Lesson plan

Name of the Faculty		**SAVROOP KAUR**	**Semester**	**2nd**
Discipline		**Civil Engineering**	**Lecture per week**	**2**
Subject		**Construction Materials**	**Delivery Date of Lecture**	**Remarks**
Duration		**Jan 2026 - May. 2026 (15 weeks)**		
Week	**Lecture Day**	**Topic (including assignment / test)**		
1st	1st	**1. Building Stone :** .11 Sources of Stone,1.2 Quarrying of stones by blasting and its effect on environment, 1.3 Dressing of stones		
	2nd	1.4 Requirements of good building stones, 1.5 Various uses of stones in construction, 1.6 Artificial Stones: Procedure of making an artificial stone, forms of artificial stones, advantages of artificial stones		
2nd	1st	**2. Bricks:** 2.1 Introduction to bricks, 2.2 Raw materials for brick manufacturing and properties of good brick making earth		
	2nd	2.3 Manufacturing of bricks, 2.3.1 Preparation of clay (Manual and Mechanically), **2.3.2 Moulding: Hand moulding and machine moulding brick table; drying of bricks.		
3rd	1st	2.4 Burning of bricks: Bull's Trench Kiln, Hoffman's Kiln and Zig- Zag Kiln (only line diagram of kilns).		
	2nd	2.5 Sun dried bricks, Traditional bricks, Refractory bricks, Fly ash bricks, Hollow bricks, 2.6 Size and weight of standard brick.		
4th	1st	2.7 Classification and specifications of bricks as per BIS: 1077 2.8 Stacking of bricks and tiles at site		
	2nd	**3. Tiles:** 3.1 Brick tiles and their uses, 3.2 Ceramic tiles and their uses		
5th	1st	3.3 Vitrified tiles and their uses, 3.4 PVC Tiles and uses, 3.5 Paver blocks, interlocking tiles		
	2nd	**1st Sessional Test**		
6th	1st	**4. Cement :** **4.1 Introduction, raw materials, flow diagram of manufacturing of cement, 4.2 Various types of cements, their uses and testing: Ordinary portland cement, rapid hardening cement, White cement, Portland pozzolana.		
	2nd	4.3 Properties of cement, 4.4 Storage of Cement at site		
7th	1st	**5. Timber and Wood Based Products** 5.1 Identification and uses of different types of timber: Teak, Deodar, Shisham, Sal, Mango, Kail, Chir, Fir, Hollock, Champ ** 5.2 Seasoning of timber: Purpose, methods of seasoning as per BIS		
	2nd	5.3 Properties of timber and specifications of structural timber 5.4 Preservation of timber and methods of treatment as per BIS		
8th	1st	5.5 Other wood based products, their brief description of manufacture and uses: Laminated Board, Block Board, Fibre Board, Hard board, Sunmica, Plywood, and Veneers.		
	2nd	**6. Paints, Varnishes and Distempers:** 6.1 Paints, 6.1.1 Purpose and use of paints, 6.1.2 Characteristics of an ideal paint, 6.1.3 Types of paints: Oil paints, Water paints, Cement paints and Enamel paint**, 6.1.4 Covering capacity of paints		
9th	1st	6.2 Varnishes, 6.2.1 Purpose and use of varnishes, 6.2.2 Characteristics of an ideal varnish, 6.2.3 Types of varnishes, 6.3 Distemper, 6.3.1 Properties of distemper and process of distempering.		
	2nd	**2nd Sessional Test**		
10th	1st	**7. Metals and Non Metals:** 7.1 Ferrous metals: Composition, properties and uses of cast iron, mild steel, HYSD steel, high tension steel as per BIS., 7.2 Commercial forms of ferrous, metals		
	2nd	7.3 Properties and use of Al, 7.4 Properties and use of Stainless Steel.		
11 th	1st	**8. Plastics:** 8.1 FRP: Introduction, Properties of FRP and Applications of FRP in Building Industry		
	2nd	8.2 PVC wall paneling, 8.3 ACP and HPL Sheets		
12th	1st	**9. Miscellaneous Materials:** 9.1 Asbestos: Introduction, properties and use of asbestos., 9.2 Types and uses of insulating materials for sound and thermal insulation,		
	2nd	9.3 Construction chemicals like water proofing compound, epoxies, polymers		
13th	1st	9.4 Water proofing and termite proofing materials – types and uses		
	2nd	9.5 Materials used in interior decoration works like POP, methods of doing POP,		
14th	1st	9.6 Eco friendly materials for construction of buildings.		
	2nd	**3rd Sessional Test**		
15th	1st	Revision		
	2nd	Revision		

