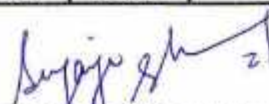


Government Polytechnic Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018

Department of Civil Engineering

Lesson Plan for Construction Materials, (Semester-3rd)Session: (August- December 2024)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	Aug	Week 1	2	Scope of construction materials in Building Construction,	
		Week 2	5,6,9	Scope of construction materials in Transportation Engineering, Environmental Engineering, Irrigation Engineering (applications only).	
		Week 3	12,13,16	Selection of materials for different civil engineering structures based on strength, durability, Eco friendly and economy.	
		Week 4	20,23	Broad classification of materials – Natural, Artificial, special, finishing and recycled.	
		Week 5	27,30	Natural Construction Materials Requirements of good building stone; general characteristics of stone;	
2	Sep	Week 1	2,3,6	quarrying addressing methods and tools for stone. Structure of timber,	Class Test-1
		Week 2	9,10,13	different methods of seasoning for preservation of timber, defects in timber, use of bamboo in construction.	
		Week 3	16,17,20	general properties and uses of good timber, Asphalt, bitumen, and tar used in construction, properties and uses.	
		Week 4	23,24,27	Properties of lime, its types and uses. Types of soil and its suitability in construction. Properties of sand and uses	
		Week 5	30	Classification of coarse aggregate according to size	
3	Oct	Week 1	1,4	Artificial Construction Materials Constituents of brick earth, Conventional / Traditional bricks, Modular and Standard bricks, Special bricks	Class Test-2
		Week 2	7,8,11	Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks. Flooring tiles – Types, uses Manufacturing process of Cement - dry and wet (only flow chart), types of cement and its uses.	
		Week 3	14,15,18	Field tests on cement. Classification of coarse aggregate according to size Artificial Construction Materials –fly ash bricks, Characteristics of good brick, Field tests on Bricks,	
		Week 4	21,22,25	Classification of burnt clay bricks and their suitability, Special Construction Materials Types of material and suitability in construction works of following materials: Water proofing, Termite proofing Thermal and sound insulating materials.	
4	Nov	Week 1	1	Fibers – Types –Jute, Glass, Plastic Asbestos Fibers, (only uses)Geo polymer cement:	
		Week 2	4,5,8	House test	
		Week 3	11,12	Geo-cement: properties, uses Processed Construction Materials Processed Construction Material Constituents and uses of POP (Plaster of Paris), POP finishing boards, sizes, and uses. Paints- whitewash, cement paint, Distempers,	
		Week 4	18,19,22	Oil Paints and Varnishes with their uses. (Situations where used) Agro waste materials - Rice husk, Bagasse, coir fibers and their uses. Special processed construction materials; Geo synthetic, Ferro Crete,	
		Week 5	25,26,29	Artificial timber, Artificial sand, and their uses. Revision	
5	Dec	Week 1	2	Revision	


Signature of Teacher
 (Er Sujaya Sharma)


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

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

Department of Civil Engineering

Lesson Plan for Basic Surveying (Semester-3rd) Session: (August-December 2024)

S.No.	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 1	3	Survey- Purpose and Use.Types of surveying- Primary and Secondary. Classification: Plane, Geodetic, Cadastral	
		Week 2	5,6	Hydrographic, Photogrammetry and Aerial.Principles of Surveying.Scales: Engineer's scale, Representative Fraction (RF) and diagonal scale.	
		Week 3	12,13,17	Chain Surveying:Instruments used in chain survey: Metric Chain, Tapes, Arrow, ranging rod, Line ranger, Offset rod, Open cross staff, Optical square.	
		Week 4	19,20,24	Chain survey Station, Base line, Check line, Tie line, Offset, Tie station. Ranging: Direct and Indirect Ranging. Methods of Chaining, obstacles in chaining.	
		Week 5	27,31	Errors in length: Instrumental error, personal error, error due to natural cause, random error.	
2	September	Week 1	2,3,7	Principles of triangulation.Types of offsets: Perpendicular and Oblique. Conventional Signs, Recording of measurements in a field book	Class Test - I
		Week 2	9,10	Compass Traversing- open, closed.Technical Terms: Geographic/ True Magnetic Meridians and Bearings	
		Week 3	16,17,21	Whole Circle Bearing system and Reduced Bearing system and examples on conversion of given bearing to another bearing (from one form to another), Fore Bearing and Back Bearing,	
		Week 4	23,24,28	Calculation of internal and external angles from bearings at a station, Dip of Magnetic needle, Magnetic Declination. Components of Prismatic Compass and their Functions,	
		Week 5	30	Methods of using Prismatic Compass-Temporary adjustments and observing bearings. Local attraction, Methods of correction of observed bearings - Correction at station and correction to included angles.	
3	October	Week 1	1,5	Basic terminologies: Level surfaces, Horizontal and vertical surfaces, Datum, Benchmarks-GTS,Permanent, Arbitrary and Temporary, Reduced Level	Class Test - II
		Week 2	7,8	Rise, Fall, Line of collimation, Station, Back sight, Fore sight, Intermediate sight, Change point, Height of instruments. Types of levels: Dumpy, Tilting, Auto level, Digital level, Components of Dumpy Level and its fundamental axes, Temporary adjustments of Level.	
		Week 3	14,15,19	Types of Levelling Staff: Self-reading staff and Target staff. Reduction of level by Line of collimation and Rise and Fall Method. Levelling Types: Simple, Differential, Fly, Profile and Reciprocal Levelling.	
		Week 4	21,22,26	Contour, contour intervals, horizontal equivalent., Uses of contour maps, Characteristics of contours, Methods of Contouring: Direct and indirect, Components and use of Digital planimeter.	
4	November	Week 1	2	Methods of Contouring: Direct and indirect,	
		Week 2	4,5	House Test	
		Week 3	11,12,16	Components and use of Digital planimeter.	

