

Govt. Polytechnic Hamirpur (H.P.)
Practical Planning & Coverage

Branch : Civil Engineering

Semester: 4th

Subject : Minor Project

Session : JAN - JUNE 2026

Teacher: Er. Sujaya Sharma

Laboratory: Field Work

Pract. No.	Description of Practical	Reference for Procedure/ Writeup	Likely Dates	Actual Dates	Signature
1	Introduction & discussion	Refer previous semester books, Schedule of rates, Market list & brochures of the vendors and various brands for specifications			
2	Discussion & Market Survey of various types of wood used in construction and are available in the market.				
3	Discussion & Market Survey of various types of water closets & bath fittings used in houses and are available in the market.				
4	Discussion & Market Survey of various types of sanitary fittings used in construction and are available in the market.				
5	Discussion & Market Survey of various types of flooring material used in construction and are available in the market.				
6	Discussion & Market Survey of various types of construction material used in construction and are available in the market.				
7	Discussion & Market Survey of various types of aluminum being used in construction, what construction elements are being made/ used in the market.				
8	Discussion & Market Survey of various types of paints used in construction and are available in the local market.				
9	Discussion & Market Survey of various types of electrical fittings used in construction and are available in the local market.				
10	Prepare complete estimate of a 1 bedroom set				
11	Prepare complete estimate of a 1 bedroom set				
12	Visit nearby construction sites				
13	Visit nearby construction sites				
14	Visit nearby construction sites				

Signature of Subject Teacher

Lesson Planning (Theory)

Branch : Civil Engineering

Semester : 4th

Subject : Building Planning and drawing

Session: Jan -June 2025

Teacher: Er. Shivani

Class Room: L-7

S.No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1		Conventions and symbols	<p>Conventions as per IS 962, symbols for different materials such as earthwork, brickwork, stonework, concrete, woodwork, and glass.</p> <p>Graphical symbols for doors and windows, Abbreviations, symbols for sanitary and electrical installations.</p> <p>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.</p> <p>Sizes of various standard papers/sheets.</p> <p>Reading and interpreting readymade Architectural building drawing (To be procured from Architect, Planning Consultants, Planning Engineer).</p>		
2		Planning of Building	<p>Principles of planning for Residential and Public building- Aspect, Prospect, Orientation, Grouping, Privacy, Elegance, Flexibility, Circulation, Furniture requirements, Sanitation, Economy.</p> <p>Space requirement and norms for minimum dimension of different units in the residential and public buildings as per IS 962.</p> <p>Rules and byelaws of sanctioning authorities for construction work.</p> <p>Plot area built up area, super built-up area, plinth area, carpet area, floor area and</p>		

			<p>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. 41</p>		
3		<p>Drawing of Load Bearing Structure</p>	<p>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</p>		
4		<p>Drawing of Framed structures</p>	<p>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</p>		

REFERENCE RESOURCES

- 1 Shah. M.G. Kale, CM, Patki, S.Y., Building Drawing, McGraw Hill Publishing company Ltd. New Delhi.
- 2 Malik and Mayo, Civil Engineering Drawing, Computech Publication Ltd New Asian Publishers, New Delhi.
- 3 M. G. Shah and C. M. Kale, Principles of Perspective Drawing, McGraw Hill Publishing company Ltd. New Delhi.
- 4 Swamy, Kumara; Rao, N, Kameshwara, A. Building Planning and Drawing, Charotar Publication, Anand.
- 5 Bhavikatti, S. S., Building Construction, Vikas Publication House Pvt. Ltd., New Delhi


Signature of Teacher with Date

Signature of H.O.D.

Practical Planning & Coverage

Branch : Civil Engineering

Semester : 7th

Subject : Building Drawing and Planning Lab

Session: jan-june 2026

Teacher: Er. Shivani

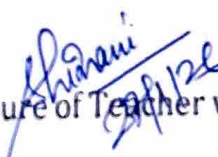
Laboratory: Drawing hall

Experiment No.	Description of Practical	Reference for Procedure / Write up	Likely Dates	Actual Dates	Signature
<u>1</u>	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.	R1	29/1/26 2/2/26 5/2/2026		
<u>2</u>	2. Draw line plan to suitable scale (1BHK, staircase, WC and Bathroom)	R1	9/2/26 12/2/2026		
<u>3</u>	3. Draw line plans to suitable scale for the following Public Buildings (School Building and Community Hall).	R1	16/2/2026 19/2/2026 23/2/2026		
<u>4</u>	4. 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.	R1	26/2/2026 2/3/2026 5/3/2026 9/3/2026 12/3/2026		
<u>5</u>	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	R1	16/3/2026 19/3/2026 23/3/2026 26/3/2026		