Name of the Faculty : **Raghubir Giri**

Discipline : **Civil Engineering**

Semester : **2nd**

Subject : **FIT**

Lesson Plan Duration : **15 Weeks (from 15-01 -2026 to June 30-4-2026)**

Week			Theory
	Lecture Day		Topic (including assignment / test)
1st	1		UNIT I-
			Basics of Computer Brief history of development of computers, Definition of Computer, Block diagram of a Computer, Hardware, Software, Booting: Cold and Hot Booting, Interaction between the CPU and Memory with Input/output devices.
	2		Function of CPU and major functional parts of CPU. Memory, Bit, Nibble, Byte, KB, MB, GB, TB, PB, Functions of memory, Use of storage devices in a Computer, List types of memory used in a Computer
2nd	1		Importance of cache memory, CPU speed and CPU word length Importance of cache memory, CPU speed and CPU word length
	2		UNIT II-
			Basic Internet Skills Understanding browser, Introduction to WWW, efficient use of search engines, awareness about Digital India portals (state and national portals) and college portals
3rd	1		awareness about Digital India portals (state and national portals) and college portals
	2		Advantages of Email, Various email service providers
4th	1		Creation of email id, sending and receiving emails, attaching documents with email and drive.
	2		Revision/Assignment No I
5th	1		**First Sessional**
	2		
			Effective use of Gmail, G-Drive, Google Calendar, Google Sites, Google Sheets, Online mode of communication using Google Meet & WebEx.
6th	1		Unit III-
			Basic Logic building Introduction to Programming, Steps involved in problem solving, Definition of Algorithm, Definition of Flowchart,
	2		Steps involved in algorithm development, differentiate algorithm and flowchart, symbols used in flowcharts
7th	1		algorithms for simple problems, flowcharts for simple problems
	2		Practice logic building using flowchart/algorithms
8th	1		Unit IV-
			Office Tools Office Tools like Libre Office/Open Office/MSOffice.
	2		
			Open Office Writer – Typesetting Text and Basic Formatting, Inserting Images, Hyperlinks, Bookmarks,
9th	1		Tables and Table Properties in Writer Introducing Libre Office/Open Office Calc, Working with Cells,
	2		Revision/Assignment No II
10th	1		**Second Sessional**
	2		Sheets, data, tables, using formulae and functions, using charts and graphics.
11th	1		
			Open Office Impress – Creating and Viewing Presentations, Inserting Pictures and Tables,
	2		Slide Master and Slide Design, Custom Animation.
12th	1		Unit V-
			Use of Social Media Introduction to Digital Marketing – Why Digital Marketing
	2		Characteristics of Digital Marketing, Tools for Digital Marketing,
13th	1		Effective use of Social Media like LinkedIn, Google+, Facebook, Twitter, etc.:
	2		Features of Social media
14th	1		Advantages and Disadvantages of Social Media.
	2		Revision
15th	1		Revision
	2		**Third Sessional**