		Week 4	18,19,23	Measurement of area using digital planimeter.	
		Week 5	25,26,30	Measurement of volume of reservoir from contour map	
5	December	Week 1	2	Revision	

Signature of Teacher
(Er Nawang Negi)



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



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


Lesson Plan for MECHANICS OF MATERIALS (Semester-3rd) Session: Aug-Dec 2024)


S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	AUG	WEEK 1	1,2,3	Moment of Inertia Moment of inertia (M.I.): Definition, M.I. of plane lamina, Radius of gyration, section modulus, Parallel and Perpendicular axes theorems (without derivations), M.I. of rectangle, square, circle, semi-circle, quarter circle and triangle section (without derivations)	
		WEEK 2	7,8,9	M.I. of symmetrical and unsymmetrical I-section, Channel section, T-section, Angle section, Hollow sections about centroidal axes. Polar Moment of Inertia of solid circular sections.	
		WEEK 3	14,16,17	Simple Stresses and Strains Definition of rigid, elastic and plastic bodies, Definition of stress, strain, elasticity, Hook's law, Elastic limit, Modulus of elasticity. Type of Stresses-Normal, Direct, Bending and Shear and nature of stresses i.e., Tensile and Compressive stresses	
		WEEK 4	21,22,23,24	Standard stress strain curve for tor steel bar under tension, Yield stress, Proof stress, Ultimate stress, Strain at various critical points	
		WEEK 5	28,29,30,31	Percentage elongation and Factor of safety. Deformation of body due to axial force, forces applied at intermediate sections, Maximum and minimum stress induced, Composite section under axial loading, Concept of temperature stresses and strain	
2	SEP	WEEK 1	4,5,6,7	Stress and strain developed due to temperature variation in homogeneous simple bar (no composite section) Longitudinal and lateral strain, Modulus of Rigidity, Poisson's ratio, volumetric strain, change in volume, Bulk modulus (Introduction only). Relation between modulus of elasticity, modulus of rigidity and bulk modulus (without derivation).	CLASS TEST-I
		WEEK 2	11,12,13	Shear Force and Bending Moment Types of supports, beams, and loads. Concept and definition of shear force and bending moment Relation between load, shear force and bending moment (without derivation).	
		WEEK 3	18,19,20,21	Shear force and bending moment diagram for cantilever and simply supported beams subjected to point load	
		WEEK 4	25,26,27,28	Simply supported beams subjected to uniformly distributed loads (combination of any two types of loading), point of contra flexure.	

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3	OCT	WEEK 1	3,4,5	Numerical problems beams	CLASS TEST -II
		WEEK 2	9,10,11	Bending and Shear Stresses in beams Concept and theory of pure bending, assumptions, flexural equation (without derivation), bending stresses and their nature	
		WEEK 3	16,18,19	bending stress distribution diagram. Concept of moment of resistance and simple numerical problems using flexural equation	
		WEEK 4	23,24,25,26	Shear stress equation (without derivation), relation between maximum and average shear stress for rectangular and circular section, shear stress distribution diagram, Shear stress distribution for square, rectangular, circle, hollow, angle sections	HOUSE TEST
4	NOV	WEEK 1	1,2	Shear stress distribution for channel section, I-section, T section. Simple numerical problems based on shear equation.	
		WEEK 2	6,7,8	Columns Concept of compression member, short and long column, Effective length, Radius of gyration, Slenderness ratio, Types of end condition for columns, Buckling of axially loaded	
		WEEK 3	13,14,16	Euler's theory, assumptions made in Euler's theory and its limitations, Application of Euler's equation to calculate buckling load. Rankine's formula	
		WEEK 4	20,21,22,23	application to calculate crippling load. Concept of working load/safe load, design load and factor of safety	
		WEEK 5	27,28,29,30	Numerical problems columns	


 Signature of Teacher
 (Er Pawan Kumar)


 Signature of HOD
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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 Building Construction (Semester-3rd) Session: (August-December 2024)

