

SIRDA Polytechnic, Naulakha


Lesson Plan (Even Semester)

Name of the Faculty : Er.Pankaj Thakur
Discipline : Civil Engineering
Semester : 5th
Subject : Quantity Surveying
Lesson Plan Duration : 16 Week (from 16/Aug/2023 to 07/Dec/2023)
Work Load (Lectures/Practical) per week (In hours) : Lectures -05

Week	Lecture Day	Date	Topic
	1	14.02.2023	Chapter-1 Introduction:
	2	15.02.2023	Definition and Necessity of Irrigation
	3	16.02.2023	Historical development of Irrigation systems
	4	21.02.2023	Chapter-2 Water Requirement of Crops:
	5	22.02.2023	Principal crops in India and their water requirements
	6	23.02.2023	Crop/base period, Crop seasons -Kharif and Rabi
	7	25.02.2023	Duty, Factors affecting duty, Delta,
	8	28.02.2023	Relationship between Base period, Duty and Delta
	9	01.03.2023	Chapter-3 Methods of Irrigation: Type of irrigation- Surface irrigation and sub-surface irrigation
	10	02.03.2023	methods of supplying water to the field (Brief description)
	11	04.03.2023	Free Flooding ,Border Flooding, Check Flooding, Furrow irrigation method
	12	07.03.2023	Basin flooding, Sprinkler irrigation with its suitability
	13	09.03.2023	Drip Irrigation with its suitability
	14	14.03.2023	Chapter-4 Hydrology and Run-off:
	15	15.03.2023	Defination, importance of hydrology
	16	16.03.2023	Hydrological cycle
	17	18.03.2023	Precipitation, Types of precipitation, Raingauges, types with diagrams
	18	21.03.2023	Runoff, Factors affecting runoff
	19	22.03.2023	Chapter-5 Dams & Canals: Use of dams in irrigation
	20	23.03.2023	Types of dams, Construction of earthen, gravity and rock fill dams
	21	25.03.2023	Alluvial and non-alluvial canals

Week	Lecture Day	Date	Topic
	22	28.03.2023	Alignment of canal- ridge canal, contour canal, side slope canal
	23	29.03.2023	Distribution system for canal irrigation- Main canal,
	24	01.04.2023	Branch canal, Distributaries, water course
	25	04.04.2023	Cross-section of canal showing- Side slope,
	26	05.04.2023	Berm, Freeboard, Service road, Spoil bank Dowel and Borrowpit (with their definition & functions)
	27	06.04.2023	Class Test-1
	28	11.04.2023	Lining of canals and their types
	29	12.04.2023	Maintenance of irrigation canal
	30	13.04.2023	Closure of breaches
	31	18.04.2023	Chapter-6 Well and Tube Well Irrigation:Open well
	32	19.04.2023	Shallow well ,Deep well,Construction of open well
	33	20.04.2023	Yield of open well (brief description, no derivation and numerical)
	34	25.04.2023	Pumping test,Recuperating test, Tube well
	35	26.04.2023	Types of tube well (Brief description with neat diagram)
	36	27.04.2023	Cavitytype tube well,Screen type tube well,Slotted type tube well,Methods of boring tube wells
	37	29.04.2023	well development
	38	02.05.2023	Advantages and disadvantages of tube well irrigation over canal irrigation
	39	03.05.2023	Chapter-7 Diversion Head Works:
	40	04.05.2023	Definition, object, general layout, functions of different parts of diversion head works.
	41	06.05.2023	Types of Weir
	42	09.04.2023	Same
	43	10.05.2023	Difference between weir and barrage
	44	11.05.2023	Class Test-2
	45	16.05.2023	Chapter-8 Cross Drainage Works:
	46	17.05.2023	Functions and necessity of the following types: aqueduct,
	47	18.05.2023	super Passage, level crossing,
	48	20.05.2023	inlet and outlet
	49	27.05.2023	Sketches of the above cross drainage works

Week	Lecture Day	Date	Topic
	50	01.06.2023	Chapter-9 Regulatory works: Introduction Cross and head regulators Outlets Canal Escapes Falls
	51	03.06.2023	Chapter-10 River Training Works: Control and river training Objective of river training Method of river training (Brief description)
	52	06.06.2023	Marginal embankment, Groynes,Pitched island Guide banks
	53	07.06.2023	Chapter-11 Water Logging: Definition Causes
	54	08.06.2023	Preventive & remedial measures Reclamation of water logged areas,Well point system


