Deptt. of Civil Engg.
Govt. Polytechnic Kinnaur
Lesson Plan

Name of teacher :- Puneet Sharma | Subject :- Advanced Surveying | Class:- 4th sem.

Session:- Jan-June 2025 | Total Periods: Theory-42, Practicals-Nil

S.No	Period No.	Topic/Practical	Details of topic/practical	Remarks
1	1-7	Unit – 1 Plane Table Surveying	Unit – 1 Plane Table Surveying □ Principles of plane table survey. □ Accessories of plane table and their use, Telescopic alidade. □ Setting of plane table; Orientation of plane table - Back sighting and Magnetic meridian method. □ Methods of plane table surveys- Radiation, Intersection and Traversing. □ Merits and demerits of plane table survey.	
2	8-18	Unit– 2 Theodolite Surveying	Unit– 2 Theodolite Surveying □ Types and uses of Theodolite, Components of transit Theodolite and their functions, Reading the Vernier of transit Theodolite. □ Technical terms- Swinging, Transiting, Face left, Face right. □ Fundamental axes of transit Theodolite and their relationship □ Temporary adjustment of transit Theodolite. □ Measurement of horizontal angle- Direct and Repetition method, Errors eliminated by method of repetition. □ Measurement of magnetic bearing of a line, Prolonging and ranging a line, deflection angle. □ Measurement of vertical Angle. □ Theodolite traversing by included angle method and Deflection angle method. □ Traverse Computation-Latitude, Departure, Consecutive coordinates, independent coordinates.	
3	19-31	UNIT 3 –Unit–3 Tacheometric surveying and Curve setting	Unit–3 Tacheometric surveying and Curve setting □ Principles of Tacheometry, Tacheometer, and its component parts, Anallatic lens. □ Tacheometric formula for horizontal distance with telescope horizontal and staff vertical. □ Field method for determining constants of tacheometer, determining horizontal and vertical distances with tacheometer by fixed hair method	1st Assignment 2nd week of March
4	32-38	UNIT 4 –Unit– 4 Advanced surveying equipment	Unit– 4 Advanced surveying equipment □ Principle of Electronic Distance Meter (EDM), its component parts and their Functions, use of EDM. □ Use of micro-optic Theodolite and Electronic Digital Theodolite. □ Use of Total Station, Use of function keys.	
5	38-42	UNIT 5-Unit– 5 Remote sensing, GPS and GIS	Unit– 5 Remote sensing, GPS and GIS □ Remote Sensing – Overview, Remote sensing system, Applications of remote sensing in Civil engineering, land use / Land cover, mapping, disaster management. □ Use of Global Positioning System (G.P.S.) instruments. □ Geographic Information System (GIS): Overview, Components, Applications, Software for GIS. □ Introduction to Drone Surveying	2nd Assignment 4th week of April

Signature of Teacher

Deptt. of Civil Engg.
Govt. Polytechnic Kinnaur
Lesson Plan

Name of teacher :- Puneet Sharma Subject :- Construction Management Class:- 4th sem.
Session:- Jan-June 2025 Total Periods: Theory-42, Practicals-Nil

S.No	Period No.	Topic/Practical	Details of topic/practical	Remarks
1	1-8	Unit – I Construction industry and management	Unit – I Construction industry and management □ Organization-objectives, principles of organization, types of organization: government/public and private construction industry, Role of various personnel in construction organization □ Agencies associated with construction work- owner, promoter, builder, designer, architects. □ Role of consultant for various activities: Preparation of Detailed Project Report (DPR), Monitoring of progress and quality, settlement of disputes	
2	9-16	Unit – II Site Layout	Unit – II Site Layout □ Principles governing site layout. □ Factors affecting site layout. □ Preparation of site layout. □ Land acquisition procedures and providing compensation.	
3	17-28	Unit- III Planning and scheduling	Unit- III Planning and scheduling □ Identifying broad activities in construction work & allotting time to it, Methods of Scheduling, □ Development of bar charts, Merits & limitations of bar chart. □ Elements of Network: Event, activity, dummy activities, Precautions in drawing Network, Numbering the events. □ CPM networks, activity time estimate, Event Times by forward & backward pass calculation, start and finish time of activity, project duration. Floats: Types of Floats-Free, independent, and total floats, critical activities and critical path, □ Purpose of crashing a network, Normal Time and Cost, Crash Time and Cost, Cost slope, □ Optimization of cost and duration. □ Material Management- Ordering cost, inventory carrying cost, Economic Order Quantity Store management, various records related to store management, inventory control by ABC technique, Introduction to material procurement through portals (e.g. www.inampro.nic.in)	1st Assignment 2nd week of March
4	29-36	Unit IV Construction Contracts and Specifications	Unit IV Construction Contracts and Specifications □ Types of Construction contracts □ Contract documents, specifications, general special conditions □ Contract Management, procedures involved in arbitration and settlement (Introduction only)	
5	37-42	Unit– V Safety in Construction	Unit– V Safety in Construction □ Safety in Construction Industry—Causes of Accidents, Remedial and Preventive Measures. □ Labour Laws and Acts pertaining to Civil construction activities (Introduction only) Suggested learning	2nd Assignment 2nd week of April