S.No.	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 2	5,6&7	I: Overview of Building Components □ Classification of Buildings as per National Building Code Group A to I, as per Types of Constructions- Load Bearing Structure, Framed Structure, Composite Structure.	
		Week 3	12,13 &14	Building Components - Functions of Building Components, Substructure – Foundation, Plinth. □ Superstructure – Walls, Partition wall, Cavity wall, Sill, Lintel, Doors and Windows, Floor, Roof, Columns, Beams, Parapet	
		Week 4	19,20&21	II: Construction of Substructure □ Job Layout: Site Clearance, Layout for Load Bearing Structure and Framed Structure by Center Line and Face Line Method, Precautions. □ Earthwork: Excavation for Foundation, Timbering and Strutting, Earthwork for embankment, Material for plinth Filling, Tools and plants used for earthwork	
		Week 5	27&28	Foundation: Functions of foundation, Types of foundation – Shallow Foundation, Stepped Footing	
2	September	Week 1	2,3 & 4	Wall Footing, Column Footing, Isolated and Combined Column Footing, Raft Foundation, Grillage Foundation. Deep Foundation - Pile Foundation, Well foundation.	
		Week 2	9,10 &11	III: Construction of Superstructure □ Stone Masonry: Terms used in stone masonry- facing, backing, hearting, through stone, corner stone, cornice. <u>Types of stone masonry.</u>	CLASS TEST-I
		Week 3	16,17&18	Rubble masonry, Ashlar Masonry, and their types. Joints in stone masonry and their purpose. Selection of Stone Masonry, Precautions to be taken in Stone Masonry Construction Brick masonry: Terms used in brick masonry- header, stretcher, closer, quoins, course, face, back, hearting, bat bond, joints, lap, frog line, level and plumb. Bonds in brick masonry- header bond, stretcher bond,	
		Week 4	23,24 &25	English bond and Flemish bond. Requirements of good brick masonry. Junctions in brick masonry and their purpose and procedure. Precautions to be observed in Brick Masonry Construction. Comparison between stone and Brick Masonry. Tools and plants required for construction of stone and brick masonry. Hollow concrete block masonry and composite masonry	
		Week 5	30	Scaffolding and Shoring: Purpose, Types of Scaffolding, Process of Erection and Dismantling.	
3	October	Week 1	1	Purpose and Types of Shoring, Underpinning.	
		Week 2	7,8 &9	Formwork: Definition of Formwork, Requirements of Formwork, Materials used in Formwork, Types of Formworks, Removal of formwork.	

3	October	Week 3	14,15&16	IV: Building Communication and Ventilation □ Horizontal Communication: Doors – Horizontal Communication: Doors – Components of Doors, Full Panelled Doors, Partly Panelled and Glazed Doors, Flush Doors, Collapsible Doors, Rolling Shutters, 13 Revolving Doors, Glazed Doors. Sizes of Door recommended by BIS.	CLASS TEST-II
		Week 4	21,22&23	Windows: Component of windows, Types of Windows - Full Panelled, Partly Panelled and Glazed, wooden, Steel, Aluminium windows, Sliding Windows, Louvered Window, Bay window, Corner window, clear-storey window, Gable and Dormer window, Skylight. Sizes of Windows recommended by BIS. Ventilators	
		Week 5	28,29&30	Vertical Communication: Means of Vertical Communication- Stair Case, Terms used in staircase-steps, tread, riser, nosing, soffit, waist slab, baluster, balustrade, scotia, handrails, newel post, landing, headroom, winder. Types of staircases (On the basis of shape): Straight, dog-legged, open well, Spiral, quarter turn, bifurcated, three quarter turn and Half turn, (On the basis of Material): Stone, Brick, R.C.C., wooden and Metal	
Week 2	4,5&6	HOUSE TEST			
Week 3	11,12&13	V: Building Finishes □ Floors and Roofs: Types of Floor Finishes and its suitability- Kota, Marble, Granite, Ceramic Tiles, Vitrified, Concrete Floors, wooden Flooring, Skirting and Dado. Process of Laying and Construction, Finishing and Polishing of Floors,			
4	November	Week 4	18,19&20	Wall Finishes: Plastering – Necessity of Plastering, Procedure of Plastering, Single Coat Plaster, Double Coat Plaster, Rough finish, Neeru Finishing and Plaster of Paris (POP). Special Plasters- Stucco plaster, sponge finish, pebble finish. Plaster.	
		Week 5	25,26&27	Precautions to be taken in plastering, defects in plastering. Pointing – Necessity, Types of pointing and procedure of Pointing. Painting –Necessity, Surface Preparation for painting, Methods of Application.	
5	December	Week 1	2	Revision	


Signature of Teacher
(Dr Lalit Goel)


Signature of HOD
(Dr. Lalit Goel)


Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Department of Civil Engineering
Lesson Plan for Concrete Technology (Semester-3rd)Session: (Aug- Dec 2024)