	Staircase, WC and Bath d. Site plan (1:200) and area statement e. Schedule of openings and Construction Notes.	30/3/26 2/4/26			
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.	R1 6/4/26 9/4/26 13/4/26 16/4/26			
7	7. Draw the above-mentioned drawing at serial number 5 using CAD software and enclose the printout. a. Developed plan b. Elevation. c. Section passing through Staircase, W.C. and Bath d. Foundation plan. e. Site plan (1:200), area statement, Schedule of openings and construction note.	R1 20/4/26 23/4/26 27/4/26 30/4/26 4/5/26			

Reference Books:

1. Shah. M.G. Kale, CM, Patki, S.Y., Building Drawing, McGraw Hill Publishing
2. Malik and Mayo, Civil Engineering Drawing, Computech Publication Ltd
3. M. G. Shah and C. M. Kale, Principles of Perspective Drawing, McGraw Hill
4. Swamy, Kumara; Rao, N, Kameshwara, A., Building Planning and Drawing, Charotar Publication, Anand.
5. Bhavikatti, S. S., Building Construction, Vikas Publication House Pvt. Ltd., Delhi.
6. Mantri, Sandip, A to Z Building Construction, Satya Prakashan, New Delhi.
7. Singh, Ajit, working with Auto CAD 2000, McGraw Hill Publishing company Ltd.
8. Sane, Y.S., Planning and design of Building, Allied Publishers, New Delhi.

Signature of Teacher with Date

 28/4/26

Signature of H.O.D.

Govt. polytechnic Hamirpur

Branch: Civil engineering
 Subject: Construction Management
 Teacher : Er. Shivani

Semester: 4th
 Session- Jan- june 2026

Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1		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		Site Layout	Principles governing site layout. • Factors affecting site layout. • Preparation of site layout. • Land acquisition procedures and providing compensation.		
3		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		

4	Construction Contracts and Specifications	<ul style="list-style-type: none"> • Types of Construction contracts • Contract documents, specifications, general special conditions • Contract Management, procedures involved in arbitration and settlement (Introduction only) 		
5	Safety in Construction	<ul style="list-style-type: none"> • Safety in Construction Industry—Causes of Accidents, Remedial and Preventive Measures. • Labor Laws and Acts pertaining to Civil construction activities (Introduction only) 		

REFERENCE RESOURCES

- Sharma S C and Deodhar S V, Construction Engineering and Management, Khanna Book Publishing, New Delhi
- Gahlot, P.S. and Dhir, B.M Construction planning and management New Age International (P) Ltd. Publishers, New Delhi.
- Shrivastava, U.K., Construction planning and management, Galgotia Publication Pvt Ltd. New Delhi
- Mantri, S., The A to Z of Practical Building Construction and its Management, Satya Prakashan New Delhi
- Khanna, O.P., Industrial Engineering and management, Dhanpat Rai New Delhi
- Punmia, B.C. and Khandelwal, K.K., Project Planning and Controlling with PERT and CPM, Laxmi Publications (P)Ltd.
- Sengupta, B., Guha H., Construction Management and Planning, Tata-McGraw Hill

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27/11/26
Signature of Teacher

Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)
Lesson Planning (Theory)

Branch : Civil Engineering

Semester: 4th

Subject : Ralways Bridges & Tunnels

Session: Jan - June 2026

Teacher: Er. Sujaya Sharma

Class Room: L-6

Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	16	PART-I: RAILWAYS	<ul style="list-style-type: none"> • 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. 	R1& R2	
2	16	PART-II: BRIDGES	<ul style="list-style-type: none"> • 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 	R1& R2	

Govt. polytechnic Hamirpur

Branch: Civil engineering
 Subject: Transportation Engg.
 Teacher : Er. Shivani

Semester: 4th
 Session- Jan- june 2026

Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1		Overview of Highway Engineering	Role of transportation in the development of nation, Scope and Importance of roads in India and its Characteristics. Different modes of transportation – land way, waterway, airway. Merits and demerits of roadway and railway. General classification of roads. Selection and factors affecting road alignment		
2		Geometric Design of Highway	Camber: Definition, purpose, types as per IRC – recommendations. Kerbs: Road margin, road formation, right of way. Design speed and various factors affecting design speed as per IRC – recommendations. Gradient: Definition, types as per IRC – Recommendations. Sight distance (SSD): Definition, types IRC – recommendations, simple numerical. Curves: Necessity, types: Horizontal, vertical curves. Super elevation: Definition, formula for calculating minimum and maximum Super elevation and method of providing super-elevation. Standards cross-sections of national highway in embankment and cutting		

