

Government Polytechnic Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018

Department of Civil Engineering

Lesson Plan for Design R.C. C Structures (Semester-5th) Session: (August- December 2026)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	Aug	Week 2	6,7	Design Philosophies: Working Stress Theory, Ultimate Design Theory	
		Week 3	12,13,14	Limit State Theory Concept of Reinforced Cement Concrete (RCC) Reinforcement Materials:	
		Week 4	19,20,21	Suitability of Steel as reinforcing material Properties of mild steel and HYSD steel Loading on structure as per I.S 875. Study of BIS:456-2000-clause5, clause6, clause9, Clause18, clause22, clause23.0, 23.2, 23.3, Clause25, clause26, clause35, clause36, clause37, clause 38, clause 39, clause 40, clause 41, clause42, clause 43, Annexure-B, C, D, E, G	
		Week 5	26,27,28	Nominal Shear stress in R.C. Section, Design shear strength of concrete, maximum shear stress, Design of shear reinforcement, Minimum shear reinforcement,	
2	Sep	Week 1	2,3	Forms of shear reinforcement with numerical problems.	Class Test-1
		Week 2	9,10,11	Bond and types of bonds, Bond Stress, check for bond stress, Development length in tension and compression, anchorage value for hooks 90° bend and 45° bend. Standard Lapping of bars, check for development length.	
		Week 3	16,17,18	Determination of development length required for tension reinforcement of cantilevers beam and slab, check for development length	
		Week 4	23,24,25	Limit State of collapse (Flexure), Assumption stress. Strain relationship for concrete and steel, neutral axis, Stress block diagram and Strain diagram for singly reinforced section.	
		Week 5	30	Concept of under- reinforced, over-reinforced and balanced section, neutral axis, limiting value of moment of resistance and limiting percentage of steel required for balanced singly R.C. Section.	
3	Oct	Week 1	1	Simple numerical problems on determining design constants, moment of resistance and area of steel.Design of Singly reinforced simply supported beam and cantilever beam.	Class Test-2
		Week 2	7,8,9	General features, necessity of providing doubly reinforced reinforcement, limitations. Analysis of doubly reinforced section, strain diagram, stress diagram, depth of neutral axis, moment of resistance of the section.	
		Week 3	14,15,16	Numerical problems on finding moment of resistance	
		Week 4	21,22,23	Analysis & Design of simply supported one-way slab.Design of two-way simply supported slab with corners free & no provision for torsion reinforcement.	
		Week 5	28,29,30	Assumptions in limit state of collapse-compression Definition and classification of columns, effective length of column.	
4	Nov	Week 1	4,5,6	House test	
		Week 2	11,12,13	Specification for minimum reinforcement; cover, maximum reinforcement, number of bars in rectangular, square, and circular sections, diameter and spacing of lateral ties. (No numerical on helical ties).	
		Week 3	18,19,20	Analysis and Design of axially loaded: Uniaxial & Biaxial Bending along with axial loading: short, square, rectangular, and circular columns with lateral ties only; check for short column and check for minimum eccentricity may be applied.	
		Week 4	25,26,27	Rivision	

Signature of Teacher

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Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Department of Civil Engineering

Lesson Plan for Estimation & Costing (Semester-5th) Session: (Aug- Nov 2026)

S.No	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	August	Week 3	10,11	Meaning of the terms estimating & costing. Purpose of estimating and costing Types of Estimates Approximate and Detailed Approximate estimate Types Plinth area rate method Cubic Content method Approximate Quantity method	
		Week 4	17,18	Types of detailed estimate Detailed estimate for new work Revised estimate Supplementary estimate Repair & Maintenance estimate	
		Week 5	24,25	Units of measurement for various items of work as per BIS: 1200 Rules for measurements.	
2	September	Week 1	1	Different methods of taking out quantities—centre line method and long wall and short wall method.	Class Test - I
		Week 2	7,8	One & two room residential building with flat roof Septic tank for 10 users	
		Week 3	14,15	One & two room residential building with flat roof Septic tank for 10 users	
		Week 4	21,22	Preparation of Detailed Estimates and Abstract of Cost for • Plain road with-mid section area method, mean sectional area method, prismoidal formula. • Earth work in hill road.	
		Week 5	28,29	Cement mortars of different proportion Cement concrete of different proportion	
		Week 2	5,6	RCC work in different proportions Brick/stone masonry in cement mortar Plastering and pointing	Class Test - II

