Lesson plan

Name of the Faculty		**Vijender Kumar**	**Semester**	**6th**
			Lecture per week	**5**
Discipline		**Civil Engineering**		
Subject		**CONSTRUCTION MANAGEMENT AND ACCOUNTS**	**Delivery Date of Lecture**	**Remarks**
Lesson plan Duration		**15 Feb 2024 - 31 May2024 (16 weeks)**		
Week	**Lecture Day**	**Topic (including assignment / test)**		
1st		**Unit-1-Introduction:**		
	1st	Introduction to construction management		
	2nd	Introduction to construction management		
2nd	1st	Introduction to construction management		
	2nd	Significance of construction management,Main objectives of construction management and overview of the subject		
	3rd	Functions of construction management, planning, organising, staffing,directing, controling and coordinating		
	4th	Classification of construction into light, heavy and industrial construction		
	5th	Stages in construction from conception to completion		
3rd	1st	The construction team: owner, engineer, architect and contractors, their function and inter relationship		
		Unit-2 - Construction Planning		
	2nd	Importance of construction planning		
	3rd	Stages of construction planning- Pre-tender stage,contract stage		
	4th	Scheduling construction works by bar charts- definition of activity, identification of activities		
	5th	Preparation of bar charts for simple construction work		
4th	1st	Preparation of schedules for labour, materials, machinery and finances of small work, Limitation of bar chart		
	2nd	Scheduling by network techniques-Introduction to network techniques, PERT and CPM		
	3rd	Differences between PERT and CPM		
		Unit-3-Organization		
	4th	Organization: Types of organizations, Types of organizations		
	5th	Line, line and staff, functional,characteristics of organization		
5th		**Unit-4-Site Organization:**		
	1st	Principle of storing and stacking materials at site, Location of equipment		
	2nd	Preparation of actual job layout for a building, Organizing labour at site		
		1st Sessional Test		
6th		**Unit-5-Construction Labour**		
	1st	Conditions of construction workers in India, wages paid to workers		
	2nd	Important provisions of the following Acts;-Labour welfare Fund Act 1936 (as amended)		
	3rd	Payment of Wages Act 1936 (as amended)		
	4th	Minimum Wages Act 1948 (as amended)		
	5th	Revision		
7th		**Unit-6- Control of Progress**		
	1st	Methods of recording progress		
	2nd	Analysis of progress		
	3rd	Taking corrective actions keeping head office informed		

	4th	Cost time optimization for simple jobs - Direct cost		
	5th	Indirect cost, variation with time, cost optimization		
8th	1st	With time, cost optimization		
	Unit-7-Inspection and Quality Control			
	2nd	Need for inspection and quality control,		
	3rd	Principles of inspection		
	4th	Stages of inspection and quality control for- Earth work		
	5th	Stages of inspection and quality control for-masonary work		
9th	1st	Stages of inspection and quality control for-RCC		
	2nd	Stages of inspection and quality control for-Sanitary and water supply services		
	Unit-8-Accidents and Safety in Construction:			
	3rd	Accidents – causes and remedies		
	4th	Safety measures for-Excavation work		
	5th	Safety measures for-Drilling and Blasting		
10th	1st	Safety measures for-Hot bitumenous work		
	2nd	Safety measures for-Scaffolding, ladders, form work		
	3rd	Safety measures for-Demolitions		
	4th	Safety campaign and safety devices		
	5th	Assignements given based on samples question papers		
11 th	1st	Revision		
	2nd	Revision		
	2nd Sessional Test			
12th	**Unit-9-Public Work Account**			
	1st	Introduction, technical sanction		
	2nd	Administrative approval, allotment of funds, re-appropriation of fund		
	3rd	Measurement book running and final account bills complete,		
	4th	Preparation of bill of quantities (BOQ),		
	5th	Completion certificate& report,		
13th	1st	Hand receipt, aquittance roll. , muster roll labour		
	2nd	Casual labour roll-duties and responsibilityof different cadres		
	3rd	Budget-stores, returns account of stock, misc,P.W advances T & P- verification		
	4th	Survey report, road metal material charged direct to work		
	5th	Survey report, road metal material charged direct to work		
14th	1st	Hand receipt, aquittance roll. , muster roll labour		
	2nd	Account expenditure & revenue head, remittance and deposit head, defintion of cash		
	3rd	Account expenditure & revenue head, remittance and deposit head, defintion of cash		
	4th	Preccaution in custody of cash book,		
	5th	imprest account, temporary advance		
15th	1st	Treasury challan,		
	2nd	Prepration of final bills ,		
		Account register, stock register		
	3rd	Assignements given based on samples question papers		
	4th	Revision of whole syllabus		
	5th	Revision of whole syllabus		
16th	1st	Revision of whole syllabus		
	2nd	Revision of whole syllabus		
	3rd Sessional Test			

* Name of the Faculty :	Mr. Mohit Narwal
Discipline	Civil Engg.
Semester	6th
Subject	Quantity Surveying and valuation
Lecture per week	04 Hrs

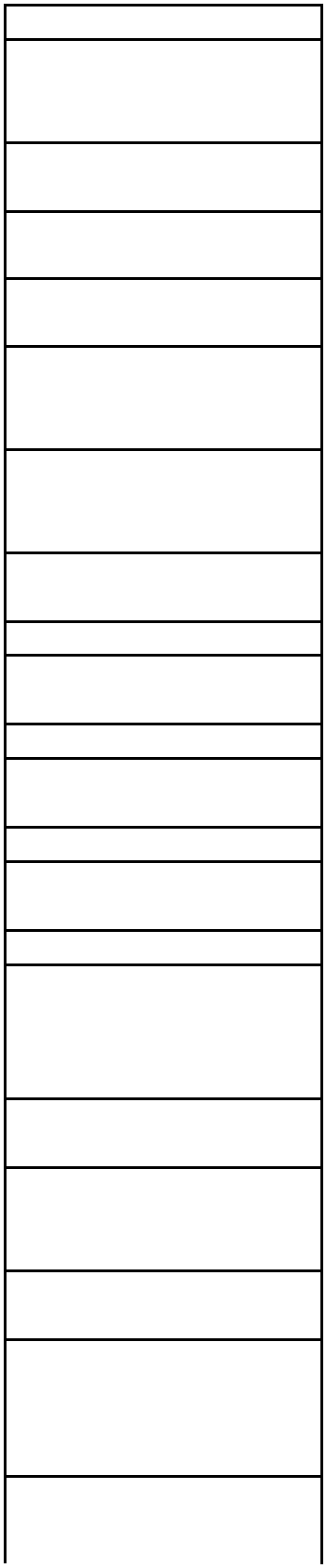
Week	Theory	
	Lecture Day	**Topic (Including assignment / Test)**
1st	1	**Unit-1-Introduction to quantity surveying**
		Introduction to quantity surveying and valuation
	2	Introduction to quantity surveying and its importance. Duties of quantity surveyor
	3	**Unit-2-Types of estimates**
		Types of estimates Preliminary estimates - Plinth area estimate - Cubic rate estimate - Estimate per unit base
	4	Detailed estimates - Definition - Stages of preparation – details of measurement and calculation of quantities and abstract
		Unit-3-Measurement
		Measurment- Units of measurement for various items of work as per BIS:1200
2nd	5	Rules for measurements-Different methods of taking out quantities
	6	Centre line method and long wall short wall method-numericals
	7	Assignements given based on samples question papers
	8	**Unit-4-Preparation of Detailed and Abstract**
		Preparation of Detailed and Abstract Estimates from Drawings for:A small residential building with a flat roof -two room with W.C, bath, kitchan and verandah. Numericals practice
	9	Numericals practice
	10	Preparation of Detailed and Abstract Estimates from Drawings for:-WBM road and pre-mix carpeting
	11	numericals practice
	12	Preparation of Detailed and Abstract Estimates from Drawings for:-single span RCC slab culvert

