

Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138
Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Construction Material
3	Subject Code	CEPC201

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Neha Thakur

Evaluation Scheme

Evaluation Scheme															
Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Construction Material	3	0	0	3	40		40	60	3			60	100	3
Reference Books		1	S.K. Sharma, Civil Engineering Construction Materials, Khanna Publishing House, Delhi												
		2	Sharma C. P., Engineering Materials, PHI Learning, New Delhi.												

Course outcomes (COs):

- 1 Identify relevant construction materials.
- 2 Identify relevant natural construction materials.
- 3 Select relevant artificial construction materials.
- 4 Select relevant special type of construction materials.
- 5 Identify and use of processed construction materials.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit – I: Overview of Construction Materials	Scope of construction materials in Building Construction, Transportation Engineering, Environmental Engineering, Irrigation Engineering (applications only).	01-08-2026		
2		Selection of materials for different civil engineering structures based on strength,	06-08-2026		
3		Selection of materials for different civil engineering structures based on durability, Eco friendly and economy	07-08-2026		
4		Broad classification of materials – Natural, Artificial,	13-08-2026		
5		Broad classification of materials – special, finishing and recycled.	14-08-2026		

6	Unit – II: Natural Construction Materials	Requirements of good building stone; general characteristics of stone;	20-08-2026		
7		quarrying and dressing methods and tools for stone.	21-08-2026		
8		Structure of timber, general properties and uses of good timber,	22-08-2026		
9		different methods of seasoning for preservation of timber, defects in timber,	27-08-2026		
10		use of bamboo in construction. Asphalt, bitumen, and tar used in construction, properties and uses.	28-08-2026		
11		Properties of lime, its types and uses.	29-08-2026		
12		Types of soil and its suitability in construction.	03-09-2026		
13		Properties of sand and uses	05-09-2026		
14		Classification of coarse aggregate according to size	10-09-2026		
15		Class Test - I	11-09-2026		
16	Unit- III: Artificial Construction Materials	Constituents of brick earth, Conventional / Traditional bricks, Modular and Standard bricks, Special bricks –fly ash bricks, Characteristics of good brick,	17-09-2026		
17		Field tests on Bricks, Classification of burnt clay bricks and their suitability,	18-09-2026		
18		Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks.	19-09-2026		
19		Flooring tiles – Types, uses	24-09-2026		
20		Manufacturing process of Cement - dry and wet (only flow chart), types of cement and its uses. Field tests on cement.	25-09-2026		

21		Pre-cast concrete blocks-hollow, solid, pavement blocks, and their uses.	26-09-2026		
22		Plywood, particle board, Veneers, laminated board and their uses.	01-10-2026		
23		Types of glass: soda lime glass, lead glass and borosilicate glass and their uses. Ferrous and non-ferrous metals and their uses.	03-10-2026		
24		Class Test - II	08-10-2026		
25	Unit- IV: Special Construction Materials	Types of material and suitability in construction works of following materials: Water proofing, Termite proofing; Thermal and sound insulating materials.	09-10-2026		
26		Types of material and suitability in construction works of following materials: Water proofing, Termite proofing; Thermal and sound insulating materials.	15-10-2026		
27		Fibers – Types –Jute, Glass, Plastic Asbestos Fibers, (only uses).	16-10-2026		
28		Geo polymer cement: Geo-cement: properties, uses.	17-10-2026		
29	Unit- V: Processed Construction Materials	Constituents and uses of POP (Plaster of Paris),	22-10-2026		
30		POP finishing boards, sizes, and uses.	23-10-2026		
31		Paints- whitewash, cement paint, Distempers,	24-10-2026		
32		Oil Paints and Varnishes with their uses.	29-10-2026		
33		Revision	30-10-2026		
34		Revision	31-10-2026		
35		House Test	05-11-2026		
36		House Test	06-11-2026		
37		Industrial waste materials- Fly ash, Blast furnace slag,	07-11-2026		
38		Granite and marble polishing waste and their uses.	12-11-2026		

39	Agro waste materials - Rice husk, Bagasse,	13-11-2026		
40	coir fibers and their uses,	19-11-2026		
41	Special processed construction materials; Geo synthetic, Ferro Crete,	20-11-2026		
42	Artificial timber, Artificial sand, and their uses.	21-11-2026		
43	Revision	26-11-2026		
44	Revision	27-11-2026		
45	Revision	28-11-2026		

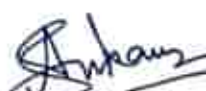
Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II, Unit III	25/8/2026		
2	Assignments No. 2	Unit III, Unit IV, Unit V	22/10/2026		

House Test/Class Test

Sr No	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	Class Test 1	Unit I, Unit II	As per		
2	Class Test 2	Unit III, Unit IV	HPTSB		
3	House Test	Unit I, Unit II, Unit III, Unit	Academic		


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 Er Neha Thakur


H.O.D Civil Engg
 Er Adit Rana

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1 Programme Name	Civil Engineering
2 Subject Name	Basic Surveying
3 Subject Code	CEPC203

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Naveen Bharti

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	BS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Basic Surveying	2	0	1	3	40		40	60	3			60	100	2
Reference Books		1	Punmia, B.C, Jain, Ashok Kumar, Jain, Arun Kumar, Surveying I, Laxmi Publications, New Delhi												
		2	Basak, N. N., Surveying and Levelling, McGraw Hill Education, New Delhi.												

Course outcomes (COs):

- 1 To understand types of surveying works required.
- 2 To know the types of method and equipment to be used for different surveys.
- 3 To know the use and operational details of various surveying equipment.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit I: Overview and Classification of Survey	Survey- Purpose and Use.	01-08-2026		
2		Types of surveying- Primary and Secondary, Classification: Plane, Geodetic.	06-08-2026		
3		Types of surveying- Classification: Cadastral, Hydrographic, Photogrammetry and Aerial.	07-08-2026		
4		Principles of Surveying.	13-08-2026		
5		Scales: Engineer's scale, Representative Fraction (RF) and diagonal scale.	14-08-2026		
6	Unit II: Chain Surveying	Instruments used in chain survey: Metric Chain, Tapes, Arrow, Ranging rod, Line ranger.	20-08-2026		
7		Instruments used in chain survey: , Offset rod, Open cross staff, Optical square.	21-08-2026		
8		Chain survey Station, Base line, Check line, Tie line, Offset, Tie	22-08-2026		
9		Ranging: Direct and Indirect Ranging.	27-08-2026		
10		Methods of Chaining, obstacles in chaining.	29-08-2026		