S.No.	MONTH	WEEK	DATE	Name of Chapter	CONTENTS	REMARKS
1	August	Week 1	1	Cement, Aggregates and Water	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength. Different grades of OPC and relevant BIS codes Storage of cement and effect of storage on properties of cement.	
		Week 2	5,6,8		BIS Specifications and field applications of different types of cements: Rapid hardening, Low heat Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and White cement. Aggregates: Requirements of good aggregate, Classification according to size and shape.	
		Week 3	12,13		Fine aggregates: Properties, size, specific gravity, bulk density, water absorption and bulking, fineness modulus and grading zone of sand, silt content and their specification as per IS 383. Concept of crushed Sand.	
		Week 4	19,20,22		Coarse aggregates: Properties, size, shape, surface texture, water absorption, soundness, specific gravity and bulk density, fineness modulus of coarse aggregate, grading of coarse aggregates, crushing value, Impact Water: Quality of water, impurities in mixing water and permissible limits for solids as per IS: 456.	
		Week 5	27,29		Concrete: Different grades of concrete, provisions of IS 456. Duff Abraham water cement (w/c) ratio law, significance of w/c ratio, selection of w/c ratio for different grades,	
2	September	Week 1	2,3,5	Concrete	maximum w/c ratio for different grades of concrete for different exposure conditions as per IS 456. Properties of fresh concrete: Workability: Factors affecting workability of concrete. Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer.	
		Week 2	9,10,12		Value of workability requirement for different types of concrete works. Segregation, bleeding, and preventive measures. Properties of Hardened concrete: Strength, Durability, Impermeability.	Class Test - I
		Week 3	16,17,19	Concrete Mix Design and Testing of Concrete	Concrete mix design: Objectives, methods of mix design, study of mix design as per IS 10262 (only procedural steps). Testing of concrete, determination of compressive strength of concrete cubes at different ages, interpretation, and co-relation of test results.	
		Week 4	23,24,26		Non- destructive testing of concrete: Rebound hammer test, working principle of rebound hammer and factors affecting the rebound index, Ultrasonic pulse velocity test as per IS 13311 (part 1 and 2), Importance of NDT tests	

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2	September	Week 5	30		Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction, Curing and Finishing of concrete.	
3	October	Week 1	1,3	Quality Control of Concrete	Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work, requirement of good form work.	
		Week 2	7,8,10		Stripping time for removal of form works per IS 456. Waterproofing: Importance and need of waterproofing, methods of waterproofing and materials used for waterproofing	
		Week 3	14,15		Joints in concrete construction: Types of joints, methods for joining old and new concrete, materials used for filling joints	Class Test - II
		Week 4	21,22,24	Chemical Admixture, Special Concrete and Extreme Weather concreting	Admixtures in concrete: Purpose, properties and application for different types of admixtures such as accelerating admixtures, retarding admixtures, water reducing admixtures, air entraining admixtures and super plasticizers.	
		Week 5	28,29		Special Concrete: Properties, advantages and limitation of following types of Special concrete: Ready mix Concrete, Fibre Reinforced Concrete.	
4	November	Week 2	4,5,7		House Test	
		Week 3	11,12,14		High performance Concrete Self-compacting concrete and light weight concrete Cold weather concreting: effect of cold weather on concrete, precautions to be taken while <u>concreting in cold weather condition</u>	
		Week 4	18,19,21		Hot weather concreting: effect of hot weather on concrete, precautions to be taken while <u>concreting in hot weather condition</u> .	
		Week 5	25,26,28		Cold weather concreting: effect of cold weather on concrete, precautions to be taken while concreting in cold weather condition. Hot weather concreting: effect of hot weather on concrete, precautions to be taken while concreting in hot weather condition.	
5	December	Week 1	2		Revision	


 Signature of Teacher
 (Er R S Chandel)


 Signature of HOD
 (Dr. Lalit Goel)

Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Department of Civil Engineering
Lesson Plan for Geotechnical Engg. (Semester-3rd)Session: (Aug- Dec 2024)

S.No.	MONTH	WEEK	DATE	Name of Chapter	CONTENTS	REMARKS
1	August	Week 1	2,3	Overview of Geology and Geotechnical Engineering	Introduction of Geology, Branches of Geology, Importance of Geology for civil engineering structure and composition of earth	
		Week 2	5,6,9		Definition of a rock: Classification based on their genesis (mode of origin), formation, Classification, and engineering uses of igneous, sedimentary, and metamorphic rocks.	
		Week 3	12,13,16,17		Importance of soil as construction material in Civil engineering structures and as foundation bed for structures.Field application of geotechnical engineering for foundation design, pavement design, design of earthretaining structures, design of earthen dam	
		Week 4	19,20,23,24	Physical and Index Properties of Soil	Soil as a three-phase system, water content, determination of water content by oven drying method as per BIS code, void ratio, porosity and degree of saturation, density index. Unit weight of soil mass – bulk unit weight, dry unit weight, unit weight of solids, saturated unit weight, submerged unit weight.	
		Week 5	27,30,31		Determination of bulk unit weight and dry unit weight by core cutter and sand replacement method	
2	September	Week 1	2,3,6,7	Soil	Consistency of soil, Atterberg limits of consistency: Liquid limit, plastic limit and shrinkage limit. Plasticity index.Particle size distribution test and plotting of curve	
		Week 2	9,10,13		Determination of effective diameter of soil, well graded and uniformly graded soils, BIS classification of soil.	Class Test - I
		Week 3	16,17,20,21	Permeability and Shear Strength of Soil	Definition of permeability, Darcy's law of permeability, coefficient of permeability, factors affecting permeability, determination of coefficient of permeability by constant head and falling head tests	
		Week 4	23,24,27,28		simple problems to determine coefficient of permeability. Seepage through earthen structures, seepage velocity, seepage pressure, phreatic line, flow lines, application of flow net, (No numerical problems).	
		Week 5	30		Shear failure of soil, concept of shear strength of soil. Components of shearing resistance of soil – cohesion, internal friction	
3	October	Week 1	1,4,5	Soil	Mohr-Coulomb failure theory, Strength envelope, strength equation for purely cohesive and cohesion less soils. Direct shear and vane shear test – laboratory methods.	
		Week 2	7,8,11		Bearing capacity and theory of earth pressure. Concept of bearing capacity, ultimate bearing capacity, safe bearing capacity and allowable bearing pressure.	