3	Construction of Road Pavements	<p>Types of road materials and their Tests – Test on aggregates- Flakiness and Elongation Index tests, Angularity Number test, test on Bitumen- penetration, Ductility, Flash and Fire point test and Softening point test.</p> <p>Pavement – Definition, Types, Structural Components of pavement and their functions</p> <p>Construction of WBM road. Merits and demerits of WBM & WMM road.</p> <p>Construction of Flexible pavement / Bituminous Road, Types of Bitumen and its proper- ties, Emulsion, Cutback, Tar, Terms used in BR-prime coat, tack coat, seal coat, Merits and Demerits of BR. Cement concrete road methods of construction, Alternate and Continuous Bay Method, Construction joints, filler and sealers, merits and demerits of concrete roads. Types of joints</p>		
4	Basics of Railway Engineering	<p>Classification of Indian Railways, zones of Indian Railways.</p> <p>Permanent way: Ideal requirement, Components; Rail Gauge, types, factors affecting selection of a gauge.</p> <p>Rail, Rail Joints - requirements, types.</p> <p>Creep of rail causes and prevention.</p>		
5	Track geometrics, Construction and Maintenance	<p>Alignment- Factors governing rail alignment.</p> <p>Track Cross sections – standard cross section of single and double line in cutting and embankment. Important terms- permanent land, formation width, side drains,</p> <p>Railway Track Geometrics: Gradient, curves- types and factors affecting, grade compensation, super elevation, limits of Super elevation on curves, cant deficiency, negative cant, coning of wheel, tilting of rail.</p> <p>Branching of Tracks, Points and crossings, Turn out- types, components, functions and inspection. Track junctions: crossovers, scissor cross over, diamond crossing, track triangle.</p> <p>Station -Purpose, requirement of railway station, important technical terms, types</p>		

		<p>of rail- way station, factors affecting site selection for railway station.</p> <p>Station yard: Classification- Passenger, goods, locomotive and marshalling yards.</p> <p>Function & drawbacks of marshalling yards.</p> <p>Track Maintenance- Necessity, Classification, Tools required for track maintenance with their functions, Organization of track maintenance, Duties of permanent way inspector, gang mate and Key man.</p>		
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REFERENCE RESOURCES

1. Khanna S.K., Justo, C E G and Veeraragavan, A.
2. Highway Engineering, Nem Chand and Brothers, Roorkee

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Signature of Teacher with Date

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Practical Planning & Coverage

Semester : 4th

Session: Jan - June 2026

Laboratory: TE Lab

Branch : Civil Engineering

Subject : Transportation engg.Lab

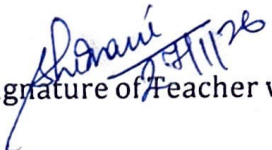
Teacher: Er. Shivani

Experiment. No.	Description of Practical	Reference for Procedure / Write up	Likely Dates	Actual Dates	Signature
1	Draw the sketches showing standard cross sections of Expressways, Freeways, NH/SH, MDR/ODR Los Angeles Abrasion test	R1	27/1/26 (42) 31/1/26 (41)		
2	Flakiness and Elongation Index of aggregates	R1	3/2/26 (42) 7/2/26 (41)		
3	Angularity Number of aggregates.	R1	10/2/26 (42) 21/2/26 (41)		
4	Aggregate impact test	R1	17/2/26 (42) 28/2/26 (41)		
5	Los Angeles Abrasion test	R1	24/2/26 (42) 7/3/26 (41)		
6	Aggregate crushing test	R1	10/3/26 (42) 21/3/26 (41)		
7	Softening point test of bitumen	R1	17/3/26 (42) 28/3/26 (41)		
8	Penetration test of bitumen.	R1	24/3/26 (42) 4/4/26 (41)		
9	Flash and Fire Point test of bitumen.	R1	30/3/26 (42) 18/4/26 (41)		
10	Ductility test of Bitumen	R1	7/4/26 (42) 28/4/26 (41)		
11	Visit the constructed road for visual inspection to identify defects and suggest remedial measures	R1	21/4/26 (42) 2/5/26 (41)		

<u>12</u>	Prepare the photographic report containing details for experiment No. 11.	R1	28/4/26 (2) 9/5/26 (1)		
<u>13</u>	Visit the hill road constructed site to understand its components.	R1	5/5/26 (2) 16/5/26 (1)		
<u>14</u>	Prepare the photographic report containing details for experiment No. 13	R1	12/5/26 (2) 23/5/26 (1)		

Reference Books:

Khanna S.K., Justo, C E G and Vee Ragavan, A., Highway Engineering, Nem Chand, and Brothers, Roorkee. Arora, N. L., Transportation Engineering, Khanna Publishers, Delhi.


Signature of Teacher with Date

Signature of H.O.D.