Lesson Plan

Name of	**Sh.Vijender Kumar**		**Discipline**	**Civil Engg.**
Subject	**APPLIED MECHANICS (Th)**		**Semester**	**2nd**
Lesson	**15 JAN 2026 To 30 April 2026 (15 Weeks)**			
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Week	**Theory**		**Delivery Date of Lecture**	
	Lecture	**Topic**		
Ist	1st	**UNIT 1 1. Introduction Concept of mechanics** Classification of mechanics		
	2nd	Utility of mechanics in engineering field.		
	3rd	Concept of rigid body, scalar and vector quantities.		
2nd	1st	**2. Laws of forces Definition of force** , measurement of force in SI units, its representation		
	2nd	Types of force: Point force/concentrated force & Uniformly distributed force		
	3rd	Effects of force, characteristics of a force		
3rd	1st	Different force systems (coplanar and non-coplanar)		
	2nd	Principle of transmissibility of forces		
	3rd	law of superposition, Free body diagram		
4th	1st	Composition and resolution of coplanar concurrent forces, resultant force		
	2nd	Method of composition of forces, laws of forces, parallelogram law of forces (with derivation)		
	3rd	Triangle law of forces, polygon law of forces - graphically, analytically, resolution of forces		
5th	1st	Resolving a force into two rectangular components, Lami's theorem, Simple numericals, Equilibrium of forces and its determination.		
	2nd rd	**Sessional Test-1**		
6th	1st	**UNIT II 3. Moment Concept of moment**, Moment of a force and units of moment, Varignon's theorem (definition only)		
	2nd	Principle of moment and its applications (Levers – simple and compound, steel yard, safety valve)		
	3rd	Simple numericals. Parallel forces (like and unlike parallel force)		
7th	1st	calculating their resultant, Concept of couple, its properties and effects		
	2nd	General conditions of equilibrium of bodies under coplanar forces		
	3rd	Position of resultant force by moment.		
8th	1st	**UNIT III 4. Friction Definition and concept of friction**, types of friction, force of friction		
	2nd	Laws of static friction, coefficient of friction, angle of friction		
	3rd	Angle of repose, cone of friction, Equilibrium of a body lying on a horizontal plane		
9th	1st	Equilibrium of a body lying on a rough inclined plane.		
	2nd	Calculation of least force required to maintain equilibrium of a body on a rough inclined plane subjected to a force acting along the inclined plane and subjected to a force acting at some angle with the inclined plane		
	3rd	**Sessional Test -2**		
10th	1st	**UNIT IV 5. Centre of Gravity and Centroid Concept**, definition of centroid of plain figures and centre of gravity of symmetrical solid bodies.		
	2nd	Axis of symmetry, Reference axis.		
	3rd	Determination of centroid of plain and composite lamina (T, L, C and I shape) using moment method only, centroid of bodies with removed portion.		
11th	1st	Determination of center of gravity of solid bodies - cone, cylinder, hemisphere and sphere		
	2nd	**6. Laws of Motion Newton's laws of motion** and their applications, Concept of momentum.		
	3rd	Derivation of force equation from second law of motion, numerical problems on second law of motion. Bodies tied with string		
12th	1st	Newton's third law of motion, numerical problems, conservation of momentum, impulse and impulsive force		
	2nd	**UNIT V 7. Simple Machines** Definition of effort, velocity ratio, mechanical advantage and efficiency of a machine and their relationship		
	3rd	law of machines, Simple and compound machine (Examples).		
13th	1st	Definition of ideal machine, reversible and self-locking machine. Effort lost in friction, Load lost in friction		
	2nd	Determination of maximum mechanical advantage and maximum efficiency, Simple numerical		
	3rd	System of pulleys (first, second, third system of pulleys), determination of velocity ratio		
14th	1st	Mechanical advantage and efficiency. Working principle and application of wheel and axle,Weston's Differential Pulley Block, simple screw jack, worm and worm wheel		
	2nd	Weston's Differential Pulley Block, simple screw jack, worm and worm wheel		
	3rd	Single and double winch crab. Expression for their velocity ratio and field of their application		
15th	1st	**Sessional Test -3**		

Specimen of Lesson Plan

Name of the Faculty : Smt. Pammi Devi
Discipline : Civil Engineering
Semester : 4th
Subject: Surveying II
Lesson Plan Duration : 14 weeks (from 15.01.2026 to 30.04.2026)

Work Load (Lecture/Practical) per week (in hours): Lectures-02, Practicals-06

Week	Theory		Delivery Date
	Lecture day	Topic (including assignment/test)	
1st	1	1.0 Electronic Digital Theodolite and Tachometric surveying : Introduction	
	2	1.1 Concept/Difference of Transit Theodolite and Electronic Digital Theodolite, 1.2 Temporary adjustments of an Electronic Digital Theodolite, Concept of transiting, swinging, face left, face right and changing face.	
2nd	3	1.3 Prolonging a line (forward and backward), 1.4 Traversing by included angles and deflection angle method.	
	4	1.5 Plotting a traverse; concept of coordinate and solution of omitted measurements (one side affected), 1.6 Errors in theodolite survey and precautions taken to minimize them	
3rd	5	1.7 Height of objects with and without accessible bases 1.8 Concept, general principles of stadia tachometry and methods of tachometry and (with numerical problems)	
	6	1.9 Instruments to be used in tachometry	
4th	7	2.0 Curves: 2.1.1 Elements of simple circular curve - Degree of the curve, radius of the curve, tangent length, point of intersection (Apex point), tangent point, length of curve, long chord deflection angle, Apex distance and Mid-ordinate. (With numerical problems)	
	8	2.2 Transition Curve: 2.2.1 Definition of transition curve 2.2.2 Requirements of transition curve 2.2.3 Length of transition curve for roads; by cubic parabola 2.2.4 Need (centrifugal force and super elevation). 2.2.5 Calculation of offsets for a transition curve	
5th	9	**First Sessionals**	
	10	2.3 Definition and types of vertical curve	
6th	11	3.1 Principle of EDM, its component parts and their functions	
	12	3.4 Remote sensing system	
7th	13	(introduction only),	
	14	3.7 Planimeter (Digital),	
8th	15	3.8 Introduction of Drones Survey	
	16	4.0 Total Station, 4.1 Concept and uses of TS	
9th	17	in TS survey	
	18	**Revision**	
	19	**Second Sessionals**	
	20	4.4 Applications of TS in various engineering area.	
11th	21	4.6 Measurement of horizontal angle, vertical angle distance and	
	22	4.8 Layout of any building, school, college, factory etc. with total	
12th	23	5.0 DGPS, 5.1 Concept of DGPS, various parts, applications and	
	24	5.2 Comparison between DGPS and TS	
13th	25	5.4 How does DGPS work, 5.5 Errors in DGPS	
	26	agencies.	
14th	27	5.7 Layout of drain, canal, road with DGPS, 5.8 Demarcation of	
	28	**Third Sessional**	

