

Lesson Plan

Name of the Faculty :
 Discipline : Civil Engineering
 Semester : 4th
 Subject : IRRIGATION ENGINEERING
 Lesson Plan Duration : 16 Weeks

L T P
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Week	Lecture Day	Theory	Delivery Date of Lecture		Whether the lesson Plan Followed? Yes/No
			Expected	Actual	
1 st	1st	Introduction to quantity surveying and its importance 1.1 Definition and necessity of irrigation 1.2 Major, medium and minor irrigation projects			
	2nd	1.3 Hydrology and hydrological cycle 1.4 Rain-gauges – automatic and non-automatic (Symons rain gauge) 1.5 Methods of estimating average rainfall (Arithmetic system)			
2 nd	3rd	1.6 Runoff and Factors affecting runoff, Catchment area 1.7 Hydrograph and basic concept of unit hydrograph.			
	4th	2. Water Requirement of Crops 2.1 Principal crops in India and their water requirements			
3 rd	5th	2.2 Crop seasons – Kharif and Rabi			
	6th	2.3 Crop period, base period, Duty, Delta and their relationship. 2.4 Gross commanded area (GCA), culturable commanded area (CCA), Intensity of Irrigation, Irrigable area			
4 th	7th	3. Methods of Irrigation			
	8th	3.1 Flow irrigation – Definition and its types (only description) 3.2 Lift Irrigation – Tube well, Types of tube wells (only description)			
		3.3 Explanation of terms: water table, radius of influence			
5 th	9th	Revision/Quarries/Assignment-I			
	10th	Sessional Test -I			
6 th	11th	3.4 Sprinkler irrigation- Conditions favourable, Types and component parts, advantages and disadvantages of sprinkler irrigation.			
	12th	3.5 Drip irrigation- layout, component parts, advantages and disadvantages of drip irrigation			
7 th	13th	4. Canals , Canal Head Works, Regulatory Works and Cross Drainage Works.			
	14th	4.1 Definition and Classification of canal. (Visit to a Canal) **4.2 Appurtenances of a canal and their functions			
8 th	15th	4.3 Various types of canal lining - their related advantages and disadvantages			
	16th	4.4 Canal breaches and their control 4.5 Maintenance of lined and unlined canals			
9 th	17th	Revision/Quarries/Assignment-II			
	18th	Sessional Test -II			
10 th	19th	4.6 Definition, objectives and general layout of different parts of head works 4.7 Difference between weir and barrage 4.8 Definition and necessity of Cross			
	20th	Drainage Works (Visit to a Cross Drainage Works) **4.9 Concept of Aqueduct, super passage, level crossing, inlet and outlet			
11 th	21th	5. Dams and hydraulic Structures 5.1 Dam and its Classification			
	22th	5.2 Earth dams - types, causes of failure; cross-section of zoned earth dam, method of construction, 5.3 Gravity dams – types, cross-sections of a dam, method of construction			
12 th	23th	5.4 Concept of spillways and energy dissipators			
	24th	6. River Training Works 6.1 Definition, function of river training works. 6.2 Types of river training- Embankments or levees, 6.3 Concept of Guide bank, Groynes or spurs, Pitched island, Cut-off			
13 th	25th	7. Water Logging and Drainage and Ground Water Re-charge 7.1 Definition of water logging – its causes and effects.			
	26th	7.1 Definition of water logging – its causes and effects. 7.2 Detection, prevention and remedies 7.3 Surface and sub-surface drains and their layout (only description)			
14 th	27th	7.4 Water Harvesting Techniques: Need and requirement.			
	28th	7.5 Various methods of rain water harvesting. NOTE: ** A field visit may be planned to explain and show the relevant things			
15 th	29th	Revision/Quarries/Assignment-III			
	30th	Sessional Test -III			
16 th	31th	Revision/Quarries			
	32th	Revision/Quarries			

Lesson Plan

Name of the Faculty :
 Discipline : Civil Engineering
 Semester : 4th
 Subject : SOIL MECHANICS AND FOUNDATION ENGINEERING

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Lesson Plan Duration : 15 Weeks

Week	Lecture Day	Theory	Delivery Date of Lecture		Whether the lesson Plan Followed? Yes/No
		Topic (including assignment / test)	Expected	Actual	
1 st	1st	1. Introduction d); 1.1 Importance of Soil Studies in Civil Engineering.			
	2nd	1.2 Geological origin of soils with special reference to soil profiles in India: residual and transported soil, alluvial deposits, lake deposits, local soil found in Punjab, dunes and loess, glacial deposits, black cotton soils, conditions in which above deposits are formed and their engineering characteristics.			
	3rd	1.3 Names of organizations dealing with soil engineering work in India, soil map of India			
2 nd	4th	2. Physical Properties of Soils; 2.1 Constituents of soil and representation by a phase diagram PRACTICAL EXERCISES; 1. To determine the moisture content of a given sample of soil. 2. Auger Boring and Standard Penetration Test; a) Identifying the equipment and accessories. b) Conducting boring and SPT at a given location. c) Collecting soil samples and their identification. d) Preparation of boring log and SPT graphs. e) Interpretation of test results.			
	5th	2.2 Definitions of void ratio, porosity, degree of saturation, water content, specific gravity, unit weight, bulk density/bulk unit weight, dry unit weight, saturated unit weight and submerged unit weight of soil grains.			
	6th	3. Classification and Identification of Soils			
3 rd	7th	3.1. Particle size, shape, and their effect on engineering properties of soil, particle size classification of soils. 3.2. Gradation and its influence on engineering properties 3. Extraction of Disturbed and Undisturbed Samples;a) Extracting a block sample.b) Extracting a tube sample) Extracting a disturbed samples for mechanical analysis.d) Field identification of samples, 4. Field Density Measurement (Sand Replacement and Core Cutter Method) a) Calibration of sand b) Conducting field density test at a given location c) Determination of water content d) Computation and interpretation of results.			
	8th	3.3 Relative density and its use in describing cohesionless soils. 3.4 Behaviour of cohesive soils with change in water content, Atterberg's limit - definitions, use and practical significance			
	9th	3.5 Field identification tests for soils			
4 th	10th	4. Flow of Water Through Soils			
	11th	4.1 Concept of permeability and its importance. 4.2 Darcy's law, coefficient of permeability, seepage velocity and factors affecting permeability			
	12th	4.3 Comparison of permeability of different soils as per BIS 4.4 Measurement of permeability in the laboratory			
5 th	13th	5. Effective Stress:			
	14th	Sessional Test -I			
	15th	Revision/Quarries/Assignment-II			
6 th	16th	5.1 Stresses in subsoil. 5.2 Definition and meaning of total stress, effective stress and neutral stress 5. Liquid Limit and Plastic Limit Determination: a) Identifying various grooving toolsb) Preparation of sample c) Conducting the test d) Observing soil behaviour during testse) Computation, plotting and interpretation of results.			
	17th	5.3 Principle of effective stress			
	18th	5.4 Importance of effective stress in engineering problems			
7 th	19th	6. Deformation of Soils. 6.1 Meaning, conditions/situations of occurrence with emphasis on practical significance of			
	20th	a) Consolidation and settlement. b) Creep. c) Plastic flow. d) Heaving. e) Lateral movement. f) Freeze and thaw of soil			
	21th	6.2 Meaning of total settlement, uniform settlement, and differential settlement; rate of settlement and their effects.6.3 Settlement due to construction operations and lowering of water table. 6.4 Tolerable settlement for different structures as per BIS			
8 th	22th	7. Shear Strength of Soil 6. Mechanical Analysis a) Preparation of sample b) Conducting sieve analysis c) Computation of resultsd) Plotting the grain size distribution curve e) Interpretation of the curve			
	23th	7.1. Concept and Significance of shear strength			
	24th	7.2 Factors contributing to shear strength of cohesive and cohesion less soils, Coulomb's law			
9 th	25th	Revision/Quarries/Assignment-II			
	26th	Sessional Test -II			
	27th	8. Compaction 8.1 Definition and necessity of compaction			