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3	October	Week 3	12,13	Whitewashing, painting Preparation of Detailed Analysis of Rates for finished items with given labour and rate of material Earthwork Cement concrete of different proportion
		Week 4	19	RCC work in different proportions Brick/stone masonry in cement mortar Plastering and pointing Whitewashing, painting
		Week 5	27	• Tender, tender forms and documents, tender notice, submission of tender and deposit of earnest money, security deposit, retention money, maintenance period
4	November	Week 1	2,3	HOUSE TEST
		Week 2	9,10	Meaning of contract • Qualities of a good contractor and their qualifications. • Essentials of a contract • Types of contracts, their advantages, dis-advantages and suitability, system of payment. • Single and two cover-bids
		Week 3	16,17	• Administrative approval, Technical sanction, Budget provision, Expenditure sanction. • Methods for carrying out works- contract method. • Preparation of Tender Document based on Common Schedule Rates (CSR)
		Week 4	23	• Introduction to CSR and calculation of cost based on premium on CSR.


Signature of Teacher
(Dr. Lalit Goel)


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(Dr. Lalit Goel)

Government Polytechnic Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018
Department of Civil Engineering
Lesson Plan for Water Resource Engineering (Semester-5th) Session: (August-November 2026)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
	August	Week 2	6	Hydrology: Definition and Hydrological cycle Rain Gauge: Symons rain gauge, automatic rain gauge,	
		Week 3	11,12,13	Methods of calculating average rainfall: Arithmetic mean, Iso-hyetal, and Thiessen polygon method.	
		Week 4	18,19,20,22	Runoff, Factors affecting Runoff, Computation of run-off	
		Week 5	25,26,27,29	Irrigation and its classification. Crop Water requirement: Cropping seasons, measures.	
2	September	Week 1	1,2,3,5	Crop period, base period, Duty, Delta, CCA, GCA, intensity of irrigation, factors affecting duty,	Class Test-I
		Week 2	8,9,10	Problems on water requirement Methods of application of irrigation water and its assessment. Silting of reservoir, Rate of silting, factors affecting silting and control	
		Week 3	15,16,17,19	Dams and its classification: Earthen dams and Gravity dams (masonry and concrete).	
		Week 4	22,23,24,26	Earthen Dams- Components with function, acting on dam, Theoretical and practical profile, typical cross-section. (only theoretical concept) Spillways-Definition, function & location	
		Week 5	29,30	Typical cross-section,	
3	October	Week 1	1,3	Seepage through embankment and foundation and its control.	Class Test-II
		Week 2	6,7,8	Methods of construction of earthen dam, types of failure of earthen dam and preventive measures. Gravity Dams-Forces	
		Week 3	13,14,15,17	Lift irrigation Scheme-Components and their functions, Layout. Drip and Sprinkler Irrigation-Need, components, and Layout.	
		Week 4	21,22,24	Well irrigation: types and yield of wells, advantages and disadvantages of well irrigation	
		Week 5	27,28,29,31	Weirs-components, parts, Types of weirs Barrages-components and their functions.	
4	November	Week 1	3,4,5,7	House test	
		Week 2	10,11,12	Difference between weir and Barrage. Canals- Classification according to alignment and position in the canal network, Cross section of canal in embankment and cutting, partial embankment and cutting.	
		Week 3	17,18,19,21	Canal lining-Purpose, material used and its properties, advantages. Cross Drainage Works-Aqueduct, siphon aqueduct, super passage, level crossing. Canal Regulators- Head regulator,	
		Week 4	25,26,28	Cross regulator, Escape, Falls and Outlets Unit-VI Water logging □ Definition, Causes, Preventive & remedial measures, Reclamation of waterlogged areas	


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 (Er Nawang Negi)


Signature of H.O.D
 (Dr. Lalit Goel)

Department of Civil Engineering
Government Polytechnic L&S at Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018

LESSON PLAN FOR Earthquake Resistant Building Design (SEMESTER-5TH)SESSION: (Aug-Dec 2026)