Lesson Plan				
Name of the Faculty :	PANKAJ KUMAR			
Discipline :	Civil Engineering			
Subject: Lesson Plan	Soil Mechanics and Foundation	15 WEEKS		
Week	**Lecture day**	**Topic**	**Delivery Date of Lecture**	**Whether the lesson Plan followed? Yes/No**
1st	1st	Importance of Soil Studies in Civil Engineering, Geological origin of soils with special reference to soil profiles in India		
	2nd	Residual and transported soil, alluvial deposits, lake deposits, local soil found in Punjab, dunes and loess, glacial deposits, black cotton soils,		
	3rd	Conditions in which various deposits are formed and their engineering characteristics.		
2nd	4th	Names of organizations dealing with soil engineering work in India, soil map of India		
	5th	Constituents of soil and representation by a phase diagram, Void ratio, porosity,		
	6th	degree of saturation, water content, specific gravity		
3rd	7th	Unit weight, bulk density/bulk unit weight, dry unit weight		
	8th	Saturated unit weight and submerged unit weight of soil grains		
	9th	Particle size, shape, and their effect on engineering properties of soil		
4th	10th	Particle size classification of soils, Gradation and its influence on engineering properties		
	11th	Relative density and its use in describing cohesionless soils, Behaviour of cohesive soils with change in water content		
	12th	Atterberg's limit - definitions, use and practical significance		
5th	13th	Field identification tests for soils		
	14th	Revision		
	15th	Sessional Test-1		
6th	16th	Concept of permeability and its importance		
	17th	Darcy's law, coefficient of permeability, seepage velocity		
	18th	Factors affecting permeability, Comparison of permeability of different soils as per BIS		
7th	19th	Measurement of permeability in the laboratory		
	20th	Stresses in subsoil, Definition and meaning of total stress, effective stress and neutral stress		
	21st	Principle of effective stress, Importance of effective stress in engineering problems		
8th	22nd	Consolidation and settlement		
	23rd	Creep and Plastic flow		
	24th	Heaving, Lateral Movement, Freeze and Thaw of soil		
9th	25th	Meaning of total settlement, uniform settlement, and differential settlement; rate of settlement and their effects		
	26th	Settlement due to construction operations and lowering of water table		
	27th	Tolerable settlement for different structures as per BIS		
10th	28th	Concept and Significance of shear strength Sessional Test – 2		
	29th	Factors contributing to shear strength of cohesive and cohesion less soils, Coulomb's law		
	30th	Definition and necessity of compaction, Laboratory compaction test (standard and modified proctor test as per IS) definition		
11th	31st	Importance of optimum water content, maximum dry density		
	32nd	Moisture dry density relationship for typical soils with different compactive efforts		
	33rd	Compaction control; Density control, measurement of field density by core cutter method and sand replacement method		
12th	34th	moisture control, Proctor's needle and its use, thickness control		
	35th	Purpose and necessity of soil exploration, Reconnaissance, methods of soil exploration, Trial pits, borings (auger, wash, rotary, percussion to be briefly dealt)		
	36th	Sampling; undisturbed, disturbed, and representative samples; selection of type of sample; thin wall and piston samples		
13th	37th	area ratio, recovery ratio of samples and their significance, number, and quantity of samples, resetting, sealing and preservation of samples.		
	38th	Presentation of soil investigation results Concept of bearing capacity, Definition and significance of ultimate bearing capacity, net safe bearing capacity and allowable bearing pressure		
	39th	Factors affecting bearing capacity,Improvement of bearing capacity by sand drain method, compaction, use of geo- synthetics.		
14th	40th	Concept of shallow and deep foundation		
	41th	Types of shallow foundations: combined, isolated, strip, mat, and their suitability		
	42nd	Sessional Test – 3		
15th	43rd	Factors affecting the depth of shallow foundations, deep foundations		
	42nd	Type of piles and their suitability		
	43rd	Pile classification based on material, pile group and pile cap.		