Signature of Teacher

Deptt. of Civil Engg.
Govt. Polytechnic Kinnaur
Lesson Plan

Name of teacher :- Manoj Kumar Subject :- Building Planning & Dwg. Lab Class:- 4th sem.
Session:- Jan-June 2025 Total Periods: Theory-Nil, Practicals-56

S.No	Period No.	Topic/Practical	Details of topic/practical	Remarks
1	1-8		1. Draw various types of lines, graphical symbols for materials, doors and windows, symbols for sanitary, water supply and electrical installations and write abbreviations as per IS 962	
2	9-12		2. Draw line plan to suitable scale (1BHK, staircase, WC and Bathroom)	
3	13-18		Draw line plans to suitable scale for the following Public Buildings (School Building and Community Hall).	
4	19-30		Draw submission drawing to the scale 1:100 of a single storey load bearing residential building (2BHK) with flat Roof and staircase showing a. Developed plan and elevation b. Section passing through Stair or W.C. and Bath c. Foundation plan and schedule of openings. d. Site plan (1:200), area statement, construction notes.	
5	31-42		Draw submission drawing, to the scale of 1:100, of (G+1) Framed Structure Residential Building (2BHK) with Flat Roof and staircase showing: a. Developed plan b. Elevation. c. Section passing through Staircase, WC and Bath d. Site plan (1:200) and area statement e. Schedule of openings and Construction Notes.	
6	43-50		6. Draw working drawing for above mentioned drawing at serial number 5 showing: a. Foundation plan to the scale 1:50 b. Detailed enlarged section of RCC column and footing with plinth filling. c. Detailed enlarged section of RCC Beam, Lintel and Chajjas	
7	51-56		7. Draw the above-mentioned drawing at serial number 5 using CAD software and enclose the printout. a. Developed plan b. Elevation.	

Signature of Teacher

Deptt. of Civil Engg.
Govt. Polytechnic Kinnaur
Lesson Plan

Name of teacher :- Manoj Kumar Subject :- Building Planning & Drawing Class:- 4th sem.
Session:- Jan-June 2025 Total Periods: Theory-14, Practicals-Nil

S.No	Period No.	Topic/Practical	Details of topic/practical	Remarks
1	1-2	Unit – I Conventions and Symbols	Conventions as per IS 962, symbols for different materials such as earthwork, brickwork, stonework, concrete, woodwork, and glass. □ Graphical symbols for doors and windows, Abbreviations, symbols for sanitary and electrical installations. □ Types of lines-visible lines, centre line, hidden line, section line, dimension line, extension line, pointers, arrowhead, or dots. Appropriate size of lettering and numerals for titles, sub-titles, notes, and dimensions. □ Types of scale- Monumental, Intimate, criteria for Proper Selection of scale for various types of drawing. □ Sizes of various standard papers/sheets. □ Reading and interpreting readymade Architectural building drawing (To be procured from Architect, Planning Consultants, Planning Engineer).	
2	3-6	Unit– II Planning of Building	Principles of planning for Residential and Public building- Aspect, Prospect, Orientation, Grouping, Privacy, Elegance, Flexibility, Circulation, Furniture requirements, Sanitation, Economy. □ Space requirement and norms for minimum dimension of different units in the residential and public buildings as per IS 962. □ Rules and byelaws of sanctioning authorities for construction work. □ Plot area built up area, super built-up area, plinth area, carpet area, floor area and FAR (Floor Area Ratio). □ Line plans for residential building of minimum three rooms including water closet (WC), bath and staircase as per principles of planning. Line plans for public building-school building, primary health centre, restaurant, bank, post office, hostel, Function Hall and Library.	1st Assignment 1st week of March
3	7-10	Unit– III Drawing of Load Bearing Structure	Drawing of Single storey Load Bearing residential building (2 BHK) with staircase. □ Data drawing –plan, elevation, section, site plan, schedule of openings, construction notes with specifications, area statement, Planning and design of staircase- Rise and Tread for residential and public building. □ Working drawing – developed plan, elevation, section passing through staircase or WC and bath. □ Foundation plan of Load bearing structure.	2nd Assignment 1st week of April
4	11-14	Unit– IV Drawing of Framed Structure	Drawing of Two storeyed Framed Structure (G+1), residential building (2 BHK) with stair- case. □ Data drawing – developed plan, elevation, section, site plan, schedule of openings, construction notes with specifications, area statement. Planning and design of staircase- Rise and Tread for residential and public building. □ Working drawing of Framed Structure – developed plan, elevation, section passing through staircase or WC and bath. □ Foundation plan of Framed Structure. □ Details of RCC footing, Column, Beam, Chajjas, Lintel, Staircase, and slab. □ Drawing with CAD- Draw commands, modify commands, layer commands.	