12	Unit II: Chain Surveying	Errors in length: Instrumental error, personal error, error due to natural cause, random error.	03-09-2026		
13		Principles of triangulation.	05-09-2026		
14		Types of offsets: Perpendicular and Oblique. Conventional Signs. Recording of measurements in a field book.	10-09-2026		
15	Unit III: Compass Surveying	Compass Traversing- open, closed.	11-09-2026		
16		Technical Terms: Geographic/ True Magnetic Meridians and Bearings, Whole Circle Bearing system and Reduced Bearing system.	17-09-2026		
17		Examples on conversion of given bearing to another bearing (from one form to another), Fore Bearing and Back Bearing.	18-09-2026		
18		Calculation of internal and external angles from bearings at a station, Dip of Magnetic needle, Magnetic Declination.	19-09-2026		
19		Components of Prismatic Compass and their Functions.	24-09-2026		
20		Methods of using Prismatic Compass- Temporary adjustments and observing bearings.	25-09-2026		
21		Local attraction.	26-09-2026		
22		Methods of correction of observed bearings - Correction at station.	01-10-2026		
23			03-10-2026		
24		Methods of correction of observed bearings - Correction to included angles.	08-10-2026		
25			09-10-2026		
26	Unit IV: Levelling and Contouring	Basic terminologies: Level surfaces, Horizontal and vertical surfaces, Datum.	15-10-2026		
27		Benchmarks- GTS, Permanent, Arbitrary and Temporary, Reduced Level, Rise, Fall, Line of collimation, Station, Back sight, Fore sight, Intermediate sight, Change point, Height of instruments.	16-10-2026		
28		Types of levels: Dumpy, Tilting, Auto level, Digital level.	17-10-2026		
29		Components of Dumpy Level and its fundamental axes.	22-10-2026		
30		Temporary adjustments of Level.	23-10-2026		
31		Types of Levelling Staff: Self-reading staff and Target staff.	24-10-2026		
32		Reduction of level by Line of collimation Method.	29-10-2026		
33			30-10-2026		
34		Reduction of level by Rise and Fall Method.	31-10-2026		
35			05-11-2026		
36		Levelling Types: Simple, Differential, Fly.	06-11-2026		

37	Unit IV: Levelling and Contouring	Levelling Types: Profile and Reciprocal Levelling.	07-11-2026		
38		Contour, contour intervals, horizontal equivalent.	12-11-2026		
39		Uses of contour maps, Characteristics of contours.	13-11-2026		
40		Methods of Contouring: Direct and indirect.	19-11-2026		
41			20-11-2026		
42	Unit V: Measurement of Area and Volume	Components and use of Digital	21-11-2026		
43		Measurement of area using digital planimeter.	26-11-2026		
44		Measurement of volume of reservoir from contour map.	27-11-2026		
45			28-11-2026		

Assignments

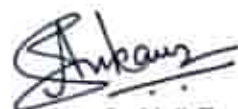
Sr No	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II (50%)	29-08-2026		
2	Assignments No. 2	Unit II (50%) , Unit III	03-10-2026		

House Test/Class Test

Sr No	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	Class Test 1	Unit I, Unit II (50%)	As per HPTSB Academic Schedule		
2	Class Test 2	Unit II (50%) , Unit III			
3	House Test	Unit I, Unit II, Unit III, Unit IV			



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Civil Engineering Department

Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Mechanics of Material
3	Subject Code	CEPC205

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Sumedha Sharma

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Mechanics of Material	2	0	2	4	40		40	60	3			60	100	2
Reference Books		1	Punmia B C, Strength of Materials, Laxmi Publications (p) Ltd. New Delhi.												
		2	Eagle's , Strength of materials, KPS Chauhan, Er. Meraj Ud Din Tell												

Course outcomes (COs):

1	To learn properties of area and structural material properties
2	To understand the concept of stress and strain.
3	To calculate shear force, bending moment for different shapes of structural elements and corresponding stresses.
4	To understand the concept of buckling loads for short and long columns.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit -1 Moment of Inertia	Definition, M.I. of plane lamina, Radius of gyration, section modulus,	03-08-2026		
2		Parallel and Perpendicular axes theorems (without derivations)	04-08-2026		
3		M.I. of rectangle, square, circle, semi-circle, quarter circle and triangle section	05-08-2026		
4		M.I. of symmetrical I-section	06-08-2026		
5		M.I. of unsymmetrical I - section , Channel section,	10-08-2026		
6		T-section, Angle section	11-08-2026		
7			12-08-2026		
8		Hollow sections about centroidal axes,	13-08-2026		
9		Polar Moment of Inertia of solid circular sections.	17/8/2026		
10			18/8/2026		
11	Unit- 2 Simple Stresses and Strains	Definition of rigid, elastic and plastic bodies, Definition of stress, strain, elasticity, Hook's law, Elastic limit, Modulus of elasticity.	19/8/2026		

12	Unit- 2 Simple Stresses and Strains	Type of Stresses-Normal, Direct, Bending and Shear and nature of stresses i.e., Tensile and Compressive stresses	20/8/2026		
13		Standard stress strain curve for tor steel bar under tension, Yield stress, Proof stress,	24/8/2026		
14		Ultimate stress, Strain at various critical points, Percentage elongation and Factor of safety.	25/8/2026		
15		Deformation of body due to axial force,	26/8/2026		
16		forces applied at intermediate sections,	27/8/2026		
17		Maximum and minimum stress induced	31/8/2026		
18		Composite section under axial loading.	01-09-2026		
19		Concept of temperature stresses and strain,	02-09-2026		
20		Stress and strain developed due to temperature variation in homogeneous simple bar (no composite section)	03-09-2026		
21			07-09-2026		
22		Longitudinal and lateral strain, Modulus of Rigidity, Poisson's ratio	08-09-2026		
23		volumetric strain, change in volume, Bulk modulus Relation between modulus of elasticity, modulus of rigidity and bulk modulus (without derivation).	09-09-2026		
24			10-09-2026		
25	Unit- 3 Shear Force and Bending Moment	Types of supports, beams, and loads.	14/9/2026		
26		Concept and definition of shear force and bending moment,	15/9/2026		
27		Relation between load, shear force and bending moment (without derivation).	16/9/2026		
28			17/9/2026		
29		Shear force and bending moment diagram for cantilever beams	21/9/2026		
30			22/9/2026		
31			23/9/2026		
32			24/9/2026		
33		Shear force and bending moment diagram for simply supported beams subjected to point loads	28/9/2026		
34			29/9/2026		
35			30/9/2026		
36		Shear force and bending moment diagram for simply supported beams subjected to uniformly distributed loads (combination of any two types of loading), point of contraflexure	01-10-2026		
37			05-10-2026		
38			06-10-2026		
39			07-10-2026		
40	Unit- 4 Bending and Shear Stresses in beams	Concept and theory of pure bending, assumptions, flexural equation (without derivation)	08-10-2026		
41		bending stresses and their nature, bending stress distribution diagram	12-10-2026		
42			13/10/2026		
43		Concept of moment of resistance and simple numerical problems using flexural equation	14/10/2026		
44			15/10/2026		