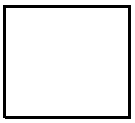
4th	13	Numericals practice
	14	Preparation of Detailed and Abstract Estimates from Drawings for:-earthwork for plain and hill roads
	15	Preparation of Detailed and Abstract Estimates from Drawings for:-RCC work in beam
	16	Numericals practice
5th	17	**First Sessionals**
	18	
	19	Preparation of Detailed and Abstract Estimates from Drawings for:-RCC work in slab. Numericals practice
	20	Preparation of Detailed and Abstract Estimates from Drawings for:-RCC work in column. Numericals practice
6th	21	Preparation of Detailed and Abstract Estimates from Drawings for:-RCC work in lintel.
	22	Numericals practice
	23	Preparation of Detailed and Abstract Estimates from Drawings for:-RCC work in foundation
	24	Numericals practice
7th	25	Preparation of Detailed and Abstract Estimates from Drawings for:-user septic tankof 10 users.
	26	Numericals practice
	27	Preparation of Detailed and Abstract Estimates from Drawings for:-user septic tankof 50 users
	28	Numericals practice
8th	29	**Unit-6-Calculation of quantities of materials**
		Calculation of quantities of materials for-cement mortar of different proportion ,numericals
	30	Calculation of quantities of materials for-cement concrete of different proportion, numericals
	31	Calculation of quantities of materials for-brick/stone masonary in cement mortar, numericals
	32	Calculation of quantities of materials for-plastering and pointings, numericals
	33	Calculation of quantities of materials for-white washing, painting, numericals. Calculation of quantities of materials for-RCC work in beam,slab, numericals
		Unit--6- Analysis of Rates (10 hrs)

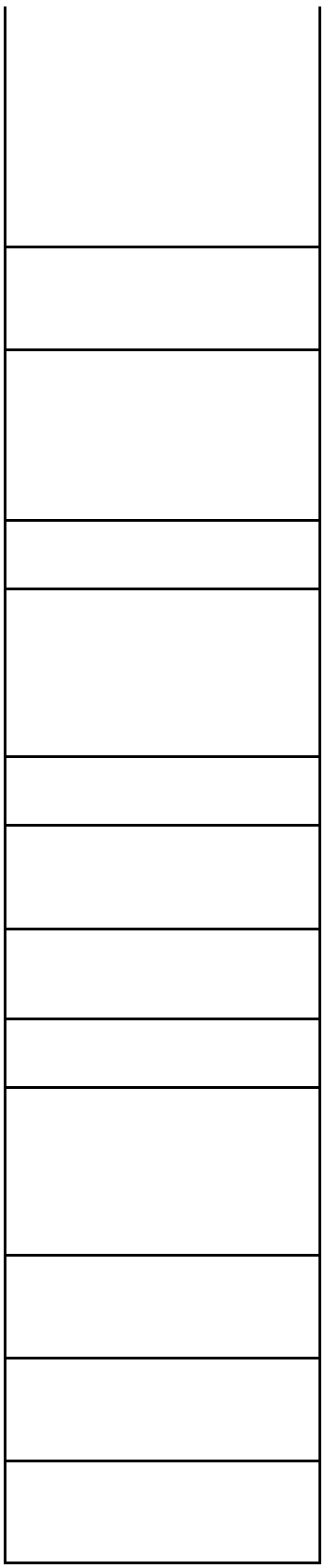
	34	Steps involved in the analysis of rates. Requirement of material, labour,sunderies, contrator profit and overhead. Analysis of rates for finished items when data regarding labour, rates ofmaterial is given;-earthwork in excavationin hard/ordinary soil and filling with a concept of lead and lift.
	35	Analysis of rates for finished items when data regarding labour, rates ofmaterial is given;-RCC in roof slab/beam/lintel/column
	36	Analysis of rates for finished items when data regarding labour, rates ofmaterial is given;-brick/stone masonary in cement mortar.cement plaster,white washing,painting. Assignements given based on samples question papers.
10th	37	**Second Sessionals**
	38	
	39	**Unit-7-Contractorship**
		Introduction to contrectorship-meaning of contract,qualities of a good contractor and their qualification,essentials of contract
	40	Types of contracts, their advantages, dis-advantages and suitability, system of payment,
11th	41	Single and two cover-bids; tender, tender forms and documents, tender notice,
	42	Submission of tender and deposit of earnest money, security deposit, retention money, maintenance period.
	43	Classification and types of contracting firms/construction companies
	44	**Unit-8-Preparation of Tender Document based on Common Schedule Rates (CSR)**
		Introduction to CSR and calculation of cost based on premium on CSR
12th	45	Exercises on writing detailed specifications of different types of building work from excavation to foundation
	46	Exercises on writing detailed specifications of different types of building work superstructure and finishing operation
	47	Exercises on preparing tender documents for the earth work,construction of small house as per drawing

	48	Exercises on preparing tender documents for the RCC work,pointing ,plastering,and flooring
13th	49	Exercises on preparing tender documents for the white washing, distempering and pointing
	50	Exercises on preparing tender documents for the following wood work including polishing,sanitary and water supply installation
	51	Exercises on preparing tender documents for the false ceiling, aluminium partitioning, tile flooring, including base course
	52	Exercises on preparing tender documents for the construction of W.B.M/ concrete road
14th	53	**Unit-9**
		Exercises on preparation of comparative statements for item rate contract
	54	**Unit-10-Valuation**
		Introduction to valuation, Purpose of valuation, principles of valuation
	55	Definition of various terms related to valuation like depreciation, sinking fund,salvage and scrap value, market value, fair rent, year purchase etc
	56	Methods of valuation (i) replacement cost method (ii) rental return method
15th	57	Numericals practice
	58	Revision of whole syllabus
	59	**Third Sessionals**
	60	