10th	28th	8.2 Laboratory compaction test (standard and modified proctor test as per IS) definition and importance of optimum water content, maximum dry density; moisture dry density relationship for typical soils with different compactive efforts			
	29th	8.3. Compaction control; Density control, measurement of field density by core cutter method and sand replacement method, moisture control, Proctor's needle and its use, thickness control			
	30th	9. Soil Exploration; 9.1 Purpose and necessity of soil exploration. 9.2 Reconnaissance, methods of soil exploration, Trial pits, borings (auger, wash, rotary, percussion to be briefly dealt)			
11th	31th	9.3 Sampling; undisturbed, disturbed, and representative samples; selection of type of sample; thin wall and piston samples; area ratio, recovery ratio of samples and their significance, number, and quantity of samples, resetting, sealing and preservation of samples. 9.4 Presentation of soil investigation results			
	32th	10 Bearing Capacity of soil. 10.1 Concept of bearing capacity. 10.2 Definition and significance of ultimate bearing capacity, net safe bearing capacity and allowable bearing pressure			
	33th	10.3 Factors affecting bearing capacity. 10.4 Improvement of bearing capacity by sand drain method, compaction, use of geo-synthetics			
12th	34th	11. Foundation Engineering; 11.1 Concept of shallow and deep foundation. 11.2 types of shallow foundations: combined, isolated, strip, mat, and their suitability. 11.3 Factors affecting the depth of shallow foundations, deep foundations,			
	35th	11.2 types of shallow foundations: combined, isolated, strip, mat, and their suitability.			
	36th				
13th	37th	7 Laboratory Compaction Tests (Standard Proctor test) a) Preparation of sample b) Conducting the test c) Observing soil behaviour during test d) Computation of results and plotting e) Determination of optimum moisture and maximum dry density			
	38th	11.3 Factors affecting the depth of shallow foundations, deep foundations,			
14th	40th	8. Direct Shear Test 9. Permeability Test			
	41th	11.4 type of piles and their suitability; pile classification based on material, pile group and			
	42th	pile			
15th	43th	10. Demonstration of Unconfined Compression Test a) Specimen preparation b) Conducting the test c) Plotting the graph d) Interpretation of results and finding/bearing capacity			
	44th	11. Demonstration of Vane shear Test			
	45th	Revision/Quarries/Assignment-III			
16th	46th	Revision/Quarries/Assignment-III			
	47th	Revision/Quarries/Assignment-III			
	48th	Revision/Quarries/Assignment-III			

Lesson Plan

Name of the Faculty :
 Discipline : Civil Engineering
 Semester : 4th
 Subject : WATER SUPPLY AND WASTE WATER ENGINEERING

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Lesson Plan Duration : 16 Weeks

Week	Lecture Day	Theory	Delivery Date of Lecture		Whether the lesson Plan Followed? Yes/No
		Topic (including assignment / test)	Expected	Actual	
1 st	1st	Quantity and Quality of Water 1.1 Necessity and brief description of planned water supply system. 1.2 Sources of water – surface/sub-surface sources (only description)			
	2nd	1) To determine turbidity of water sample. 2) To determine dissolved oxygen of given sample. 3) To determine pH value of water. 4) To perform jar test for coagulation. 5) To determine BOD of given sample. 1.3 Water requirement, Per capita demand, Factors affecting per capita demand 1.4 Rate of demand and variation in rate of demand			
2 nd	3rd	1.5 Design Period, Factors governing the design period, Design period values for different components of a water supply scheme. 1.6 Population forecasting methods (with Numerical Problems)			
	4th	1.7 Physical, Chemical and bacteriological tests and their significance. 1.8 Standard of potable water as per Indian Standard, water meter 6) To determine residual chlorine in water. 7) To determine conductivity of water and total dissolved solids			
3 rd	5th	Water Treatment 2.1 Sedimentation - Purpose, Types of sedimentation tanks **2.2 Coagulation / Flocculation - usual coagulation and their feeding			
	6th	2.3 Filtration - Slow and Rapid sand filters, their significance and suitability 2.4 Necessity of disinfection of water, forms of chlorination, break point chlorine, residual chlorine, application of chlorine. 8) To study the installation of following: a) Water meter. b) Connection of water supply of building with main. c) Pipe valves and bends. d) Water supply and sanitary fittings. 9) To study and demonstrate the joining / threading of GI Pipes, CI Pipes, SWG pipes, PVC pipes and copper pipes.			
4 th	7th	2.5 Miscellaneous Treatments – Aeration, Aquaguard, Reverse Osmosis System			
	8th	Water Distribution System 3.1 Requirement of a good water distribution system 3.2 Layout of distribution networks			
5 th	9th	Sessional Test -I			
6 th	10th	Revision/Quarries/Assignment-II			
	11th	3.3 Methods of distribution 3.4 Distribution reservoirs – their functions and types			
	12th	3.5 Storage capacity of distribution reservoirs 3.6 Stand Pipes			
7 th	13th	Waste Water Disposal			
	14th	4.1 Sanitation – Purpose and necessity of sanitation 4.2 Components of sewerage system - Manhole			
8 th	15th	4.3 Types of sewage and types of sewerage system			
	16th	4.5 Physical, chemical and bacteriological parameters of sewage 4.6 Sewage disposal methods - Disposal by dilution and land treatment 4.7 Self-purification of stream. Nuisance due to disposal			
9 th	17th	Revision/Quarries/Assignment-II Sessional Test -II			
	18th	Sewage Treatment 5.1 Primary and secondary treatment			
10 th		5.2 Screens, Grit chambers, Skimming tanks			
	18th	5.3 Plain sedimentation tanks.			
11 th	19th	5.4 Filtration, Trickling filter			
	20th	5.7 Oxidation Ponds (Visit to a sewage treatment plant)			
12 th	21th	10) To demonstrate the laying of SWG pipes for sewers. 11) Study of water purifying process by visiting a field lab.			
	22th	12) To study the installation and working of water cooler available in Institution. 13)			
13 th	23th	15) To demonstrate the drainage of roof top rain water of Institutional building. 16) Prepare a report of a field visit to sewage treatment plant.			
	24th	To study the installation and working of Reverse Osmosis System available in Institution. 14) To study the working of Rain Water Harvesting System.			
14 th	25th	5.5 Sludge treatment and disposal			
15 th	27th	17) Undertake a field visit to water treatment plant and prepare a report.			
	28th	Revision/Quarries/Assignment-III			
16 th	29th	Revision/Quarries/Assignment-III			
	30th	Revision/Quarries			
16 th	31th	Revision/Quarries			
	32th	Revision/Quarries			

GOVT.POLYTECHNIC NANAKPUR

Name of the Faculty :

Semester : 2nd Sem.

Subject : Applied Mechanics

Lesson Plan Duration : 15 weeks

Week	Theory	Practical		
	Lecture Day	Topic (including assignment / test)	Practical Day Topic	
1.	1.	1. Introduction 1.1 Concept of engineering mechanics definition of mechanics, statics, dynamics, application of engineering mechanics in practical fields.	1	1. Verification of the polygon law of forces using Greaves apparatus.
	2.	1.2 Different systems of units (FPS, CGS, MKS and SI) and their conversion from one to another e.g. density, force, pressure, work, power, velocity,		
	3.	Acceleration (Simple Numerical Problems), Fundamental Units and Derived Units.		
2.	1.	1.3 Concept of rigid body, scalar and vector quantities	2	do
	2.	2. Laws of forces 2.1 Definition of force & types of force: Point force/concentrated force & Uniformly distributed force, effects of force, characteristics of a force.		
	3.	DO		
3.	1.	2.2 Different force systems, principle of transmissibility of forces, law of super-position	3	2. To verify the forces in different members of jib crane.
	2.	2.3 Composition and resolution of coplanar concurrent forces, resultant force, method of composition of forces, laws of forces, triangle law of forces,		
	3.	polygon law of forces - graphically, analytically, resolution of forces		
4.	1.	2.4 Free body diagram	4	3. To verify the reaction at the supports of a simply supported beam.
	2.	2.5 Equilibrant force and its determination		
	3.	2.6 Lami's theorem [Simple problems on above topics]		
5.	1.	REVISION	5	do
	2.	Sessional Test No.1		
	3.	Sessional Test No.1		