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3	October	Week 3	14,15,18,19	Bearing Capacity of Soil	Introduction to Terzaghi's analysis and assumptions, effect of water table on bearing capacity. Field methods for determination of bearing capacity – Plate load and Standard Penetration Test. Test procedures as per IS:1888 & IS:2131.	Class Test - II
		Week 4	21,22,25,26		Definition of earth pressure, Active and Passive earth pressure for no surcharge condition, coefficient of earth pressure	
		Week 5	28,29	Compaction and stabilization of soil	Concept of compaction, Standard and Modified proctor test as per IS code, Plotting of Compaction curve for determining: Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line. Factors affecting compaction, field methods of compaction – rolling, ramming and vibration.	
4	November	Week 1	1,2		Suitability of various compaction equipment -smooth wheel roller, sheep foot roller, pneumatic tyre roller, Rammer and Vibrator, Difference between compaction and consolidation.	
		Week 2	4,5,8		HOUSE TEST	
		Week 3	11,12,16		Concept of soil stabilization, necessity of soil stabilization, different methods of soil stabilization. California bearing ratio (CBR) test - Meaning and Utilization in Pavement Construction	
		Week 4	18,19,22,23		Necessity of site investigation and soil exploration: Types of exploration, criteria for deciding the location and number of test pits and bores.	
		Week 5	25,26,29,30		Field identification of soil – dry strength test, dilatancy test and toughness test	
5	December	Week 1	2		Revision	

Signature of Teacher

(Er Manoj Kumar Thakur)

Signature of HOD


(Dr. Lalit Goel)

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

Department of Civil Engineering

Lesson Plan for Construction Materials G-I (Semester-3rd)Session: (August-December 2024)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	Aug	Week 1	1	1. Identify various sizes of available coarse aggregates from sample of 10 kg in laboratory and prepare report (60,40, 20,10 mm)	
		Week 2	8	2 Identify the available construction materials in the laboratory based on their sources.	
		Week 4	22	3. Identify the grain distribution pattern in given sample of teak wood in the laboratory and draw the various patterns. (Along and perpendicular to the grains)	
		Week 5	29	4. Prepare the lime putty by mixing lime (1 kg) with water in appropriate proportion and pre-prepare report on slaking of lime.	
2	Sep	Week 1	5	5. Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting of photographs and samples. Part I	
		Week 2	12	6. Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting of photographs and samples. Part II	
		Week 3	19	7. Measure dimensions of 10 bricks and find average dimension and weight. Perform field tests- dropping, striking, and scratching by nail and correlate the results obtained	
		Week 4	26	8. Select first class, second class and third-class bricks from the stake of bricks and prepare report on the basis of its properties.	
3	Oct	Week 1	3	9. Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, anti skid tiles, checkered tiles, paving blocks and prepare report about the specifications	
		Week 2	10	10. Apply the relevant termite chemical on given damaged sample of timber.	
		Week 4	24	11. Identify the type of glasses from the given samples.	
4	Nov	Week 2	7	12. Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part I	
		Week 3	14	13. Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part II	
		Week 4	21	14 Prepare the cement mortar of proportion 1:3 or 1:6 using artificial sand as a special processed construction material .	
		Week 5	28	15 Prepare mortar using cement and Fly ash or Granite/marble polishing waste in the proportion 1:6 or 1:3.	