Delivery Date







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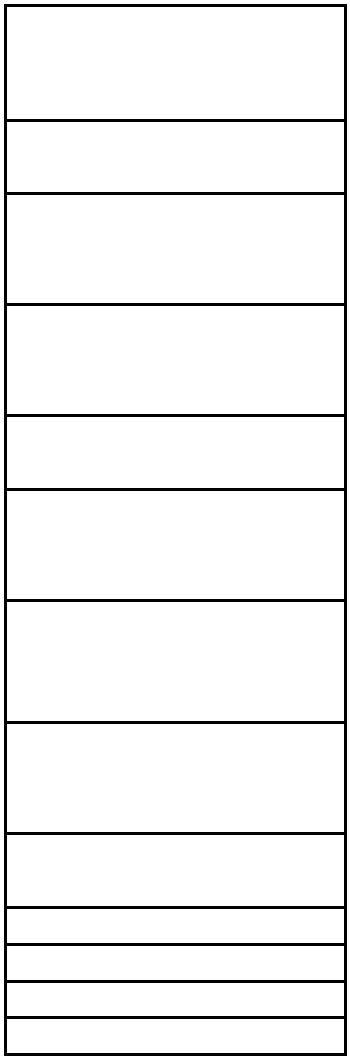


Lesson Plan

Name of the Faculty :	Ankit Sachdeva			
Discipline :	Civil Engineering			
Semester :	6th			
Subject:	MAJOR PROJECT	**(L**	**-** **T** **-**	**P)**
Lesson Plan Duration :	(12 February to 14 June) 15 weeks	**(0**	**-** **0** **-**	**12)**

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			
	105th	Submission of report of site visits and related works		
	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		
	162nd			

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

Lesson Plan

Name of the Faculty :	Saurabh Kumar Mishra	
Discipline :	Civil Engineering	
Semester :	6th	
Subject:	Steel Structure Drawing	**(L - T - P)**
Lesson Plan Duration :	(12 February to 14 June) 15 weeks	**(0 - 0 - 3)**

Week	Lecture day	Topic	Delivery Date of Lecture	Whether the lesson Plan followed? Yes/No
1st	1st	Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.		
	2nd	Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.		
	3rd	Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.		
2nd	4th	Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.		
	5th	Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.		
	6th	Practice		
3rd	7th	Column and Column Bases - Drawing of splicing of steel columns		
	8th	Drawings of slab base, gusseted base and grillage base for single section, steel columns.		
	9th	Column and Column Bases - Drawing of splicing of steel columns		
4th	10th	Drawings of slab base, gusseted base and grillage base for single section, steel columns.		
	11th	Practice		
	12th	Practice		

5th	13	Sessional Test-1		
	14	Sealed and Framed Beam to Beam Connections		
	15	Sealed and Framed Beam to Beam Connections		
6th	16	Sealed and Framed Beam to Column Connections		
	17	Sealed and Framed Beam to Column Connections		
	18	Practice		
7th	19	Plan and Elevation of Plate Girder with details at supports		
	20	Plan and Elevation of Plate Girder with details at supports		
	21	Connection of stiffness, flange angles and cover plate with web highlighting curtailment of plates.		
8th	22	Connection of stiffness, flange angles and cover plate with web highlighting curtailment of plates.		
	23	Connection of stiffness, flange angles and cover plate with web highlighting curtailment of plates.		
	24	Practice		
9th	25	Practice		
	26	Draw sheet 1 using CAD software		
	27	Draw sheet 1 using CAD software		
10th	28	Draw sheet 1 using CAD software		
	29	Draw sheet 1 using CAD software		
	30	Practice		
11th	31	Practice		
	32	Practice		
	33	Draw sheet 2 using CAD software		
12th	34	Draw sheet 2 using CAD software		
	35	Draw sheet 3 using CAD software		
	36	Draw sheet 3 using CAD software		
13th	37	Sessional Test - 2		
	38	Practice		
	39	Practice		
14th	40	Draw sheet 4 using CAD software		
	41	Draw sheet 4 using CAD software		

	42	Draw sheet 5 using CAD software		
15th	43	Draw sheet 5 using CAD software		
	44	Sessional Test - 3		
	45	Revision		

LESSON PLAN

Name of the Faculty : KIMTI LAL

Discipline : **Civil Engineering**

Semester : **6th**

Subject : QUANTITY SURVEYING & VALUATION **P**

Lesson Plan Duration : **16 Weeks** **2**

Week	Practical	
	Practical Day	**Topic (including assignment / test)**
1st	1	Prepare the list of items to be executed with units for detailed estimate of a given structure from the given drawing.
2nd	1	Prepare a report on market rates for given material, labour wages, hire charges of tools & equipments required to construct the given structure as mentioned in at Serial number 1 above.
3rd	1	Prepare a report on market rates for given material, labour wages, hire charges of tools & equipments required to construct the given structure as mentioned in at Serial number 1 above.
4th	1	Study of items with specification given in the HSR (for any ten items)
5th	1	**Viva Voice for 1st Sessional**
6th	1.	Revision/doubt of all previous practicals
7th	1.	Recording in Measurement Book (MB) for any four items
8th	1.	Prepare bill of quantities of given item from actual measurements (any four items).
9th	1	Prepare bill of quantities of given item from actual measurements (any four items).
10th	1	Calculate the reinforcement quantities from the given set of drawings for a room size of 3 m X 4 m with bar bending schedule (footing, column, beam, lintel with chajja, slab)
11th	1	**Viva Voice for 2nd Sessional**
12th	1	Revision/doubt of all previous practicals
13th	1	Calculate the quantity of items of work from the given set of drawings using standard measurement sheet for load bearing residential structure using description of item from DSR (1BHK Building with staircase).
14th	1	Calculate the quantity of items of work from the given set of drawings using standard measurement sheet for load bearing residential structure using description of item from DSR (1BHK Building with staircase).
15th	1	Use the relevant software to prepare detailed estimate of a residential building.
16th	1	**Viva Voice for 3rd Sessional**

LESSON PLAN

Name of the Faculty : AKSHAY KAPOOR

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	1. Elements of Engineering Seismology 1.1 General features of tectonic of seismic regions
	2	1.2 Causes of earthquakes 1.3 Seismic waves
	3	1.4 Earthquake size 1.4.1 Magnitude 1.4.2 Intensity
2nd	1	1.5 Epicentre 1.6 Seismograph
	2	1.7 Classification of earthquakes 1.8 Seismic zoning map of India
	3	1.9 Static and Dynamic Loading 1.10 Fundamental period
3rd	1	2. Seismic Behaviour of Traditionally-Built constructions of India
	2	2.1 Performance of building during earthquakes and Mode of failure
	3	**Class test/ Assignment I**
4th	1	2.1.1 In-plane failure
	2	2.1.2 Out-of-plane failure
	3.	2.1.3 Diaphragm failure 2.1.4 Connection failure
5th	1	2.1.5 Non-structural components failure
	2	Revision
	3.	**1st Sessional Test**
6th	1.	3.Special construction method 3.1 Introduction
	2.	3.2 Tips and precautions to be observed while planning, designing and construction of earthquake resistant building.
	3.	4. Introduction to seismic zone of India and factors related to IS:1893 and IS: 13920 (latest edition)
7th	1.	4.1 Introduction to provisions of IS 1893 (latest edition) 4.2 Scope
	2.	4.3 Terminology for earthquake engineering
	3.	4.4 General Principles
8th	1.	4.5 Assumptions