6.	1.	3. Moment 3.1 Concept of moment, 3.2 Moment of a force and units of moment	6	4 To find the mechanical advantage, velocity ratio and efficiency in case of an Inclined plane.
	2.	3.3 Varignon's theorem (definition only)		
	3.	3.4 Principle of moment and its applications (Levers – simple and compound, steel yard, safety valve, reaction at support)		
7.	1.	3.5 Parallel forces (like and unlike parallel force), calculating their resultant	7	5. To find the mechanical advantage, velocity ratio and efficiency of a screw jack.
	2.	3.6 Concept of couple, its properties and effects		
	3.	3.7 General conditions of equilibrium of bodies under coplanar forces		
8.	1.	3.8 Position of resultant force by moment [Simple problems on the above topics]	8	do
	2.	4. Friction 4.1 Definition and concept of friction, types of friction, force of friction, Limiting Friction.		
	3.	4.2 Laws of static friction, coefficient of friction, angle of friction, angle of repose.		
9.	1.	4.3 Equilibrium of a body lying on a horizontal plane, equilibrium of a body lying on a rough inclined plane.	9	6. To find the mechanical advantage, velocity ratio and efficiency of worm and worm wheel.
	2.	4.4 Calculation of least force required to maintain equilibrium of a body on a rough inclined plane subjected to a force: a) Acting along the inclined plane b) At some angle with the inclined plane		
	3.	4.5 Ladder friction, 4.6 Advantages and Disadvantages of friction		
10.	1.	4.7 Methods of increasing/decreasing the force of friction	10	do
	2.	Sessional Test No.2		
	3.	Sessional Test No.2		
11.	1.	5. Centre of Gravity 5.1 Concept, definition of centroid of plain figures and centre of gravity of symmetrical solid bodies, difference between centroid and C.G.	11	7 To find mechanical advantage, velocity ratio and efficiency of single purchase crab.
	2.	5.2 Determination of centroid of plain and composite lamina using moment method only, centroid of bodies with removed portion		

	3.	5.4 Determination of center of gravity of solid bodies - cylinder, cube, cuboid and sphere; composite bodies and bodies with portion removed		
12.	1.	6.Simple Machines 6.1Definition of Simple and compound machine (Examples)	12	08 To find out center of gravity of regular lamina.
	2.	6.2 Definition of load, effort, velocity ratio, mechanical advantage and efficiency of a machine and their relationship, law of machines		
	3.	6.3 Definition of ideal machine, reversible and self locking machine		
13.	1.	6.4 Effort lost in friction, Load lost in friction, determination of maximum mechanical advantage and maximum efficiency	13	9 To determine Coefficient of friction between three pairs of given surface.
	2.	6.5 System of pulleys (first, second, third system of pulleys), determination of velocity ratio, mechanical advantage and efficiency		
	3.	6.5 Working principle and application of wheel and adžle, Weston's Differential Pulley Block , simple screw jack, worm and worm wheel, single and double winch crab. Expression for their velocity ratio and field of their application		
14.	1.	6.3 Definition of ideal machine, reversible and self locking machine	14	Revision
	2.	6.4 Effort lost in friction, Load lost in friction, determination of maximum mechanical advantage and maximum efficiency		
	3.	Sessional Test No.3		
15.	1.	Sessional Test No.3	15	do
	2.	REVISION		
	3.	DO		
16.	1.	PREPARATION FOR FINAL EXAM	16	do
	2.	PREVIOUS YEAR QOUESTION PAPERS		
	3.	PREVIOUS YEAR QOUESTION PAPERS		

LESSONPLAN

Nameofthe Faculty :		
Discipline : CivilEngg.		
Semester : 2ndSemester		
Subject : CIVILENGINEERINGPRACTICES		
LessonPlanDuration: 15week(G1,G2)(Practical-06)		
Week	Practical	
	PracticalDay	Topic
1	1.	Details of spread footing foundations, load bearing and non-load bearing wall forgiven thickness of walls with the help of given data or rule of the thumb
	2.	Showing offsets,position of DPC.The details of the concrete and brick apron have to be shown in the drawing.
2.	3.	Plans of 'T'andCornerjunctionofwallsof1Brick,1-1/2Brickand2 brick thick in English bond
	4.	Plans of 'T'andCornerjunctionofwallsof1Brick,1-1/2Brickand2 brick thick in English bond
3.	5.	Drawing plan,elevation of arches:circulararch,segmental arch
	6.	Drawing plan,elevation of arches:circular arch,segmental arch
4.	7.	Elevation,sectional plan and sectional side elevation of flush door, glazed door,
	8.	Panelled door with wiregauge shutter.
5.	9.	SESSIONAL-I
	10.	SESSIONAL-I
6.	11.	Panelled door with wiregauge shutter.
	12.	Drawing details of damp proofing arrangement of roofs and walls as per BIS Code. Show the rain water drainage arrangement also.
7.	13.	Drawing Damp Proofing details in basement of buildings
	14.	IRRIGATION ENGINEERING DRAWING(PartB)Typical cross-Section of achannel L-section of a channel for given data
8.	15.	Typical cross section of a nunlined and lined channel incutting partly cutting, and partly filling and fully in filling with given design data.
	16.	Typical cross section of a nunlined and lined channel incutting partly cutting, and partly filling and fully in filling with given design data.
9.	17.	SESSIONAL-II

	18.	SESSIONAL-II
10.	19.	Layout plan of a canal head works
	20.	Layout plan of a canal head works
11.	21.	Draw the typical L-section of a weir
	22.	Draw the typical L-section of a weir
12.	23.	Draw the X-section of an Earthen Dam i) Homogeneous ii) Zoned type iii) Diaphragm type
	24.	Draw the X-section of an Earthen Dam i) Homogeneous ii) Zoned type iii) Diaphragm type
13.	25.	Cross section of a tube well
	26.	Layout and cross section of rain water harvesting system.
14.	27.	Layout and cross section of rain water harvesting system.
	28.	SESSIONAL-III
15.	29.	Revision
	30.	Revision

Signature Class Teacher

LESSON PLAN

LESSON PLAN				
Name of Faculty				
Discipline		CIVIL ENGG.		
Semester		2 ND		
Subject		CONSTRUCTION MATERIALS		
Lesson Plan Duration		16 Week		
WEEK	THEORY		PRACTICAL	TOPIC
	LECTURE DAY	TOPIC		
1	1	1. Building Stones 1.1 Sources of Stones 1.2 Quarrying of stones by blasting and its effect on environment	1	1. To identify the stones used in building works by visual examination
	2	1.3 Dressing of stones 1.4 Requirements of good building stones 1.5 Various uses of stones in construction	2	1. To identify the stones used in building works by visual examination
2	3	1.6 Artificial Stones: Procedure of making an artificial stone, forms of artificial stones, advantages of artificial stones.	3	Revision
	4	Revision	4	Revision
3	5	2.1 Introduction to bricks 2.2 Raw materials for brick manufacturing and properties of good brick making earth 2.3 Manufacturing of bricks	5	2. To determine the crushing strength of bricks
	6	Preparation of clay (Manual and Mechanically) Moulding: Hand moulding and machine moulding brick table; drying of bricks, Burning of bricks: Bull's Trench Kiln, Hoffman's Kiln and Zig-Zag Kiln (only lined diagram of kilns)	6	2. To determine the crushing strength of bricks
4	7	2.5 Sun dried bricks, Traditional bricks, Refractory bricks, Fly ash bricks, Hollow bricks, 2.6 Size and weight of standard brick	7	3. To determine the water absorption of bricks
	8	2.7 Classification and specifications of bricks as per BIS: 10772.	8	3. To determine the water absorption of bricks
5	9	Revision	9	4. To determine the efflorescence of bricks
	10	Brick tiles and their uses Ceramic tiles and their uses	10	4. To determine the efflorescence of bricks
6	11	Vitrified tiles and their uses PVC Tiles and uses,	11	Revision
	12	3.5 Paver blocks, interlocking tiles	12	Revision
7	13	Revision	13	5. To conduct a practical for dimensional tolerances of a brick.
	14	4. Cement 4.1 Introduction, raw materials, flow diagram of manufacturing of cement	14	5. To conduct a practical for dimensional tolerances of a brick.
8	15	4.2 Various types of cements, their uses and testing: Ordinary portland cement, rapid hardening cement, White cement, Portland pozzolana cement	15	6. To perform the following field tests on cement to judge the quality of cement
	16	Properties of cement Storage of Cement at site	16	7. Date of Packing, Colour, Hand Insertion, Float Test, Smell Test, and Presence of lumps.
9	17	5. Timber and Wood Based Products Identification and uses of different types of timber: Teak, Deodar, Shisham, Sal, Mango, Kail, Chir, Fir, Hollock, Champ	17	Revision
	18	5.2 Seasoning of timber: Purpose, methods of seasoning as per BIS Code 5.3 Properties of timber and specifications of structural timber	18	8. To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only