Lesson plan

Name of the Faculty		**Vijender Kumar**	**Semester**	**4th**
Discipline		**Civil Engineering**	**Lecture per week**	**2**
Subject		**Basics of Urban Planning (Mooc)**	**Delivery Date of Lecture**	**Remarks**
Duration		**15 Jan 2026 - 30 April. 2026 (15 weeks)**		

Week	Lecture Day	Topic (including assignment / test)		
1st	1st	**Unit 1: Introduction to Urban Planning (4 Hours)** Definition, scope, and objectives of urban planning.		
	2nd	Evolution of urban planning: Historical overview.		
2nd	1st	Importance of urban planning in sustainable development.		
	2nd	Overview of urbanization and its impact on society and the environment.		
3rd	1st	**Unit 2: Urban Land Use Planning (6 Hours)** Land use types: Residential, commercial, industrial, recreational, and transportation.		
	2nd	Land use planning principles and zoning regulations.		
4th	1st	Basics of land use maps and their interpretation.		
	2nd	Case studies: Land use patterns in Indian cities.		
5th	1st	Revision		
	2nd	**1st Sessional Test**		
6th	1st	**Unit 3: Infrastructure and Transportation Planning (6 Hours)** Role of infrastructure in urban development: Water supply, sewage, drainage, and waste management.		
	2nd	Basics of urban transportation systems: Road networks, public transport, and non-motorized transport.		
7th	1st	Introduction to traffic management and transportation planning.		
	2nd	Smart mobility solutions in urban areas.		
8th	1st	**Unit 4: Sustainable Urban Development (6 Hours)** Concepts of sustainability in urban planning.		
	2nd	Green building techniques and energy-efficient planning.		
9th	1st	Importance of open spaces and urban greenery. Basics of climate-responsive urban design		
	2nd	**2nd Sessional Test**		
10th	1st	**Unit 5: Urban Challenges and Solutions (6 Hours)** Common urban issues: Housing, slums, traffic congestion, pollution, and disaster management.		
	2nd	Urban renewal and redevelopment projects.		
11 th	1st	Role of GIS in urban planning.		
	2nd	Introduction to smart cities and their features.		
12th	1st	**Unit 6: Case Studies and Project Work (2 Hours)** Real-world case studies of urban planning projects in India and abroad.		
	2nd	Real-world case studies of urban planning projects in India and abroad.		
13th	1st	Real-world case studies of urban planning projects in India and abroad.		
	2nd	Revision		
14th	1st	Revision		
	2nd	**3rd Sessional Test**		
15th	1st	Revision		
	2nd	Revision		

Lesson Plan

Name of the Faculty :	**DINESH KUMAR**			
Discipline :	**Civil Engineering**			
Subject :	**Water Supply and Waste Water Engineering**		**Semester :**	**4TH**
Lesson Plan Duration :	**15 JANUARY 2026 -30 APRIL 2026 (15 Weeks)**			
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Week	**Theory**		**Delivery Date of Lecture**	**Whether the Lesson Plan Followed? Yes/ No**
	Lecture Day	**Topic**		
		(Including Assignments / Seminar / Group Discussion / Sessional Tests)		
Ist	1st	Necessity and brief description of planned water supply system.Sources of water – surface/sub-surface sources (only description)		
	2nd	Water requirement, Per capita demand,Factors affecting per capita demand Rate of demand and variation in rate of demand		
2nd	1st	Design Period, Factors governing the design period, Design period values for different components of a water supply scheme		
	2nd	Population forecasting methods (with Numerical Problems)		
3rd	1st	Physical, Chemical and bacteriological tests and their significance		
	2nd	Standard of potable water as per Indian Standard, water meter, Water Treatment Sedimentation - Purpose		
4th	1st	Types of sedimentation tanks, Coagulation / Flocculation - usual coagulation and their feeding		
	2nd	Filtration - Slow and Rapid sand filters, their significance and suitability		
5th	1st	Necessity of disinfection of water, forms of chlorination, break point chlorine, residual chlorine, application of chlorine.		
	2nd	**Sessional Test-1**		
6th	1st	Miscellaneous Treatments – Aeration, Aquaguard, Reverse Osmosis System		
	2nd	Water Distribution System-Requirement of a good water distribution system Layout of distribution networks		
7th	1st	Methods of distribution Distribution reservoirs – their functions and types		
	2nd	Storage capacity of distribution reservoirs Stand Pipes		
8th	1st	WASTE WATER ENGINEERING-Waste Water Disposal ,Sanitation – Purpose and necessity of sanitation		
	2nd	Components of sewerage system - Manhole Types of sewage and types of sewerage system		
9th	1st	Properties of sewage and IS standards for analysis of sewage		
	2nd	Physical, chemical and bacteriological parameters of sewage		
10th	1st	**Sessional Test-2**		
	2nd	Sewage disposal methods - Disposal by dilution and land treatment		
11th	1st	Self-purification of stream, Nuisance due to disposal		
	2nd	UNIT-V Sewage Treatment-Primary and secondary treatment		
12th	1st	Screens, Grit chambers, Skimming tanks		
	2nd	Plain sedimentation tanks		
13th	1st	Filtration, Trickling filter		
	2nd	Sludge treatment and disposal		
14th	1st	Oxidation Ponds (Visit to a sewage treatment plant)		
	2nd	**Sessional Test-3**		
15th	1st	Revision of syllabus, display/Intimation of 3rd Sessional marks, Academic evaluation-analysis of Sessionals.		
	2nd			

