

SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)

Name of the Faculty : Er. Anu Singhta
Discipline : Civil Engineering
Semester : 3rd
Subject : Geotechnical Engineering
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)
Work Load (Lectures/Practical) per week (in hours) : Lectures -04

Week	Lecture Day	Date	Topic
	1	11.08.2023	Unit – I Overview of Geology and Geotechnical Engineering
	2	14.08.2023	Introduction of Geology, Branches of Geology,
	3	16.08.2023	Importance of Geology for civil engineering structure and composition of earth,
	4	18.08.2023	Definition of a rock: Classification based on their genesis (mode of origin), formation,
	5	21.08.2023	Definition of a rock: Classification based on their genesis (mode of origin), formation,
	6	22.08.2023	Classification, and engineering uses of igneous, sedimentary, and metamorphic rocks.
	7	23.08.2023	Importance of soil as construction material in Civil engineering structures
	8	25.08.2023	foundation bed for structures.
	9	28.08.2023	Field application of geotechnical engineering for foundation design
	10	29.08.2023	Pavement design
	11	30.08.2023	design of earth retaining structures, design of earthen dam.
	12	01.09.2023	Unit- II Physical and Index Properties of Soil
	13	04.09.2023	Soil as a three-phase system, water content,
	14	05.09.2023	determination of water content by oven drying method as per BIS code,
	15	06.09.2023	void ratio, porosity and degree of saturation, density index
	16	08.09.2023	Unit weight of soil mass – bulk unit weight, dry unit weight
	17	11.09.2023	unit weight of solids, saturated unit weight, submerged unit weight
	18		Determination of bulk unit weight
	19	12.09.2023	Dry unit weight by core cutter

20	13.09.2023	sand replacement method,
21	15.09.2023	Consistency of soil, Atterberg limits of consistency
22	18.09.2023	Liquid limit, plastic limit and shrinkage limit. Plasticity index
23	19.09.2023	Liquid limit, plastic limit and shrinkage limit. Plasticity index
24	20.09.2023	Plasticity Index
25	22.09.2023	Particle size distribution test and plotting of curve,
26	25.09.2023	Determination of effective diameter of soil
27	26.09.2023	well graded and uniformly graded soils,
28	27.09.2023	BIS classification of soil.
29	28.09.2023	CLASS TEST -1
30		Unit- III Permeability and Shear Strength of Soil
31	03.10.2023	Definition of permeability, Darcy's law of permeability,
32	04.10.2023	coefficient of permeability, factors affecting permeability,
33	06.10.2023	determination of coefficient of permeability by constant head and falling head tests,

	34	09.10.2023	simple problems to determine coefficient of permeability
	35	10.10.2023	Seepage through earthen structures, seepage velocity, Seepage pressure, phreatic line, flow lines, application of flow net,
	36	11.10.2023	Shear failure of soil, concept of shear strength of soil.
	37	13.10.2023	Components of shearing resistance of soil - cohesion, Internal friction, Direct shear and vane shear test - laboratory methods.
	38	16.10.2023	Mohr-Coulomb failure theory, Strength envelope, strength equation for purely cohesive and cohesion less soils
	39	17.10.2023	Unit- IV Bearing Capacity of Soil
	40		Bearing capacity and theory of earth pressure. Concept of bearing capacity, allowable bearing pressure.
Week	41	18.10.2023	Introduction to Terzaghi's analysis and assumptions, effect of water table on bearing capacity. Field methods for determination of bearing capacity - Plate load
	42	20.10.2023	Field methods for determination of bearing capacity - Plate load
	43		Standard Penetration Test. Test procedures as per IS:1888 & IS:2131.
	44	23.10.2023	Definition of earth pressure, Active and Passive earth pressure for no surcharge condition, coefficient of earth pressure
	45	25.10.2023	CLASS TEST -II
	46	27.10.2023	Unit- V Compaction and stabilization of soil
	47		Concept of compaction, Standard and Modified proctor test as per IS code,
	48	30.10.2023	Plotting of Compaction curve for determining: Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line.
	49	31.10.2023	Factors affecting compaction, field methods of compaction - rolling, ramming and vibration.
	50	01.11.2023	Suitability of various compaction equipment - smooth wheel roller, sheep foot roller, pneumatic tyre roller, Rammer and Vibrator,
	51	03.11.2023	Revision
	52	17.11.2023	pneumatic tyre roller, Rammer and Vibrator. Difference between compaction and consolidation.
	53	20.11.2023	Concept of soil stabilization.
	54	21.11.2023	necessity of soil stabilization, different methods of soil stabilization
	55	22.11.2023	California bearing ratio (CBR) test - Meaning and Utilization in Pavement Construction
	56	24.11.2023	Necessity of site investigation and soil exploration. Types of exploration.
	57	27.11.2023	criteria for deciding the location and number of test pits and bores.
	58	28.11.2023	Field identification of soil - dry strength test, dilatancy test and toughness test.
	59	29.11.2023	Revision