10	19	5.4 Preservation of timber and methods of treatment as per BIS 5.5 Other wood based products, their brief description of manufacture and uses: Laminated Board, Block Board, Fibre Board, Hardboard, Sunmica, Plywood, and Veneers	19	8. To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only
	20	6.1 Paints 6.1.1 Purpose and use of paints 6.1.2 Characteristics of an ideal paint	20	Revision
11	21	6.1.3 Types of paints: Oil paints, Water paints, Cement paints and Enamel paint 6.1.4 Covering capacity of paint 6.2 Varnishes	21	Revision
	22	6.2.1 Purpose and use of varnishes 6.2.2 Characteristics of an ideal varnish 6.2.3 Types of varnishes	22	Revision
12	23	Distemper Properties of distemper and process of distempering.	23	9. The students should submit a report work on the construction materials
	24	7.1 Ferrous metals: Composition, properties and uses of cast iron, mild steel, HYSD steel, high	24	Revision
13	25	Commercial forms of ferrous, metals. Properties and use of Aluminium Properties and use of Stainless Steel.	25	Revision
	26	FRP: Introduction, Properties of FRP and Applications of FRP in Building Industry	26	Revision
14	27	8.2 PVC wall paneling 8.3 AC and HPL Sheets	27	Revision
	28	9. Miscellaneous Materials Asbestos: Introduction, properties and use of asbestos. Types and uses of insulating materials for sound and thermal insulation	28	Revision
15	29	Construction chemicals like waterproofing compound, epoxies, polymers Water proofing and termite proofing materials – types and uses	29	Revision
	30	Materials used in interior decoration works like POP, methods of doing POP Ecofriendly materials for construction of buildings	30	Revision
16	31	Revision	31	Revision
	32	Revision	32	

LESSON PLAN

Name of the Faculty	:	
Discipline	:	COMPUTER ENGG.
Semester	:	2nd SEMESTER
Subject	:	ENGINEERING GRAPHICS
Lesson Plan Duration	:	16 week(G1,G2) (Practical-06)
Week	Practical	
	Practical Day	Topic
1	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.
	2.	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
2.	3.	Symbols and conventions a) Conventions of Engineering Materials, Sectional Breaks and Conventional lines. b) Civil Engineering Sanitary fitting symbols c) Electrical fitting symbols for domestic interior installations.
	4.	Symbols and conventions a) Conventions of Engineering Materials, Sectional Breaks and Conventional lines. b) Civil Engineering Sanitary fitting symbols c) Electrical fitting symbols for domestic interior installations.
3.	5.	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
	6.	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.	7.	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 inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio
	8.	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 inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio
5.	9.	Dimensioning 3.1 Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). 3.2 Dimensioning of overall sizes, circles, threaded holes, 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.	Dimensioning 3.1 Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). 3.2 Dimensioning of overall sizes, circles, threaded holes, 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.
6.	11.	Scales 4.1 Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.
	12.	Scales 4.1 Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.
7.	13.	Revision
	14.	Revision
8.	15.	To draw/construct plain and diagonal scales

	16.	To draw/construct plain and diagonal scales
9.	17.	Orthographic Projections 1.1 Theory of orthographic projections (Elaborate theoretical instructions). 1.2 Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.
	18.	Orthographic Projections 1.1 Theory of orthographic projections (Elaborate theoretical instructions). 1.2 Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.
10.	19.	Projection of Points in different quadrant 1.4 Projection of Straight Line (1st angle)
	20.	Projection of Points in different quadrant 1.4 Projection of Straight Line (1st angle)
11.	21.	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.
	22.	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.
12.	23.	Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT). 1.6 Identification of surfaces.
	24.	Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT). 1.6 Identification of surfaces.
13.	25.	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). 2.3 Orthographic sectional views of different objects.
	26.	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). 2.3 Orthographic sectional views of different objects.
14.	27.	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.) 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.)
	28.	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.) 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.)
15.	29.	Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)
	30.	Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)
111316.	31.	Fundamentals of isometric projections and isometric scale. 2. Isometric views of different laminas like circle, pentagon and hexagon. 3. Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism. 4. Isometric views from given different orthographic projections(front, side and top view)
	32.	Basic introduction and operational instructions of various commands in AutoCAD. At least two sheets of different objects on AutoCAD (given pictorial/isometric view of a block). AutoCAD skill of student is evaluated in internal assessment only not in external exam.

Lesson Plan

Name of the Faculty :

Discipline : Civil Engineering

Subject : CACE

Semester : 6th L T P

Lesson Plan Duration : 15 Weeks

- - 4

Week	Practical	
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)
1 st	1 st	Introduction and use of AutoCAD for making 2D Drawings
	2 nd	Introduction and use of AutoCAD for making 2D Drawings
2 nd	1 st	Study of various commands of AutoCad
	2 nd	Study of various commands of AutoCad
3 rd	1 st	Study of various commands of AutoCad
	2 nd	Study of various commands of AutoCad
4 th	1 st	Study of various commands of AutoCad
	2 nd	Study of various commands of AutoCad
5 th	1 st	Sessional Test -1
	2 nd	Sessional Test -1
6 th	1 st	Develop plan, section and elevation of a residential building
	2 nd	Develop plan, section and elevation of a residential building
7 th	1 st	Develop plan, section residential building
	2 nd	Demonstration of Civil Engineering softwares - STAAD-Pro
8 th	1 st	Demonstration of Civil Engineering softwares - STAAD-Pro
	2 nd	Demonstration of Civil Engineering softwares- Revit
9 th	1 st	Sessional Test -2
	2 nd	Sessional Test -2
10 th	1 st	Demonstration of Civil Engineering softwares- Primavera Project Planner
	2 nd	Demonstration of Civil Engineering softwares- Primavera Project Planner
11 th	1 st	Demonstration of Civil Engineering softwares- Auto CIVIL
	2 nd	Demonstration of Civil Engineering softwares- Auto CIVIL

12 th	1 st	Demonstration of Civil Engineering softwares- Auto CIVIL
	2 nd	Demonstration of Civil Engineering softwares- Mx Road
13 th	1 st	Demonstration of Civil Engineering softwares- Mx Road
	2 nd	Demonstration of Civil Engineering softwares- Mx Road
14 th	1 st	Sessional Test -3
	2 nd	Sessional Test -3
15 th	1 st	Internal Viva Voce
	2 nd	Internal Viva Voce

LessonPlan

Discipline : Civil Engg.
 Semester : 1st
 Subject : **Fundamentals of IT**

Lesson Plan Duration: 15 Weeks

Work Load (Lecture / Practical) per week (In hours): Lecture-2, Practical-4)

Week	Theory	
	LectureDay	Topic (Including Assignment / Test)
1	1	Brief history of development of computers,
	2	Definition of Computer, Block diagram of a Computer, Hardware, Software,
2	1	Booting: Cold and Hot Booting,
	2	Interaction between the CPU and Memory with Input/Output devices, Function of CPU and major functional parts of CPU.
3	1	Memory, Bit, Nibble, Byte, KB, MB, GB, TB, PB, Functions of memory,
	2	Use of storage devices in a Computer, List types of memory used in a Computer, Importance of cache memory,
4	1	CPU speed and CPU word length
	2	Understanding browser, Introduction to WWW, efficient use of search engines,
5	1	Sessional Test - 1
	2	Sessional Test - 1
6	1	Awareness about Digital India portals (state and national portals) and college portals.
	2	Advantages of Email, Various email service providers, Creation of email id.
7	1	Sending and receiving emails, Attaching documents with email and drive.
	2	Effective use of Gmail, G-Drive, Google Calendar, Google Sites, Google Sheets,
8	1	Online mode of communication using Google Meet & WebEx.
	2	Introduction to Programming, Steps involved in problem solving, Definition of Algorithm,
9	1	Sessional Test -2
	2	Sessional Test -2
10	1	Definition of Flowchart, Steps involved in algorithm development,
	2	differentiate algorithm & flowchart, symbols used in flowcharts, algorithms for simple
11	1	problems, flowcharts for simple problems, Practice logic building using flowchart/algorithm
	2	Introducing LibreOffice/OpenOffice Calc, Working with Cells, Sheets, data, tables using formulae and functions, using charts and graphics.
12	1	Office Tools like LibreOffice/OpenOffice/MsOffice.
	2	OpenOffice Writer – Typesetting Text and Basic Formatting Inserting Images, Hyperlinks, Bookmarks,
13	1	Tables and Table Properties in Writer
	2	OpenOffice Impress – Creating and Viewing Presentations Inserting Pictures and Tables, Slide Master and Slide Design, Custom Animation.
14	1	Sessional Test -3
	2	Introduction to Digital Marketing Why Digital Marketing, Characteristics of Digital Marketing,
15	1	Tools for Digital Marketing
	2	Effective use of Social Media like LinkedIn, Google+, Facebook, Twitter, etc Features of Social Media, Advantages and Disadvantages of Social Media.