	2	4.6 Static Analysis
	3	4.7 Dynamic Analysis
9th	1	**Class test/ Assignment II**
	2	4.8 Introduction to provisions of IS 13920 (latest edition)
	3	4.9 Impact of Ductility 4.10 Requirement of Ductility
10th	1	4.11 Ductile detailing consideration
	2	4.12 Ductility specifications
	3	**2nd Sessional exam**
11th	1	5. Seismic provision of strengthening and retrofitting measures for traditionally-built constructions 5.1 Introduction
	2	5.2 Building with shear wall or bearing wall construction 5.3 Building with Dual system 5.4 Building Configuration
	3	5.5 Advanced techniques of Earthquake resistant design construction 5.5.1 Base Isolation 5.5.2 Energy Dissipation Devices
12th	1	5.6 Retrofitting of buildings 5.6.1 Evaluation and Retrofitting Process 5.6.2 Retrofitting techniques 5.6.3 Retrofitting materials
	2	6.Provision of reinforcement detailing in masonry and RCC constructions 6.1 Scope 6.2 Terminology 6.3 Building Configuration
	3	6.4 Ductility 6.5 Fire Safety
13th	1	6.6 Special Construction Features 6.6.1 Foundation
	2	6.6.2 Roofs and Floors 6.6.3 Staircases
	3	**Class test /Assignment III**
14th	1	6.7 Masonry Construction with rectangular masonry units 6.8 Timber Construction
	2	7. Disaster Management: 7.1 Introduction 7.2 Disaster rescue
	3	7.3 Psychology of rescue 7.4 Rescue workers 7.5 Rescue plan
15th	1	7.6 Rescue by steps 7.7 Rescue equipment
	2	7.8 Safety in rescue operations 7.9 Debris clearance 7.10 Casuality management
	3	**3rd Sessional Test**

LESSON PLAN

Name of the Faculty : AKSHAY KAPOOR

Discipline : **Civil Engineering**

Semester : **6th**

Subject : **STEEL STRUCTURES DESIGN AND DRAWING**

Lesson Plan Duration : **15 Weeks**

Week	Theory	
	Lecture Day	**Topic (including assignment / test)**
1st	1	1. Structural Steel and Sections 1.1 Properties of structural steel as per IS Code
	2	1.2 Designation of structural steel sections as per IS handbook and IS:800
	3	2.Riveted Connections 2.1 Types of Rivet
	4	2.2 Permissible stresses in rivets 2.3 Types of riveted joints
2nd	1	2.4 Specifications as per IS800 2.5 Failure of riveted joint, strength and efficiency of riveted joint,
	2	2.6 Design of Riveted Connection only axially loaded number (No staggered riveting)
	3	3. Bolted Connections 3.1 Types of bolt
	4	3.2 Permissible stresses in bolt 3.3 Types of bolted joints
3rd	1	3.4 Specifications for bolted joints as per IS 800
	2	3.5 Failure of a bolted joint
	3	3.6 Assumptions in the theory of bolted joints, strength and efficiency of a bolted joint.
	4	**Class test/ Assignment I**
4th	1	3.7 Design of bolted joints for axially loaded members (No Staggered bolts).
	2	Drawing No. 1: Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.
	3.	4. Welded connections - Introduction
	4	4.1 Types of welds and welded joints 4.2 Advantages and disadvantages of welded joints
5th	1	4.3 Design of fillet weld for axially loaded members
	2	4.4 Design of butt weld for axially loaded members
	3	Revision

	4	**1st Sessional Test**
6th	1.	5.1 Tension Members
	2.	5.2 Analysis of single section tension members and their rivetted and welded connections with gusset plate as per IS:800-2007
	3.	5.3 Design of single section tension members and their rivetted and welded connections with gusset plate as per IS:800-2007
	4.	5.4 Analysis of double section tension members and their rivetted and welded connections with gusset plate as per IS:800-2007
7th	1.	5.5 Design of double section tension members and their rivetted and welded connections with gusset plate as per IS:800-2007
	2.	6. Compression Members - Introduction
	3.	6.1 Analysis of single angle section compression members subjected to axial load
	4.	6.2 Design of single angle section compression members subjected to axial load
8th	1.	6.3 Analysis of double angle sections compression members subjected to axial load
	2.	6.4 Design of double angle sections compression members subjected to axial load
	3.	7. Roof Trusses - Introduction
	4.	7.1 Form of trusses 7.2 Pitch of roof truss
9th	1	**Class test/ Assignment II**
	2	7.3 Spacing of trusses 7.4 Spacing of purlins
	3	7.5 Connection between purlin and roof covering
	4	7.6 Connection between purlin and principal rafter (no design, only concept)
10th	1	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.
	2	Drawing No.3 : Column Beam Connections (a) Sealed and Framed Beam to Beam Connections (b) Sealed and Framed Beam o Column Connections
	3	Revision
	4	**2nd Sessional exam**
11th	1	8. Column Bases - Introduction
	2	8.1 Types of column bases i.e. slab base, gusseted base. 8.2 Concept of buckling
	3	8.3 Effective length 8.4 Slenderness ratio

	4	8.5 Analysis of axially loaded single section column
12th	1	8.6 Design of axially loaded single section column
	2	9. Beams - Introduction
	3	9.1 Analysis of single section simply supported laterally restrained steel beams.
	4	9.2 Design of single section simply supported laterally restrained steel beams.
13th	1	9.3 Introduction to plate girder
	2	9.4 Functions of various elements of a plate girder
	3	10. Fabrication and erection of steel structures – Introduction
	4	**Class test /Assignment III**
14th	1	10.1 Fabrication and erection of steel structures like trusses
	2	10.2 Fabrication and erection of steel structures like columns
	3	10.3 Fabrication and erection of steel structures like girders
	4	Drawing No. 4 : Plate Girder (Bolted) Plan and Elevation of Plate Girder with details at supports
15th	1	Drawing No. 4 : Plate Girder (Bolted) Connection of stiffners, flange angles and cover plate with web highlighting curtailment of plates.
	2	Drawing No. 5 : Draw atleast one sheet using CAD software
	3	Revision
	4	**3rd Sessional Test**

Specimen of Lesson Plan

Name of the Faculty : Mr. Mohit Narwal
Discipline : Civil Engineering
Semester : 4th
Subject: Surveying II
Lesson Plan Duration : 15 weeks (from 15.02.2024 to 31.05.2024)

