Government Polytechnic Kullu at Seobagh, Distt Kullu (H.P.) 175138

Civil Engineering Department

Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Design of RCC Structure
3	Subject Code	CEPC301

4	Semester	5th
5	Session	August - December 2026
6	Teacher Name	Er Lokesh Sharma

Evaluation Scheme

Sr No	Subject Name	Study Scheme per Week Hours				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	Design of RCC Structure	2	0	2	4	40		40	60	3			60	100	2
Reference Books		1	Shah, V. L., and Karve, S.R., Limit State Theory and Design of Reinforced Concrete Structures, Structures Publications, Pune.												
		2	B C Punmia Design of RCC Structure by Limit State Method Laxmi Publications												

Course Outcomes (COs):

1	Know the concept of shear, bond, and development lengths.
2	Design of simply supported RCC beams.
3	Design one way and two-way slabs.
4	Identify and design short and long columns.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	UNIT-I: Introduction to R.C.C Designing using Limit State Method	Design Philosophies: Working Stress Theory, Ultimate Design Theory, Limit State Theory; Concept of RCC & Reinforcement Materials	07-08-2026		
2		Design Philosophies: Working Stress Theory, Ultimate Design Theory, Limit State Theory; Concept of RCC & Reinforcement Materials	07-08-2026		
3		Suitability of steel as reinforcing material; Properties of mild steel and HYSD steel	08/08/2026		
4		Loading on structure as per IS 875	08/08/2026		
5		Study of BIS:456-2000 - Clause 5, 6, 9, 18, 19	14/08/2026		
6		Study of BIS:456-2000 - Clause 22, 23.0, 23.2, 23.3, 25, 26, 35-43, Annexure B, C, D, E, G	14/08/2026		
7	UNIT-II: Shear, Bond, and Development Length (LSM)	Nominal shear stress in RC section, design shear strength of concrete, maximum shear stress	21/08/2026		
8		Nominal shear stress in RC section, design shear strength of concrete, maximum shear stress	21/08/2026		
9		Design of shear reinforcement, minimum shear reinforcement, forms of shear reinforcement with numerical problems	22/08/2026		
10		Design of shear reinforcement, minimum shear reinforcement, forms of shear reinforcement with numerical problems	22/08/2026		
11		Bond and types of bonds, bond stress, check for bond stress	28/08/2026		
12		Bond and types of bonds, bond stress, check for bond stress	28/08/2026		
13		Development length in tension and compression, anchorage value for hooks (90° & 45° bend), standard lapping of bars	29/08/2026		
14		Development length in tension and compression, anchorage value for hooks (90° & 45° bend), standard lapping of bars	29/08/2026		
15		Determination of development length for tension reinforcement of cantilever beam and slab, check for development length	04/09/2026		
16		Determination of development length for tension reinforcement of cantilever beam and slab, check for development length	04/09/2026		
17		Limit state of collapse (flexure); assumption of stress-strain relationship for concrete and steel	05/09/2026		

18		Limit state of collapse (flexure); assumption of stress-strain relationship for concrete and steel	05/09/2026		
19		Neutral axis, stress block diagram and strain diagram for singly reinforced section	11/09/2026		
20		Neutral axis, stress block diagram and strain diagram for singly reinforced section	11/09/2026		
21	UNIT-III: Analysis and Design of Singly Reinforced Sections	Concept of under-reinforced, over-reinforced and balanced section	18/09/2026		
22		Concept of under-reinforced, over-reinforced and balanced section	18/09/2026		
23		Limiting value of moment of resistance and limiting percentage of steel for balanced section	19/09/2026		
24		Limiting value of moment of resistance and limiting percentage of steel for balanced section	19/09/2026		
25		Numerical problems on design constants, moment of resistance and area of steel	25/09/2026		
26		Numerical problems on design constants, moment of resistance and area of steel	25/09/2026		
27		Design of singly reinforced simply supported beam	26/09/2026		
28		Design of singly reinforced cantilever beam	26/09/2026		
29		General features, necessity of providing doubly reinforced sections, limitations	02/10/2026		
30	UNIT-IV: Analysis and Design of Doubly Reinforced Sections (LSM)	General features, necessity of providing doubly reinforced sections, limitations	02/10/2026		
31		Analysis of doubly reinforced section - strain diagram, stress diagram, depth of neutral axis	03/10/2026		
32		Analysis of doubly reinforced section - strain diagram, stress diagram, depth of neutral axis	03/10/2026		
33		Moment of resistance of doubly reinforced section - numerical problems	09/10/2026		
34		Moment of resistance of doubly reinforced section - numerical problems	09/10/2026		
35		Analysis of simply supported one-way slab	16/10/2026		
36	UNIT-V: Design of One-Way Slab (LSM)	Analysis of simply supported one-way slab	16/10/2026		
37		Analysis of simply supported one-way slab	17/10/2026		
38		Design of simply supported one-way slab - numerical problems	17/10/2026		
39		Design of simply supported one-way slab - numerical problems	23/10/2026		
40		Design of simply supported one-way slab - numerical problems	23/10/2026		
41		Design of two-way simply supported slab with corners free, no torsion reinforcement - concept and methodology	24/10/2026		
42		Design of two-way simply supported slab with corners free, no torsion reinforcement - concept and methodology	24/10/2026		
43	UNIT-VI: Two Way Slab (LSM)	Design of two-way simply supported slab with corners free, no torsion reinforcement - concept and methodology	30/10/2026		
44		Design of two-way simply supported slab with corners free - numerical problems	30/10/2026		
45		Design of two-way simply supported slab with corners free - numerical problems	31/10/2026		
46		Design of two-way simply supported slab with corners free - numerical problems	31/10/2026		
47		Assumptions in limit state of collapse - compression	13/11/2026		
48		Assumptions in limit state of collapse - compression	13/11/2026		
49		Definition and classification of columns, effective length of column	20/11/2026		
50		Definition and classification of columns, effective length of column	20/11/2026		
51	UNIT-VII: Design of Axially Loaded Column (LSM)	Specification for minimum/maximum reinforcement, cover, number of bars, diameter and spacing of lateral ties	21/11/2026		
52		Specification for minimum/maximum reinforcement, cover, number of bars, diameter and spacing of lateral ties	21/11/2026		
53		Analysis and design of axially loaded short square/rectangular columns with lateral ties	27/11/2026		
54		Analysis and design of axially loaded short square/rectangular columns with lateral ties	27/11/2026		
55		Analysis and design of axially loaded short circular columns with lateral ties	28/11/2026		