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8/10/23

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SIRDAS Bohra
Naulakha, P. O. Kanold,
Sunder Nagar. Mandi (H)

Lesson Plan For : Earthquake Resistant Building design
Name Of Faculty:- Dhruv Sharma

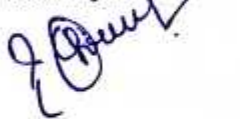
Branch : CE

Sem. 5th

Sr. No.	Date	Name of chapter	Contents to be taught	Remark
1	08-10-23	unit -1	Elements of Engineering Seismology (8 hrs)	
2	22/08/23		General features of tectonic of seismic regions	
3	23/08/23		Causes of earthquakes	
4	25/08/23		Seismic waves	
5	26/08/23		Earth quake size (magnitude and intensity)	
6	29/08/23		Epicentre	
7	09-01-23		Seismograph	
8	09-02-23		Classification of earthquakes	
9	09-05-23		Seismic zoning map of India	
10	09-06-23	Unit- 2	Seismic Behaviour of Traditionally-Built Constructions of India (8 hrs)	
11	09-08-23		Earth quake effects	
12	09-12-23		Traditionally built construction in India	
13	13/9/2023		Performance of building during earthquakes and Mode of failure (Out-of plane failure, in- plane failure, Diaphragm failure, Connection failure, Non-	
14	15/9/2023	Unit- 3	Introduction to IS1893 (Part-I)-2016 (6 hrs)	
15	19/9/2023		Introduction	
16	20/9/2023		Assumptions	
17	22/9/2023		Design lateral forces and their calculation methods	
18	23/9/2023	Unit- 4	Ductile Detailing of Reinforced Concrete Buildings (IS 13920-2016) & IS 4326-2013	
19	26/9/2023		(12 hrs)	
20	27/9/2023		Common modes of failure in reinforced concrete buildings	
21	29/9/2023		General Principal for earthquake resistant buildings & Special construction features	
22	30/9/2023		Types of irregularities	
23	10-03-23		Vertical irregularities	
24	15/10/2023		Plan irregularities	
25	19/10/2023		Ductile detailing as per code	
26	20/9/2023		Seismic strengthening arrangements	
27	22/9/2023		Horizontal reinforcement	
28	23/9/2023		CT -1	
29	26/9/2023		Vertical reinforcement	
30	27/9/2023	Unit- 5	Introduction to IS13828-1993 & IS13827-1993 (12 hrs)	
31	29/9/2023		Advantages and disadvantages of masonry construction	
32	10-03-23		Behaviour of masonry construction during earthquakes	

33	10-04-23		Earthquake resistance features for burnt clay brick in weak mortar	
34	10-06-23		Codal Provisions for earthquake resistant earthen construction	
35	10-07-23		Seismic strengthening features of earthen buildings	
36	10-10-23	Unit- 6	Retrofitting Measure for Traditionally Built Construction	
37	10-11-23		Introduction, need of retrofitting	
38	13/10/2023		Retrofitting materials	
39	17/10/2023		Retrofitting measure of traditionally built construction	
40	18/10/23		Retrofitting of masonry buildings	
41	20/10/23		Retrofitting of concrete structure	
42	21/10/2023		Retrofitting of low-cost buildings	
43	25/10/2023		CT-2	
44		Unit- 7	Disaster Management (8 hrs)	
45	27/10/2023		Disaster rescue	
46	31/10/2023		Psychology of rescue, rescue workers, rescue plan, rescue	
47	07/11/23- 09/11/23		Safeties in rescue operations	
48	11-10-23		Debris clearance	
49	17/11/2023		Causality management	
50	18/11/2023		revision	
51	21/11/2023		revision	
52	22/11/2023		revision	
53	24/11/2023		revision	
54	25/11/2023		revision	
55	28/11/2023		revision	
56	29/11/2023		revision	