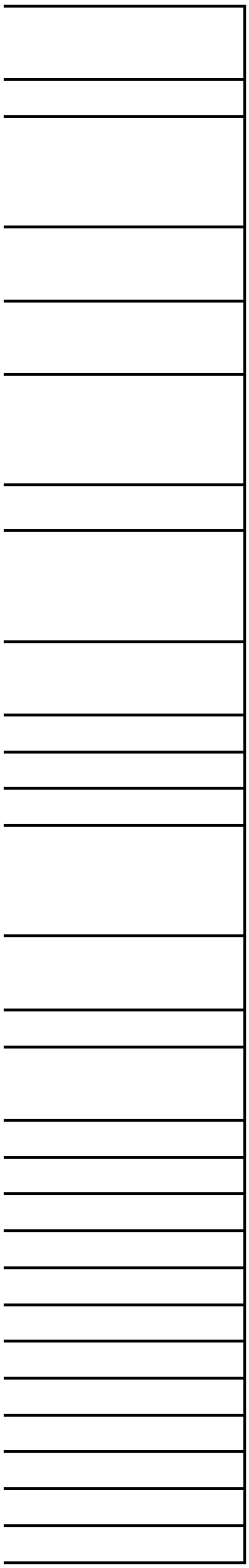
**** Work Load (Lecture/Practical) per week (in hours): Lectur**

Week	Theory	
	Lecture day	Topic (including assignment/test)
1st	1	Introduction
	2	1.1 Concept of contours, purpose of contouring, contour interval and horizontal equivalent.
	3	1.2 factors effecting contour interval, characteristics of contours
2nd	4	1.3 Methods of contouring Direct and indirect
	5	1.4 use of stadia measurements in contour survey, interpolation of contours;
	6	1.5 use of contour map, Drawing cross section from a contour map;
3rd	7	1.6 marking alignment of a road, railway and a canal on a contour map,
	8	1.7 computation of earth work and reservoir capacity from a contour map
	9	2.0 Theodolite Surveying: Introduction
4th	10	2.1 concept of transiting, swinging, face left, face right and changing face;
	11	2.2 axes of a theodolite and their relation; temporary adjustments of a transit theodolite;
	12	Working of a transit vernier theodolite,
5th	13	**First Sessionals**
	14	2.3 measurement of horizontal and vertical angles. 2.4 Prolonging a line (forward and backward) 2.5 measurement of bearing of a line;
	15	2.6 traversing by included angles and deflection angle method; traversing by stadia measurement, theodolite triangulation, plotting a traverse;
6th	16	2.7 concept of coordinate and solution of omitted measurements (one side affected),
	17	2.8 errors in theodolite survey and precautions taken to minimize them; limits of precision in theodolite traversing. 2.9 Height of objects – accessible and non-accessible bases

	18	3.0 Tacho-metric surveying 3.1 Tachometry, Instruments to be used in tachometry,
7th	19	3.2 methods of tachometry, stadia system of tachometry,
	20	3.3 general principles of stadia tachometry, examples of stadia tachometry and Numerical problems.
	21	4.0 Curves: Introduction
8th	22	4.1 Simple Circular Curve: Need and definition of a simple circular curve; ,
	23	Elements of simple circular curve - Degree of the curve, radius of the curve, tangent length, point of intersection (Apex point)
	24	tangent point, length of curve, long chord deflection angle, Apex
9th	25	Setting out of simple circular curve: a) By linear measurements only: Offsets from the tangent, Successive bisection of arcs,
	26	Offsets from the chord produced b) By tangential angles using a theodolite
	27	**Revision**
10th	28	**Revision**
	29	**Second Sessionals**
	30	4.2 Transition Curve: Need (centrifugal force and super elevation) and definition of transition curve; requirements of transition curve;
11th	31	length of transition curve for roads; by cubic parabola; calculation of offsets for a transition curve;
	32	setting out of a transition curve by tangential offsets only
	33	Introduction to the use of Modern Surveying equipment and techniques
12th	34	a) EDM or Distomat
	35	b) Planimeter (Digital)
	36	c) Total station
13th	37	d) Introduction to remote sensing and GPS
	38	e) Auto level
	39	f) Digital theodolite
14th	40	Class Test
	41	Seminar
	42	Revision
	43	Revision
15th	44	Revision
	45	**Third Sessional**

es-02, Practicals-06

Delivery Date



Lesson Plan

Name of the Faculty : Ankit Sachdeva

Discipline : Civil Engineering

Semester : 4th

Subject: IRRIGATION ENGINEERING **(L - T - P)**

Lesson Plan Duration : (12 February to 14 June) 15 weeks **(4 - 0 - 0)**

Week	Lecture day	Topic	Delivery Date of Lecture	Whether the lesson Plan followed? Yes/No
1st	1	Definition of irrigation & Necessity of irrigation		
	2	Major, medium and minor irrigation projects		
	3	Hydrology and hydrological cycle		
	4	Rain-gauges – automatic and non-automatic (Symons rain gauge		
2nd	5	Methods of estimating average rainfall (Arithmatic system)		
	6	Runoff and Factors affecting runoff, Catchment area		
	7	Hydrograph and basic concept of unit hydrograph.		
	8	Hydrograph and basic concept of unit hydrograph.		
3rd	9	Principal crops in India and their water requirements,		
	10	Crop seasons – Kharif and Rabi		
	11	Crop period, base period, Duty, Delta and their relationship.		

	12	Crop period, base period, Duty, Delta and their relationship.		
4th	13	Gross commanded area (GCA), culturable commanded area (CCA),		
	14	Intensity of Irrigation, Irrigable area		
	15	Flow irrigation – Definition and its types (only description)		
	16	Lift Irrigation – Tube well, Types of tube wells (only description)		
5th	17	Explanation of terms: water table, radius of influence, depression head,		
	18	Cone of depression, confined and unconfined aquifers,		
	19	Advantages and disadvantages of tube well irrigation.		
	20	Sprinkler irrigation- Conditions favourable, Types and component parts,		
6th	21	Advantages and disadvantages of sprinkler irrigation.		
	22	Sessional Test-1		
	23	Drip irrigation- layout, component parts,		
	24	Advantages and disadvantages of drip irrigation.		
7th	25	Definition and Classification of canal. (Visit to a Canal)		
	26	Appurtenances of a canal and their functions.		
	27	Various types of canal lining - their related advantages and disadvantages,		

	28	Various types of canal lining - their related advantages and disadvantages,		
8th	29	Canal breaches and their control,		
	30	Maintenance of lined and unlined canals.		
	31	Definition, objectives and general layout of different parts of head works.		
	32	Definition, objectives and general layout of different parts of head works.		
9th	33	Definition, objectives and general layout of different parts of head works.		
	34	Difference between weir and barrage		
	35	Definition and necessity of Cross Drainage Works (Visit to a Cross Drainage Works)		
	36	Concept of Aqueduct, super passage, level crossing, inlet and outlet.		
10th	37	Dam and its Classification		
	38	Earth dams - types, causes of failure;		
	39	Earth dams - types, causes of failure;		
	40	Cross-section of zoned earth dam, method of construction,		
11th	41	Gravity dams – types, cross-sections of a dam, method of construction		
	42	Concept of spillways and energy dissipators		
	43	Concept of Canal Falls, Outlets and Escapes		
	44	Sessional Test-2		
12th	45	Definition, function of river training works.		
	46	Types of river training- Embankments or levees.		