Signature of Teache

Planned Syllabus Coverage (Theory)						
Govt. Polytechnic Kinnaur		Subject: Essence of Indian Knowledge System Sem:4th Civil Engg.				
		Course: Diploma(Audit Course) Duration: 14 Weeks				
		Total Periods - 28				
Sr. No.	Period No.	Topic	Details	Instruction References	Additional Study Recommended	Remarks
1	1 to 8	Indian Knowledge System	Introduction and Functions of IKS Basic Structure of IKS - The Vedas, The Upavedas, The Vedangas, Itihasa, Dharamshastra, Darshan, Nyaya & Epistimology			
2	9 to 13	Modern Science	Modern Science: Introduction, Characteristics, Importance Differene between Modern Science and Indian Knowledge System Role of IKS in modern Science			
3	14 to 18	Traditional Knowledge	Traditional Knowledge: Definition, nature, characteristices, Scope and importance Indigenous Knowledge Traditional Knowledge vis-à-vis Indian Knowledge , Traditional Knowledge vis-à-vis Western kowledge, need for protectingTraditional Knowledge			
4	19 to 22	Yoga ans Holistic Health care	Yoga- Meaning and Importance Introduction to Ashtanga Yoga, Yogic Kriyas Pranayama and its types Physical Fitness, Health and Wellness Traditional Sports and regional games for promoting wellness , leadership qualities through Physical Activity			
5	23 to 28	Himachal Pradesh: A Basic Information	History, Culture, Heritage, customs, regionall Knowledge, Geographical features, Constitutional History, tourism Places and Scope, Festivals and fairs			

Monika (Lecturer English)

Deptt. of Civil Engg.
Govt. Polytechnic Rkinnaur
Lesson Plan

Name of teacher :- Manoj Kumar
Session:- Jan-June 2025
Subject :- Railway Bridges & Tunnels
Total Periods: Theory-42, Practicals-Nil
Class:- 4th sem.

S.No	Period No.	Topic/Practical	Details of topic/practical	Remarks
1	1-16	PART–1: RAILWAYS	PART–1: RAILWAYS □ Introduction to Indian Railways □ Railways surveys: Factors influencing the railways route, brief description of various types of railway survey □ Classification of permanent way describing its component part □ Rail Gauge; Definition, types, practice in India □ Rail – types of rails □ Rail Fastening: Rail joints, types of rail joints, fastening for rails, Fish plates, spikes bearing plates □ Sleepers: Functions of sleepers, types of sleepers, requirements of an ideal material of Sleepers. □ Ballast: Function of ballast, requirements of an ideal material of ballast □ Crossing and signalling: Brief description regarding different types of crossing/signalling □ Maintenance of track: Necessity, track fixtures; maintenance and boxing of ballast, maintenance gauges, tools. □ Drains, methods of construction	1st Assignment 1st week of March
2	17-32	PART-II: BRIDGES	PART-II: BRIDGES □ Introduction □ Bridge–its function and component parts, difference between a bridge and A culvert □ Classification of Bridges □ Their structural elements and suitability: □ According to life-permanent and temporary □ According to deck level–Deck, through and semi-through □ According to material–timber, masonry, steel, RCC, pre-stressed □ IRC classification □ Bridge Foundations: Introduction to open foundation pile foundation, Well foundation □ Piers, Abutments and Wing walls □ Piers–definition, parts; types–solid (masonry and RCC), open □ Abutment sand wing walls–definition, types of abutment (straight and tee), abutment with wing walls 47 (straight, splayed, return and curved) □ Bridge bearings Purpose of bearing; types of bearing–fixed plate, rocker and roller, □ Maintenance of Bridges □ Inspection of bridges □ Routine maintenance	2nd Assignment 1st week of April
3	33-42	PART–III: TUNNELS	PART–III: TUNNELS □ Definition and necessity of tunnels □ Typical section of tunnels for a national highway and single and double broad gauge railway track. □ Ventilation-necessity and methods of ventilation, by blowing, exhaust and combination of blowing and exhaust □ Drainage method of draining water in tunnels □ Lighting in tunnels & lining of tunnels.	

Signature of Teacher

Deptt. of Civil Engg.
Govt. Polytechnic Kinnaur
Lesson Plan

Name of teacher :- Nidhi Chauhan Subject :- Transportation Engineering Lab Class:- 4th sem.
Session:- Jan-June 2025 Total Periods: Theory-Nil, Practicals-28

S.No	Period No.	Topic/Practical	Details of topic/practical	Remarks
1	1-2		Draw the sketches showing standard cross sections of Expressways, Freeways, NH/SH, MDR/ODR	
2	3-4		Flakiness and Elongation Index of aggregates	
3	5-6		Angularity Number of aggregates	
4	7-8		Aggregate impact test	
5	9-10		Los Angeles Abrasion test	
6	11-12		Aggregate crushing test	
7	13-14		Softening point test of bitumen	
8	15-16		Penetration test of bitumen	
9	17-18		Flash and Fire Point test of bitumen	
10	19-20		Ductility test of Bitumen.	
11	21-22		Visit the constructed road for visual inspection to identify defects and suggest remedial measures.	
12	23-24		Prepare the photographic report containing details for experiment No. 11.	
13	25-26		Visit the hill road constructed site to understand its components.	
14	27-28		Prepare the photographic report containing details for experiment No. 13	

Signature of Teacher