Signature of Teacher
 (Er. Sujaya Sharma)



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

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

Lesson Plan for Construction Materials G-II (Semester-3rd)Session: (August-December 2024)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	August	Week 2	7	1. Identify various sizes of available coarse aggregates from sample of 10 kg in laboratory and prepare report (60,40, 20, 10 mm)	
		Week 3	14	2 Identify the available construction materials in the laboratory based on their sources.	
		Week 4	21	3. Identify the grain distribution pattern in given sample of teak wood in the laboratory and draw the various patterns. (Along and perpendicular to the grains)	
		Week 5	28	4. Prepare the lime putty by mixing lime (1 kg) with water in appropriate proportion and pre-prepare report on slaking of lime.	
2	Sep	Week 1	4	5. Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting of photographs and samples. Part I	
		Week 2	11	6. Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting of photographs and samples. Part II	
		Week 3	18	7. Select first class, second class and third-class bricks from the stake of bricks and prepare report on the basis of its properties.	
		Week 4	25	8. Measure dimensions of 10 bricks and find average dimension and weight. Perform field tests- dropping, striking, and scratching by nail and correlate the results obtained	
3	October	Week 2	9	9. Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, anti skid tiles, checkered tiles, paving blocks and prepare report about the specifications	
		Week 3	16	11. Apply the relevant termite chemical on given damaged sample of timber.	
		Week 4	23	12. Identify the type of glasses from the given samples.	
4	Nov	Week 2	6	13. Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part I	
		Week 3	13	14. Apply two or more coats of selected paint on the prepared base of a given wall surface for the area of 1m x 1m using suitable brush/rollers adopting safe practices. Part II	
		Week 4	20	15 Prepare the cement mortar of proportion 1:3 or 1:6 using artificial sand as a special processed construction material .	
		Week 5	27	16 Prepare mortar using cement and Fly ash or Granite/marble polishing waste in the proportion 1:6 or 1:3.	


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

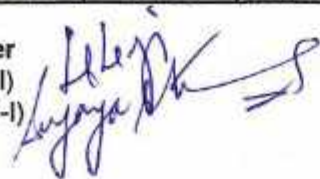
Government Polytechnic Lahaul Spiti at Udaipur Camp at Sundernagar Distt Mandi (H.P) -175018

Department of Civil Engineering

Lesson Plan for Basic Surveying Lab G-I & G-II (Semester-3rd) Session: (August-December 2024)

S.N	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 1	3	1. Measure distance between two survey stations using chain, tape and ranging rods when two stations are inter-visible.	
		Week 2	7	2. Undertake reciprocal ranging and measure the distance between two stations.	
		Week 3	14,17	3. Determine area of open field using chain and cross staff survey.	
		Week 4	21,24	Checking of files and Viva	
		Week 5	28,31	4. Measure Fore Bearing and Back Bearing of survey lines of open traverse using Prismatic Compass.	
2	September	Week 1	4,7	5. Measure Fore Bearing and back bearing of a closed traverse of 5 or 6 sides and correct the bearings and included angles for the local attraction.	
		Week 2	11	Checking of files and Viva	
		Week 3	18,21	6. Undertake Survey Project with chain and compass for closed traverse for minimum 5 sides around a building.	
		Week 4	25,28	7. Plot the traverse on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No.6. and 8. Undertake simple levelling using dumpy level/ Auto level and levelling staff.	
3	October	Week 1	5	9. Undertake differential levelling and determine Reduced Levels by Height of instrument method and Rise and fall method using dumpy level/Auto Level and levelling staff.	
		Week 2	9	Checking of files and Viva	
		Week 3	16,19	10. Undertake fly levelling with double check using dumpy level/ Auto level and levelling staff.	
		Week 4	23,26	11. Undertake Survey Project with Levelling instrument for Profile levelling and cross- sectioning for a road with cross-section. And 12. Plot the L-section with minimum 3 cross-sections on A1 size imperial sheet for data collected in Survey Project mentioned at practical No.11	
4	November	Week 1	2	13. Undertake Survey Project for plotting contour map using block contouring method for a block of 150m x 150m with grid of 10mx10m.	
		Week 2	6	HOUSE TEST	
		Week 3	13,16	14. Plot the contours on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No.13.	
		Week 4	20,23	15. Measure area of irregular figure using Digital planimeter. Checking of files and Viva	
		Week 5	27,30	Revision	

Signature of Teacher
(Er Nawang Negi G-II)
(Er. Sujaya Sharma G-I)





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



Department of Civil Engineering
Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Lesson Plan for Mechanics of Materials Lab G-I (Semester-3rd)Session: (Aug-Dec 2024)


S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	AUG	Week 1	1	Study and understand the use and components of Universal Testing Machine (UTM)	
		Week 2	8	Perform Tension test on mild steel as per IS:432(1).	
		Week 4	22	Perform tension test on Tor steel as per IS:1608, IS:1139	
		Week 5	29	Determine Water Absorption on bricks per IS:3495 (part II), IS:1077 or tile IS:1237.	
2	SEP	Week 1	5	Determine Compressive strength of dry and wet bricks as per IS:3495(part I), IS:1077	
		Week 2	12	CLASS TEST-I	
		Week 3	19	Conduct Abrasion Test on flooring tiles (anyone) e.g., Mosaic tiles, Ceramic Tiles as per IS: 13630 (part7), Cement Tile as per IS: 1237	
		Week 4	26	Viva and File Checking	
3	OCT	Week 1	3	Perform Single Shear and double shear test on any two metals e.g., Mild steel/ brass/aluminium/copper / cast iron etc as per IS:5242.	
		Week 2	10	Plot Shear force and Bending Moment diagrams for simply supported beams.	
		Week 3		CLASS TEST-II	
		Week 4	24	Conduct Flexural test on timber beam on rectangular section in both orientations as per IS:1708, IS:2408.	
4	NOV	Week 1	7	Viva and File Checking	
		Week 2	14	HOUSE TEST	
		Week 3	21	Conduct Flexure test on floor tiles IS:1237, IS:13630 or roofing tiles as per IS:654, IS:2690	
		Week 4	28	Viva and File Checking	