45	Unit- 4 Bending and Shear Stresses in beams	Shear stress equation (without derivation), relation between maximum and average shear stress for rectangular and circular section, shear stress distribution diagram.	19/10/2026		
46			21/10/2026		
47			22/10/2026		
48			27/10/2026		
49		Shear stress distribution for square, rectangular, circle, hollow, angle sections, channel section, I-section, T section. Simple numerical problems based on shear equation.	28/10/2026		
50			29/10/2026		
51			02-11-2026		
52			03-11-2026		
53	Unit- 5 Columns	Concept of compression member, short and long column, Effective length, Radius of gyration, Slenderness ratio	04-11-2026		
54			05-11-2026		
55		Types of end condition for columns, Buckling of axially loaded columns	09-11-2026		
56			10-11-2026		
57		Euler's theory, assumptions made in Euler's theory and its limitations	11-11-2026		
58		Application of Euler's equation to calculate buckling load.	12-11-2026		
59			16/11/2026		
60		Rankine's formula and its application to calculate crippling load.	17/11/2026		
61			18/11/2026		
62			19/11/2026		
63		Revision	23/11/2026		
64			25/11/2026		
65			26/11/2026		

Assignments

Sl. No.	Assignments No.	Contents of syllabus covered	Proposed	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II	27/8/2026		
2	Assignments No. 2	Unit III, Unit IV, Unit V	07-10-2026		

House Test/Class Test

Sl. No.	Name of Test	Syllabus for Tests	Proposed	Actual Date	Remarks
1	Class Test 1	Unit I, Unit II	As per HPTSB Academic Schedule		
2	Class Test 2	Unit III, Unit IV			
3	House Test	Unit I, Unit II, Unit III, Unit IV			

for Name
Teacher signature
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Civil Engineering Department

Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Building Construction
3 Subject Code	CEPC207

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Naveen Bharti

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	BS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Building Construction	2	0	1	3	40		40	60	3			60	100	2
Reference Books		1	Punmia B. C., and Jain A. K., Building Construction, Firewall Media.												
		2	Rangawala, S. C., Building Construction, Charotar Publication, Anand.												

Course outcomes (COs):

- 1 To identify different components of building.
- 2 To understand different types of foundation and their significance.
- 3 To know different types of masonry and their construction.
- 4 To highlight the importance of communications in building planning.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit I: Overview of Building Components	Classification of Buildings as per National Building Code Group A to I	03-08-2026		
2		Classification as per Types of Constructions- Load Bearing Structure, Framed Structure, Composite Structure	04-08-2026		
3		Building Components - Functions of Building Components	05-08-2026		
4		Substructure – Foundation, Plinth	10-08-2026		
5		Superstructure – Walls, Partition wall, Cavity wall,	11-08-2026		
6		Sill, Lintel, Doors and Windows, Floor, Roof, Columns, Beams, Parapet	12-08-2026		
7	Unit II: Construction of Substructure	Job Layout: Site Clearance, Layout for Load Bearing Structure and Framed Structure by Center Line and Face Line Method, Precautions	17-08-2026		
8			18-08-2026		
9		Earthwork: Excavation for Foundation, Timbering and Strutting, Earthwork for embankment, Material for plinth Filling, Tools and plants used for earthwork	19-08-2026		
10			24-08-2026		
11		Foundation: Functions of foundation, Types of foundation – Shallow Foundation	25-08-2026		
12		Stepped Footing, Wall Footing,	26-08-2026		
13		Column Footing, Isolated and Combined Column Footing, Raft Foundation, Grillage Foundation	31-08-2026		
14			01-09-2026		

15		Deep Foundation - Pile Foundation, Well foundation	02-09-2026		
16	Unit III: Construction of Superstructure	Stone Masonry: Terms used in stone masonry- facing, backing, hearting, through stone, corner stone, cornice.	07-09-2026		
17		Types of stone masonry: Rubble masonry, Ashlar Masonry, and their types. Joints in stone masonry and their purpose.	08-09-2026		
18		Selection of Stone Masonry, Precautions to be taken in Stone Masonry Construction	09-09-2026		
19		Brick masonry: Terms used in brick masonry- header, stretcher, closer, quoins, course, face, back, hearting, bat bond, joints, lap, frog line, level and plumb.	14-09-2026		
20		Requirements of good brick masonry	15-09-2026		
21		Bonds in brick masonry- header bond, stretcher bond, English bond and Flemish bond. Junctions in brick masonry and their purpose and procedure. Precautions to be observed in Brick Masonry Construction	16-09-2026		
22			21-09-2026		
23			22-09-2026		
24		Comparison between stone and Brick Masonry. Tools and plants required for construction of stone and brick masonry. Hollow concrete block masonry and composite masonry	23-09-2026		
25			28-09-2026		
26		Scaffolding and Shoring: Purpose, Types of Scaffolding, Process of Erection and Dismantling. Purpose and Types of Shoring, Underpinning. Formwork: Definition of Formwork, Requirements of Formwork, Materials used in Formwork, Types of Formworks, Removal of formwork	29-09-2026		
27			30-09-2026		
28	UNIT IV: Building Communication and Ventilation	Horizontal Communication: Doors – Components of Doors, Full Panelled Doors, Partly Panelled and Glazed Doors, Flush Doors, Collapsible Doors, Rolling Shutters, Revolving Doors, Glazed Doors. Sizes of Door recommended by BIS	05-10-2026		
29			06-10-2026		
30		Windows: Component of windows. Types of Windows - Full Panelled, Partly Panelled and Glazed, wooden, Steel, Aluminium windows, Sliding Windows, Louvered Window, Bay window, Corner window, clear-storey window, Gable and Dormer window, Skylight. Sizes of Windows recommended by BIS. Ventilators	07-10-2026		
31			12-10-2026		
32			13-10-2026		
33		Vertical Communication: Means of Vertical Communication- Stair Case, Terms used in staircase-steps, tread, riser, nosing, soffit, waist slab, baluster, balustrade, scotia, handrails, newel post, landing, headroom, winder	14-10-2026		
34			19-10-2026		
35			21-10-2026		
36		Types of staircases (On the basis of shape): Straight, dog-legged, open well,	27-10-2026		

37	UNIT IV: Building Communication and Ventilation	Spiral, quarter turn, bifurcated, three quarter turn and Half turn, (On the basis of Material): Stone, Brick, R.C.C., wooden and Metal	28-10-2026		
38			02-11-2026		
39		Floors and Roofs: Types of Floor Finishes and its suitability- Kota, Marble, Granite,	03-11-2026		
40	Unit V: Building Finishes	Ceramic Tiles, Vitrified, Concrete Floors, wooden Flooring, Skirting and Dado.	04-11-2026		
41		Process of Laying and Construction, Finishing and Polishing of Floors	09-11-2026		
42		Roofing Materials- RCC, Mangalore Tiles, AC Sheets, G.I. sheets, Corrugated G.I. Sheets, Plastic and Fibre Sheets. Types of Roofs: Flat roof, Pitched Roof-King Post truss, Queen Post Truss, terms used in roofs	10-11-2026		
43			11-11-2026		
44		Wall Finishes: Plastering – Necessity of Plastering, Procedure of Plastering, Single Coat Plaster, Double Coat Plaster, Rough finish, Neeru Finishing and Plaster of Paris (POP). Special Plasters- Stucco plaster, sponge finish, pebble finish, Plaster.	16-11-2026		
45		Precautions to be taken in plastering, defects in plastering	17-11-2026		
46			18-11-2026		
47		Pointing – Necessity, Types of pointing and procedure of Pointing. Painting –Necessity, Surface Preparation for painting, Methods of Application	23-11-2026		
48			25-11-2026		

Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II (50%)	31-08-2026		
2	Assignments No. 2	Unit II (50%) , Unit III	30-09-2026		

House Test/Class Test

Sr No	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	Class Test 1	Unit I, Unit II (50%)	As per HPTSB		
2	Class Test 2	Unit II (50%) , Unit III	Academic		
3	House Test	Unit I, Unit II, Unit III, Unit IV	Schedule		

Naveen

Teacher signature
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Civil Engineering Department

Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Concrete Technology
3 Subject Code	CEPC209

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Parveen Kumar

Evaluation Scheme

Evaluation Scheme																		
Sr No	Subject Name	Study Scheme					Marks Distribution in Evaluation Scheme										Total Marks (Int. & Ext.)	Credits
							Internal Assessment					External Assessment						
		L	T	P	BS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total				
1	Concrete Technology	2	0	0	1	3	40		40	60	3			60	100	2		
Reference Books		1		Gambhir, M.L., Concrete Technology, Tata McGraw Hill Publishing Co. Ltd., Delhi.														
		2		Shetty, M.S., Concrete Technology, S. Chand and Co. Pvt. Ltd., Ram Nagar, Delhi.														

Course outcomes (COs):

- 1 Use different types of cement and aggregates in concrete
- 2 Prepare concrete of desired compressive strength.
- 3 Prepare concrete of required specification.
- 4 Maintain quality of concrete under different conditions.
- 5 Apply relevant admixtures for concreting.

Teaching Plan

Sr N	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit – I Cement, Aggregates and Water	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength. Different grades of OPC and relevant BIS codes	03/08/2026		
2		Storage of cement and effect of storage on properties of cement.	04/08/2026		
3		BIS Specifications and field applications of different types of cements: Rapid hardening, Low heat, Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and White cement.	05/08/2026		
4		Aggregates: Requirements of good aggregate, Classification according to size and shape.	10/08/2026		
5		Fine aggregates: Properties, size, specific gravity, bulk density, water absorption and bulking, fineness modulus and grading zone of sand, silt content and their specification as per IS 383. Concept of crushed Sand.	11/08/2026		
6		Coarse aggregates: Properties, size, shape, surface texture, water absorption, soundness, specific gravity and bulk density, fineness modulus of coarse aggregate, grading of coarse aggregates, crushing value, impact value and abrasion value of coarse aggregates with	12/08/2026		
7		rockifications.	17/08/2026		
8		Water: Quality of water, impurities in mixing water and permissible limits for solids as per IS: 456.	18/08/2026		
9	Unit– II Concrete	Concrete: Different grades of concrete, provisions of IS 456.	19/8/2026		
10		Duff Abraham water cement (w/c) ratio law, significance of w/c ratio, selection of w/c ratio for different grades, maximum w/c ratio for different grades of concrete for different exposure conditions as per IS 456.	24/08/2026		
11			25/8/2026		
12		Properties of fresh concrete: Workability: Factors affecting workability of concrete. Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer. Value of workability requirement for different types of concrete works. Segregation, bleeding, and preventive measures.	26/08/2026		
13			31/08/2026		
14		Properties of Hardened concrete: Strength, Durability, Impermeability.	01/09/2026		
15	Unit– III Concrete Mix Design and Testing of Concrete	Concrete mix design: Objectives, methods of mix design: study of mix design as per IS 10262 (only procedural steps).	02/09/2026		
16			07/09/2026		
17		Testing of concrete, determination of compressive strength of concrete cubes at different ages, interpretation, and co-relation of test results.	08/09/2026		
18			09/09/2026		
19		Non- destructive testing of concrete: Rebound hammer test, working principle of rebound hammer and factor affecting the rebound index, Ultrasonic pulse velocity test as per IS 13311 (part 1 and 2), Importance of NDT tests.	14/09/2026		
20			15/09/2026		

21	Unit-IV Quality Control of Concrete	Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction, Curing and Finishing of concrete.	16/09/2026		
22			21/09/2026		
23		Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work, requirement of good form work.	22/09/2026		
24		Stripping time for removal of form works per IS 456.	23/09/2026		
25			28/09/2026		
26		Waterproofing: Importance and need of waterproofing, methods of waterproofing and materials used for waterproofing.	29/09/2026		
27			30/09/2026		
28			05/10/2026		
29		Joints in concrete construction: Types of joints, methods for joining old and new concrete, materials used for filling joints.	06/10/2026		
30			07/10/2026		
31	Unit-V Chemical Admixture, Special Concrete and Extreme Weather concreting	Admixtures in concrete: Purpose, properties and application for different types of admixtures such as accelerating admixtures, retarding admixtures, water reducing admixtures, air entraining admixtures and super plasticizers.	12/10/2026		
32			13/10/2026		
33			14/10/2026		
34		Special Concrete: Properties, advantages and limitation of following types of Special concrete: Ready mix Concrete, Fibre Reinforced Concrete, High performance Concrete Self-compacting concrete and light weight concrete.	19/10/2026		
35			21/10/2026		
36			27/10/2026		
37		Cold weather concreting: effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition.	28/10/2026		
38		House Test (1st Week of November 2026)	02/11/2026		
39			03/11/2026		
40			04/11/2026		
41	Revision	Cold weather concreting: effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition.	09/11/2026		
42			10/11/2026		
43			11/11/2026		
44			16/11/2026		
45			17/11/2026		
46			18/11/2026		
47			23/11/2026		
48			25/11/2026		
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Assignments

Sr	Assignments No.	Contents of syllabus covered	Proposed	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II	02/09/2026		
2	Assignments No. 2	Unit III, Unit IV, Unit V	28/10/2026		

House Test/Class Test

Sr	Name of Test	Syllabus for Tests	Proposed	Actual Date	Remarks
1	Class Test 1	Unit I, Unit II	As per HPTSB		
2	Class Test 2	Unit III, Unit IV	Academic Schedule		
3	House Test	Unit I, Unit II, Unit III, Unit IV, Unit V			

Teacher signature
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Er Adit Rana

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Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138
Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Geotechnical Engg.
3	Subject Code	CEPC211

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Neha Thakur

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Geotechnical Engg.	3	0	1	4	40		40	60	3			60	100	3
Reference Books		1	Punmia, B.C., Soil Mechanics and Foundation Engineering, Laxmi Publication, Delhi.												
		2	Ramamurthy, T.N. & Sitharam, T.G., Geotechnical Engineering(Soil Mechanics), S Chand and Company LTD., New Delhi.												