Name of the Faculty

Discipline **Civil Engineering**

Semester **4th**

Subject **Irrigation Engg**

Lesson Plan Duration : **15 Weeks (from 15-01 -2026 to June 30-4-2026)**

Week		Theory
		Topic (including assignment / test)
1ST	1	**1. Introduction: Irrigation Engineering, Hydrological Cycle, Run-off and Catchment Area**
		1.1 Definition and necessity of irrigation
		1.2 Major, medium and minor irrigation projects
	2	1.3 Hydrology and hydrological cycle
		1.4 Rain-gauges – automatic and non-automatic (Symons rain gauge)
2ND	1	1.5 Methods of estimating average rainfall (Arithmetic system)
		1.6 Runoff and Factors affecting runoff, Catchment area
	2	1.7 Hydrograph and basic concept of unit hydrograph.
3RD	1	**2. Water Requirement of Crops**
		2.1 Principal crops in India and their water requirements
	2	2.2 Crop seasons – Kharif and Rabi
		2.3 Crop period, base period, Duty, Delta and their relationship
4TH	1	2.4 Gross commanded area (GCA), culturable commanded area (CCA), Intensity of Irrigation, Irrigable area
	2	Revision/Assignment No I
5TH	1	**First Sessional**
	2	**3. Methods of Irrigation**
		3.1 Flow irrigation – Definition and its types (only description)
		3.2 Lift Irrigation – Tube well, Types of tube wells (only description)
6TH	1	3.3 Explanation of terms: water table, radius of influence, depression head, cone of depression, confined and unconfined aquifers, advantages and disadvantages of tube well irrigation.
	2	3.4 Sprinkler irrigation- Conditions favourable, Types and component parts, advantages and disadvantages of sprinkler irrigation
7TH	1	3.5 Drip irrigation- layout, component parts, advantages and disadvantages of drip irrigation.
	2	**4. Canals , Canal Head Works, Regulatory Works and Cross Drainage Works**
		4.1 Definition and Classification of canal. (Visit to a Canal)
		4.2 Appurtenances of a canal and their functions.
8TH	1	4.3 Various types of canal lining - their related advantages and disadvantages,
		4.4 Canal breaches and their control.
		4.5 Maintenance of lined and unlined canals
	2	4.6 Definition, objectives and general layout of different parts of head works.
		4.7 Difference between weir and barrage
		4.8 Definition and necessity of Cross Drainage Works (Visit to a Cross Drainage Works)
9TH	1	4.9 Concept of Aqueduct, super passage, level crossing, inlet and outlet.
	2	Revision/Assignment No II
10TH	1	**Second Sessional**
	2	**5. Dams and hydraulic Structures**
		5.1 Dam and its Classification
		5.2 Earth dams - types, causes of failure; cross-section of zoned earth dam, method of construction,
11TH	1	5.3 Gravity dams – types, cross-sections of a dam, method of construction
		5.4 Concept of spillways and energy dissipators
	2	**6. River Training Works**
		6.1 Definition, function of river training works
12TH	1	6.2 Types of river training- Embankments or levees.
		6.3 Concept of Guide bank, Groynes or spurs, Pitched island, Cut-off
	2	**7. Water Logging and Drainage and Ground Water Re-charge**
		7.1 Definition of water logging – its causes and effects.
13TH	1	7.2 Detection, prevention and remedies
		7.3 Surface and sub-surface drains and their layout (only description)
	2	7.4 Water Harvesting Techniques: Need and requirement.
14TH	1	7.5 Various methods of rain water harvesting.
	2	Revision
15TH	1	Revision
	2	**Third Sessional**

Lesson Plan

Name of the Faculty: Mr. Saurabh Kumar Mishra
Discipline Civil Engineering
Semester 6th
Subject Earthquake Resistant Building Construction (Theory)
Lesson Plan Duration : 15 Weeks (From Jan 2025-june 2025)