56	Uniaxial & biaxial bending with axial loading - check for short column and minimum eccentricity	28/11/2026		

Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
1	Assignment No. 1	Unit I, Unit II, Unit III, Unit IV	12/09/2026		
2	Assignment No. 2	Unit V, Unit VI, Unit VII	17/10/2026		

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, Unit III	As per HPTSB Academic Schedule		
2	Class Test 2	Unit IV, Unit V, Unit VI			
3	House Test	Unit I to Unit VII			

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Er Lokesh Sharma

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

1 Programme Name	Civil Engineering	4 Semester	5th
2 Subject Name	Estimating and Costing	5 Session	August- Dec 2026
3 Subject Code	CEPC303	6 Teacher Name	Er Adit Rana

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	Estimating and Costing	2	0	2	4	40		40	60	3			60	100	2
Reference Books		1	Dutta, B.N., Estimating and Costing in Civil engineering, UBS Publishers Distributors Pvt. Ltd. New Delhi.												
		2	Rangwala, S.C., Estimating and Costing, Charotar Publishing House PVT. LTD.,Anand.												

Course outcomes (COs):

1. Select modes of measurements for different items of works.
2. Prepare approximate estimate of a civil engineering works.
3. Prepare detailed estimate of a civil engineering works.
4. Use relevant software for estimating the quantities and cost of items of works.
5. Justify rate for given items of work using rate analysis techniques.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit I: Introduction	Meaning of the terms estimating &	6/8/2026		
2		Purpose of estimating and costing	10/8/2026		
3		Types of Estimates, Approximate and	11/8/2026		
4		Approximate estimate Types	12/8/2026		
5		Plinth area rate method	13/8/2026		
6		Cubic Content method	17/8/2026		
7		Approximate Quantity method	18/8/2026		
8		Types of detailed estimate	19/8/2026		
9		Detailed estimate for new work	20/8/2026		
10		Revised estimate	24/8/2026		
11		Supplementary estimate	25/8/2026		
12		Repair & Maintenance estimate	26/8/2026		
13	Unit II: Measurement	Units of measurement for various items of work as per BIS: 1200	27/8/2026		
14			31/8/2026		
15		Rules for measurements.	1/9/2026		
16		Different methods of taking out quantities – centre line method and long wall and short wall method.	2/9/2026		
17			3/9/2026		
18			7/9/2026		
19		One & two room residential building with flat roof	8/9/2026		
20			9/9/2026		
21	**1st Class Test**		10/9/2026		

22	Unit III: Preparation of Detailed Estimates and Abstract of Cost for	One & two room residential building with flat roof	14/9/2026		
23			15/9/2026		
24			16/9/2026		
25		Septic tank for 10 users	17/9/2026		
26			21/9/2026		
27			22/9/2026		
28	Unit IV: Road Estimation : Preparation of Detailed Estimates and Abstract of Cost for	Plain road with-mid section area method	23/9/2026		
29			24/9/2026		
30		mean sectional area method	28/9/2026		
31			29/9/2026		
32		prismoidal formula	30/9/2026		
33			1/10/2026		
34		Earth work in hill road.	5/10/2026		
35			6/10/2026		
36	Unit V: Analysis of Rates	Calculation of Quantities of Materials	7/10/2026		
37		Cement mortars of different proportion	8/10/2026		
38		Cement concrete of different proportion	12/10/2026		
39		RCC work in different proportions	13/10/2026		
40		Brick/stone masonry in cement mortar	14/10/2026		
41	**2nd Class Test**		15/10/2026		
42	Unit V: Analysis of Rates	Plastering and pointing	19/10/2026		
43		White washing, painting	21/10/2026		
44		Preparation of Detailed Analysis of Rates for finished items with given labour and rate of material	22/10/2026		
45		Earthwork, Cement concrete of different proportion	27/10/2026		
46		RCC work in different proportions,	28/10/2026		
47		Plastering and pointing, White washing, painting	29/10/2026		
48	**House Test**		2/11/2026		
49			3/11/2026		
50			4/11/2026		
51			5/11/2026		
52	Unit VI: Contracts and Tendering	Meaning of contract, Qualities of a good contractor and their qualifications.	9/11/2026		
53		Essentials of a contract	10/11/2026		
54		Types of contracts, their advantages, dis-advantages and suitability,	11/11/2026		
55		system of payment	12/11/2026		
56		Single and two cover-bids,	16/11/2026		
57		Tender, tender forms and documents, tender notice, submission of tender	17/11/2026		
58		deposit of earnest money, security deposit, retention money, maintenance period	18/11/2026		
59		Administrative approval, Technical sanction, Budget provision, Expenditure sanction	19/11/2026		
60		Methods for carrying out works-contract method.	23/11/2026		