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	08-10-23	unit -1 (overview & classification of survey)	Introduction of survey , purpose and use	
1	22/08/23		Types of surveying And classification	
2	24/08/23		principle of surveying and scales	
3	26/08/23	unit 2 (chain surveying)	instruments Used in chain survey	
4	29/08/23		method of chaining	
5	31/08/23		Errors in length: Instrumental error, personal error, error due to	
6	08-02-23		Principles of triangulation	
7	08-05-23		Types of offsets: Perpendicular and Oblique	
8	08-12-23		Conventional Signs, Recording of measurements in a field book	
9	14/9/2023	Unit- 3 Compass Traverse Survey	Compass Traversing- open, closed	
10	16/9/2023		Technical Terms: Geographic/ True Magnetic Meridians and Bearings, Whole Circle Bearing system and Reduced Bearing system and examples on conversion of given bearing to another bearing (from one form to another),	
11	19/9/2023		Fore Bearing and Back Bearing, Calculation of internal and external angles from bearings at a station, Dip of Magnetic needle, Magnetic Declination	
12	21/9/2023		Components of Prismatic Compass and their Functions, Methods of using Prismatic Compass-Temporary adjustments and observing bearings	
13	23/9/2023		CT -1	
14	26/9/2023		Local attraction, Methods of correction of observed bearings - Correction at station and correction to included angles	
15	28/9/2023		Local attraction, Methods of correction of observed bearings - Correction at station and correction to included angles	
16	30/9/2023		Local attraction, Methods of correction of observed bearings - Correction at station and correction to included angles	
17	10-03-23	Unit- 4 Leveling and Contouring	Basic terminologies: Level surfaces, Horizontal and vertical surfaces, Datum, Benchmarks- GTS,	
18	10-05-23		Basic terminologies: Level surfaces, Horizontal and vertical surfaces, Datum, Benchmarks- GTS,	
19	10-07-23		Permanent, Arbitrary and Temporary, Reduced Level, Rise, Fall,	
20	10-10-23		Line of collimation, Station, Back sight, Fore sight, Intermediate sight, Change point, Height of instruments.	
21	10-12-23		Permanent, Arbitrary and Temporary, Reduced Level, Rise, Fall, Line of collimation, Station, Back sight, Fore sight, Intermediate sight, Change point, Height of instruments.	
22	17/10/2023		Types of Levelling Staff: Self-reading staff and Target staff. Reduction of level by Line of collimation and Rise and Fall Method.	
23	19/10/2023		Types of Levelling Staff: Self-reading staff and Target staff. Reduction of level by Line of collimation and Rise and Fall Method.	
24	21/10/2023		Levelling Types: Simple, Differential, Fly, Profile and Reciprocal Levelling. Contour, contour intervals, horizontal equivalent	
25	26/10/2023		CT-2	
26	31/10/2023		Levelling Types: Simple, Differential, Fly, Profile and Reciprocal Levelling. Contour, contour intervals, horizontal equivalent	
27	11-02-23		Uses of contour maps, Characteristics of contours, Methods of Contouring: Direct and Indirect	
28	11-04-23		Uses of contour maps, Characteristics of contours, Methods of Contouring: Direct and Indirect	
29	07/11/23- 09/11/23		House Test	
30	16/11/2023	Unit- 5 Measurement of Area and Volume	Components and use of Digital planimeter	

31	18/11/2023		Components and use of Digital planimeter	
32	21/11/2023		Measurement of area using digital planimeter	
33	23/11/2023		Measurement of area using digital planimeter	
34	25/11/2023		Measurement of volume of reservoir from contour map	
35	28/11/2023		Measurement of volume of reservoir from contour map	
36	30/11/2023		revision	
37	12-02-23		revision	

Teacher Signature

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SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)

Name of the Faculty : Er.Sanjay Kumar

Discipline : Civil Engineering

Semester : 3rd

Subject : Concrete Technology (CEPC209)

Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)