	47	Concept of Guide bank, Groynes or spurs,		
	48	Pitched island, Cut-off		
13th	49	Definition of water logging – its causes and effects.		
	50	Detection, prevention and remedies		
	51	Surface and sub-surface drains and their layout (only description)		
	52	Water Harvesting Techniques: Need and requirement.		
14th	53	Various methods of rain water harvesting.		
	54	Various methods of rain water harvesting.		
	55	Sessional Test-3		
	56	Revision of whole syllabus		
15th	57	Revision of whole syllabus		
	58			
	59	Assignements given based on samples question papers		
	60			

Lesson Plan

Name of the Faculty :	Saurabh Kumar Mishra	
Discipline :	Civil Engineering	
Semester :	4th	
Subject:	Soil Mechanics and Foundation Engineering	**(L - T - P)**
Lesson Plan Duration :	(12 February to 14 June) 15 weeks	**(3 - 0 - 2)**

Week	Lecture day	Topic	Delivery Date of Lecture	Whether the lesson Plan followed? Yes/No
1st	1st	Importance of Soil Studies in Civil Engineering, Geological origin of soils with special reference to soil profiles in India		
	2nd	Residual and transported soil, alluvial deposits, lake deposits, local soil found in Punjab, dunes and loess, glacial deposits, black cotton soils,		
	3rd	Conditions in which various deposits are formed and their engineering characteristics.		
2nd	4th	Names of organizations dealing with soil engineering work in India, soil map of India		
	5th	Constituents of soil and representation by a phase diagram, Void ratio, porosity, degree of saturation, water content, specific gravity		
	6th	Unit weight, bulk density/bulk unit weight, dry unit weight, saturated unit weight and submerged unit weight of soil grains		
3rd	7th	Particle size, shape, and their effect on engineering properties of soil		

	8th	Particle size classification of soils, Gradation and its influence on engineering properties		
	9th	Relative density and its use in describing cohesionless soils, Behaviour of cohesive soils with change in water content		
4th	10th	Atterberg's limit - definitions, use and practical significance		
	11th	Field identification tests for soils		
	12th	Revision		
5th	13	Sessional Test-1		
	14	Concept of permeability and its importance		
	15	Darcy's law, coefficient of permeability, seepage velocity		
6th	16	Factors affecting permeability, Comparison of permeability of different soils as per BIS		
	17	Measurement of permeability in the laboratory		
	18	Stresses in subsoil, Definition and meaning of total stress, effective stress and neutral stress		
7th	19	Principle of effective stress, Importance of effective stress in engineering problems		
	20	Consolidation and settlement		
	21	Creep and Plastic flow		
8th	22	Heaving, Lateral Movement, Freeze and Thaw of soil		
	23	Meaning of total settlement, uniform settlement, and differential settlement; rate of settlement and their effects		
	24	Settlement due to construction operations and lowering of water table		
9th	25	Tolerable settlement for different structures as per BIS		
	26	Concept and Significance of shear strength		
	27	Factors contributing to shear strength of cohesive and cohesion less soils, Coulomb's law		

10th	28	Definition and necessity of compaction, Laboratory compaction test (standard and modified proctor test as per IS) definition		
	29	Importance of optimum water content, maximum dry density		
	30	Moisture dry density relationship for typical soils with different compactive efforts		
11th	31	Compaction control; Density control, measurement of field density by core cutter method and sand replacement method		
	32	moisture control, Proctor's needle and its use, thickness control		
	33	Purpose and necessity of soil exploration, Reconnaissance, methods of soil exploration, Trial pits, borings (auger, wash, rotary, percussion to be briefly dealt)		
12th	34	Sampling; undisturbed, disturbed, and representative samples; selection of type of sample; thin wall and piston samples		
	35	area ratio, recovery ratio of samples and their significance, number, and quantity of samples, resetting, sealing and preservation of samples.		
	36	Presentation of soil investigation results		
13th	37	Sessional Test – 2		
	38	Concept of bearing capacity, Definition and significance of ultimate bearing capacity, net safe bearing capacity and allowable bearing pressure		
	39	Factors affecting bearing capacity,		
14th	40	Improvement of bearing capacity by sand drain method, compaction, use of geo- synthetics.		
	41	Concept of shallow and deep foundation, types of shallow foundations: combined, isolated, strip, mat, and their suitability.		
	42	Factors affecting the depth of shallow foundations, deep foundations,		

15th	43	type of piles and their suitability; pile classification based on material, pile group and pile cap.		
	44	Sessional Test - 3		
	45	Revision		

Name of the Faculty :
Discipline :
Semester :
Subject:
Lesson Plan Duration :

**** Work Load (Lectu**

Week	Practical Day
1st	1
	2
2nd	3
	4
3rd	5
	6
4th	7
	8
5th	9
	10
6th	11
	12
7th	13
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8th	15
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9th	17
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10th	19
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11th	21
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12th	23

12th	24
13th	25
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14th	27
	28
15th	29
	30

Specimen of Lesson Plan

Mr. Mohit Saini
Civil Engineering
4th
Surveying-II (Practical)
15 weeks (from 15.02.2024 to 31.05.2024)

re/Practical) per week (in hours): Lectures-02, Practicals-06

Practical	Delivery Date
Topic	
Digital Theodolite: Introduction	
: i) Study of a transit vernier theodolite; temporary adjustments of theodolite	
ii) Reading the Vernier and working out the least measurement of horizontal angles by repetition and reiteration methods	
iii) Measurement of vertical angles and use of tachometric tables	
iii) Measurement of vertical angles and use of tachometric tables	
iv) Measurement of magnetic bearing of a line	
iv) Measurement of magnetic bearing of a line	
Curves : Introduction	
i) Setting out of a simple circular curve with given data by the following methods a) Offsets from the chords produced by Digital Theodolite	
i) Setting out of a simple circular curve with given data by the following methods a) Offsets from the chords produced by Digital Theodolite	
b) One theodolite method	
b) One theodolite method	
ii) Setting out of simple circular curve by tangential angles using a Digital Theodolite.	
ii) Setting out of simple circular curve by tangential angles using a Digital Theodolite.	
iii) Setting out of a transition curve by tangential offsets using a Digital Theodolite.	
iii) Setting out of a transition curve by tangential offsets using a Digital Theodolite.	
Total Station i) Temporary adjustments of a Total station	
Total Station i) Temporary adjustments of a Total station	
ii) Measurement of distance, horizontal angle and vertical angle.	
ii) Measurement of distance, horizontal angle and vertical angle.	
iii) To plot an area with the help of Total Station	
iv) Layout of any building, school, college, factory etc. with total station showing topographic map also	
DGPS (Differential Global Positioning System) i) Computation of earth work and reservoir capacity with DGPS	

DGPS (Differential Global Positioning System) i) Computation of earth work and reservoir capacity with DGPS	
ii) Layout of drain, canal, road with DGPS.	
ii) Layout of drain, canal, road with DGPS.	
iii) Demarcation of roads, plots, commercial spaces and agricultural land etc. with DGPS	
iii) Demarcation of roads, plots, commercial spaces and agricultural land etc. with DGPS	
iv) Periodic field visits to Survey of India and other government agencies.	
iv) Periodic field visits to Survey of India and other government agencies.	