Course outcomes (COs):

1	Identify types of rocks and sub soil strata of earth.
2	Interpret the physical properties of soil related to given construction activities.
3	Use the results of permeability and shear strength test for foundation analysis.
4	Interpret soil bearing capacity results.
5	Compute optimum values for moisture content for maximum dry density of soil through various

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit – I Overview of Geology and Geotechnical Engineering	Introduction of Geology, Branches of Geology, Importance of Geology for civil engineering structure	03-08-2026		
2		composition of earth, Definition of a rock: Classification based on their genesis (mode of origin), formation.	04-08-2026		
3		Classification, and engineering uses of igneous, sedimentary, and metamorphic rocks.	05-08-2026		
4		Importance of soil as construction material in Civil engineering structures and as foundation bed for structures.	06-08-2026		

5		Field application of geotechnical engineering for foundation design, pavement design,	10-08-2026		
6		Field application of geotechnical engineering for design of earth retaining structures, design of earthen dam.	11-08-2026		
7	Unit- II Physical and Index Properties of Soil	Soil as a three-phase system, water content,	12-08-2026		
8		determination of water content by oven drying method as per BIS code,	13-08-2026		
9		void ratio, porosity and degree of saturation, density index.	17-08-2026		
10		Unit weight of soil mass – bulk unit weight, dry unit weight, unit weight of solids, saturated unit weight, submerged unit weight.	18-08-2026		
11		Unit weight of soil mass – bulk unit weight, dry unit weight, unit weight of solids, saturated unit weight, submerged unit weight.	19-08-2026		
12		Revision of Definitions	20-08-2026		
13		Determination of bulk unit weight and dry unit weight by core cutter	24-08-2026		
14		Determination of bulk unit weight and dry unit weight by sand replacement method,	25-08-2026		
15		Consistency of soil, Atterberg limits of consistency:	26-08-2026		
16		Liquid limit, plastic limit and shrinkage limit. Plasticity index.	27-08-2026		
17		Particle size distribution test and plotting of curve,	01-09-2026		
18		Determination of effective diameter of soil, well graded and uniformly graded soils,	02-09-2026		
19		BIS classification of soil.	03-09-2026		
20		Revision	07-09-2026		
21		Class Test-I	08-09-2026		

22	Unit- III Permeability and Shear Strength of Soil	Definition of permeability, Darcy's law of permeability,	09-09-2026		
23		coefficient of permeability, factors affecting permeability,	10-09-2026		
24		determination of coefficient of permeability by constant head and falling head tests,	14-09-2026		
25		determination of coefficient of permeability by constant head and falling head tests,	15-09-2026		
26		simple problems to determine coefficient of permeability.	16-09-2026		
27		simple problems to determine coefficient of permeability.	17-09-2026		
28		Seepage through earthen structures, seepage velocity, seepage pressure,	21-09-2026		
29		phreatic line, flow lines, application of flow net, (No numerical problems).	22-09-2026		
30		Shear failure of soil, concept of shear strength of soil.	23-09-2026		
31		Components of shearing resistance of soil – cohesion, internal friction.	24-09-2026		
32		Mohr-Coulomb failure theory, Strength envelope, strength equation for purely cohesive and cohesion less soils.	28-09-2026		
33		Mohr-Coulomb failure theory, Strength envelope, strength equation for purely cohesive and cohesion less soils.	29-09-2026		
34		Direct shear and vane shear test – laboratory methods.	30-09-2026		
35		Direct shear and vane shear test – laboratory methods.	01-10-2026		
36		Revision	05-10-2026		
37		Class Test -II	06-10-2026		

38	Unit- IV Bearing Capacity of Soil	Bearing capacity and theory of earth pressure. Concept of bearing capacity, ultimate bearing capacity, safe bearing capacity and allowable bearing pressure.	07-10-2026		
39		Bearing capacity and theory of earth pressure. Concept of bearing capacity, ultimate bearing capacity, safe bearing capacity and allowable bearing pressure.	08-10-2026		
40		Introduction to Terzaghi's analysis and assumptions, effect of water table on bearing capacity.	12-10-2026		
41		Field methods for determination of bearing capacity – Plate load and Standard Penetration Test. Test procedures as per IS:1888 & IS:2131.	13-10-2026		
42		Field methods for determination of bearing capacity – Plate load and Standard Penetration Test. Test procedures as per IS:1888 & IS:2131.	14-10-2026		
43		Definition of earth pressure, Active and Passive earth pressure for no surcharge condition, coefficient of earth pressure	15-10-2026		
44		Definition of earth pressure, Active and Passive earth pressure for no surcharge condition, coefficient of earth pressure	19-10-2026		
45		Concept of compaction, Standard and Modified proctor test as per IS code, Plotting of Compaction curve for determining: Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line.	21-10-2026		

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Unit- V
Compaction and
stabilization of soil

Concept of compaction, Standard and Modified proctor test as per IS code, Plotting of Compaction curve for determining: Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line.	22-10-2026		
Concept of compaction, Standard and Modified proctor test as per IS code, Plotting of Compaction curve for determining: Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line.	27-10-2026		
Revision	28-10-2026		
Revision	29-10-2026		
House Test	02-11-2026		
House Test	03-11-2026		
House Test	04-11-2026		
Factors affecting compaction, field methods of compaction – rolling, ramming and vibration.	05-11-2026		
Suitability of various compaction equipment - smooth wheel roller, sheep foot roller, pneumatic tyre roller, Rammer and Vibrator,	09-11-2026		
Difference between compaction and consolidation.	10-11-2026		
Concept of soil stabilization, necessity of soil stabilization, different methods of soil stabilization.	11-11-2026		
California bearing ratio (CBR) test - Meaning and Utilization in Pavement Construction	16-11-2026		
Necessity of site investigation and soil exploration:	17-11-2026		

59	Types of exploration, criteria for deciding the location and number of test pits and bores.	18-11-2026		
60	Field identification of soil – dry strength test, dilatancy test and toughness test.	19-11-2026		
61	Revision	23-11-2026		
62	Revision	25-11-2026		
63	Revision	26-11-2026		

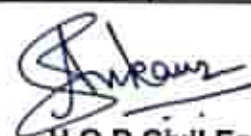
Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II, Unit III	25/8/2026		
2	Assignments No. 2	Unit III, Unit IV, Unit V	22/10/2026		

House Test/Class Test

Sr No	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	Class Test 1	Unit I, Unit II	As per HPTSB Academic		
2	Class Test 2	Unit III, Unit IV			
3	House Test	Unit I, Unit II, Unit III, Unit IV			

Teacher's signature
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Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138
Civil Engineering Department
Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Construction Material Lab
3 Subject Code	CEPC213

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Neha Thakur

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Construction Material Lab	0	2	0	2	0	40	40	0	0	60	3	60	100	1
Reference Books		1	S.K. Sharma, Civil Engineering Construction Materials, Khanna Publishing House, Delhi												
		2	Sharma C. P., Engineering Materials, PHI Learning, New Delhi.												

Course outcomes (COs):

1 Identify relevant construction materials.
2 Identify relevant natural construction materials.
3 Select relevant artificial construction materials.
4 Select relevant special type of construction materials.
5 Identify and use of processed construction materials.