Work Load (Lectures/Practical) per week (in hours) : Lectures -02/BS-01

Week	Lecture Day	Date	Topic
1	1	11.08.2023	Unit - I Cement, Aggregates and Water
	2	14.08.2023	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness,
2-4	3	16.08.2023	Compressive strength. Different grades of OPC and relevant BIS codes
	4	18.08.2023	Storage of cement and effect of storage on properties of cement
	5	21.08.2023	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.
	6	23.08.2023	Aggregates: Requirements of good aggregate, Classification according to size and shape.
	7	25.08.2023	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
	8	28.08.2023	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,
	9	01.09.2023	impact value and abrasion value of coarse aggregates with specifications.
	10	04.09.2023	Water: Quality of water, impurities in mixing water and permissible limits for solids as per IS: 456.
5	11	08.09.2023	Unit- II Concrete
		11.09.2023	Concrete mix design: Objectives, methods of mix design, study of mix design as per IS 10262 (only procedural steps).
		13.09.2023	Testing of concrete, determination of compressive strength of concrete cubes at different ages,
		15.09.2023	Interpretation, and co-relation of test results.
6	12	18.09.2023	Non- destructive testing of concrete: Rebound hammer test,
		20.09.2023	working principle of rebound hammer
		22.09.2023	factor affecting the rebound index, Ultrasonic pulse velocity test as per IS 13311 (part 1 and 2), Importance of NDT tests.
	13	Class Test-I	

Week	Lecture Day	Date	Topic
	15	25.09.2023	Unit- IV Quality Control of Concrete
7-10.	16	27.09.2023	Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction,
	17	04.10.2023	Curing and Finishing of concrete.
	18	06.10.2023	Forms for concreting: Different types of form works for beams, slabs,
	19	09.10.2023	columns, materials used for form work,
	20	11.10.2023	requirement of good form work.
	21	13.10.2023	Stripping time for removal of form works per IS 456
	22	16.10.2023	Waterproofing: Importance and need of waterproofing,
	23	18.10.2023	methods of waterproofing and materials used for waterproofing.
	24	20.10.2023	Joints in concrete construction: Types of joints,
	25	23.10.2023	methods for joining old and new concrete,
	26	25.10.2023	materials used for filling joints.
	27	Class Test-II	
	28	27.10.2023	Unit- V Chemical Admixture, Special Concrete and Extreme Weather concreting
	29	30.10.2023	Admixtures in concrete: Purpose,
	30	03.11.2023	properties and application for different types of admixtures such as accelerating admixtures,
	House Test		
11-15.	31	10.11.2023	retarding admixtures, water reducing admixtures,
	32	13.11.2023	air entraining admixtures and super plasticizers
	33	17.11.2023	Special Concrete: Properties, advantages and limitation of following types of Special concrete:
	34	20.11.2023	Ready mix Concrete,
	35	22.11.2023	Fibre Reinforced Concrete, High performance Concrete Self-compacting concrete and light weight concrete.
	36	24.11.2023	Cold weather concreting: effect of cold weather on concrete,
	37	27.11.2023	precautions to be taken while concreting in cold weather condition.
	38	29.11.2023	Hot weather concreting: effect of hot weather on concrete,
16	39	04.12.2023	precautions to be taken while concreting in hot weather condition.

Signature of Teacher
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Sunder Nagar, Mandi

SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)

Name of the Faculty : Er.Sanjay Kumar
Discipline : Civil Engineering
Semester : 3rd
Subject : Concrete Technology Lab (CEPC219)
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)
Work Load (Lectures/Practical) per week (in hours) : 1 (L:0, T:0, P:2)

Week	Lecture Day	Date	Topic
1	1	19.08.2023	Determine fineness of cement by Blaine's air permeability apparatus or by sieving.
2	2	26.08.2023	Determine specific gravity, standard consistency, initial and final setting times of cement.
3	3	02.09.2023	Determine compressive strength of cement.
4	4	16.09.2023	Determine silt content in sand.
5	5	23.09.2023	Determine bulking of sand
6	6	30.09.2023	Determine bulk density of fine and coarse aggregates.
7	7	07.10.2023	Determine Fineness modulus of fine aggregate by sieve analysis
8	8	21.10.2023	Determine elongation and flakiness index of coarse aggregates
9	9	04.11.2023	Determine workability of concrete by slump cone test.
10	10	18.11.2023	Determine workability of concrete by compaction factor test.
11	11	25.11.2023	To prepare concrete mix of a particular grade and determine compressive strength of concrete for 7 and 28 days
12		02.12.2023	Demonstration of NDT equipment.