61		Preparation of Tender Document based on Common Schedule Rates (CSR)	25/11/2026		
62		Introduction to CSR and calculation of cost based on premium on CSR.	26/11/2026		

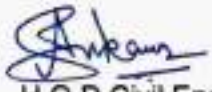
Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Submission Date	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II, Unit III	24/9/2026		
2	Assignments No. 2	Unit IV, Unit V, Unit VI	25/11/2026		

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	10/9/2026		
2	Class Test 2	Unit III, Unit IV	15/10/2026		
3	House Test	Unit I, Unit II, Unit III, Unit IV	3/11/2026		

Teacher signature
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	Water Resource Engineering
3	Subject Code	CEPC305

4	Semester	5th
5	Session	August - December 2026
6	Teacher Name	Er Lokesh 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	Water Resource Engineering	2	0	2	4	40		40	60	3			60	100	2
Reference Books		1	Punmia, B.C., Pande, B.Lal, Irrigation and Water Power Engineering, Laxmi Publications.												
		2	Subramanyam, Engineering Hydrology, McGraw Hill.												

Course Outcomes (COs):

1	Estimate hydrological parameters.
2	Estimate crop water requirements of a command area and capacity of canals.
3	Execute Minor and Micro Irrigation Schemes.
4	Select the relevant Cross Drainage works for the specific site conditions.
5	Design, construct and maintain simple irrigation regulatory structures.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	UNIT-I: Introduction to Hydrology	Hydrology - definition and hydrological cycle	06/08/2026		
2		Hydrology - definition and hydrological cycle	10/08/2026		
3		Hydrology - definition and hydrological cycle	11/08/2026		
4		Rain gauge - Symons rain gauge, automatic rain gauge	12/08/2026		
5		Rain gauge - Symons rain gauge, automatic rain gauge	13/08/2026		
6		Rain gauge - Symons rain gauge, automatic rain gauge	17/08/2026		
7		Methods of calculating average rainfall - Arithmetic mean, Iso-hyetal method	18/08/2026		
8		Methods of calculating average rainfall - Arithmetic mean, Iso-hyetal method	19/08/2026		
9		Methods of calculating average rainfall - Theissen polygon method	20/08/2026		
10		Methods of calculating average rainfall - Theissen polygon method	24/08/2026		
11		Runoff, factors affecting runoff, computation of runoff	25/08/2026		
12		Runoff, factors affecting runoff, computation of runoff	26/08/2026		
13	UNIT-II: Crop	Irrigation and its classification	27/08/2026		
14		Irrigation and its classification	31/08/2026		
15		Irrigation and its classification	01/09/2026		
16		Crop water requirement - cropping seasons, crop period, base period	02/09/2026		
17		Crop water requirement - cropping seasons, crop period, base period	03/09/2026		
18		Crop water requirement - cropping seasons, crop period, base period	07/09/2026		