Teaching Plan (Group -I)

Sr No	Name of the Practical	Proposed Date	Actual Date	Remarks
1	Identify various sizes of available coarse aggregates from sample of 10 kg in laboratory and prepare report (60,40, 20,10 mm)	03-08-2026		
2	Identify the available construction materials in the laboratory based on their sources.	10-08-2026		
3	Identify the grain distribution pattern in given sample of teak wood in the laboratory and draw the various patterns. (Along and perpendicular to the grains)	17-08-2026		
4	Prepare the lime putty by mixing lime (1 kg) with water in appropriate proportion and pre-pare report on slaking of lime.	24-08-2026		
5	Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting of photographs and samples. Part I	07-09-2026		

6	Select first class, second class and third-class bricks from the stake of bricks and prepare report on the basis of its properties.	14-09-2026		
7	Measure dimensions of 10 bricks and find average dimension and weight. Perform field tests- dropping, striking, and scratching by nail and correlate the results obtained.	21-09-2026		
8	Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, anti- skid tiles, checkered tiles, paving blocks and prepare report about the specifications.	28-09-2026		
9	Apply the relevant termite chemical on given damaged sample of timber.	05-10-2026		
10	Identify the type of glasses from the given samples.	12-10-2026		
11	Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part I	19-10-2026		
12	House Test	02-11-2026		
13	Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part II	09-11-2026		
14	Prepare the cement mortar of proportion 1:3 or 1:6 using artificial sand as a special processed construction material.	16-11-2026		
15	Prepare mortar using cement and Fly ash or Granite/marble polishing waste in the proportion 1:6 or 1:3.	23-11-2026		


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Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138
Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Construction Material Lab
3	Subject Code	CEPC213

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Neha Thakur

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme									Total Marks	Credits
						Internal Assessment			External Assessment							
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total			
1	Construction Material Lab	0	2	0	2	0	40	40	0	0	60	3	60	100	1	
Reference Books		1	S.K. Sharma, Civil Engineering Construction Materials, Khanna Publishing House, Delhi													
		2	Sharma C. P., Engineering Materials, PHI Learning, New Delhi.													

Course outcomes (COs):

- 1 Identify relevant construction materials.
- 2 Identify relevant natural construction materials.
- 3 Select relevant artificial construction materials.
- 4 Select relevant special type of construction materials.
- 5 Identify and use of processed construction materials.

Teaching Plan (Group -II)

Sr No	Name of the Practical	Proposed Date	Actual Date	Remarks
1	Identify various sizes of available coarse aggregates from sample of 10 kg in laboratory and prepare report (60,40, 20,10 mm)	04-08-2026		
2	Identify the available construction materials in the laboratory based on their sources.	11-08-2026		
3	Identify the grain distribution pattern in given sample of teak wood in the laboratory and draw the various patterns. (Along and perpendicular to the grains)	18-08-2026		
4	Prepare the lime putty by mixing lime (1 kg) with water in appropriate proportion and pre-prepare report on slaking of lime.	25-08-2026		
5	Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting of photographs and samples. Part I	01-09-2026		

6	Select first class, second class and third-class bricks from the stake of bricks and prepare report on the basis of its properties.	08-09-2026		
7	Measure dimensions of 10 bricks and find average dimension and weight. Perform field tests- dropping, striking, and scratching by nail and correlate the results obtained.	15-09-2026		
8	Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, anti- skid tiles, checkered tiles, paving blocks and prepare report about the specifications.	22-09-2026		
9	Apply the relevant termite chemical on given damaged sample of timber.	29-09-2026		
10	Identify the type of glasses from the given samples.	06-10-2026		
11	Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part I	13-10-2026		
12	Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part II	27-10-2026		
13	House Test	03-11-2026		
14	Prepare the cement mortar of proportion 1:3 or 1:6 using artificial sand as a special processed construction material.	10-11-2026		
15	Prepare mortar using cement and Fly ash or Granite/marble polishing waste in the proportion 1:6 or 1:3.	17-11-2026		


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Civil Engineering Department

Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Basic Surveying Lab
3 Subject Code	CEPC215

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Naveen Bharti

Evaluation Scheme

Evaluation Scheme																
Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme									Total Marks	Credits
						Internal Assessment			External Assessment							
		L	P	BS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total			
1	Basic Surveying Lab	0	2	2	4		40	40			60	3	60	100	1	
Reference Books		1	Punmia, B.C, Jain, Ashok Kumar; Jain, Arun Kumar, Surveying I, Laxmi Publications, New Delhi													
		2	Basak, N. N., Surveying and Levelling, McGraw Hill Education, New Delhi.													

Course outcomes (COs):

- 1 To understand types of surveying works required
- 2 To know the type of method and equipment to be used for different surveys
- 3 To know the use and operational details of various surveying equipment.

Teaching Plan (Group- I)

Sr No	Practicals to be covered	Proposed Date	Actual Date	Remarks
1	Measure distance between two survey stations using chain, tape and ranging rods when two stations are inter-visible.	04/08/2026		
2	Undertake reciprocal ranging and measure the distance between two stations.	07/08/2026		
3	Determine area of open field using chain and cross staff survey.	11/08/2026		
		14/08/2026		
4	Measure Fore Bearing and Back Bearing of survey lines of open traverse using Prismatic Compass.	18/08/2026		
		21/08/2026		
5	Measure Fore Bearing and back bearing of a closed traverse of 5 or 6 sides and correct the bearings and included angles for the local attraction.	25/08/2026		
		28/08/2026		
6	Undertake Survey Project with chain and compass for closed traverse for minimum 5 sides around a building.	01/09/2026		
		08/09/2026		
		11/09/2026		
7	Plot the traverse on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No 6.	15/09/2026		
		18/09/2026		
8	Undertake simple levelling using dumpy level/ Auto level and levelling staff.	22/09/2026		
		25/09/2026		

9	Undertake differential levelling and determine Reduced Levels by Height of instrument method and Rise and fall method using dumpy level/Auto Level and levelling staff.	29/09/2026		
		06/10/2026		
10	Undertake fly levelling with double check using dumpy level/Auto level and levelling staff.	09/10/2026		
		13/10/2026		
11	Undertake Survey Project with Levelling instrument for Profile levelling and cross- sectioning for a road with cross-section.	16/10/2026		
		23/10/2026		
		27/10/2026		
12	Plot the L-section with minimum 3 cross-sections on A1 size imperial sheet for data collected in Survey Project mentioned at practical No. 11.	30/10/2026		
		03/11/2026		
13	Undertake Survey Project for plotting contour map using block contouring method for a block of 150m x 150m with grid of 10m x 10m.	06/11/2026		
		10/11/2026		
		13/11/2026		
14	Plot the contours on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No. 13.	17/11/2026		
15	Measure area of irregular figure using Digital planimeter.	20/11/2026		
		27/11/2026		


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Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138

Civil Engineering Department

Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Basic Surveying Lab
3 Subject Code	CEPC215

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Naveen Bharti

Evaluation Scheme

Evaluation Scheme															
Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	BS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Basic Surveying Lab	0	2	2	4		40	40			60	3	60	100	1
Reference Books		1	Punmia, B.C, Jain, Ashok Kumar; Jain, Arun Kumar, Surveying I, Laxmi Publications, New Delhi												
		2	Basak, N. N., Surveying and Levelling, McGraw Hill Education, New Delhi												

Course outcomes (COs):

- 1 To understand types of surveying works required
- 2 To know the type of method and equipment to be used for different surveys
- 3 To know the use and operational details of various surveying equipment.