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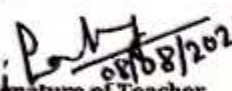
SIRDA Polytechnic, Naulakha**Lesson Plan (Odd Semester)**

Name of the Faculty : Er. Pankaj Thakur
Discipline : Civil Engineering
Semester : 3rd
Subject : Mechanics of Materials
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)
Work Load (Lectures/Practical) per week (In hours) : Lectures -04

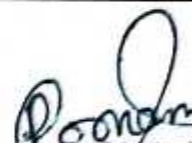
Week	Lecture Day	Date	Topic
	1	10.08.2023	Unit - 1 Moment of Inertia Moment of inertia (M.I.): Definition, M.I. of plane lamina, Radius of gyration, section modulus
	2	14.08.2023	Parallel and Perpendicular axes theorems (without derivations).
	3	16.08.2023	M.I. of rectangle, square, circle, semi-circle, quarter circle and triangle section (without derivations).
	4	17.08.2023	M.I. of symmetrical and unsymmetrical I-section
	5	21.08.2023	M.I. of Channel section,
	6	22.08.2023	M.I. of T-section
	7	23.08.2023	M.I. of Angle section
	8	24.08.2023	M.I. of Hollow sections about centroidal axes. Polar Moment of Inertia of solid circular sections
	9	28.08.2023	Unit- 2 Simple Stresses and Strains Definition of rigid, elastic and plastic bodies, Definition of stress, strain, elasticity, Hook's law
	10	29.08.2023	Elastic limit, Modulus of elasticity. Type of Stresses-Normal, Direct, Bending and Shear and nature of stresses
	11	30.08.2023	Standard stress strain curve for tor steel bar under tension, Yield stress, Proof stress, Ultimate stress, Strain at various critical points
	12	31.08.2023	Percentage elongation and Factor of safety. Deformation of body due to axial force, forces applied at intermediate sections
	13	04.09.2023	Maximum and minimum stress induced, Composite section under axial loading
	14	05.09.2023	Concept of temperature stresses and strain
	15	06.09.2023	Stress and strain developed due to temperature variation in homogeneous simple bar (no composite section)
	16	11.09.2023	Concept of bending moment and shear force, sign conventions
	17	12.09.2023	Longitudinal and lateral strain, Modulus of Rigidity, Poisson's ratio, volumetric strain, change in volume, Bulk modulus
	18	13.09.2023	Same
	19	14.09.2023	Relation between modulus of elasticity, modulus of rigidity and bulk modulus (without derivation).
	20	18.09.2023	Same
	21	19.09.2023	same
	22	20.09.2023	same

Week	Lecture Day	Date	Topic
	23	21.09.2023	Unit- 3 Shear Force and Bending Moment Types of supports, beams, and loads.
	24	25.09.2023	Same
	25	26.09.2023	Same
	26	27.09.2023	Concept and definition of shear force and bending moment
	27	28.09.2023	Class Test-1
	28	03.10.2023	Relation between load, shear force and bending moment (without derivation)
	29	04.10.2023	Shear force and bending moment diagram for cantilever and simply supported beams subjected to point loads
	30	05.10.2023	Same
	31	06.10.2023	Same
	32	09.10.2023	Uniformly distributed loads (combination of any two types of loading), point of contra flexure
	33	10.10.2023	Same
	34	11.10.2023	Same
	35	12.10.2023	Unit- 4 Bending and Shear Stresses in beams Concept and theory of pure bending, assumptions, flexural equation (without derivation)
	36	16.10.2023	Bending stresses and their nature, bending stress distribution diagram.
	37	17.10.2023	Concept of moment of resistance and simple numerical problems using flexural equation
	38	18.10.2023	Shear stress equation (without derivation), relation between maximum and average shear stress for rectangular and circular section
	39	19.10.2023	Shear stress distribution diagram. Shear stress distribution for square, rectangular, circle, hollow, angle sections, channel section
	40	23.10.2023	Shear stress distribution diagram for I-section, T section. Simple numerical problems based on shear equation.
	41	25.10.2023	Same
	42	26.10.2023	Class Test-2
	43	30.10.2023	Unit- 5 Columns Concept of compression member, short and long column, Effective length, Radius of gyration, Slenderness ratio
	44	31.10.2023	Types of end condition for columns, Buckling of axially loaded columns
	45	01.11.2023	Euler's theory, assumptions made in Euler's theory and its limitations
	46	02.11.2023	Application of Euler's equation to calculate buckling load. Rankine's formula and its application to calculate crippling load
	47	16.11.2023	Same
	48	20.11.2023	Concept of working load/safe load, design load and factor of safety.
	49	21.11.2023	Revision
	50	22.11.2023	Revision

Week	Lecture Day	Date	Topic
	51	23.11.2023	Revision
	52	28.11.2023	Revision
	53	29.11.2023	Revision
	54	30.11.2023	Revision