Signature of Teacher
with date: 08/08/2023


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SIRDA Polytechnic, Naulakha

Lesson Plan (Even Semester)

Name of the Faculty : Er.Anu Singhta
Discipline : Civil Engineering
Semester : 6th
Subject : Highway Engineering
Lesson Plan Duration : 16 Week (from 16/Aug/2023 to 07/Dec/2023)
Work Load (Lectures/Practical) per week (in hours) : Lectures -04

Week	Lecture Day	Date	Topic
	1		UNIT -1
	2	16.08.2023	Importance of Highway engineering ,Functions of IRC, CRR1, MORT&H, NHAI
	3	18.08.2023	IRC classification of roads
	4		UNIT -2
	5	21.08.2023	Highway Alignment & Surveys ,Highway alignment- factors controlling alignment, Engineering surveys for highway location
	6	23.08.2023	Map study ,Reconnaissance , Preliminary survey
	7	25.08.2023	Final location and detailed survey ,Drawings and report
	8		UNIT -3
	9	26.08.2023	Importance of geometric design ,highway cross section element ,highway cross section element
	10	28.08.2023	Pavement surface characteristic ,Cross slope or camber ,Width of pavement or carriage way
	11	01.09.2023	Kerbs , Road margin , Right of way
	12	02.09.2023	Sight distance , Stopping sight distance (SSD), Overtaking sight distance (OSD)
	13	04.09.2023	Super elevation Types of super elevation , Maximum super elevation ,Attainment of super elevation
	14	06.09.2023	Widening of pavement on horizontal curve, Mechanical widening
	15	08.09.2023	Psychological widening ,Horizontal Transition Curves ,Different type of transition curves, Paver Blocks
	16	11.09.2023	Gradient , Ruling gradient ,Limiting gradient, Exceptional gradient
	17	13.09.2023	Minimum gradient, Vertical curves ,Summit curves- types, Valley curves
	18		UNIT -4
	19	15.09.2023	Highway Materials Subgrade soil ,Characteristics of soil, Index properties of soil
	20	16.09.2023	Soil classification based upon size- IS soil classification ,Sub-grade soil strength
	21	18.09.2023	CBR test- method and significance
	22	20.09.2023	Stone aggregate-Desirable properties of stone aggregate ,
	23	22.09.2023	bitumen- requirements, grades of bituminous, cut back bitumen,
	24	23.09.2023	bituminous emulsion, modified bituminous, Tar

Week			
	25	25.09.2023	Tar ,Comparison of bitumen and tar
	26	27.09.2023	Class Test-I
	27		UNIT -5
	28	29.09.2023	Highway Pavements ,Object and requirements of pavement ,Type of pavement structure
	29	30.09.2023	Flexible pavement- their merits and demerits, typical cross-sections, functions of various Components
	30	04.10.2023	Rigid pavement- their merits and demerits, typical cross-sections, functions of various components, Factor to be considered in the design
	31		UNIT -6
	32	06.10.2023	Type of highway construction ,Earthwork Construction of earth road- general, specification of material used, procedure ,Construction of water bound macadam road- general, specification of material used, Procedure, wet mix macadam Construction of bituminous macadam
	33	07.10.2023	Interface treatment- primecoat, tackcoat, Bituminous surface dressing, Seal Coat, Penetration Macadam, Built-up spray grout, Premix method, Bituminous macadam, Bituminous premix carpet, Bituminous concrete or asphalt concrete
	34	09.10.2023	Sheet Asphalt, Mastic Asphalt, Mix seal surfacing, Dense bituminous macadam, Construction of surface dressing- specification of material used, construction procedure, Construction of bituminous Macadam- specification of material used, construction Procedure
	35	11.10.2023	Construction of cement concrete pavement slab- specification of material used, construction Procedure, Paver block construction
	36		UNIT -7
	37	13.10.2023	Road Drainage ,Importance of highway drainage- significance, requirement of highway drainage system, Surface drainage- collection
	38	16.10.2023	Cross drainage ,Subsurface drainage- Lowering of water table
	39		UNIT -8
	40	18.10.2023	Hill Roads ,Classification of hill road Alignment of hill road- resisting length, trace cut, hairpin bend,
	41	20.10.2023	Alignment survey- Reconnaissance, trace cut, detailed survey Camber or cross fall, Sight distance, Super elevation, Radius of horizontal curve
	42	21.10.2023	Gradient, Hairpin band , Pavement type , Drainage in hill roads, Roadside drains, Cross drainage ,Subsurface drainage
	43	23.10.2023	Class Test -II
	44		UNIT -9
	45	25.10.2023	Highway Maintenance ,Need for highway maintenance General cause of pavement failure ,Classification of maintenance work
	46	27.10.2023	Typical flexible pavement failure- alligator cracking, pit hole, rutting, loss of aggregate bleeding, depressions, longitudinal cracking, frost
	47	30.10.2023	Typical rigid pavement failure- scaling of cement concrete, shrinkage cracks, spalling of joints, warping cracks, mud pumping, structural cracks
	48	01.11.2023	Maintenance of earth roads ,Maintenance of W.B.M roads ,
	49	03.11.2023	Maintenance of bituminous surfaces- patch repair, surface treatment, resurfacing
	50	04.11.2023	Maintenance of cement concrete roads- treatment of cracks, maintenance of joints
	51	20.11.2023	Revision
	52	22.11.2023	Revision