Teaching Plan (Group- II)

Sr No	Practicals to be covered	Proposed Date	Actual Date	Remarks
1	Measure distance between two survey stations using chain, tape and ranging rods when two stations are inter-visible.	03/08/2026		
2	Undertake reciprocal ranging and measure the distance between two stations.	07/08/2026		
3	Determine area of open field using chain and cross staff survey.	10/08/2026		
		14/08/2026		
4	Measure Fore Bearing and Back Bearing of survey lines of open traverse using Prismatic Compass.	17/08/2026		
		21/08/2026		
5	Measure Fore Bearing and back bearing of a closed traverse of 5 or 6 sides and correct the bearings and included angles for the local attraction.	24/08/2026		
		28/08/2026		
6	Undertake Survey Project with chain and compass for closed traverse for minimum 5 sides around a building.	31/08/2026		
		07/09/2026		
		11/09/2026		
7	Plot the traverse on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No.6.	14/09/2026		
		18/09/2026		
8	Undertake simple levelling using dumpy level/ Auto level and levelling staff	21/09/2026		
		25/09/2026		

9	Undertake differential levelling and determine Reduced Levels by Height of instrument method and Rise and fall method using dumpy level/Auto Level and levelling staff.	28/09/2026		
		05/10/2026		
10	Undertake fly levelling with double check using dumpy level/Auto level and levelling staff.	09/10/2026		
		12/10/2026		
11	Undertake Survey Project with Levelling instrument for Profile levelling and cross-sectioning for a road with cross-section.	16/10/2026		
		19/10/2026		
		23/10/2026		
12	Plot the L-section with minimum 3 cross-sections on A1 size imperial sheet for data collected in Survey Project mentioned at practical No. 11.	30/10/2026		
		02/11/2026		
13	Undertake Survey Project for plotting contour map using block contouring method for a block of 150m x 150m with grid of 10m x 10m.	06/11/2026		
		09/11/2026		
		13/11/2026		
14	Plot the contours on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No.13.	16/11/2026		
		20/11/2026		
15	Measure area of irregular figure using Digital planimeter.	23/11/2026		
		27/11/2026		

Naveen

Teacher signature
Er Naveen Bharti

Adit Rana

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Government Polytechnic Kullu at Seobagh Distt Kullu H.P. 175138
Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Mechanics of Material Lab
3	Subject Code	CEPC217

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Sumedha Sharma

Evaluation Scheme

Evaluation Scheme															
Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Mechanics of Material	0	2	0	2		40	40			60	3	60	100	1
Reference Books		1	Punmia B C, Strength of Materials, Laxmi Publications (p) Ltd. New Delhi.												
		2	Eagle's , Strength of materials, KPS Chauhan, Er. Meraj Ud Din Teli												

Course outcomes (COs):

1	To know the procedure for the conduct of tensile and compressive strength.
2	To understand the concept of stress and strain through testing of different materials.
3	To calculate shear force, bending moment and their corresponding stresses.
4	To understand flexural strength and abrasive properties of floor tiles.

Teaching Plan

Sr No	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Study and understand the use and components of Universal Testing Machine (UTM).	07-08-2026		
2	Perform Tension test on mild steel as per IS:432(1).	14/8/2026		
3	Perform tension test on Tor steel as per IS:1608, IS:1139.	21/8/2026		
4	Determine Water Absorption on bricks per IS:3495 (part II); IS:1077 or tile IS:1237.	11-09-2026		
		18/9/2026		
5	Determine Compressive strength of dry and wet bricks as per IS:3495(part I), IS:1077.	25/9/2026		
6	Conduct Abrasion Test on flooring tiles (anyone) e.g., Mosaic tiles, Ceramic Tiles as per IS: 13630 (part7).	09-10-2026		
7	Cement Tile as per IS: 1237, Perform Single Shear and double shear test on any two metals e.g., Mild steel/ brass/aluminium/copper / cast iron etc as per IS:5242.	16/10/2026		
		23/10/2026		
8	Plot Shear force and Bending Moment diagrams for simply supported beams.	30/10/2026		
9	Conduct Flexural test on timber beam on rectangular section in both orientations as per IS:1708, IS:2408.	06-11-2026		

10	Conduct Flexure test on floor tiles IS:1237, IS:13630 or roofing tiles as per IS:654, IS:2690.	13/11/2026		
11	Revision	20/11/2026		
12	Revision	27/11/2026		

for Name

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Civil Engineering Department

Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Concrete Technology Lab
3 Subject Code	CEPC219

4 Semester	3rd
5 Session	August- Dec 2026
6 Teacher Name	Er Parveen Kumar

Evaluation Scheme

Sr No	Subject Name	Study Scheme per Week					Hours	Marks Distribution in Evaluation Scheme								Total Marks (Int. & Ext.)	Credits
								Internal Assessment				External Assessment					
		L	T	P	BS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total			
1	Concrete Technology Lab	0	0	2		2		40	40			60	3	60	100	1	
Reference Books		1	Gambhir, M.L., Concrete Technology, Tata McGraw Hill Publishing Co. Ltd., Delhi.														
		2	Shetty, M.S., Concrete Technology, S. Chand and Co. Pvt. Ltd., Ram Nagar, Delhi.														

Course outcomes (COs):

- 1 Identify different types of cement by performing laboratory tests.
- 2 Know the physical properties of fine and coarse aggregates.
- 3 Prepare concrete of required specification.
- 4 Maintain the quality of concrete applying scientific principles.

