Name of faculty :- Mrs. Mamta Katria		
Branch: Civil Engg.		
Semester: 5th		
Subject: RBT		
Lesson Plan Duration : 16 Weeks		
Workload:		
Week	Lecture No.	Topic Covered
1	1	Introduction to Indian Railways Advantages of Railways: Political, Social, Economic and Techno-Economic Advantages
	2	Classification of Indian Railways: On the basis of the Importance of Route, Traffic Carried and Maximum Permissible Speed on the routes.
	3	Railway surveys: Traffic surveys, Reconnaissance survey, Preliminary Survey and Detailed Survey.
2	4	Permanent Way: Requirement of an ideal permanent way, Capacity of railway track, Gauges in railway track
	5	– Broad, Meter and Narrow Gauges, Selection and Uniformity of gauges, Conning of wheels.
	6	Subgrade and Embankment for Railway Tracks: Functions of subgrade, Subgrade materials and its improvement
3	7	- use of geo-synthetics, Slopes of embankment their protection, Stability of embankment – Control of erosion, Toe Wall
	8	Track Alignment: Basic requirements of good alignment, Factors influencing the track alignment.
	9	Geometric Design of the Railway Track: Necessity of geometric design of a railway track, Gradient and Grade compensation
4	10	Speed of the train, Degree of curve, Super-elevation and Negative super-elevation. (Simple Numerical Problems)
	11	Construction of Track: Earth work - formation and consolidation, Plate laying – laying of a railway track, laying of ballast on the track.
	12	Track Drainage: Sources of moisture in a railway track, Drainage systems – Surface drainage and subsurface drainage
5	13	Maintenance of Track: Necessity of maintenance, Daily and Periodic maintenance, Maintenance of track alignment,
	14	Maintenance of gauge, Maintenance of proper drainage, maintenance of sleepers.
	15	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.
6	16	Ballast: Functions of ballast, Requirement of the good ballast, Types of ballast, Size and section of ballast, Quantity of ballast

	17	Sleepers: Functions of sleepers, Requirements of sleepers, Reinforced and Prestressed Concrete Sleepers.
	18	Stations and Platforms: Site selection for railway station, Requirement of a railway station, Platforms – Passenger and Goods platforms.
7	19	Bridges: Definition and Basic forms, Components of a bridge, Difference between a bridge and a culvert
	20	Classifications of bridges (only names), Importance of bridges, Standard specifications.
	21	Investigation for Bridges: Need of investigation, Selection of bridge site, Linear waterway, Economical Span,
8	22	Location of Piers and Abutments, Vertical clearance above highest flood level,
	23	Scour Depth. Factors influencing the choice of the bridge type and its basic features.
	24	Bridge Foundations: Well foundations – Components and Sinking of wells, Pneumatic Caissons, Cofferdams for bridge piers, Box Caissons.
9	25	Bridge Substructure: Pier and Abutment Caps, Materials for Piers and Abutments, Pier –
	26	Loads and Forces to be considered in the design of piers, Abutments
	27	Loads and Forces to be considered in the design of abutments,
10	28	Back-fill behind the abutments, Wing walls – Straight, Splayed, Return and Curved wing walls.
	29	Reinforced Concrete Bridges: Slab bridges – Components of a slab bridge, Number and spacing of main girders, Cross beams
	30	Introduction only for the: Balanced Cantilever Bridges, Continuous Girder Bridges, Rigid Frame Bridges.
11	31	Prestressed Concrete Bridges: Types of prestressed concrete bridges, Erection of precast girders, Segmental cantilever
	32	construction, Cast-in-place segments, Precast segments, Connection at mid-span, Advantages.
	33	Construction of Bridges: Incremental Push Launching Method
12	34	Bridge Bearings: Purpose of bearings, Types of Bearing –
	35	Sliding Plate Bearing, Slidingcum-Rocker Bearing, Steel Roller-cum-Rocker Bearing, Elastomeric Bearing
	36	Maintenance of Bridges: Inspection of bridges, Maintenance – Routine, Preventive
13	37	Repairs and Strengthening / Replacement Maintenances, Maintenance of Bearings.

	38	Necessity, Advantages and Classifications of tunnels, Size and shape of tunnel,
	39	Site investigation for tunnels, Geotechnical considerations of tunneling.
14	40	Alignment of tunnel, Portals and shafts, Bored Tunnel method of Tunnel Construction
	41	Typical section of tunnels for a national highway.
	42	Typical section of tunnels for single and double broad gauge railway track
15	43	Revision of Covered Syllabus
	44	Revision of Covered Syllabus
	45	Revision of Covered Syllabus
16	46	Ventilation – Necessity and methods of ventilation: by blowing, exhaust and combination of blowing and exhaust, Dust control in tunnels.
	47	Drainage method of draining water from tunnels.
	48	Lighting of tunnels. Uses of geo-synthetics in tunnels.