Signature of Teacher
 (Er Pawan Kumar)


Signature of HOD
 (Dr Lalit Goel)

Department of Civil Engineering
Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Lesson Plan for Mechanics of Materials Lab G-II (Semester-3rd)Session: (Aug-Dec 2024)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	AUG	Week 1	2	Study and understand the use and components of Universal Testing Machine (UTM)	
		Week 2	9	Perform Tension test on mild steel as per IS:432(1).	
		Week 3	16	Viva and File Checking	
		Week 4	23	Perform tension test on Tor steel as per IS:1608, IS:1139	
		Week 5	30	Determine Water Absorption on bricks per IS:3495 (part II), IS:1077 or tile IS:1237.	
2	SEP	Week 1	6	Determine Compressive strength of dry and wet bricks as per IS:3495(part I), IS:1077	
		Week 2	13	CLASS TEST-I	
		Week 3	20	Conduct Abrasion Test on flooring tiles (anyone) e.g., Mosaic tiles, Ceramic Tiles as per IS: 13630 (part7), Cement Tile as per IS: 1237	
		Week 4	27	Viva and File Checking	
3	OCT	Week 1	4	Perform Single Shear and double shear test on any two metals e.g., Mild steel/ brass/aluminium/copper / cast iron etc as per IS:5242.	
		Week 2	11	Plot Shear force and Bending Moment diagrams for simply supported beams.	
		Week 3	18	CLASS TEST-II	
		Week 4	25	Conduct Flexural test on timber beam on rectangular section in both orientations as per IS:1708, IS:2408.	
4	NOV	Week 1	1	Viva and File Checking	
		Week 2	8	HOUSE TEST	
		Week 4	22	Conduct Flexure test on floor tiles IS:1237, IS:13630 or roofing tiles as per IS:654, IS:2690	
		Week 5	29	Viva and File Checking	


Signature of Teacher
(Er Pawan Kumar)


Signature of HOD
(Dr Lalit Goel)

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

Department of Civil Engineering

Lesson Plan for Concrete Technology Lab- G I (Semester-3rd) Session: (August-December 2024)

S.No.	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 1	2	Determine fineness of cement by Blaine's air permeability apparatus or by sieving.	
		Week 2	9	Determine specific gravity, standard consistency, initial and final setting times of cement.	
		Week 3	16	Determine compressive strength of cement.	
		Week 4	23	Determine silt content in sand	
		Week 5	30	Checking of files and Viva	
2	September	Week 1	6	Determine bulking of sand.	
		Week 2	13	Determine bulk density of fine aggregates.	
		Week 3	20	Determine bulk density of coarse aggregates.	
		Week 4	27	Checking of files and Viva	
3	October	Week 1	4	Determine water absorption of fine and coarse aggregates.	
		Week 2	11	Determine Fineness modulus of fine aggregate by sieve analysis.	
		Week 3	18	Determine elongation and flakiness index of coarse aggregates	
		Week 4	25	Determine workability of concrete by slump cone test.	
4	November	Week 1	1	Determine workability of concrete by compaction factor test.	
		Week 2	8	HOUSE TEST	
		Week 4	22	To prepare concrete mix of a particular grade and determine compressive strength of concrete for 7 and 28 days.	
		Week 5	29	Demonstration of NDT equipment.	

Signature of Teacher
(Er Nawang Negi)



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




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

Department of Civil Engineering

Lesson Plan for Concrete Technology Lab- G II (Semester-3rd) Session: (August-December 2024)

S.No.	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 1	1	Determine fineness of cement by Blaine's air permeability apparatus or by sieving.	
		Week 2	8	Determine specific gravity, standard consistency, initial and final setting times of cement.	
		Week 4	22	Determine compressive strength of cement.	
		Week 5	29	Checking of files and Viva	
2	September	Week 1	5	Determine silt content in sand and bulking of sand.	
		Week 2	12	Determine bulk density of fine and coarse aggregates.	
		Week 3	19	Determine water absorption of fine and coarse aggregates.	
		Week 4	26	Checking of files and Viva	
3	October	Week 1	3	Determine Fineness modulus of fine aggregate by sieve analysis.	
		Week 2	10	Determine elongation and flakiness index of coarse aggregates	
		Week 4	24	Determine workability of concrete by slump cone test.	
4	November	Week 1	4	Checking of files and Viva	
		Week 2	7	HOUSE TEST	
		Week 3	11	Determine workability of concrete by compaction factor test.	
		Week 4	18	To prepare concrete mix of a particular grade and determine compressive strength of concrete for 7 and 28 days.	
		Week 5	25	Demonstration of NDT equipment.	