List of Practicals to be performed:

Sr N	Practical to be performed: (Group I)	Proposed Date	Actual Date	Remarks
1	Determine fineness of cement by Blaine's air permeability apparatus or by sieving.	05/08/2026		
2	Determine specific gravity, standard consistency, initial and final setting times of cement.	12/08/2026		
3	Determine compressive strength of cement.	19/08/2026		
4	Determine silt content in sand.	26/08/2026		
5	Determine bulking of sand.	02/09/2026		
6	Determine bulk density of fine and coarse aggregates.	09/09/2026		
7	Determine water absorption of fine and coarse aggregates.	16/09/2026		
8	Determine Fineness modulus of fine aggregate by sieve analysis.	23/09/2026		
9	Determine elongation and flakiness index of coarse aggregates	30/09/2026		
10	Determine workability of concrete by slump cone test.	07/10/2026		
11	Determine workability of concrete by compaction factor test.	14/10/2026		
12	To prepare concrete mix of a particular grade and determine compressive strength of concrete for 7 and 28 days.	21/10/2026		
13	Demonstration of NDT equipment.	28/10/2026		
14	House Test as per Academic Calender	04/11/2026		
15	Revision of Practicals & Viva Voce	11/11/2026		
16	Revision of Practicals & Viva Voce	18/11/2026		
17	Revision of Practicals & Viva Voce	25/11/2026		

Sr N	Practical to be performed: (Group II)	Proposed Date	Actual Date	Remarks
1	Determine fineness of cement by Blaine's air permeability apparatus or by sieving.	06/08/2026		
2	Determine specific gravity, standard consistency, initial and final setting times of cement.	13/08/2026		
3	Determine compressive strength of cement.	20/08/2026		
4	Determine silt content in sand.	27/08/2026		
5	Determine bulking of sand.	03/09/2026		
6	Determine bulk density of fine and coarse aggregates.	10/09/2026		
7	Determine water absorption of fine and coarse aggregates.	17/09/2026		
8	Determine Fineness modulus of fine aggregate by sieve analysis.	24/09/2026		
9	Determine elongation and flakiness index of coarse aggregates	01/10/2026		
10	Determine workability of concrete by slump cone test.	08/10/2026		
11	Determine workability of concrete by compaction factor test.	15/10/2026		
12	To prepare concrete mix of a particular grade and determine compressive strength of concrete for 7 and 28 days.	22/10/2026		
13	Demonstration of NDT equipment.	29/10/2026		
14	House Test as per Academic Calender	05/11/2026		
15	Revision of Practicals & Viva Voce	12/11/2026		
16	Revision of Practicals & Viva Voce	19/11/2026		
17	Revision of Practicals & Viva Voce	26/11/2026		


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Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Geotechnical Engg. Lab
3	Subject Code	CEPC211

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Neha Thakur

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Geotechnical Engg. Lab	0	2	0	2	0	40	40	0	3	60		60	100	1
Reference Books		1	Punmia, B.C., Soil Mechanics and Foundation Engineering, Laxmi Publication, Delhi.												
		2	Ramamurthy, T.N. & Sitharam,T.G., Geotechnical Engineering(Soil Mechanics), S Chand and Company LTD., New Delhi.												

Course outcomes (COs):

- 1 Identify types of rocks and sub soil strata of earth.
- 2 Interpret the physical properties of soil related to given construction activities.
- 5 Compute optimum values for moisture content for maximum dry density of soil through various Tests.

Teaching Plan (Group-I)

Sr No	Name of the Practical	Proposed Date	Actual Date	Remarks
1	Introduction to practicals and equipments.	06-08-2026		
2	Identification of rocks from the given specimen.	13-08-2026		
3	Determine water content of given soil sample by oven drying method as per IS: 2720 (PartII).	20-08-2026		
4	Determine specific gravity of soil by pycnometer method as per IS 2720 (Part- III).	27-08-2026		
5	Determine dry unit weight of soil in field by core cutter method as per IS 2720 (Part- XXIX).	03-09-2026		
6	Determine dry unit weight of soil in field by sand replacement method as per IS 2720 (Part XXVIII).	10-09-2026		
7	Determine Plastic Limit along with Plasticity Index of given soil sample as per IS 2720 (Part- V).	17-09-2026		
8	Determine Liquid Limit along with Plasticity Index of given soil sample as per IS 2720 (Part- V).	24-09-2026		
9	Determine Shrinkage limit of given soil sample as per IS 2720 (Part- V).	01-10-2026		

10	Determine grain size distribution of given soil sample by mechanical sieve analysis as per IS 2720 (Part- IV).	08-10-2026		
11	Use different types of soil to identify and classify soil by conducting field tests-through Visual inspection, Dry strength test	15-10-2026		
12	Use different types of soil to identify and classify soil by conducting field tests-through Dilatancy test and Toughness test.	22-10-2026		
13	Determine coefficient of permeability by falling head test as per IS 2720 (Part- XVII).	29-10-2026		
14	House Test	05-11-2026		
15	Determine MDD by standard proctor test of given soil sample as per IS 2720 (Part VII).	12-11-2026		
16	Determine OMC by standard proctor test of given soil sample as per IS 2720 (Part VII).	19-11-2026		
17	Revision	26-11-2026		


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Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Geotechnical Engg. Lab
3	Subject Code	CEPC211

4	Semester	3rd
5	Session	August- Dec 2026
6	Teacher Name	Er Neha Thakur

Evaluation Scheme

Evaluation Scheme															
Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Geotechnical Engg. Lab	0	2	0	2	0	40	40	0	3	60		60	100	1
Reference Books		1	Punmia, B.C., Soil Mechanics and Foundation Engineering, Laxmi Publication, Delhi.												
		2	Ramamurthy, T.N. & Sitharam, T.G., Geotechnical Engineering(Soil Mechanics). S Chand and Company LTD., New Delhi.												

Course outcomes (COs):

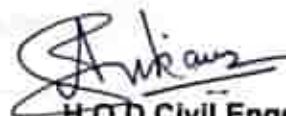
- 1 Identify types of rocks and sub soil strata of earth.
- 2 Interpret the physical properties of soil related to given construction activities.
- 5 Compute optimum values for moisture content for maximum dry density of soil through various Tests.

Teaching Plan (Group-II)

Sr No	Name of the Practical	Proposed Date	Actual Date	Remarks
1	Introduction to practicals and equipments.	05-08-2026		
2	Identification of rocks from the given specimen.	12-08-2026		
3	Determine water content of given soil sample by oven drying method as per IS: 2720 (Part II).	19-08-2026		
4	Determine specific gravity of soil by pycnometer method as per IS 2720 (Part- III).	26-08-2026		
5	Determine dry unit weight of soil in field by core cutter method as per IS 2720 (Part- XXIX).	02-09-2026		
6	Determine dry unit weight of soil in field by sand replacement method as per IS 2720 (Part XXVIII).	09-09-2026		
7	Determine Plastic Limit along with Plasticity Index of given soil sample as per IS 2720 (Part- V).	17-09-2026		
8	Determine Liquid Limit along with Plasticity Index of given soil sample as per IS 2720 (Part- V).	23-09-2026		

9	Determine Shrinkage limit of given soil sample as per IS 2720 (Part- V).	30-09-2026		
10	Determine grain size distribution of given soil sample by mechanical sieve analysis as per IS 2720 (Part- IV).	07-10-2026		
11	Use different types of soil to identify and classify soil by conducting field tests-through Visual inspection, Dry strength test	14-10-2026		
12	Use different types of soil to identify and classify soil by conducting field tests-through Dilatancy test and Toughness test.	21-10-2026		
13	Determine coefficient of permeability by falling head test as per IS 2720 (Part- XVII).	28-10-2026		
14	House Test	04-11-2026		
15	Determine MDD by standard proctor test of given soil sample as per IS 2720 (Part VII).	11-11-2026		
16	Determine OMC by standard proctor test of given soil sample as per IS 2720 (Part VII).	28-11-2026		
17	Revision	25-11-2026		


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