	53	24.11.2023	Revision
	54	25.11.2023	Revision
	55	27.11.2023	Revision
	56	29.11.2023	Revision
	57	04.11.2023	Revision
	58	06.11.2023	Revision

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

SIRDA Polytechnic, Naulakha

Lesson Plan (Odd Semester)

Name of the Faculty : Br.Sanjay Kumar
Discipline : Civil Engineering
Semester : 5th
Subject : RCC Design
Lesson Plan Duration : 16 Week (from 16/Aug/2023 to 04/ Dec/2023)
Work Load (Lectures/Practical) per week (In hours) : Lectures -04

Week	Lecture Day	Date	Topic
1-2.	1	22.08.2023	UNIT-I : Introduction to R.C.C Designing using Limit State Method
	2	24.08.2023	Design Philosophies: Working Stress Theory, Ultimate Design Theory, Limit State Theory
	3	26.08.2023	Concept of Reinforced Cement Concrete (RCC)
	4	28.08.2023	Reinforcement Materials:-Suitability of Steel as reinforcing material,-Properties of mild steel and HYSD steel
	5	29.08.2023	Loading on structure as per I.S 875.
	6	31.08.2023	Study of BIS:456-2000-clause5,clause6,clause9,clause18,clause19,clause22, clause 23.0,23.2,23.3,Clause25,clause26clause35,clause36,clause37,clause 38, clause 39, clause 40.
3-5.	7	04.09.2023	UNIT-II : Shear, Bond and Development Length (LSM)
	8	05.09.2023	Nominal Shear stress in R.C.Section, Design shear strength of concrete, maximum shear stress,Design of shear reinforcement,
	9	07.09.2023	Minimum shear reinforcement, Forms of shear reinforcement
	10	11.09.2023	Bond and types of bond, Bond Stress, check for bond stress, Development length in tension and
	11	12.09.2023	compression, anchorage value for hooks 90°bend and 45° bend Standard Lapping of bars, check for development length.
	12	14.09.2023	Simple numerical problems on deciding whether shear reinforcement are required or not, check for adequacy of the section in shear. Design of shear reinforcement; Minimum shear reinforcement in beams;
	13	16.09.2023	Determination of development length required for tension reinforcement of cantilevers beam and s lab, check for development length.
	14	18.09.2023	UNIT-III : Analysis and Design of Singly Reinforced Sections (LSM)
	15	21.09.2023	Limit State of collapse (Flexure), Assumptions stress. Strain relationship for concrete and steel neutral axis,
	16	23.09.2023	Stress block diagram and Strain diagram for singly reinforced section.
Class Test-I			
6-8.	17	25.09.2023	Concept of under- reinforced,
	18	26.09.2023	over-reinforced and balanced section, neutral axis co- efficient,
	19	30.09.2023	limiting value of moment of resistance and
	20	03.10.2023	limiting percentage of steel required For balanced singly R.C. Section.
	21	05.10.2023	Simple numerical problems on determining design constants,
	22	07.10.2023	moment of resistance and area of steel.
	23	09.10.2023	Design of Singly reinforced simply supported beam and cantilever beam.