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			3	-	-		

Week	Theory		Actual Delivery Date of Lecture	Whether the Lesson Plan Followed? Yes/No	
	Lecture Day	Topic			
		(Including Assignments/ Seminar/ Group Discussion/ Sessional Tests)			
1st week	1st	Introduction to the Subject and its necessity.			
	2nd	**1.Elements of Engineering Seismology**: General features of tectonic of seismic regions.			
	3rd	Causes of earthquakes, Seismic waves			
2nd week	1st	Earthquake size (magnitude and intensity)			
	2nd	Epicentre, Seismograph			
	3rd	Classification of earthquakes, Seismic zoning map of India			
3rd week	1st	Static and Dynamic Loading, Fundamental period.			
	2nd	**2.Seismic Behavior of Traditionally-Built Constructions Of India:** Introduction			
	3rd	Mode of failure: Out-of-plane failure, In-plane failure			
4th week	1st	Mode of failure: Diaphragm failure, Connection failure			
	2nd	Mode of failure: Non-structural components failure			
	3rd	**3.Special Construction Method:** Introduction			
5th week	1st	Special construction methods			
	2nd	Tips and Precautions to be observed while planning,			
	3rd	Designing and Construction of earthquake resistant building.			
6th week	1st	**Sessional Test-1**			
	2nd	Designing and Construction of earthquake resistant building.			
	3rd	Designing and Construction of earthquake resistant building.			
7th week	1st	**4. Introduction to Various Seismic IS codes:** Delivery of the contents through the soft copies available / provided to the stakeholders.			
	2nd	IS:1893(Part1),			
	3rd	IS:13920(latest edition)			
8th week	1st	IS:13828, IS: 4326			
	2nd	Revision of syllabus			
	3rd	**5.Seismic Provision of Strengthening and Retrofitting-** Introduction			
9th week	1st	Seismic Provision of Strengthening and Retrofitting			
	2nd	Measures for Traditionally-Built Constructions,			
	3rd	Brick and RCC Structures			
10th week	1st	Brick and RCC Structures			
	2nd	Revision/ Quarries			
	3rd	**6.Provision of Reinforcement Detailing in Masonry and RC Constructions:** Introduction			
11th week	1st	Provision of reinforcement detailing in masonry constructions			
	2nd	e-Lecture/ videos on Provision of reinforcement detailing in RC constructions			
	3rd	Provision of reinforcement detailing in RC constructions			
12th week	1st	**Sessional Test-2**			
	2nd	Provision of reinforcement detailing in RC constructions			
	3rd	**7.Disaster Management:** Introduction			
13th week	1st	Disaster rescue, Psychology of rescue, Rescue workers,			
	2nd	Rescue plan, Rescue by steps			
	3rd	Rescue equipment			
14th week	1st	Safety in rescue operations			
	2nd	Debris clearance			
	3rd	Causality management			
15th week	1st	Revision of syllabus			
	2nd	Revision of syllabus			
	3rd	**Sessional Test-3**			