 Signature of Teacher
 with date: 08/08/2023


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 Principal
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SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)

Name of the Faculty : Er.Pankaj Thakur
Discipline : Civil Engineering
Semester : 3rd
Subject : Mechanics of Materials Lab
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)

Wprk Load (Lectures/Practical) per week (in hours) : Practical-02

Week	Practical Day	Date	Practical
	1	16.08.2023	Study and understand the use and components of Universal Testing Machine (UTM).
	2	23.08.2023	Perform Tension test on mild steel as per IS:432(1).
	3	30.08.2023	Perform tension test on Tor steel as per IS:1608, IS:1139.
	4	06.09.2023	Determine Water Absorption on bricks per IS:3495 (part II), IS:1077 or tile IS:1237.
	5	13.09.2023	Determine Compressive strength of dry and wet bricks as per IS:3495(part I), IS:1077
	6	20.09.2023	Conduct Abrasion Test on flooring tiles (anyone) e.g., Mosaic tiles, Ceramic Tiles as per IS: 13630 (part7), Cement Tile as per IS: 1237.
	7	27.09.2023	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.
j	8	04.10.2023	Plot Shear force and Bending Moment diagrams for simply supported beams.
	9	11.10.2023	Conduct Flexural test on timber beam on rectangular section in both orientations as per IS:1708, IS:2408
	10	18.10.2023	Conduct Flexure test on floor tiles IS:1237, IS:13630 or roofing tiles as per IS:654, IS:2690

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Sunder Nagar, Mandi

SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)


Name of the Faculty : Er. Anu Singhta
Discipline : Civil Engineering
Semester : 3rd
Subject : Building Construction
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)
Work Load (Lectures/Practical) per week (in hours) : Lectures -03

Week	Lecture Day	Date	Topic
			Unit - I: Overview of Building Components
	1	10.08.2023	Classification of Buildings as per National Building Code Group A to L.
	2	17.08.2023	As per Types of Constructions- Load Bearing Structure, Framed Structure, Composite Structure
	3	19.08.2023	Building Components - Functions of Building Components, Substructure - Foundation, Plinth.
	4	22.08.2023	Superstructure - Walls, Partition wall, Cavity wall, Sill, Lintel,
	5	24.08.2023	Doors and Windows, Floor, Roof, Columns, Beams, Parapet.
	6	26.08.2023	Superstructure - Walls, Partition wall, Cavity wall, Sill, Lintel, Cavity wall, Sill, Lintel,
	7	29.08.2023	Cavity wall, Sill, Lintel,
		31.08.2023	Unit - II: Construction of Substructure
	8	02.09.2023	Job Layout: Site Clearance, Layout for Load Bearing Structure
	9	12.09.2023	Framed Structure by Center Line, Face Line Method, Precautions.
	10	14.09.2023	Earthwork: Excavation for Foundation, Timbering and Strutting, Earthwork for embankment, Material for plinth Filling,
	11	16.09.2023	Earthwork: Excavation for Foundation, Timbering and Strutting,
	12	19.09.2023	Tools and plants used for earthwork.
	13	21.09.2023	Foundation: Functions of foundation, Types of foundation - Shallow Foundation, Stepped Footing.
	14	23.09.2023	Wall Footing, Column Footing, Isolated and Combined Column Footing, Raft Foundation, Grillage Foundation.
	15	26.09.2023	Deep Foundation - Pile Foundation, Well foundation.