Signature of Teacher
 (Er Nawang Negi)


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

Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Department of Civil Engineering
Lesson Plan for Geotechnical Engg. Lab G-II (Semester-3rd)Session: (Aug- Dec 2024)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	August	Week 2	7	Identification of rocks from the given specimen.	
		Week 3	14	Determine water content of given soil sample by oven drying method as per IS: 2720 (PartII).	
		Week 4	21	Determine specific gravity of soil by pycnometer method as per IS 2720 (Part- III).	
		Week 5	28	Determine dry unit weight of soil in field by core cutter method as per IS 2720 (Part- XXIX).	
2	September	Week 1	4	Determine dry unit weight of soil in field by sand replacement method as per IS 2720 (Part XXVIII).	
		Week 2	11	Checking of files and viva	
		Week 3	18	Determine Plastic and Liquid Limit along with Plasticity Index of given soil sample as per IS 2720 (Part-V).	
		Week 4	25	Determine Shrinkage limit of given soil sample as per IS 2720 (Part- V).	
3	October	Week 2	9	Determine grain size distribution of given soil sample by mechanical sieve analysis as per IS 2720 (Part-IV).	
		Week 3	16	Checking of files and viva	
		Week 4	23	Use different types of soil to identify and classify soil by conducting field tests-through Visual inspection,Dry strength test, Dilatancy test and Toughness test.	
		Week 5	30	Determine coefficient of permeability by falling head test as per IS 2720 (Part- XVII).	
4	November	Week 2		HOUSE TEST	
		Week 3	13	Determine MDD and OMC by standard proctor test of given soil sample as per IS 2720 (Part VII).	
		Week 4	20	Checking of files and viva	
		Week 5	27	Revision	

Signature of Teacher
 (Er Manoj Kumar Thakur)

Signature of HOD
 (Dr. Lalit Goel)

Government Polytechnic Lahaul Spiti at Udaipur Camp At Sundernagar Distt Mandi (H.P) -175018
Department of Civil Engineering
Lesson Plan for Geotechnical Engg. Lab G-II (Semester-3rd)Session: (Aug- Dec 2024)

S.No.	MONTH	WEEK	DATE	CONTENTS	REMARKS
1	August	Week 1	1	Introduction	
		Week 2	8	Identification of rocks from the given specimen.	
		Week 4	22	Determine water content of given soil sample by oven drying method as per IS: 2720 (PartII).	
		Week 5	29	Determine specific gravity of soil by pycnometer method as per IS 2720 (Part- III).	
2	September	Week 1	5	Determine dry unit weight of soil in field by core cutter method as per IS 2720 (Part- XXIX).	
		Week 2	12	Determine dry unit weight of soil in field by sand replacement method as per IS 2720 (Part XXVIII).	
		Week 3	19	Determine Plastic and Liquid Limit along with Plasticity Index of given soil sample as per IS 2720 (Part-V).	
		Week 4	26	Determine Shrinkage limit of given soil sample as per IS 2720 (Part- V).	
3	October	Week 1	3	Determine grain size distribution of given soil sample by mechanical sieve analysis as per IS 2720 (Part-IV).	
		Week 2	10	Determine grain size distribution of given soil sample by mechanical sieve analysis as per IS 2720 (Part-IV).	
		Week 4	24	Determine coefficient of permeability by falling head test as per IS 2720 (Part- XVII).	
4	November	Week 2	7	HOUSE TEST	
		Week 3	14	Determine MDD and OMC by standard proctor test of given soil sample as per IS 2720 (Part VII).	
		Week 4	21	Checking of files and viva	
		Week 5	28	Revision	

Signature of Teacher
 (Er Manoj Kumar Thakur)

Signature of HOD
 (Dr. Lalit Goel)

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

Department of Civil Engineering

Lesson Plan for SCA (Semester-3rd) Session: (August-December 2024)

S.N	MONTH	WEEK	Date	CONTENTS	REMARKS
1	August	Week 1	3	Race : 100m & 200m	
		Week 2	5	Do	
		Week 3	12,17	Race : 400m & 800m	
		Week 4	19,24	Do	
		Week 5	31	High Jump	
2	September	Week 1	2,7	Long Jump	
		Week 2	9	Javelin	
		Week 3	16,21	Do	
		Week 4	23,28	Shot Put	
		Week 5	30	Do	
3	October	Week 1	5	Shot Put	
		Week 2	7	Do	
		Week 3	14,19	Discuss throw	
		Week 4	21,26	Kabbadi	
4	November	Week 1	2	Quiz competition	
		Week 2	4	Do	
		Week 3	11,16	Cultural activities	
		Week 4	18,23	Do	
		Week 5	25.3	volleyball	
5	December	Week 1	2		


Signature of Teacher
 (Sh. Rajesh Kumar)


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