S.No.	MONTH	WEEK	CONTENTS	REMARKS
1	August	Week 2	Unit I: Elements of Engineering Seismology: General features of tectonic of seismic regions Causes of earthquakes Seismic waves	
		Week 3	Earth quake size (magnitude and intensity) Epicenter Seismograph Classification of earthquakes Seismic zoning map of India	
		Week 4	Unit II: Seismic Behaviour of Traditionally-Built Constructions of India: Earth quake effects Traditionally built construction in India	
		Week 5	Performance of building during earthquakes and Mode of failure (Out of plane failure, in plane failure, Diaphragm failure, Connection failure, Non-structural components failure)	
2	September	Week 1	Unit III: Introduction to IS1893 (Part-I)-2016: Introduction & Assumptions	
		Week 2	Design lateral forces and their calculation methods Class Test -1 Will be held this week.	
		Week 3	Unit IV: Ductile Detailing of Reinforced Concrete Buildings (IS 13920-2016) & IS 4326-2013) : Common modes of failure in reinforced concrete buildings , General Principal for earthquake resistant buildings & Special construction features	
		Week 4	Types of irregularities Vertical irregularities Plan irregularities Ductile detailing as per code Seismic strengthening arrangements Horizontal reinforcement Vertical reinforcement	
		Week 5	Unit V: Introduction to IS13828-1993 & IS13827-1993: Advantages and disadvantages of masonry construction Behaviour of masonry construction during earthquakes.	
3	October	Week 1	Earthquake resistance features for burnt clay brick in weak mortar Codal Provisions for earthquake resistant earthen construction. Seismic strengthening features of earthen buildings	
		Week 2	Unit VI: Retrofitting Measure for Traditionally Built Construction: Introduction, need of retrofitting Retrofitting materials Retrofitting measure of traditionally built construction	
		Week 3	Class Test -2 Will be held this week.	
		Week 4	Retrofitting of masonry buildings Retrofitting of concrete structure Retrofitting of low-cost buildings	
		Week 5	Unit VII: Disaster Management: Disaster rescue Psychology of rescue, rescue workers, rescue plan, rescue by steps.	
4	November	Week 1	Rescue equipment Safeties in rescue operations.	
		Week 2	House Test will be held this week	
		Week 3	Debris clearance Causality management	
		Week 4	Revision of Previous Year Question Papers	

Signature of Teacher

Signature of H.O.D
(Dr.Lalit Goel)

Government Polytechnic Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018
Department of Applied Science and Humanities

Lesson Plan for the Session Aug.-Nov.2026

Subject Name : Green Building and Energy Conservation				Semester: 5 th	Subject Teacher: Gopal Dass Lect. In Physics
Sr no	Month	Week	Date	Branch: Civil Engg	
				Name of Chapter	Contents to be taught
1	August	Week 1	5,7	Unit I: Introduction to Green Building and Design Features	Definition of Green Building, Benefits of Green building, Components/features of Green Building, Site selection, Energy Efficiency, Water efficiency, Material Efficiency, Indoor Air Quality. Site selection strategies, Landscaping, building form, orientation, advanced passive heating and cooling techniques, waste reduction during construction. Building, Site selection, Energy Efficiency, Water efficiency, Material Efficiency, Indoor
2		Week 2	12,14		
3		Week 3	19,21,22		
4		Week 4	26,28,29		
5	September	Week 1	2,5	Unit-II Energy Audit and Environmental Impact Assessment (EIA)	Energy Audit: Meaning, Necessity, Procedures, Types, Energy Management Programs Environmental Impact Assessment (EIA): Introduction, EIA regulations, Steps in environmental impact assessment process, Benefits of EIA, Limitations of EIA, Environmental clearance for the civil engineering projects.
6		Week 2	9,11		Renewable Energy Resources: Solar Energy, Wind Energy, Ocean Energy, Hydro Energy,
7		Week 3	16,18,19		1st Class Test
8		Week 4	23,25,26,	Unit- III Energy and Energy conservation	Renewable Energy Resources: Solar Energy, Wind Energy, Ocean Energy, Hydro Energy,
9		Week 5	30		Biomass Energy. Non-renewable Energy Resources: Coal, Petroleum, Natural Gas, Nuclear Energy, Chemical Sources of Energy, Fuel Cells, Hydrogen, Bio fuels. Energy conservation: Introduction, Specific objectives, present scenario, Need of energy conservation, LEED India Rating System and Energy Efficiency.
10	October	Week 1	3	Unit- IV Green Building	Principles: Principles and planning of Green building.
11		Week 2	7,9		2nd Class Test
12		Week 3	14,16,17		Features: Salient features of Green Building, Environmental design (ED) strategies for building construction.
13		Week 4	21,23,24		Process: Improvement in environmental quality in civil structure Civil Engineering
14		Week 5	28,30,31		Materials: Green building materials and products- Bamboo, Rice husk ash concrete, plastic bricks, Bagasse (Sugar cane) particle board, Insulated concrete forms. Reuse of waste materials -Plastic, rubber, Newspaper wood, Nontoxic paint, Green roofing.
15	November	Week 1	4,6,7	Unit V Rating System	House Test 1st Week of Nov
16		Week 2	11,13		Introduction to (LEED) criteria, Indian Green Building council (IGBC) Green rating, Green Rating for Integrated Habitat Assessment. (GRIHA) criteria
17		Week 3	18,20,21		Heating Ventilation Air Conditioning (HVAC) unit in green Building Functions of Government organization working for Energy conservation and Audit(ECA)-
18		Week 4	25,27,28		National Productivity council(NPC) Ministry of New and Renewable Energy (MNRE) Bureau of Energy efficiency (BEE)