19	**Water Requirement and Reservoir Planning**	Duty, Delta, CCA, GCA, intensity of irrigation, factors affecting duty - problems on water	08/09/2026		
20		Duty, Delta, CCA, GCA, intensity of irrigation, factors affecting duty - problems on water	09/09/2026		
21		Methods of application of irrigation water and its assessment	10/09/2026		
22		Methods of application of irrigation water and its assessment	14/09/2026		
23		Silting of reservoir - rate of silting, factors affecting silting and control measures	15/09/2026		
24		Silting of reservoir - rate of silting, factors affecting silting and control measures	16/09/2026		
25	**UNIT-III: Dams and Spillways**	Dams and their classification - earthen dams and gravity dams (masonry and concrete)	17/09/2026		
26		Dams and their classification - earthen dams and gravity dams (masonry and concrete)	21/09/2026		
27		Earthen dams - components with function, typical cross-section	22/09/2026		
28		Earthen dams - components with function, typical cross-section	23/09/2026		
29		Seepage through embankment and foundation and its control	24/09/2026		
30		Seepage through embankment and foundation and its control	28/09/2026		
31		Methods of construction of earthen dam, types of failure and preventive measures	29/09/2026		
32		Methods of construction of earthen dam, types of failure and preventive measures	30/09/2026		
33		Gravity dams - forces acting on dam, theoretical and practical profile, typical cross-section	01/10/2026		
34		Gravity dams - forces acting on dam, theoretical and practical profile, typical cross-section	05/10/2026		
35		Spillways - definition, function and location	06/10/2026		
36		Spillways - definition, function and location	07/10/2026		
37	**UNIT-IV: Minor and Micro Irrigation**	Lift irrigation scheme - components and their functions, layout	08/10/2026		
38		Lift irrigation scheme - components and their functions, layout	12/10/2026		
39		Lift irrigation scheme - components and their functions, layout	13/10/2026		
40		Drip and sprinkler irrigation - need, components and layout	14/10/2026		
41		Drip and sprinkler irrigation - need, components and layout	15/10/2026		
42		Drip and sprinkler irrigation - need, components and layout	19/10/2026		
43		Well irrigation - types and yield of wells, advantages and disadvantages	20/10/2026		
44		Well irrigation - types and yield of wells, advantages and disadvantages	21/10/2026		
45		Well irrigation - types and yield of wells, advantages and disadvantages	22/10/2026		
46		Weirs - components, parts, types of weirs	26/10/2026		
47		Weirs - components, parts, types of weirs	27/10/2026		
48		Barrages - components and their functions; difference between weir and barrage	28/10/2026		
49		Barrages - components and their functions; difference between weir and barrage	29/10/2026		
50		Canals - classification according to alignment and position in canal network	09/11/2026		

51	UNIT-V: Diversion Head Works & Canals	Canals - classification according to alignment and position in canal network	10/11/2026		
52		Cross section of canal in embankment and cutting, partial embankment and cutting	11/11/2026		
53		Cross section of canal in embankment and cutting, partial embankment and cutting	12/11/2026		
54		Canal lining - purpose, material used and its properties, advantages	16/11/2026		
55		Canal lining - purpose, material used and its properties, advantages	17/11/2026		
56		Cross drainage works - aqueduct, siphon aqueduct, super passage, level crossing	18/11/2026		
57		Canal regulators - head regulator, cross regulator, escape, falls and outlets	19/11/2026		
58	UNIT-VI: Water Logging	Definition, causes, preventive & remedial measures of water logging	23/11/2026		
59		Definition, causes, preventive & remedial measures of water logging	24/11/2026		
60		Reclamation of water-logged areas	25/11/2026		
61		Reclamation of water-logged areas	26/11/2026		

Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
1	Assignment No. 1	Unit I, Unit II, Unit III	10/09/2026		
2	Assignment No. 2	Unit IV, Unit V, Unit VI	20/10/2026		

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 Schedule		
2	Class Test 2	Unit III, Unit IV			
3	House Test	Unit I to Unit V			

Teacher signature
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Civil Engineering Department
Lesson Plan

1	Programme Name	Civil Engineering	
2	Subject Name	ERBD	
3	Subject Code	CEPE301	
4	Semester	5th	
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	Earthquake Resisting Building Design	2	0	1	3	40		40	60	3			60	100	2
Reference Books		1	Earthquake resistant building construction by Jagroop Singh, Rajiv Bhatia, Eagle Publication												
		2	Earthquake resistant building construction by Neelam Sharma, Katson												

Course outcomes (COs):

1. Understand causes of Earthquakes , magnitude and Intensity etc..
2. Know about seismic behaviour and Precautions taken while Designing structures.
3. Know uses of various IS Codes and Their uses in Seismic Design.
4. Do Ductile Detailing of buildings.
5. Use various Retrofitting solutions for different types of buildings.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	**Unit I: Elements of Engineering Seismology**	General features of tectonic of seismic regions. Causes of earthquakes	10-08-2026		
2		Seismic wave, Earth quake size (magnitude and intensity), Epicenter	11-08-2026		
3		Seismograph, Classification of earthquakes	12-08-2026		
4		Seismic zoning map of India	17-08-2026		
5	**Unit II: Seismic Behaviour of**	Earth quake effects,Traditionally built construction in India	18-08-2026		
6		Performance of building during earthquakes	19-08-2026		

7	**Traditionally-Built Constructions of India**	Mode of failure (Out of plane failure, in plane failure, Diaphragm failure, Connection failure, Non-structural components failure)	24-08-2026		
8		Connection failure, Non-structural components failure)	25-08-2026		
9	**Unit III: Introduction to IS1893 (Part-I)-2016**	Introduction,Assumptions	26-08-2026		
10		Design lateral forces and their calculation methods	01-09-2026		
11		**Numerical**	02-09-2026		
12		**Revision**	07-09-2026		
13	**Unit IV: Ductile Detailing of Reinforced Concrete Buildings (IS 13920-2016) & IS 4326-2013)**	**Class Test -I**	08-09-2026		
14		Common modes of failure in reinforced concrete buildings,	09-09-2026		
15		General Principal for earthquake resistant buildings	14-09-2026		
16		Special construction features	15-09-2026		
		Types of irregularities,Vertical irregularities,Plan irregularities	16-09-2026		
		Ductile detailing as per code, Seismic strengthening arrangements,	21-09-2026		
		Horizontal reinforcement, Vertical reinforcement	22-09-2026		
17	**Unit V: Introduction to IS13828-1993 & IS13827-1993**	Advantages and disadvantages of masonry construction ,Behaviour of masonry construction during earthquakes	23-09-2026		
18		Earthquake resistance features for burnt clay brick in weak mortar,Codal Provisions for earthquake resistant earthen construction	28-09-2026		
19		Seismic strengthening features of earthen buildings	29-09-2026		
20	**Unit VI: Retrofitting Measure for Traditionally Built Construction**	Introduction, need of retrofitting	30-09-2026		
21		Retrofitting materials	05-10-2026		
22		**Class Test -II**	06-10-2026		
23		Retrofitting measure of traditionally built construction,Retrofitting of masonry buildings	07-10-2026		