Discipline: : Civil Engineering
Subject : Fundamentals of Information Technology
Lesson plan : (First sem)
Duration : 15 weeks

week	Practical	
	Practical day	Topic (including Seminar)
1st	G1	Browser features, browsing, using various search engines, writing search queries
	G2	Browser features, browsing, using various search engines, writing search queries
2nd	G1	Visit various e-governance/Digital India portals, understand their features, services offered
	G2	Visit various e-governance/Digital India portals, understand their features, services offered
3rd	G1	Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognize various ports/interfaces and related cables, etc.
	G2	Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognize various ports/interfaces and related cables, etc.
4th	G1	Using Administrative Tools/Control Panel Settings of Operating Systems
	G2	Using Administrative Tools/Control Panel Settings of Operating Systems
5TH	G1	Sessional Test - 1
	G2	Sessional Test - 1
6TH	G1	Connect various peripherals (printer, scanner, etc.) to computer, explore various features of peripheral and their device driver software.
	G2	Explore features of Open Office tools and MS-Office, create documents, create presentation, create spread sheet, using these features, do it multiple times
7th	G1	Explore features of Open Office tools and MS-Office, create documents, create presentation, create spread sheet, using these features, do it multiple times
	G2	Working with Conversion Software like pdfToWord, WordToPPT, etc.
8th	G1	Working with Mobile Applications – Searching for Authentic Mobile app, Installation and Settings, Govt. of India Mobile Applications
	G2	Working with Mobile Applications – Searching for Authentic Mobile app, Installation and Settings, Govt. of India Mobile Applications
9th	G1	Sessional Test -2

	G2	Sessional Test -2
10th	G1	Creating email id, sending and receiving mails with attachments.
	G2	Using Google drive, Google calendar
11th	G1	Create Flow chart and Algorithm for the following Addition of n numbers and displayresult To convert temperature from Celsius to Fahrenheit To find Area and Perimeter of Square Swap Two Numbers find the smallest of two numbers
	G2	Create Flow chart and Algorithm for the following Addition of n numbers and displayresult To convert temperature from Celsius to Fahrenheit To find Area and Perimeter of Square Swap Two Numbers find the smallest of two numbers
12th	G1	Find whether given number is Even or Odd To print first n even Numbers find sum of series $1+2+3+\dots+N$ print multiplication Table of a number generate first n Fibonacci terms $0,1,1,2,3,5\dots n$ ($n>2$) sum and average of given series of numbers
	G2	Find whether given number is Even or Odd To print first n even Numbers find sum of series $1+2+3+\dots+N$ print multiplication Table of a number generate first n Fibonacci terms $0,1,1,2,3,5\dots n$ ($n>2$) sum and average of given series of numbers
13th	G1	Factorial of number n ($n!=1\times 2\times 3\dots n$) Armstrong Number
	G2	Find whether given number is Prime or not
14th	G1	Sessional Test -3
	G2	Sessional Test -3
15th	G1	Revision/Practice
	G2	Revision/Practice

Lesson Plan

Name of the Faculty :
Department : Civil Engineering
Subject (Code) : (MOOCs)
Semester : 4th sem
Lesson Plan Duration: 15 Weeks

Internal Marks : 40
 External Marks : 60
 Credits : 02
L P
 2 -

Week	Lecture Day	Theory
		Topic (including Assignment / Test)
1 st	1 st	1.1 Introduction of Human Resource Management (HRM) in the field of Civil Engineering.
	2 nd	1.2 HRM: - Objective and functions of Human Resource Management.
2 nd	3 rd	1.3 HRP:- Concept & importance of Human Resource Planning.
	4 th	1.4 Man Power Planning / Human Resource Planning (HRP) in the field Constructional & Infrastructural Industries.
3 rd	5 th	2.1 Skilled Human Resource Requirement:- Engineer, Planner, Designer, Contractor, Surveyor, Mason, Carpenter
	6 th	2.1 Skilled Human Resource Requirement:- Bar Binder, Plumber, Painter, Welder, Scaffolder construction equipment operators etc. (With their minimum qualification & knowledge and experience)
4 th	7 th	2.2 Semiskilled & Unskilled Human Resource Requirement:- Mason Helper, Carpenter Helper, Bar Binder Helper, Plumber Helper
	8 th	2.2 Semiskilled & Unskilled Human Resource Requirement:- Painter Helper, Welder, Scaffolder helper construction equipment operator etc. (With their qualification & knowledge and experience).
5 th	9 th	Sessional Test-I
	10 th	Sessional Test-I
6 th	11 th	2.3 Organizational flow chart for various government departments in the state of Haryana in the field of civil engineering: - PWD B&R, PWD Irrigation Engineering, PHED, Panchayati Raj, HSVP, Municipal Corporation, Technical Education department, Haryana state Agriculture & Marketing Board, HSIDC. Police Housing Corporation etc. (Flow Chart Only)
	12 th	2.4 Organizational flow chart for various Central Government departments:- NHAI, AAI, RRB, CPWD, MES, GAIL, SAIL, NALCO, PSU, Hydro Power Project, BBMB, SJVN, DRDO, ISRO, Metro Railway Services etc. (Flow Chart Only)
7 th	13 th	2.5 Organizational flow chart for various private Construction industries:- DLF India, GMR Group, Reliance Group, Tata Group, L&T, Adani infra, Aditya Birla Group, JSW etc.
	14 th	3.1 Recruitment:- Concept & sources of recruitment, what to look for in prospective candidates, Recruitment policy
8 th	15 th	3.2 Learning & Development: - Concept, Objectives & Process of learning
	16 th	3.3 Training:- Concept & importance of training, Training methods, Evaluation of training & development
9 th	17 th	Sessional Test-II
	18 th	Sessional Test-II
10 th	19 th	3.4 Performance Appraisal:- Purpose and process of performance appraisal, Managing Employee Performance
	20 th	4.1 Employee Motivation:- Concept, Objectives & Types of Motivation.
11 th	21 th	4.2 Employee Compensation & Benefits:- Concept & objectives of

		Compensation. Basis for classifying components of compensation, Compensation Policy, Employee Compensation practices in India.
	22 th	4.3 Wages:- Concept, types of wages, factors affecting wages.
	23 th	5.1 Job Satisfaction:- Concept, Importance of Job Satisfaction.
12 th	24 th	5.2 Organizational Culture:- Concept & importance of organizational culture. Methods of observing & learning organizational culture. Functions of organizational culture.
	25 th	5.3 Discipline:- Concept of discipline & misconduct, Report of misconduct, Preliminary Enquiry, Principles of Natural Justice, Essentials of Good Disciplinary Process,
13 th	26 th	5.4 Counseling:- Concept, need and types of counseling.
	27 th	Sessional Test-III
14 th	28 th	Sessional Test-III
	29 th	Revision
15 th	30 th	Revision

Lesson Plan

Name of the Faculty : _____ Discipline : Civil Engineering L T P
 Subject : Repair and Maintenance of Buildings Semester : 6th 3 - -
 Lesson Plan Duration : 15 Weeks