Signature of Teacher
Gopal Dass

H.O.D. 11/8/26
Civil Engg.

Government Polytechnic Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018

Department of Civil Engineering

Lesson Plan for Design of R.C.C Structures Lab (Semester-5th) Session: (August- November 2026)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	Aug	Week 3	10,11	Rectangular beams – Singly reinforced	
		Week 4	17,18	Drawing sheet Prepration	
		Week 5	24,25	Rectangular beams- Doubly reinforced	
2	Sep	Week 1	1	Drawing sheet Prepration	Class Test-1
		Week 2	7,8	One-way slabs	
		Week 3	14,15	Drawing sheet Prepration	
		Week 4	21,22	Two-way slabs (Corner not held down)	
		Week 5	28,29	Drawing sheet Prepration	
3	Oct	Week 2	5,6	Square columns with isolated footing of uniform depth and varying depth (sloped footings)	Class Test-2
		Week 3	12,13	Drawing sheet Prepration	
		Week 4	19	Circular column with isolated footing of uniform depth and varying depth (sloped footings).	
		Week 5	27	Interpret the actual RCC Structural Drawings used on site with reference to reinforcement details of various structural elements.	
	Nov	Week 1	2,3	House test	
		Week 2	9,10	Prepare a detailed report of site visit for reinforcement detailing of structural elements like beams, columns, staircase & footing.	
		Week 3	16,17	Prepare a checklist for reinforcement provided from actual drawings used on site for various structural elements	
		Week 4	23	Drawing sheet Prepration	


Signature of Teacher
 (Er. R.S. Chandel)


Signature of H.O.D
 (Dr. Lalit Goel)

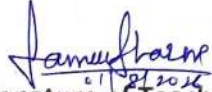
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Department of Civil Engineering

Lesson Plan for Computer Applications in Civil Engineering G-2 (Semester-5th)

Session: (August-November 2026)

S.No.	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 2	6	Introduction, Syllabus Overview, Evaluation scheme	
		Week 3	13	Starting up of Auto CAD, Auto CAD Window, Toolbar	
		Week 4	20,22	Drop down menu, Commandwindow, saving the drawing, Introduction of Graphic screen, Co-ordinates, drawing limits, grid, snap, orthographic features.	
		Week 5	27,29	Drawing commands, line, circle, poly-line, multiline, ellipse, polygon etc.	
2	September	Week 1	3,5	Editing commands – Copy, move, offset, fillet, chamfer, trim, lengthen, mirror, rotate, array etc., Working with hatches, fills, dimensioning, text etc. Basic Drawing Practice.	
		Week 2	10	Drawing T, L, I, E, H with absolute, consecutive and polar coordinate system	
		Week 3	17,19	Drawing T, L, I, E, H with absolute, consecutive and polar coordinate system	
		Week 4	24,26	Drawing T, L, I, E, H with absolute, consecutive and polar coordinate system	
3	October	Week 1	1,3	Preparation of line plan of a residential building	
		Week 2	8	Preparation of line plan of a residential building	
		Week 3	15,17	Preparation of detailed plan of a two-room residential building, Elevation, Section, Site Plan (using different type of layers)	
		Week 4	22,24	Preparation of detailed plan of a two-room residential building, Elevation, Section, Site Plan (using different type of layers)	
		Week 5	29,31	Preparation of detailed plan of a two-room residential building, Elevation, Section, Site Plan (using different type of layers)	
4	November	Week 1	5,7	HOUSE TEST	
		Week 2	12	Introduction to STAAD Pro	
		Week 3	19,21	Introduction to MS Project/Primavera	
		Week 4	26,28	Use of artificial Intelligence in Building Design	