24		Retrofitting of concrete structure, Retrofitting of low-cost buildings	12-10-2026		
30	Unit VII: Disaster Management	Disaster rescue	13-10-2026		
31		Psychology of rescue, rescue workers,	14-10-2026		
32		rescue plan, rescue by steps	19-10-2026		
33		**Revision**	21-10-2026		
34		**Revision**	27-10-2026		
35		**Revision**	28-10-2026		
36		**Revision**	02-11-2026		
37		**House Test**	03-11-2026		
38		**House Test**	04-11-2026		
39		**House Test**	10-11-2026		
40		rescue equipment	16-11-2026		
41		Safeties in rescue operations	17-11-2026		
42		Debris clearance	18-11-2026		
43		Causality management	23-11-2026		
44		**Revision**	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, Unit III, Unit IV	25/8/2026		
2	Assignments No. 2	Unit IV, Unit V, Unit VI , Unit VII	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, Unit III	As per HPTSB Academic Schedule		
2	Class Test 2	Unit IV, Unit V			
3	House Test	Unit I, Unit II, Unit III, Unit IV,Unit V, Unit VI			

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Govt.Polytechnic Kullu at Seobag
Distt Kullu, H.P. 175138

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

Civil Engineering Department

Lesson Plan

1 Programme Name	Civil Engineering
2 Subject Name	Precast & Pre-stressed Concrete
3 Subject Code	CEPE303(I)

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

Evaluation Scheme

Sr No	Subject Name	Study Scheme Hours per Week				Marks Distribution in Evaluation Scheme								Total Marks (Int. & Ext.)	Credits
						Internal Assessment			External Assessment						
		L	P	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Precast & Pre-stressed Concrete	2	0	1	3	40		40	60	3			60	100	2
Reference Books		1	Krishna Raju, N., Pre-stressed Concrete, Tata McGraw Hill, New Delhi.												
		2	Shrikant B. Vanakudre, Pre-stressed Concrete, Khanna Publishing House, New Delhi												

Course outcomes (COs):

1. Select the relevant precast concrete element for a given type of construction.
2. Use relevant components for prefabricated structures.
3. Justify the relevance of pre-stressed element in a given situation.
4. Select relevant methods/systems for given construction work.
5. Propose suitable cable profile for the given pre-stressed concrete members.

Teaching Plan

Sr N	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit–I Precast concrete Elements	Advantages and disadvantages of precast concrete members	06/08/2026		
2		Non-structural Precast elements-Paver blocks, Fencing Poles, Transmission Poles, Manhole Covers, Hollow and Solid Blocks, kerb stones as per relevant BIS specifications	07/08/2026		
3			08/08/2026		
4			13/08/2026		
5		Structural Precast elements –tunnel linings, Canal lining, Box culvert, bridge panels, foundation, sheet piles	14/08/2026		
6			20/08/2026		
7	Unit–II Prefabricated building	Precast Structural Building components such as slab panels, beams, columns, footings, walls, lintels and chajjas, staircase elements,	21/08/2026		
8			22/08/2026		
9		Prefabricated building using precast load bearing and non-load bearing wall panels, floor systems-Material characteristics, Plans & Standard specifications	27/08/2026		
10			28/08/2026		
11		Prefab systems and structural schemes and their classification	29/08/2026		
12		Joints–requirements of structural joints	03/09/2026		
13		Manufacturing, storage, curing, transportation and erection of above elements, equipment needed	05/09/2026		
14			10/09/2026		
15	Unit–III Introduction to Pre-Stressed Concrete	Principles of pre-stressed concrete and basic terminology	11/09/2026		
16		Applications, advantages and disadvantages of pre stressed concrete	12/09/2026		
17		Materials used and their properties, Necessity of high-grade materials	17/09/2026		
18			18/09/2026		
19		Types of Pre-stressing steel-Wire, Cable, tendon, Merits-demerits and applications	19/09/2026		
20			24/09/2026		