Week	Lecture Day	Date	Topic
	24	10.10.2023	UNIT-IV : Analysis and Design of Doubly Reinforced Sections (LSM)
9-11.	25	12.10.2023	General features, necessity of providing doubly reinforced section reinforcement limitations.
	26	16.10.2023	Analysis of doubly reinforced section, strain diagram stress diagram, depth of neutral axis, moment of resistance of the section.
	27	17.10.2023	Numerical problems on finding moment of resistance
	28	19.10.2023	Numerical Problems
	29	21.10.2023	Numerical Problems
	20	23.10.2023	Numerical Problems
	30		Class Test-II
	31	26.10.2023	Numerical Problems
	12-14.	32	30.10.2023
33		31.10.2023	Analysis & Design of simply supported one-way slab,
34		02.11.2023	Numerical Problems
35		04.11.2023	Numerical Problems
House Test			
36		13.11.2023	Numerical Problems
37		16.11.2023	Numerical Problems
38		18.11.2023	Numerical Problems
39		20.11.2023	Numerical Problems
40		21.11.2023	UNIT-VI : Two Way Slab (LSM)
41		23.11.2023	Design of two-way simply supported slab with corners free & no provision for torsion reinforcement.
Week	Lecture Day	Date	UNIT-VII : Design of Axially Loaded Column (LSM)
15	42	25.11.2023	Assumptions in limit state of collapse-compression
	43	25.11.2023	Definition and classification of columns, effective length of column. Specification for minimum reinforcement;
	44	25.11.2023	cover, maximum reinforcement, number of bars in rectangular,
	45	28.11.2023	square and circular sections, diameter and spacing of lateral ties.
	46	28.11.2023	Analysis and Design of axially loaded: Uniaxial & Biaxial Bending along with axial
	47	28.11.2023	loading: short, square, rectangular and circular columns with lateral ties only; check for short column check for minimum eccentricity may be applied.
		Lecture Day	Date
16	48	30.11.2023	UNIT-VIII : Design of Staircase (LSM)
	49	02.12.2023	Live load on stair as per IS875:1987
	50	30.11.2023	Effective span of stair
	51	02.12.2023	Design of Stair slab spanning longitudinally
	52	04.12.2023	Design of stair slab spanning horizontally

Signature of Teacher
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SIRDA
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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 : 5th
Subject : RCC Drawing & Detailing
Lesson Plan Duration : 16 Week (from 14/Feb/2023 to 09/June/2023)
Work Load (Lectures/Practical) per week (In hours) : P-04

Week	Lecture Day	Date	Topic
1	1	22.08.2023	Rectangular beams - Singly reinforced
	2	24.08.2023	Rectangular beams - Singly reinforced
	3	29.08.2023	Rectangular beams - Singly reinforced
	4	31.08.2023	Rectangular beams- Doubly reinforced
	5	05.09.2023	Rectangular beams- Doubly reinforced
	6	07.09.2023	Cantilever beam - Rectangular and trapezoidal
	7	12.09.2023	Cantilever beam - Rectangular and trapezoidal
	8	14.09.2023	One way slab
	9	21.09.2023	One way slab
	10	26.09.2023	Two way slab
	11	03.10.2023	Two way slab
	12	05.10.2023	Square columns with isolated footing of uniform depth and varying depth (sloped footings)
	13	10.10.2023	Square columns with isolated footing of uniform depth and varying depth (sloped footings)
2	14	12.10.2023	Rectangular columns with isolated footing of uniform depth and varying depth (Sloped footings)
	15	17.10.2023	Rectangular columns with isolated footing of uniform depth and varying depth (Sloped footings)
	16	19.10.2023	Rectangular columns with isolated footing of uniform depth and varying depth (Sloped footings)
	17	26.10.2023	Circular column with isolated footing of uniform depth and varying depth (sloped footings)
	18	31.10.2023	Circular column with isolated footing of uniform depth and varying depth (sloped footings)
	19	02.11.2023	Dog legged stair Case
	20	16.11.2023	Revision
	21	21.11.2023	Revision

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