Week	Theory		Delivery Date of Lecture		Whether the Lesson Plan Followed? Yes/No
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)	Expected	Actual	
1 st	1 st	Unit-I Need for Maintenance Importance and significance of repair and maintenance of buildings			
	2 nd	Meaning of maintenance.			
	3 rd	Objectives of maintenance			
2 nd	1 st	Factors influencing the repair and maintenance			
	2 nd	Unit-2 Agencies Causing Deterioration (Sources, Causes, Effects) Definition of deterioration/decay			
	3 rd	Factors causing deterioration, their classification: Human factors causing deterioration			
3 rd	1 st	Chemical factors causing deterioration			
	2 nd	Environmental conditions causing deterioration			
	3 rd	Miscellaneous factors.			
4 th	1 st	Effects of various agencies of deterioration on various building materials i.e. bricks.			
	2 nd	Effects of various agencies of deterioration on various building materials i.e. timber.			
	3 rd	Effects of various agencies of deterioration on various building materials i.e. concrete.			
5 th	1 st	Effects of various agencies of deterioration on various building materials i.e. paints, metals.			
	2 nd	Sessional Test -1			
	3 rd	Sessional Test -1			
6 th	1 st	Effects of various agencies of deterioration on various building materials i.e. plastics & stones.			
	2 nd	Unit-3 Investigation and Diagnosis of Defects Systematic approach/procedure of investigation			
	3 rd	Sequence of detailed steps for diagnosis of building defects/problems			
7 th	1 st	List non-destructive and others tests on structural elements and materials to evaluate the condition of the building and study of three most commonly used tests			
	2 nd	Unit-4 Defects and their root Causes Define defects in buildings			
	3 rd	Classification of defects			

8 th	1 st	Main causes of building defects in various building elements: Foundations, basements and DPC & Beams .			
	2 nd	Main causes of building defects in various building elements: Roof and Terraces, Joinery.			
	3 rd	Main causes of building defects in various building elements: Decorative and protective finishes, Services.			
9 th	1 st	Main causes of building defects in various building elements: Defects caused by dampness.			
	2 nd	Sessional Test -2			
	3 rd	Sessional Test -2			
10 th	1 st	Unit-5 Materials for Repair, maintenance and protection Compatibility aspects of repair materials			
	2 nd	State application of following materials in repairs: Anti corrosion coatings, Adhesives/bonding aids, Repair mortars, Curing compounds.			
	3 rd	State application of following materials in repairs: Joints sealants, Waterproofing systems for roofs, Protective coatings.			
11 th	1 st	Unit-6 Remedial Measures for Building Defects Preventive maintenance considerations			
	2 nd	Surface preparation techniques for repair, Crack repair methods: Epoxy injection, Grooving and sealing, Stitching.			
	3 rd	Crack repair methods: Adding reinforcement and grouting, Flexible sealing by sealant.			
12 th	1 st	Repair of surface defects of concrete: Bug holes, Form tie holes, Honey comb and larger voids.			
	2 nd	Repair of corrosion in RCC elements: Steps in repairing, Prevention of corrosion in reinforcement.			
	3 rd	Material placement techniques with sketches: Pneumatically applied (The gunite techniques), Open top placement, Pouring from the top to repair bottom face, Birds mouth.			
13 th	1 st	Material placement techniques with sketches: Dry packing, Form and pump, Preplaced – aggregate concrete, Trowel applied method.			
	2 nd	Repair of DPC against Rising Dampness: Physical methods, Electrical methods, Chemical methods. Repair of walls: Repair of mortar joints against leakage, Efflorescence removal.			
	3 rd	Waterproofing of wet areas and roofs: Water proofing of wet areas, Water proofing of flat RCC roofs, Various water proofing systems and their characteristics.			
14 th	1 st	Repair of joints in buildings: Types of sealing joints with different types of sealants, Techniques for repair of joints, Repair of overhead and underground water tanks.			
	2 nd	Sessional Test -3			
	3 rd	Sessional Test -3			
15 th	1 st	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.			
	2 nd	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.			
	3 rd	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.			

Lesson Plan

Name of the Faculty :

Discipline : Civil Engineering

Subject : Surveying-II

Semester : 4th L T P

Lesson Plan Duration : 15 Weeks

2 - 4

Week	Practical	
	Lecture Day	Topic (including Assignments / Seminar / Group Discussion / Sessional Tests)
1 st	1 st	I. Digital Theodolite: i) Study of a transit vernier theodolite; temporary adjustments of theodolite
	2 nd	ii) Reading the Vernier and working out the least count, measurement of horizontal angles by repetition and reiteration methods
2 nd	1 st	iii) Measurement of vertical angles and use of tachometric tables
	2 nd	iv) Measurement of magnetic bearing of a line
3 rd	1 st	vi) Running a closed traverse with a theodolite (at least five sides) and its plotting
	2 nd	v) Height of objects with and without accessible bases
4 th	1 st	II. Curves i) Setting out of a simple circular curve with given data by the following methods a) Offsets from the chords produced by Digital Theodolite
	2 nd	b) One theodolite method
5 th	1 st	Sessional Test -1
	2 nd	Sessional Test -1
6 th	1 st	ii) Setting out of simple circular curve by tangential angles using a Digital Theodolite.
	2 nd	iii) Setting out of a transition curve by tangential offsets using a Digital Theodolite.
7 th	1 st	III. Total Station i) Temporary adjustments of a Total station
	2 nd	ii) Measurement of distance, horizontal angle and vertical angle.
8 th	1 st	iii) To plot an area with the help of Total Station
	2 nd	iv) Layout of any building, school, college, factory etc. with total station showing topographic map also (Draw at least one sheet using AutoCAD software)
9 th	1 st	Sessional Test -2
	2 nd	Sessional Test -2
10 th	1 st	IV DGPS (Differential Global Positioning System) i) Computation of earth work and reservoir capacity with DGPS
	2 nd	IV DGPS (Differential Global Positioning System) i) Computation of earth work and reservoir capacity with DGPS

11 th	1 st	ii) Layout of drain, canal, road with DGPS.
	2 nd	ii) Layout of drain, canal, road with DGPS.
12 th	1 st	iii) Demarcation of roads, plots, commercial spaces and agricultural land etc. with DGPS (Draw at least one sheet using AutoCAD software)
	2 nd	iii) Demarcation of roads, plots, commercial spaces and agricultural land etc. with DGPS (Draw at least one sheet using AutoCAD software)
13 th	1 st	iv) Periodic field visits to Survey of India and other government agencies.
	2 nd	iv) Periodic field visits to Survey of India and other government agencies.
14 th	1 st	Sessional Test -3
	2 nd	Sessional Test -3
15 th	1 st	Internal Viva Voce
	2 nd	Internal Viva Voce

Lesson Plan

Name of the Faculty :
 Discipline : Civil Engineering
 Semester : 4th
 Subject : SURVEYING – II
 Lesson Plan :
 Duration : 15 Weeks

L T P
 2 2 4

Week	Lecture Day	Theory
		Topic (including assignment / test)
1st	1st	UNIT I Electronic Digital Theodolite and Tachometric surveying 1.1 Concept/Difference of Transit Theodolite and Electronic Digital Theodolite 1.2 Temporary adjustments of an Electronic Digital Theodolite, Concept of transiting, swinging, face left, face right and changing face.
	2nd	1.3 Prolonging a line (forward and backward)
	3rd	1.4 Traversing by included angles and deflection angle method
2nd	4th	1.5 Plotting a traverse; concept of coordinate and solution of omitted measurements (onside affected) 1.6 Errors in theodolite survey and precautions taken to minimize them.
	5th	1.7 Height of objects with and without accessible bases 1.8 Concept, general principles of stadia tachometry and methods of tachometry and (with numerical problems) 1.9 Instruments to be used in tachometry
3rd		UNIT II Curves: (Horizontal, Vertical and Transition Curve) 2.1 Definition and types of horizontal curve **2.1.1 Elements of simple circular curve - Degree of the curve, radius of the curve, tangent length, point of intersection (Apex point), tangent point, length of curve, long chord deflection angle, Apex distance and Mid-ordinate. (With numerical problems)
	7th	2.2 Transition Curve: 2.2.1 Definition of transition curve 2.2.2 Requirements of transition curve
4th	8th	2.2.3 Length of transition curve for roads; by cubic parabola 2.2.4 Need (centrifugal force and super elevation). 2.2.5 Calculation of offsets for a transition curve
	9th	Sessional Test -I
5th	10th	Sessional Test -I
	11th	2.3 Definition and types of vertical curve 2.3.1 Types of vertical curves 2.3.2 Setting out of a vertical curve
6th	12th	UNIT III Introduction of Advanced Surveying Equipment and Techniques. 3.1 Principle of EDM, its component parts and their functions 3.2 Uses of EDM
	13th	3.3 Distomat 3.4 Remote sensing system 3.5 Application of remote sensing system in civil engineering, land uses/land cover, mapping, and disaster management.
7th	14th	3.6 GPS, DGPS and GIS applications and software used (introduction only) 3.7 Planimeter (Digital)
	15th	UNIT IV Total Station (TS) 4.1 Concept and uses of TS
8th	16th	4.2 Uses of function keys, various parts of TS 4.3 Accessories used in TS survey 4.4 Applications of TS in various engineering area. 4.5 Temporary adjustments of TS
	17th	Sessional Test -II
9th	18th	Sessional Test -II