21	Unit–IV Methods and systems of pre-stressing	Methods of pre-stressing–Internal and External pre-stressing, Pre and Post tensioning applications	25/09/2026		
22			26/09/2026		
23		Systems for pre tensioning– process, applications, merits and demerits-Hoyer system	01/10/2026		
24			03/10/2026		
25		Systems for post-tensioning – process, applications, merits and demerits – Freyssinet system, Magnel Blaton system, Gifford Udall system.	08/10/2026		
26			09/10/2026		
27		Loss of pre-stress occurring subsequently: losses due to shrinkage of concrete, creep of concrete, elastic shortening, and creep in steel, (Simple Numerical problems to determine loss of pre-stress).	10/10/2026		
28			15/10/2026		
29			16/10/2026		
30		BIS recommendations for percentage loss in case of Pre and Post tensioning.	17/10/2026		
31	Unit–V Analysis and design of pre-stressed rectangular beam section	Basic assumptions in analysis of pre-stressed concrete beams.	22/10/2026		
32		Cable Profile in simply supported rectangular beam section–concentric, eccentric straight and parabolic	23/10/2026		
33			24/10/2026		
34		Effect of cable profile on maximum stresses at mid span and at support.	29/10/2026		
36		Numerical problems on determination of maximum stresses at mid spans with linear (con-centric and eccentric) cable profiles only.	30/10/2026		
38			31/10/2026		
39		**House Test (1st Week of November 2026)**	05/11/2026		
40			06/11/2026		
41			07/11/2026		
42		Simple steps involved in Design of simply supported rectangular beam section (No numerical problems)	12/11/2026		
43			13/11/2026		
44	**Revision**		14/11/2026		
45			19/11/2026		
46			20/11/2026		
47			21/11/2026		
48			26/11/2026		
49			27/11/2026		
51			28/11/2026		

Assignments

Sr	Assignments No.	Contents of syllabus covered	Proposed	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II	18/09/2026		
2	Assignments No. 2	Unit III, Unit IV, Unit V	31/10/2026		

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 Academic Schedule		
2	Class Test 2	Unit III, Unit IV			
3	House Test	Unit I, Unit II, Unit III, Unit IV, Unit V			

Teacher's signature
Er Parveen Kumar

H.O.D Civil Engg
Er Adit Rana

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Civil Engineering Department

Lesson Plan

1 Programme Name	Auto/Electrical Engg.
2 Subject Name	Project Management
3 Subject Code	CEOE301

4 Semester	5th
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	DCS	Total	Th	Pr	Total	Th	Hrs	Pr	Hrs	Total		
1	Project Management	3	0	1	4	40		40	60	3			60	100	3
Reference Books		1	Project planning, analysis, selection, implementation and review – Prasannachandra – Tata McGraw Hill												
		2	Project Management – the Managerial Process – Clifford F. Gray & Erik W. Larson – McGraw Hill												

Course outcomes (COs):

1. To develop the idea of project plan, from defining and confirming the project goals and objectives
2. Identifying tasks and how goals will be achieved.
3. To develop an understanding of key project management skills and strategies.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit I: Concept of a Project	Concept of a project & Classification of projects	06-06-2026		
2			10-06-2026		
3		Importance of project management	11-06-2026		
4		The project life cycle	12-06-2026		
5			13-06-2026		
6		Establishing project priorities (scope-cost-time) & project priority matrix	17-06-2026		
7			18-06-2026		
8			19-06-2026		
9		Work break down structure	20-06-2026		
10			24-06-2026		
11			25-06-2026		
12	Unit II: Capital Budgeting Process	Capital budgeting process: Planning Analysis- Selection-Financing-Implementation-Review	26-06-2026		
13			27-06-2026		
14			31-06-2026		
15		Generation and screening of project ideas	01-09-2026		
16		Market and demand analysis & Demand forecasting techniques	02-09-2026		
17			03-09-2026		

18	Unit II: Capital Budgeting Process	Market and demand analysis & Demand forecasting techniques	07-09-2026		
19		Market planning and marketing research process	08-09-2026		
20			09-09-2026		
21			10-09-2026		
22		Technical analysis	14-09-2026		
23			15-09-2026		
24			16-09-2026		
25	Unit III: Financial Estimates and Projections	Cost of projects	17-09-2026		
26		Means of financing	21-09-2026		
27		Estimates of sales and production & cost of production	22-09-2026		
28			23-09-2026		
29		Working capital requirement and its financing	24-09-2026		
30		Profitability	28-09-2026		
31		Projected cash flow statement and balance sheet	29-09-2026		
32			30-09-2026		
33			01-10-2026		
34		Break even analysis	05-10-2026		
35			06-10-2026		
36			07-10-2026		
37	UNIT IV: Basic Techniques in Capital Budgeting	Basic techniques in capital budgeting: Non discounting and discounting methods	08-10-2026		
38		Payback period	12-10-2026		
39		Accounting rate of return	13-10-2026		
40			14-10-2026		
41		Net present value	15-10-2026		
42			19-10-2026		
43		Benefit cost ratio	21-10-2026		
44		Internal rate of return	22-10-2026		
45			27-10-2026		
46		Project risk	28-10-2026		
47		Social cost benefit analysis and economic rate of return	29-10-2026		
48			02-11-2026		
49		Non-financial justification of projects	03-11-2026		
50	UNIT V: Project Administration	Project administration, Progress payments, expenditure planning & schedule of payments and physical progress	04-11-2026		
51			05-11-2026		
52			09-11-2026		
53		Project scheduling and network planning & use of Critical Path Method (CPM)	10-11-2026		
54			11-11-2026		
55			12-11-2026		
56		Time-cost trade off	16-11-2026		
57		Concepts and uses of PERT, cost as a function of time & Project Evaluation and Review Techniques/cost mechanisms	17-11-2026		
58			18-11-2026		
59			19-11-2026		