Government Polytechnic Ambala City

Discipline	Civil Engineering
Semester	4th
Name of Faculty	Lalit Dhalk
Subject	Minor Project
Lesson Plan Duration	15-02-2024 to 31-05-2024
Practical per week	6
Practical Duration	3 hrs

Week	Practical Day	Practical	Delivery Date of Practical
1st	1st	**Introduction to Project-Based Learning** • Explain the concept of project-based learning. • Discuss the importance of practical application in engineering education.	
	2nd	**Introduction to Project-Based Learning** • Explain the concept of project-based learning. • Discuss the importance of practical application in engineering education.	
2nd	3rd	**Group Formation and Team Learning** • Importance of Effective teamwork • Importance of Clear communication • Group Formation.	
	4th	**Project Topic Exploration and Proposal** • Present a range of potential project topics. • Guide students in developing project proposals.	
3rd	5th	**Project Topic Exploration and Proposal** • Present a range of potential project topics. • Guide students in developing project proposals.	
		Project Topic Exploration and Proposal • Present a range of potential project topics. • Guide students in developing project proposals.	

4th	7th	**Project Selection and Approval** • Review and approve project proposals. • Assign project teams based on topic alignment and student preferences.	
	8th	**Project Selection and Approval** • Review and approve project proposals. • Assign project teams based on topic alignment and student preferences.	

5	9th	**Literature Review and Background Research** • Instruct students to conduct literature reviews. • Emphasize the significance of understanding existing knowledge in the chosen area.	
	10th	**Literature Review and Background Research** • Instruct students to conduct literature reviews. • Emphasize the significance of understanding existing knowledge in the chosen area.	
6	11th	**Project Planning and Timeline Development** • Instruct students in developing project plans. • Discuss the importance of timeline management.	
	12th	**Project Planning and Timeline Development** • Instruct students in developing project plans. • Discuss the importance of timeline management.	
7	13th	**Preliminary Design and Feasibility Analysis** • Instruct teams to develop preliminary designs. • Discuss feasibility considerations and constraints.	
	14th	**Preliminary Design and Feasibility Analysis** • Instruct teams to develop preliminary designs. • Discuss feasibility considerations and constraints.	

8	15th	**Material Procurement and Resource Planning** • Discuss material requirements for the projects. • Instruct teams to plan and procure necessary resources.	
	16th	**Material Procurement and Resource Planning** • Discuss material requirements for the projects. • Instruct teams to plan and procure necessary resources.	
9	17th	**Project Execution Phase** • Initiate the execution phase. • Address any queries and concerns from project teams.	
	18th	**Project Execution Phase** • Address any queries and concerns from project teams.	
10	19th	**Project Execution Phase** • Address any queries and concerns from project teams.	
	20th	**Project Execution Phase** • Address any queries and concerns from project teams.	

11	21st	**Project Execution Phase** • Address any queries and concerns from project teams.	
	22nd	**Final Testing and Performance Evaluation** • Conduct final tests and evaluations for each project. • Encourage teams to analyze and document their findings.	
12	23rd	**Final Testing and Performance Evaluation** • Conduct final tests and evaluations for each project. • Encourage teams to analyze and document their findings.	
	24th	**Project Documentation and Reporting** • Instruct teams on documenting their projects thoroughly.	

13	25th	**Project Documentation and Reporting** • Instruct teams on documenting their projects thoroughly. • Allocate time for drafting comprehensive project reports.	
	26th	**Presentation Preparation** • Instruct students on preparing effective project presentations. • Allocate time for rehearsal and peer feedback.	
14	27th	**Presentation Preparation** • Instruct students on preparing effective project presentations. • Allocate time for rehearsal and peer feedback.	
	28th	**Project Presentations and Reflection** • Allow students to present their projects to the class. • Facilitate a class discussion for reflection on the project, lessons learned, and potential improvements.	
15	29th	**Project Presentations and Reflection** • Allow students to present their projects to the class. • Facilitate a class discussion for reflection on the project, lessons learned, and potential improvements.	
	30th	**Project Presentations and Reflection** • Allow students to present their projects to the class. • Facilitate a class discussion for reflection on the project, lessons learned, and potential improvements.	

Government Polytechnic Ambala City

Discipline	Civil Engineering
Semester	4th
Name of Faculty	Lalit Dhalk
Subject	Open Elective (Sustainable Development)
Lesson Plan Duration	15-02-2024 to 31-05-2024
Lecture per week	2
Lecture Duration	1 hrs

Week	Lecture Day	Lecture	Delivery Date of Lecture
1st	1st	**1 Introduction to Sustainability Concepts** 1.1 Definition and significance of sustainable development	
	2nd	1.2 Triple bottom line approach	
2nd	3rd	1.3 Introduction to sustainable development goals (SDGs)	
	4th	**2 Environmental Considerations** 2.1 Environmental Impact Assessment (EIA)	
3rd	5th	2.2 Sustainable Site Planning and Design	
	6th	2.3 Sustainable Water Management	
4th	7th	**3 Green Building and Infrastructure** 3.1 Principles of Green Building Design	
	8th	3.2 Sustainable Site Planning and Design	
5	9th	3.3 Energy-Efficient Building Design	
	10th	3.4 Sustainable materials selection and use in construction	

SESSIONAL 1			
6	11th	**4 Transportation Planning and Sustainable Mobility** 4.1 Sustainable Transportation Infrastructure	
	12th	4.2 Carbon Emission Reduction Strategies	
7	13th	4.3 Strategies for promoting sustainable mobility	
	14th	**5 Waste Management and Recycling** 5.1 Principles of Solid Waste Management	
8	15th	5.2 Designing Sustainable Waste Treatment Facilities	
	16th	5.3 Incorporating Recycled Materials	
9	17th	5.4 Techniques for using recycled materials in civil engineering projects	
	18th	**6 Climate Change Mitigation and Adaptation** 6.1 Impacts of Climate Change on Infrastructure	
10	19th	6.2 Mitigation Strategies	
	20th	6.3 Resilience Building Measures	

SESSIONAL 2			
11	21st	**7 Social Aspects of Sustainable Development** 7.1 Social Equity Considerations	
	22nd	7.2 Community Engagement	

12	23rd	7.3 Environmental Justice	
	24th	**8 Life Cycle Assessment and Sustainable Design Evaluation** 8.1 Life Cycle Assessment (LCA)	
13	25th	8.2 Sustainability Assessment Tools	
	26th	**9 Regulatory Frameworks and Policies** 9.1 National and International Policies	
14	27th	9.2 Regulatory Requirements	
	28th	**10 Professional Ethics and Responsibilities** 10.1 Ethical Considerations	
15	29th	10.2 Professional Responsibilities	
	30th	10.3 Case Studies on Ethical Dilemmas	
SESSIONAL 3			