10th	19th	4.6 Measurement of horizontal angle, vertical angle distance and coordinates using Total station, Traversing, profile survey and contouring with TS 4.7 Errors in TS
	20th	**4.8 Layout of any building, school, college, factory etc. with total station showing topographic map also
11th	21th	UNIT V DGPS (Differential Global Positioning System) 5.1 Concept of DGPS, various parts, applications and software used for DGPS
	22th	5.2 Comparison between DGPS and TS
12th	23th	5.3 Temporary adjustments of a DGPS 5.4 How does DGPS work 5.5 Errors in DGPS
	24th	*5.6 Periodic field visits to Survey of India and other government agencies.
13th	25th	**5.7 Layout of drain, canal, road with DGPS.
	26th	**5.8 Demarcation of roads, plots, commercial spaces and agricultural land etc. with DGPS
14th	27th	Sessional Test -III
	28th	Sessional Test -III
15th	29th	Revision/Querries
	30th	Revision/Querries

Name of the Faculty :

Discipline : Civil Engineering

Semester : 6th

Subject : Earthquake Resistant Building Construction

Lesson Plan Duration : 15 Weeks

Week	Theory	
	Lecture Day	Topic (including assignment/test)
1st	1	Introduction to the Subject and its necessity
	2	1. Elements of Engineering Seismology: General features of tectonic of seismic regions.
	3	Causes of earthquakes, Seismic waves,
2nd	1	Earthquake size (magnitude and intensity),
	2	Epicentre, Seismograph,
	3	Classification of earthquakes,
3rd	1	Seismic zoning map of India,
	2	Static and Dynamic Loading, Fundamental period.
	3	2. Seismic Behaviour of Traditionally-Built Constructions of India: Performance of building during earthquakes
4th	1	Mode of failure: Out-of-plane failure, in-plane failure,
	2	Mode of failure: Diaphragm failure, Connection failure,
	3	Mode of failure: Non-structural components failure
5th	1	Revision/Assignment-I
	2	Sessional Test-I
	3	3. Special construction method: Special construction methods
6th	1	Special construction methods
	2	Tips and Precautions to be observed while planning,
	3	Designing and Construction of earthquake resistant building.
7th	1	Designing and Construction of earthquake resistant building.
	2	Designing and Construction of earthquake resistant building.
	3	4. Introduction to various Seismic IS codes: IS: 4326, IS: 13828,
8th	1	IS: 1893 (Part 1),
	2	IS: 154326 and
	3	IS: 13920 (latest edition)
9th	1	Revision/Assignment-II
	2	5. Seismic Provision of Strengthening and Retrofitting: Seismic Provision of Strengthening and Retrofitting
	3	Seismic Provision of Strengthening and Retrofitting
10 th	1	Measures for Traditionally-Built Constructions,
	2	Brick and RCC Structures
	3	Brick and RCC Structures
11 th	1	Revision/Quarries
	2	Sessional Test-II
	3	6. Provision of reinforcement detailing in masonry and RC constructions :
12 th	1	Provision of reinforcement detailing in masonry constructions
	2	Provision of reinforcement detailing in RC constructions

	3	ProvisionofreinforcementdetailinginRCconstructions
13 th	1	ProvisionofreinforcementdetailinginRCconstructions
	2	7.DisasterManagement: Disasterrescue,Psychologyofrescue,
	3	Rescueworkers,Rescueplan,
14 th	1	Rescuebysteps,
	2	Rescueequipment,
	3	Safetyinrescue operations,
15 th	1	Debrisclearance
	2	Casualtymanagement
	3	SessionalTest-III

LESSON PLAN			
Name of the Faculty			
Discipline		Civil Engineering	
Semester		6th	
Subject		STEEL STRUCTURE DESIGN & DRAWING	
Lesson Plan Duration		16 Week	
WEEK	THEORY		PRACTICAL
	LECTURES	TOPIC	
1	1	1. Structural Steel and Sections Properties of structural steel as per IS Code	Drawing No. 1: Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets. (G-I/G-II)
	2	Designation of structural steel sections as per IS handbook and IS:800	
	3	2. Riveted Connections	
	4	Types of Rivet, Permissible stresses in rivets, types of riveted joints,	
2	5	specifications as per IS800, Failure of riveted joint, strength and efficiency of riveted joint,	_____
	6	Design of Riveted Connection only axially loaded member (Not staggered riveting)	
	7	Revision	
	8	3. Bolt Connections Types of bolt, permissible stresses in bolt,	
3	9	types of bolted joints, specifications for bolted joints as per IS800. Failure of a bolted joint.	_____
	10	Assumptions in the theory of bolted joints.	
	11	Strength and efficiency of a bolted joint. Design of bolted joints for axially loaded	
	12		
4	13	4. Welded connections Types of welds and welded joints,	Drawing No. 2: Column and Column Bases - Drawing of splicing of steel columns. Drawings of slab base, gusseted base and grillage base for single section steel columns. (G-I/G-II)
	14	advantages and disadvantages of welded joints design	
	15	of fillet and butt weld for axially loaded members	
	16	Tension Members	
5	17	Analysis and design of single and double section tension	_____
	18	Revision	
	19	their riveted connections	
	20	welded connections with gusset plate as per IS:800-2007	
6	21	Revision	_____
	22	Compression Members	
	23	Numerical problems	
	24	Numerical problems	

7	25	Analysis and design of single angle section	Drawing No.3: Column Beam Connections (G-I / G-II)
	26	Numericals problems	
	27	Analysis and design of doubly angle section	
	28	Numericals problems	
8	29	compression members subjected to axial load	(a) Sealed and Framed Beam to Beam Connections (G-I/G-II)
	30	Numericals problems	
	31	Numericals problems	
	32	Numericals problems	
9	33	Numericals problems	(b) Sealed and Framed Beam to Column Connections (G-I/G-II)
	34	Numericals problems	
	35	Revision	
	36	Roof Trusses	
10	37	Form of trusses, pitch of roof truss,	Drawing No. 4 : Plate Girder (Bolted) Plan and Elevation of Plate Girder with details at supports and connection of stiffness, flange angles and cover plate with web highlighting curtailment of plates (G-I / G-II)
	38	spacing of trusses, spacing of purlins,	
	39	connections between purlin and roof covering.	
	40	Connection between purlin and principal rafter	
11	41	(no design, only concept)	_____
	42	Numericals problems	
	43	Numericals problems	
	44	Numericals problems	
12	45	Numericals problems	_____
	46	Numericals problems	
	47	Revision	
	48	Column Bases:	
13	49	Types of column bases i.e. slab base,	_____
	50	gusseted base. Concept of buckling,	
	51	effective length, slenderness ratio,	
	52	ratio, Analysis and Design of axially loaded single column	
14	53	Revision	Drawing No. 5 : Draw at least one shear using CAD software (G-I/G-II)
	54	Numericals problems	
	55	Numericals problems	
	56	Numericals problems	
15	57	Beams	_____
	58	Revision	
	59	Analysis and design of single sections simply supported laterally restrained steel beams.	
	60	Introduction to plate girder and functions of various elements of a plate girder	
16	61	Numericals problems	_____
	62	Revision	
	63	Fabrication and erection of steel structures like trusses,	
	64	columns and girders	
Teacher Signature			

Lesson Plan

Name of the Faculty

:

Discipline : Civil Engineering

Semester : 6th

Subject: MAJOR PROJECT (L - T - P)

Lesson

Plan 15 weeks

Duration : (0 - 0 - 14)