		28/09/2023	CLASSIFICATION
	16	03.10.2023	Unit- III: Construction of Superstructure
	17	05.10.2023	Stone Masonry: Terms used in stone masonry- facing, backing, hearting, through stone, corner stone, cornice.
	18	03.10.2023	Types of stone masonry: 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.
	19	05.10.2023	Brick masonry: Terms used in brick masonry- header, stretcher, closer, quoins, course, face, back, hearting, bat bond, joints, lap, frog line, level and plumb
	20	03.10.2023	Bonds in brick masonry- header bond, stretcher bond, English bond and Flemish bond. Requirements of good brick masonry
	21	05.10.2023	Junctions in brick masonry and their purpose and procedure. Precautions to be observed in Brick Masonry Construction
	22	07.10.2023	Comparison between stone and Brick Masonry. Tools and plants required for construction of stone and brick masonry
	23	10.10.2023	Hollow concrete block masonry and composite masonry.Scaffolding and Shoring: Purpose, Types of Scaffolding,Process of Erection and Dismantling. Purpose and Types of Shoring,Underpinning.
	24	12.10.2023	Process of Erection and Dismantling. Purpose and Types of Shoring,Underpinning.
	25	14.10.2023	Formwork: Definition of Formwork, Requirements of Formwork, Materials used in Formwork, Types of Formworks, Removal of formwork.Materials used in Formwork, Types of Formworks, Removal of formwork.
			Unit- IV: Building Communication and Ventilation
	26	17.10.2023	Horizontal Communication: Doors – Horizontal Communication: Doors – Components of Doors,Panelled Doors, Partly Panelled and Glazed Doors, Flush Doors, Collapsible Doors, Rolling Shutters,
	27	19.10.2023	Revolving Doors, Glazed Doors. Sizes of Door recommended by BIS.
	24	21.10.2023	Windows: Component of windows, Types of Windows - Full Panelled, Partly Panelled and Glazed, wooden, Steel, Aluminium windows, Sliding Windows, Louvered Window,
	25	26.10.2023	Bay window, Corner window, clear-storey window, Gable and Dormer window, Skylight. Sizes of Windows recommended by BIS, Ventilators.

	26	31.10.2023	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.
	27	02.11.2023	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,
	28	04.11.2023	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
			Unit- V: Building Finishes
	29	18.11.2023	Floors and Roofs: Types of Floor Finishes and its suitability- Kota, Marble, Granite, Ceramic Tiles, Vitrified, Concrete Floors
	30	21.11.2023	wooden Flooring, Skirting and Dado. Process of Laying and Construction, Finishing and Polishing of Floors,
	31	23.11.2023	Roofing Materials- RCC, Mangalore Tiles, AC Sheets, G.I. sheets, Corrugated G.I. Sheets, Plastic and Fibre Sheets. Types of Roofs: Flat roof, Pitched Roof-King Post truss, Queen Post Truss, terms used in roofs.
	32	25.11.2023	Wall Finishes: Plastering – Necessity of Plastering, Procedure of Plastering, Single Coat Plaster, Double Coat Plaster,
	33	28.11.2023	Rough finish, Neeru Finishing and Plaster of Paris (POP). Special Plasters- Stucco plaster, sponge finish, pebble finish.
	34	30.11.2023	Plaster. Precautions to be taken in plastering, defects in plastering. Pointing – Necessity, Types of pointing and procedure of Pointing. Painting –Necessity,
	35	02.12.2023	Surface Preparation for painting, Methods of Application.

Signature of Teacher
with date:


Principal,
SIRDA Polytechnic,
Naulakha, P. O. Kanai,
Sunder Nagar, Mandi (H.P.)

SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)

Name of the Faculty : Er.Pankaj Thakur
Discipline : Civil Engineering
Semester : 3rd
Subject : Construction Materials
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)
Work Load (Lectures/Practical) per week (In hours) : Lectures -03

Week	Lecture Day	Date	Topic
	1	10.08.2023	Unit - I: Overview of Construction Materials Scope of construction materials in Building Construction, Transportation Engineering
	2	11.08.2023	Environmental Engineering, Irrigation Engineering (applications only).
	3	14.08.2023	Selection of materials for different civil engineering structures based on strength, durability, Eco friendly and economy
	4	17.08.2023	Broad classification of materials - Natural, Artificial, special, finishing and recycled.
	5	18.08.2023	Same
	6	21.08.2023	Unit - II: Natural Construction Materials Requirements of good building stone; general characteristics of stone
	7	24.08.2023	Quarrying and dressing methods and tools for stone
	8	25.08.2023	Structure of timber, general properties and uses of good timber
	9	28.08.2023	Different methods of seasoning for preservation of timber, defects in timber, use of bamboo in construction.
	10	31.08.2023	Asphalt, bitumen, and tar used in construction, properties and uses
	11	01.09.2023	Properties of lime, its types and uses
	12	04.09.2023	Types of soil and its suitability in construction
	13	08.09.2023	Properties of sand and uses
	14	11.09.2023	Classification of coarse aggregate according to size
	15	14.09.2023	Unit- III: Artificial Construction Materials Constituents of brick earth, Conventional / Traditional bricks, Modular and Standard bricks
	16	15.09.2023	Special bricks -fly ash bricks, Characteristics of good brick, Field tests on Bricks
	17	18.09.2023	Classification of burnt clay bricks and their suitability
	18	21.09.2023	Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks
	19	22.09.2023	Relation between modulus of elasticity, modulus of rigidity and bulk modulus (without derivation).
	20	25.09.2023	Flooring tiles - Types, uses
	21	28.09.2023	Manufacturing process of Cement - dry and wet (only flow chart)
	22	29.09.2023	Class Test-1