60	UNIT V: Project Administration	Determination of least cost duration	23-11-2026		
61			25-11-2026		
62		Post project evaluation	26-11-2026		

Assignments

Sr No.	Assignments No.	Contents of syllabus	Proposed	Actual Date	Remarks
1	Assignments No. 1	Unit I, Unit II (50%)	03-09-2026		
2	Assignments No. 2	Unit II (50%), Unit III	05-10-2026		

House Test/Class Test

Sr No.	Name of Test	Syllabus for Tests	Proposed	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			

Teacher signature
Er Naveen Bharti

H.O.D Civil Engg
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Civil Engineering Department

Lesson Plan

1	Programme Name	Civil Engineering
2	Subject Name	Design of RCC Structure Lab
3	Subject Code	CEPC307

4	Semester	5th
5	Session	August - December 2026
6	Teacher Name	Er Lokesh Sharma (G1)/ Er Parveen Kumar (G2)

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	Design of RCC Structure Lab	0	2	2	4		40	40	60	3			60	100	1
Reference Books		1	Shah, V. L., and Karve, S.R., Limit State Theory and Design of Reinforced Concrete Structures, Structures Publications, Pune.												
		2	BC Punmia Design of RCC Structure Laxmi Publications												

Course Outcomes (COs):

1	Draw singly and doubly reinforced beams.
2	Draw square and circular footings.
3	Draw one-way and two-way slabs.

Teaching Plan

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1		Rectangular beams - Singly reinforced	07/08/2026		
2		Rectangular beams - Singly reinforced	08/08/2026		
3		Rectangular beams - Singly reinforced	14/08/2026		
4		Rectangular beams - Singly reinforced	21/08/2026		
5		Rectangular beams - Doubly reinforced	22/08/2026		
6		Rectangular beams - Doubly reinforced	28/08/2026		
7		Rectangular beams - Doubly reinforced	29/08/2026		
8		One-way slabs	04/09/2026		
9		One-way slabs	05/09/2026		
10		One-way slabs	11/09/2026		
11		Two-way slabs (Corner not held down)	18/09/2026		
12		Two-way slabs (Corner not held down)	19/09/2026		
13		Two-way slabs (Corner not held down)	25/09/2026		
14		Square columns with isolated footing of uniform depth and varying depth (sloped footings)	26/09/2026		
15		Square columns with isolated footing of uniform depth and varying depth (sloped footings)	02/10/2026		
16		Square columns with isolated footing of uniform depth and varying depth (sloped footings)	03/10/2026		
17		Circular column with isolated footing of uniform depth and varying depth (sloped footings)	09/10/2026		
18	Practical Exercises	Circular column with isolated footing of uniform depth and varying depth (sloped footings)	16/10/2026		

19	Circular column with isolated footing of uniform depth and varying depth (sloped footings)	17/10/2026		
20	Interpret actual RCC structural drawings used on site w.r.t. reinforcement details of structural elements	23/10/2026		
21	Interpret actual RCC structural drawings used on site w.r.t. reinforcement details of structural elements	24/10/2026		
22	Interpret actual RCC structural drawings used on site w.r.t. reinforcement details of structural elements	30/10/2026		
23	Prepare detailed report of site visit for reinforcement detailing of beams, columns, staircase & footing	31/10/2026		
24	Prepare detailed report of site visit for reinforcement detailing of beams, columns, staircase & footing	13/11/2026		
25	Prepare detailed report of site visit for reinforcement detailing of beams, columns, staircase & footing	20/11/2026		
26	Prepare checklist for reinforcement provided from actual site drawings for various structural elements	21/11/2026		
27	Prepare checklist for reinforcement provided from actual site drawings for various structural elements	27/11/2026		
28	Prepare checklist for reinforcement provided from actual site drawings for various structural elements	28/11/2026		

Assignments

Sr	Assignments No.	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
Not Applicable - Practical Subject					

House Test/Class Test

Sr	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	CT1	**Practical Exercise (1-2)**	As per HPTSB Academic Schedule		
2	CT2	**Practical Exercise (3-4)**			
3	HT	**Practical Exercise (1-5)**			

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Er Adit Rana

Teacher signature
Er Lokesh Sharma (Group 1)
Er Parveen Kumar (Group 2)

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Civil Engineering Department
Lesson Plan

1 Programme Name	Civil Engineering	4 Semester	5th
2 Subject Name	Computer Applications in Civil Engg.	5 Session	August- Dec 2026
3 Subject Code	CEPC309	6 Teacher Name	Er Adit Rana

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	Computer Applications in Civil Engg.	0	4	0	4	0	40	40	0	0	60	3	60	100	2
Reference Books		1 Reference Manual of AutoCAD by Auto Desk 2 AutoCAD 2013 by IPH publication 3 MS Project – Microsoft USA or Primavera or Bentley Company													

Course outcomes (COs):

1 Apply the basic commands In Auto CAD.
2 Apply the Drawing Editing And Dimensioning Commands.
3 Prepare working Drainings with the help of Auto CAD
4 Use of Artificial Intelligence in the field of Building Design.