Week	Lecture day	Topic	Delivery Date	Whether the lesson Plan followed? Yes/No
1st	1st	Introduction about major projects		
	2nd			
	3rd			
	4th			
	5th	Lecture on how to take scale , size, and different nature of work		
	6th			
	7th			
	8th			
	9th	To give knowledge about subject in classroom		
	10th			
	11th			
	12th			
2nd	13th	Apply classroom based knowledge and skills to solve the practical problems of work		
	15th			
	16th			
	17th			
	18th	Apply classroom based knowledge and skills to solve the practical problems of work		
	19th			
	20th			
	21st			
	22nd	Apply classroom based knowledge and skills to solve the practical problems of work		
	23rd			
	24th			
	25th			
3rd	26th	Subject based knowledge given in the classroom about work		
	18th			
	27th			

	28th			
	29th	Subject based knowledge given in the classroom about work		
	30th			
	31st			
	32nd			
	33rd	Develop special skills and abilities like interpersonal skills, communication skills,		
	34th			
	35th			
	36th			
4th	37th	Site visit		
	38th			
	39th			
	40th			
	41st	Site visit		
	42nd			
	43rd			
	44th			
	45th	Site visit		
	46th			
	47th			
	48th			
5th	49th	Give knowledge about different types of building work		
	50th			
	51st			
	52nd			
	53rd	Give knowledge about different types of building work		
	54th			
	55th			
	56th			
	57th	Give knowledge about different types of building work		
	58th			
59th				
60th				
6th	61st	Site visit		
	62nd			
	63rd			
	64th			
	65th	Site visit		
	66th			
	67th			
	68th			
	69th	Site visit		
	70th			
	71st			
	72nd			

7th	73rd	Sessional Week		
	74th			
	75th			
	76th			
	77th			
	78th			
	79th			
	80th			
	81st			
	82nd			
	83rd			
	84th			
8th	85th	Site visit		
	86th			
	87th			
	88th			
	89th	Site visit		
	90th			
	91st			
	92nd			
	93rd	Site visit		
	94th			
	95th			
	96th			
9th	97th	Submission of report of site visits and related works		
	98th			
	99th			
	100th			
	101st	Submission of report of site visits and related works		
	102nd			
	103rd			
	104th	Submission of report of site visits and related works		
	105th			
	106th			
	107th			
108th				
10th	109th	Information about different project work and practical site visit and work detail		
	110th			
	111st			
	112nd			
	113rd	Information about different project work and practical site visit and work detail		
	114th			
	115th			
	116th			
117th				

	118th	Information about different project work and practical site visit and work detail		
	119th			
	120th			
11th	121st	Sessional Week		
	122nd			
	123rd			
	124th			
	125th			
	126th			
	127th			
	128th			
	129th			
	130th			
	131st			
132nd				
12th	133rd	Information about different project work and practical site visit and work detail		
	134th			
	135th			
	136th			
	137th	Information about different project work and practical site visit and work detail		
	138th			
	139th			
	140th			
	141st	Information about different project work and practical site visit and work detail		
	142nd			
	143rd			
144th				
13th	145th	Presentation of group wise details and report in class about work and its application on power point		
	146th			
	147th			
	148th			
	149th	Presentation of group wise details and report in class about work and its application on power point		
	150th			
	151st			
	152nd			
	153rd	Presentation of group wise details and report in class about work and its application on power point		
	154th			
	155th			
156th				
14th	157th	Project submission		
	158th			
	159th			
	160th			
	161st	Project submission		
	162 nd			

	163 rd			
	164 th			
	165th	Project submission		
	166th			
	167th			
	168th			
15th	169th	Sessional Week		
	170th			
	171st			
	172nd			
	173rd			
	174th			
	175th			
	176th			
	177th			
	178th			
	179th			
	180th			

Lesson Plan

Discipline	Civil Engineering
Semester	4th
Name of Faculty	
Subject	Minor Project
Lesson Plan Duration	15 Weeks
Practical per week	6

Week	Practical Day	Practical	Delivery Date of Practical
1 st	1 st	Introduction to Project-Based Learning <ul style="list-style-type: none"> Explain the concept of project-based learning. Discuss the importance of practical application in engineering education. 	
	2 nd	Introduction to Project-Based Learning <ul style="list-style-type: none"> Explain the concept of project-based learning. Discuss the importance of practical application in engineering education. 	
2 nd	3 rd	Group Formation and Team Learning <ul style="list-style-type: none"> Importance of Effective teamwork Importance of Clear communication Group Formation. 	
	4 th	Project Topic Exploration and Proposal <ul style="list-style-type: none"> Present a range of potential project topics. Guide students in developing project proposals. 	
3 rd	5 th	Project Topic Exploration and Proposal <ul style="list-style-type: none"> Present a range of potential project topics. Guide students in developing project proposals. 	
		Project Topic Exploration and Proposal <ul style="list-style-type: none"> Present a range of potential project topics. Guide students in developing project proposals. 	

4 th	7 th	Project Selection and Approval <ul style="list-style-type: none"> Review and approve project proposals. Assign project teams based on topic alignment and student preferences. 	
	8 th	Project Selection and Approval <ul style="list-style-type: none"> Review and approve project proposals. Assign project teams based on topic alignment and student preferences. 	

5	9 th	Literature Review and Background Research <ul style="list-style-type: none"> Instruct students to conduct literature reviews. Emphasize the significance of understanding existing knowledge in the chosen area. 	
	10 th	Literature Review and Background Research <ul style="list-style-type: none"> Instruct students to conduct literature reviews. Emphasize the significance of understanding existing knowledge in the chosen area. 	
6	11 th	Project Planning and Timeline Development <ul style="list-style-type: none"> Instruct students in developing project plans. Discuss the importance of timeline management. 	
	12 th	Project Planning and Timeline Development <ul style="list-style-type: none"> Instruct students in developing project plans. Discuss the importance of timeline management. 	
7	13 th	Preliminary Design and Feasibility Analysis <ul style="list-style-type: none"> Instruct teams to develop preliminary designs. Discuss feasibility considerations and constraints. 	
	14 th	Preliminary Design and Feasibility Analysis <ul style="list-style-type: none"> Instruct teams to develop preliminary designs. Discuss feasibility considerations and constraints. 	

8	15 th	Material Procurement and Resource Planning <ul style="list-style-type: none"> • Discuss material requirements for the projects. • Instruct teams to plan and procure necessary resources. 	
	16 th	Material Procurement and Resource Planning <ul style="list-style-type: none"> • Discuss material requirements for the projects. • Instruct teams to plan and procure necessary resources. 	
9	17 th	Project Execution Phase <ul style="list-style-type: none"> • Initiate the execution phase. • Address any queries and concerns from project teams. 	
	18 th	Project Execution Phase <ul style="list-style-type: none"> • Address any queries and concerns from project teams. 	
10	19 th	Project Execution Phase <ul style="list-style-type: none"> • Address any queries and concerns from project teams. 	
	20 th	Project Execution Phase <ul style="list-style-type: none"> • Address any queries and concerns from project teams. 	

11	21 st	Project Execution Phase <ul style="list-style-type: none"> • Address any queries and concerns from project teams. 	
	22 nd	Final Testing and Performance Evaluation <ul style="list-style-type: none"> • Conduct final tests and evaluations for each project. • Encourage teams to analyze and document their findings. 	
12	23 rd	Final Testing and Performance Evaluation <ul style="list-style-type: none"> • Conduct final tests and evaluations for each project. • Encourage teams to analyze and document their findings. 	
	24 th	Project Documentation and Reporting <ul style="list-style-type: none"> • Instruct teams on documenting their projects thoroughly. 	

13	25 th	Project Documentation and Reporting <ul style="list-style-type: none"> • Instruct teams on documenting their projects thoroughly. • Allocate time for drafting comprehensive project reports. 	
	26 th	Presentation Preparation <ul style="list-style-type: none"> • Instruct students on preparing effective project presentations. • Allocate time for rehearsal and peer feedback. 	
14	27 th	Presentation Preparation <ul style="list-style-type: none"> • Instruct students on preparing effective project presentations. • Allocate time for rehearsal and peer feedback. 	
	28 th	Project Presentations and Reflection <ul style="list-style-type: none"> • Allow students to present their projects to the class. • Facilitate a class discussion for reflection on the project, lessons learned, and potential improvements. 	
15	29 th	Project Presentations and Reflection <ul style="list-style-type: none"> • Allow students to present their projects to the class. • Facilitate a class discussion for reflection on the project, lessons learned, and potential improvements. 	
	30 th	Project Presentations and Reflection <ul style="list-style-type: none"> • Allow students to present their projects to the class. • Facilitate a class discussion for reflection on the project, lessons learned, and potential improvements. 	