* Name of the Faculty :		Mr. Mohit Narwal	
	Discipline	Civil Engg.	
	Semester	6th	
	Subject	REPAIR AND MAINTENANCE OF BUILDINGS (PE-II)	
	Lecture per week	3	
Week	**Theory**		
	Lecture Day	**Topic (including assignment / test)**	**Delivery Date**
		Unit -1	
1st	1st	Introduction to repair and maintainance of building	
	2nd	Importance and significance of repair and maintenance of buildings	
	3rd	Meaning of maintenance	
2nd	4th	Objectives of maintenance	
	5th	Factors influencing the repair and maintenance	
	6th	Assignment and revision	
3rd	7th	Definition of deterioration/decay, factors	
	8th	Factors causing deterioration, their classification,human factors causing deteriortion	
	9th	Chemical factors causing deterioration	
4th	10th	Environmental conditions causing deterioration,miscellaneous factors	
	11th	Effects of various agencies of deterioration on various building materials i.e brick, timber, concrete, paints, metals, plastic, stones	
		Unit-2	
	12th	Systematic approach/procedure of investigation	
5th	13th	Sequence of detailed steps for diagnosis of building defects/problems	
	14th	Non-destructive and others tests on structural element	
	15th	Materials toevaluate the condiion of the building and study of three most test commonly	
	16th	Assignment given on the previous year questions	
	17th	Defects in buildings,classification of defects	
	18th	Main causes of building defects in various building elements,-foundation, basement	
7th	19th	**Sessional week**	
	20th		
	21st		
8th	22nd	Main causes of building defects in various building elements,-DPC, walls,beam and column	
	23rd	Main causes of building defects in various building elements,-roof ,terraces,joinery	
	24th	Decorative and protective finishes and services,defects caused by dampness	
		Unit-3	
9th	25th	Compatibility aspects of repair materials	
	26th	State application of following materials in repairs -anti corrosion coating,adhesives/bonding aids ,repair mortars	
	27th	State application of following materials in repairs -curing compond, joint sealent,water proofing system for roof,protective coating	
		Unit-4	
10th	28th	Preventive maintenance considerations,surface preparation techniques for repair	
	29th	Crack repair methods-epoxyinjection, grooving and sealing, stitching,adding reinforcement and grouting, flexible sealing by sealent	
	30th	Repair of surface defects of concrete-bug hole, form tie hole, honey comb and large voids	
11th	31st	**Sessional week**	
	32nd		
	33rd		
12th	34th	Repair of corrosion in RCC elements-,steps in remaining,prevention of corrosion in reinforcment	
	35th	Material placement techniques with sketches-pneumatically applied (thegunite techniques),Open Top placement,Pouring from the top to repair Bottom face	
	36th	Material placement techniques with sketches- birds mouth, dry packing,form and pump,preplaced-aggregate concrete,trowel applied method	
13th	37th	Repair of DPC against Rising Dampness-physical method, electrical method,chemical method	
	38th	Repair of wall-Repair of Mortar joints against Leakage, Efflorescence removal	
	39th	Water proofing of Wet areas,Water proofing of flat RCC Roof	
14th	40th	Various water proofing systems and their characteristics	
	41st	Repair of joints in buildings-types of sealingjoints with different types of sealents, techniques for repair of joints	
	42nd	Repair of overhead and underground water tanks	
15th	43rd		
	44th	**Sessional week**	
	45th		

Name of the Discipline : Pammi Devi
Civil Engineering

Semester : **6th**

Subject : **SSD**

Lesson Plan **15 Weeks (from 15-01 -2026 to June 30-4-2026)**

Week	Theory	
	Lecture Day	Topic (including assignment / test)
1st	1	Unit 1-
		Structural Steel and Sections: Properties of structural steel as per BIS Code Designation of structural
	2	Riveted Connections- Types of Rivet, Permissible stresses in rivets, types of riveted joints,
2nd	1	specifications as per BIS-800, Failure of riveted joint
	2	strength and efficiency of riveted joint, Design of Riveted Connection only axially loaded number (No staggered riveting)
3rd	1	UNIT-II
		2.1 Bolt Connections:- Types of bolt, permissible stresses in bolt, Types of bolted joints,
	2	
		specifications for bolted joints as per B IS 800. Failure of a bolted joint. Assumptions in the theory of
4th	1	
		Design of bolted joints for axially loaded members (No Staggered bolts)
	2	Revision/Assignment No I
5th	1	**First Sessional**
	2	2.2 Welded connections:-
		Types of welds and welded joints, advantages and disadvantages of welded joints design of fillet
6th	1	UNIT-III 3.1
		Tension Members- Analysis and design of single and double section tension members and their riveted
	2	UNIT-III 3.1
		Tension Members- Analysis and design of single and double section tension members and their riveted
7th	1	UNIT-III 3.1
		Tension Members- Analysis and design of single and double section tension members and their riveted
	2	3.2 Compression Members- Analysis and design of single and double angle sections compression members subjected to axial load
8th	1	3.2 Compression Members- Analysis and design of single and double angle sections compression members subjected to axial load
	2	UNIT-IV 4.1 Roof Trusses- Form of trusses, pitch of roof truss, spacing of trusses, spacing of purlins, connection between purlin and roof covering.
9th	1	Connection between purlin and principal rafter (no design, only concept)
	2	Revision/Assignment No II
10th	1	**Second Sessional**
	2	4.2 Column Bases:-
		Types of column bases i.e. slab base, gusseted base.Concept of buckling, effective length,
11th	1	4.2 Column Bases:-
		Analysis and Design of axially loaded single section column.
	2	UNIT-V 5.1
		Beams- Analysis and design of single section simply supported laterally restrained steel beams
		Name of the Faculty:
12th	1	Introduction to plate girder and functions of various elements of a plate girder
	2	Introduction to plate girder and functions of various elements of a plate girder
13th	1	5.2
		Fabrication and erection of steel structures like trusses, columns and girders
	2	
		5.2
		Fabrication and erection of steel structures like trusses,
14th	1	
		5.2
		columns and girders
15th	2	Revision
	1	Revision
	2	**Third Sessional**