Lesson Plan

Name of the Faculty :		**Discipline :**	**Civil Engineering**
Subject	**SMFE PRACTICAL**	**Semester :**	**4TH**
Lesson Plan Duration :	**6 March 2023-16 June 2023 (15 Weeks)**		
		L T	**P**
		- -	**2**
Week		**Delivery Date of Lecture**	**Whether the Lesson Plan Followed? Yes/ No**
	Topic		
	(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
Ist	1.To determine the moisture content of a given sample of soil		
2nd	2.Auger Boring and Standard Penetration Test a)Identifying the equipment and accessoriesb)Conducting boring and SPT at a given location c)Collecting soil samples and their identificationd)Preparation of boring log and SPT graphs e)Interpretation of test results		
3rd	3.Extraction of Disturbed and Undistrubed Samples a)Extracting a block sample b)Extracting a tube sample c)Extracting a disturbed samples for mechanical analysis. d)Field identification of samples		
4th	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		
5th	5.Liquid Limit and Plastic Limit Determination: a)Identifying various grooving tools b)Preparation of sample c)Conducting the test d)Observing soil behaviour during tests Computation, plotting and interpretation of results		
6th	**Sessional Test -1**		
7th	6.Mechanical Analysis a)Preparation of sample b)Conducting sieve analysis c)Computation of results d)Plotting the grain size distribution curve e)Interpretation of the curve		
8th	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		
9th	8.Direct Shear Test		
10th	9. Permeability Test		
11th	**Sessional Test -2**		
12th	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		

13th	11.Demonstration of Vane shear Test		
14th	**Sessional Test -3**		
15th	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.		

Lesson Plan			
Name of the Faculty :	**SHOBIT VAJPAYEE**	**Discipline :**	**Civil Engineering**
Subject	**WSWWE practical**	**Semester :**	**4TH**
Lesson Plan Duration :	**15 FEB 2024 -15 June 2024 (15 Weeks)**		
		L T P	
		- - 4	
Week		**Delivery Date of Lecture**	**Whether the Lesson Plan Followed? Yes/ No**
	Topic		
	(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
Ist	To determine turbidity of water sample		
2nd	To determine dissolved oxygen of given sample		
3rd	To determine pH value of water		
4th	To perform jar test for coagulation		
5th	To determine BOD of given sample		
6th	**Sessional Test -1**		
7th	To determine residual chlorine in water		
8th	To determine conductivity of water and total dissolved solids		
9th	To study the installation of following: a)Water meterb)Connection of water supply of building with main c)Pipe valves and bends d)Water supply and sanitary fittings		
10th	**Sessional Test -2**		
11th	To study and demonstrate the joining/tPeriodseading of GI Pipes, CI Pipes, SWG pipes, PVC pipes and copper pipes. To demonstrate the laying of SWG pipes for sewers		
12th	Study of water purifying process by visiting a field lab		
13th	Demonstration of plumbing tools		
14th	**Sessional Test -3**		
15th	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.		

Lesson Plan

Name of the Faculty :	**Shobhit Vajpayee**		**Discipline :**	**Civil Engineering**
Subject	**Water Supply and Waste Water Engineering**		**Semester :**	**4TH**
Lesson Plan Duration :	**15 FEB 2024 -15 June 2024 (15 Weeks)**			
			L T P	
			2 - -	
Week	**Theory**		**Delivery Date of Lecture**	**Whether the Lesson Plan Followed? Yes/ No**
	Lecture Day	**Topic**		
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
Ist	1st	Introduction,Necessity and brief description of water supply system,Sources of water – surface/sub-surface sources		
		Quantity of Water,Water requirement,Rate of demand and variation in rate of demand,		
	2nd	Per capita consumption for domestic, industrial, public and fire fighting		
		uses as per BIS standards,Population Forecasting		
2nd	1st	Quality of Water,Meaning of pure water and methods of analysis of water		
		Physical, Chemical and bacteriological tests and their significance		
	2nd	Standard of potable water as per Indian Standard,Maintenance of purity of water		
		Water Treatment (brief introduction),Sedimentation - purpose, types of sedimentation tanks		
3rd	1st	Coagulation/floculation - usual coagulation and their feeding		
		Filtration - significance, types of filters, their suitability		
	2nd	Necessity of disinfection of water, forms of chlorination,		
		Break point chlorine, residual chlorine, application of chlorine		
4th	1st	Flow diagram of different treatment units, functions of (i) Areation fountain (ii) mixer (iii) floculator, (iv) classifier		
		slow and rapid sand filters, chlorination chamber.		
	2nd	Conveyance of Water,Different types of pipes - cast iron, PVC,		
		Asbestos cement, concrete and lead pipes		
5th	1st	suitability and uses, types of joints in different types of pipes.		
		Appurtenances: Sluice, air, reflux valves		
	2nd	Relief valves, scour valves		
		Bib cocks, stop cocks, fire hydrants, water meters their working and uses		
6th	1st	**Sessional Test-1**		
		Laying of Pipes,Setting out alignment of pipes		
	2nd	Excavation for laying of pipes and precautions to be taken		
		Handling, lowering and jointing of pipes		
7th	1st	Testing of pipe lines,Back filling		
		Building Water Supply,Connections to water main (practical aspect only)		
	2nd	Water supply fittings (with sketches) and terminology related to plumbing		
		WASTE WATER ENGINEERING:Introduction,Purpose of sanitation		

8th	1st	Necessity of systematic collection and disposal of waste,		
		Definition of terms in sanitary engineering		
	2nd	Collection and conveyance of sewage		
		Conservancy and water carriage systems, their advantages and Disadvantages		
		Surface drains (only sketches) : various types, suitability		
9th	1st	Types of sewage: Domestic, industrial, storm water and its seasonal variation		
		Types of sewerage systems		
	2nd	materials for sewers, their sizes and joints		
		ppurtenance: Location, function and construction features.		
10th	1st	Manholes, drop manholes		
		Tank hole, catch basin, inverted siphon		
	2nd	Flushing tanks grease and oil traps, storm regulators, ventilating		
		Laying and Construction of Sewers:		
11th	1st	Setting out/alignment of sewers		
		Excavations, checking the gradient with boning rods preparation of bedding,		
	2nd	Handling and jointing testing and back filling of sewers/pipes.		
		Construction of surface drains and different sections required		
12th	1st	**Sessional Test -2**		
		Sewage Characteristics:Properties of sewage and IS standards for analysis of sewage		
	2nd	Physical, chemical and bacteriological parameters		
		Natural Methods of Sewerage Disposal,General composition of sewage and disposal methods		
13th	1st	Disposal by dilution,Self purification of stream,Disposal by land treatment,Nuisance due to disposal		
		Meaning and principle of primary and secondary treatment and activated sludge process their flow diagrams		
	2nd	Introduction and uses of screens, grit chambers, detritus tanks, skimming tanks,		
		Plainsedimentation tanks, primary clarifers, secondary clarifers, filters		
14th	1st	Control beds, intermittent sand filters, trickling filters, sludge treatment and disposal, oxidation ponds		
		Aims of building drainage and its requirements		
	2nd	Different sanitary fittings and installations,Traps		
		Sessional Test -3		
15th		Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.		