Week	Lecture Day	Date	Topic
	23	05.10.2023	Types of cement and its uses. Field tests on cement.
	24	06.10.2023	Pre-cast concrete blocks- hollow, solid, pavement blocks, and their uses.
	25	09.10.2023	Plywood, particle board, Veneers, laminated board and their uses
	26	12.10.2023	Types of glass: soda lime glass, lead glass and borosilicate glass and their uses. Ferrous and non-ferrous metals and their uses
	27	13.10.2023	Unit- IV: Special Construction Materials Types of material and suitability in construction works of following materials
	28	16.10.2023	Water proofing, Termite proofing; Thermal and sound insulating materials.
	29	19.10.2023	Fibers - Types -Jute, Glass, Plastic Asbestos Fibers, (only uses).
	30	20.10.2023	Geo polymer cement: Geo-cement: properties, uses
	31	23.10.2023	Unit- V: Processed Construction Materials Constituents and uses of POP (Plaster of Paris), POP finishing boards, sizes, and uses.
	32	27.10.2023	Class Test-2
	33	30.10.2023	Paints- whitewash, cement paint, Distempers, Oil Paints and Varnishes with their uses. (Situations where used).
	34	02.11.2023	Same
	35	16.11.2023	Industrial waste materials- Fly ash, Blast furnace slag, Granite and marble polishing waste and their uses.
	36	17.11.2023	Agro waste materials - Rice husk, Bagasse, coir fibers and their uses
	37	20.11.2023	Special processed construction materials; Geo synthetic, Ferro Crete, Artificial timber, Artificial sand, and their uses.
	38	23.11.2023	Same
	39	24.11.2023	Revision
	40	30.11.2023	Revision
	41	01.12.2023	Revision
	42	04.12.2023	Revision

Signature of Teacher
with date: 08/10/2023

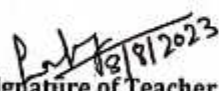
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08/10/2023

Principal
Signature
Principal
SIRDA Polytechnic,
Naulakha, P. O. Kanold,
Sunder Nagar, Mandi (HP)


SIRDA Polytechnic, Naulakha**Lesson Plan (Odd Semester)**

Name of the Faculty : Er. Pankaj Thakur
Discipline : Civil Engineering
Semester : 3rd
Subject : Construction Materials Lab
Lesson Plan Duration : 16 Week (from 10/Aug/2023 to 04/Dec/2023)
Work Load (Lectures/Practical) per week (in hours) : Practical-02

Week	Practical Day	Date	Practical
	1	11.08.2023	Identify various sizes of available coarse aggregates from sample of 10 kg in laboratory and prepare report (60,40, 20,10 mm)
	2	18.08.2023	Identify the available construction materials in the laboratory based on their sources
	3	25.08.2023	Identify the grain distribution pattern in given sample of teak wood in the laboratory and draw the various patterns
	4	01.09.2023	Determine Water Absorption on bricks per IS:3495 (part II), IS:1077 or tile IS:1237.
	5	08.09.2023	Prepare the lime putty by mixing lime (1 kg) with water in appropriate proportion and pre-prepare report on slaking of lime
	6	15.09.2023	Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city Part I
	7	22.09.2023	Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city Part II
	8	29.09.2023	Select first class, second class and third-class bricks from the stake of bricks
	9	06.10.2023	and prepare report on the basis of its properties
	10	13.10.2023	Measure dimensions of 10 bricks and find average dimension and weight. Perform
	11	20.10.2023	Field tests- dropping, striking, and scratching by nail and correlate the results obtained.
	12	27.10.2023	Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, anti-skid tiles
	13	03.11.2023	Apply the relevant termite chemical on given damaged sample of timber
	14	17.11.2023	Identify the type of glasses from the given samples
	15	24.11.2023	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
	16	01.11.2023	Prepare mortar using cement and Fly ash or Granite/marble polishing waste in the proportion 1:6 or 1:3.


Signature of Teacher
with date:


HOD
Signature


Principal
Signature
SIRDA Polytechnic,
Naulakha, P. O. Kanad,
Sunder Nagar, Mandi