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 (Er Sameer Sharma)


Signature of H.O.D
 (Dr. Lalit Goel)

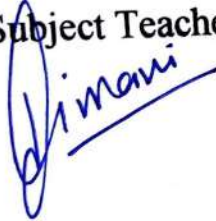
Government Polytechnic L/S at Udaipur camp at Sundernagar

Lesson Plan for the Session August 2026- December 2026

Subject Name : Introduction to e - Governance				Semester: 5th Civil	Subject Teacher: Himani Vaidya
Sr no	Mon th	Week	Date	Name of Chapter	Contents to be taught
1	August	1	4th, 5th, 6th, 7th	Unit 1	Exposure to emerging trends in ICT for development; Understanding of design and implementation of e-Government projects, e-governance lifecycle.
2		2	11th, 12th, 13th, 14th		
3		3	18th, 19th, 20th, 21st		
4		4	25th, 26th, 27th	Unit 2	Need for Government Process Re-engineering (GPR); National e-Governance Plan(NeGP) for India; SMART Governments & Thumb Rules
5	September	1	1st, 2nd, 3rd		
6		2	8th, 9th, 10th, 11th	Unit 3	Architecture and models of e-Governance, including Public Private Partnership (PPP); Need for Innovation and Change Management in eGovernance; Critical Success Factors; Major issue including corruption, resistance for change, e-Security and Cyber laws 1st Class Test(2nd week of Sept)
7		3	15th, 16th, 17th, 18th		
8		4	22th, 23rd, 24th, 25th		
9		5	29th, 30th		
10		1	1st		
11		2	6th, 7th, 8th, 9th		

12	October	3	13th , 14th ,15th,16th	Unit4	Focusing on Indian initiatives and their impact on citizens; Sharing of case studies to highlight best practices in managing e-Governance projects in Indian context. Visits to local e-governance sites(CSC, eSeva, Post Office, Passport Seva Kendra, etc) as part of Tutorials. 2nd Class Test (2nd week of October) House test (1st week of November)
13		4	21st, 22nd,23rd		
14		5	27th ,28th 30th		
15	November	2	3rd,4th,5th,6th	Unit5	Mini Projects by students in groups – primarily evaluation of various e-governance project
16		3	10th, 12th, 13th		
17		4	17th ,18th ,19th,20th		
18		5	25th ,26th,27th		

Himani Vaidya
Subject Teacher



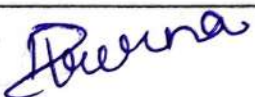
 HOD, Civil Engg

Government Polytechnic Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018

Department of Civil Engineering

Lesson Plan for SCA (Semester-6th) Session: (August-November 2026)

Month	DATE	WEEK	ACTIVITIES	REMARKS
August, 2026	6	1st week	Sports Activities	
	13	2nd week	Hobby class	
	20,22	3rd week	Essay Writing	
	23,29	4th week	Quiz Competition	
September,2026	3,5	1st week	Cultural activities	
	10	2nd week	Declamation	
	17,19	3rd week	Rangoli competition	
	24,26	4th week	Community Service	
October,2026	1,3	1st week	Poster making	
	8	2nd week	Cultural activities	
	15,17	3rd week	Sports Activities	
	22,24	4th week	Story telling	
	31	5th week	Painting Practice	
November,2026	5,7	1st week	Quiz Competition	
	12	2nd week	Poetry Writing	
	19,21	3rd week	Campus Cleanliness	
	26,28	4th week	Cultural activities	


Signature of Teacher


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