Teaching Plan :- Group 1

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit I: Introduction	Starting up of Auto CAD, Auto CAD Window, Toolbar, drop down menu, Command window, saving the drawing.	10/8/2026		
2			11/8/2026		
3		Introduction of Graphic screen.	17/08/2026		
4			18/08/2026		
5	Unit II: Drawing, Editing, Dimensioning Commands	Co-ordinates, drawing limits, grid, snap, orthographic features.	24/08/2026		
6			25/08/2026		
7		Drawing commands, line, circle, poly-line, multiline, ellipse, polygon etc.	31/08/2026		
8			1/9/2026		
9		Editing commands – Copy, move, offset, fillet, chamfer, trim, lengthen, mirror, rotate, array etc.	7/9/2026		
10			8/9/2026		
11			14/09/2026		
12		Working with hatches, fills, dimensioning, text etc	15/09/2026		
13			21/09/2026		
14	Unit III: Submission/ Working Drawing	Drawing T, L, I, E, H with absolute, consecutive and polar coordinate system	22/09/2026		
15			28/09/2026		
16			29/09/2026		
17		Preparation of line plan of a residential building	5/10/2026		
18			6/10/2026		
19			12/10/2026		
20		Preparation of detailed plan of a two-room residential building, Elevation, Section, Site Plan	13/10/2026		
21			19/10/2026		
22			27/10/2026		

23	House Test		2/11/2026		
24			3/11/2026		
25	Unit III: Submission/ Working	Introduction to STAAD Pro,	9/11/2026		
26		Introduction to MS Project/Primavera	10/11/2026		
27			16/11/2026		
28	Unit IV: Use of artificial Intelligence in Building Design		17/11/2026		
29			23/11/2026		

Assignments

Sr No.	Assignments No.	Contents of syllabus covered	Proposed Submission Date	Actual Date	Remarks
1	NA				
2	NA				

House Test/Class Test

Sr No	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	NA				
2	NA				
3	NA				

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Civil Engineering Department
Lesson Plan

1 Programme Name	Civil Engineering	4 Semester	5th
2 Subject Name	Computer Applications in Civil Engg.	5 Session	August- Dec 2026
3 Subject Code	CEPC309	6 Teacher Name	Er Adit Rana

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	Computer Applications in Civil Engg.	0	4	0	4	0	40	40	0	0	60	3	60	100	2
	Reference Books	1 Reference Manual of AutoCAD by Auto Desk 2 AutoCAD 2013 by IPH publication 3 MS Project – Microsoft USA or Primavera or Bentley Company													

Course outcomes (COs):

1 Apply the basic commands In Auto CAD.
2 Apply the Drawing Editing And Dimensioning Commands.
3 Prepare working Draings with the help of Auto CAD
4 Use of Artificial Intelligence in the field of Building Design.

Teaching Plan :- Group 2

Sr No	Name of the chapter	Topics to be covered	Proposed Date	Actual Date	Remarks
1	Unit I: Introduction	Starting up of Auto CAD, Auto CAD Window, Toolbar, drop down menu, Command window, saving the drawing.	6/8/2026		
2			12/8/2026		
3		Introduction of Graphic screen.	13/08/2026		
4			19/08/2026		
5	Unit II: Drawing, Editing, Dimensioning Commands	Co-ordinates, drawing limits, grid, snap, orthographic features.	20/08/2026		
6			26/08/2026		
7		Drawing commands, line, circle, poly-line, multiline, ellipse, polygon etc.	27/08/2026		
8			2/9/2026		
9		Editing commands – Copy, move, offset, fillet, chamfer, trim, lengthen, mirror, rotate, array etc.	3/9/2026		
10			9/9/2026		
11			10/9/2026		
12		Working with hatches, fills, dimensioning, text etc	16/09/2026		
13			17/09/2026		
14	Unit III: Submission/ Working Drawing	Drawing T, L, I, E, H with absolute, consecutive and polar coordinate system	23/09/2026		
15			24/09/2026		
16			30/09/2026		
17			1/10/2026		
18		Preparation of line plan of a residential building	7/10/2026		
19			8/10/2026		
20			14/10/2026		
21			15/10/2026		

22		Preparation of detailed plan of a two-room residential building, Elevation, Section, Site Plan	21/10/2026		
23			22/10/2026		
24			28/10/2026		
25			29/10/2026		
26	**House Test**		4/11/2026		
27			5/11/2026		
28	Unit III: Submission/ Working Drawing	Introduction to STAAD Pro,	11/11/2026		
29			12/11/2026		
30		Introduction to MS Project/Primavera	18/11/2026		
31			19/11/2026		
32	Unit IV: Use of artificial Intelligence in Building Design		25/11/2026		
33			26/11/2026		

Assignments

Sr No	Assignments No.	Contents of syllabus covered	Proposed Submission Date	Actual Date	Remarks
1	NA				
2	NA				

House Test/Class Test

Sr No	Name of Test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
1	NA				
2	NA				
3	NA				

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