

## SIRDA Polytechnic, Naulakha

## Lesson Plan

Name of the Faculty : Er. Ritika gil  
 Discipline : Civil Engineering  
 Semester : 3th  
 Subject : Construction material  
 Lesson Plan Duration : 14 weeks (from 1/08/2025 to 26/11/2025)  
 Work load (lecture/practical) per week (in hour): Lecture-03

| Lecture | Topic                                                                                                                                                                                                                                                                                                                                                                             | Date       | Remarks |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|
| 1       | Unit – I: Overview of Construction Materials:- Scope of construction materials in Building Construction, Transportation Engineering, Environmental Engineering, Irrigation Engineering (applications only)                                                                                                                                                                        | 8/2/2025   |         |
| 2       | Selection of materials for different civil engineering structures based on strength, durability, Eco friendly and economy                                                                                                                                                                                                                                                         | 8/5/2025   |         |
| 3       | Broad classification of materials – Natural, Artificial, special, finishing and recycled.                                                                                                                                                                                                                                                                                         | 8/6/2025   |         |
| 4       | Unit – II: Natural Construction Materials :- Requirements of good building stone; general characteristics of stone; quarrying and dressing methods and tools for stone.                                                                                                                                                                                                           | 8/12/2025  |         |
| 5       | Structure of timber, general properties and uses of good timber, different methods of seasoning for preservation of timber, defects in timber, use of bamboo in construction.                                                                                                                                                                                                     | 8/13/2025  |         |
| 6       | Asphalt, bitumen, and tar used in construction, properties and uses.                                                                                                                                                                                                                                                                                                              | 8/19/2025  |         |
| 7       | Properties of lime, its types and uses.                                                                                                                                                                                                                                                                                                                                           | 8/20/2025  |         |
| 8       | Types of soil and its suitability in construction.                                                                                                                                                                                                                                                                                                                                | 8/23/2025  |         |
| 9       | Properties of sand and uses                                                                                                                                                                                                                                                                                                                                                       | 8/30/2025  |         |
| 10      | Classification of coarse aggregate according to size                                                                                                                                                                                                                                                                                                                              | 9/3/2025   |         |
| 11      | Unit- III: Artificial Construction Materials :- Constituents of brick earth, Conventional / Traditional bricks, Modular and Standard bricks, Special bricks –fly ash bricks, Characteristics of good brick, Field tests on Bricks, Classification of burnt clay bricks and their suitability, Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks. | 9/6/2025   |         |
| 12      | same                                                                                                                                                                                                                                                                                                                                                                              | 9/9/2025   |         |
| 13      | Class test-1                                                                                                                                                                                                                                                                                                                                                                      | 9/17/2005  |         |
| 14      | Constituents of brick earth, Conventional / Traditional bricks, Modular and Standard bricks, Special bricks –fly ash bricks, Characteristics of good brick, Field tests on Bricks, Classification of burnt clay bricks and their suitability, Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks.                                                 | 9/20/2025  |         |
| 15      | Flooring tiles – Types, uses                                                                                                                                                                                                                                                                                                                                                      | 9/24/2025  |         |
| 16      | Manufacturing process of Cement - dry and wet (only flow chart), types of cement and its uses. Field tests on cement.                                                                                                                                                                                                                                                             | 9/27/2025  |         |
| 17      | Plywood, particle board, Veneers, laminated board and their uses.                                                                                                                                                                                                                                                                                                                 | 9/30/2025  |         |
| 18      | Types of glass: soda lime glass, lead glass and borosilicate glass and their uses.                                                                                                                                                                                                                                                                                                | 9/30/2025  |         |
| 19      | Ferrous and non-ferrous metals and their uses.                                                                                                                                                                                                                                                                                                                                    | 10/1/2025  |         |
| 20      | Unit– IV: Special Construction Materials :- Types of material and suitability in construction works of following materials: Water proofing, Termite proofing; Thermal and sound insulating materials.                                                                                                                                                                             | 10/4/2025  |         |
| 21      | Fibers – Types –Jute, Glass, Plastic Asbestos Fibers, (only uses).                                                                                                                                                                                                                                                                                                                | 10/8/2025  |         |
| 22      | Geo polymer cement: Geo-cement: properties, uses.                                                                                                                                                                                                                                                                                                                                 | 10/14/2025 |         |
| 23      | Class test-2                                                                                                                                                                                                                                                                                                                                                                      | 10/15/2025 |         |
| 24      | Unit– V: Processed Construction Materials:- Constituents and uses of POP (Plaster of Paris), POP finishing boards, sizes, and uses.                                                                                                                                                                                                                                               | 10/25/2025 |         |
| 25      | same                                                                                                                                                                                                                                                                                                                                                                              | 10/28/2025 |         |
| 26      | Paints- whitewash, cement paint, Distempers, Oil Paints and Varnishes with their uses. (Situations where used).                                                                                                                                                                                                                                                                   | 10/29/2025 |         |
| 27      | same                                                                                                                                                                                                                                                                                                                                                                              | 11/1/2025  |         |
| 28      | Industrial waste materials- Fly ash, Blast furnace slag, Granite and marble polishing waste and their uses.                                                                                                                                                                                                                                                                       | 11/4/2025  |         |
| 29      | Agro waste materials - Rice husk, Bagasse, coir fibers and their uses.                                                                                                                                                                                                                                                                                                            | 9/15/2025  |         |
| 30      | Special processed construction materials; Geo synthetic, Ferro Crete, Artificial timber, Artificial sand, and their uses.                                                                                                                                                                                                                                                         | 11/18/2025 |         |
| 31      | same                                                                                                                                                                                                                                                                                                                                                                              | 11/19/2025 |         |
| 32      | same                                                                                                                                                                                                                                                                                                                                                                              | 11/22/2025 |         |
| 33      | same                                                                                                                                                                                                                                                                                                                                                                              | 11/25/2025 |         |

Signature  
of teacher  
with date

HOD Signature

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



**SIRDA Polytechnic, Naulakha**  
**Lesson Plan**

Name of the Faculty : Er. Ritika gil  
Discipline : Civil Engineering  
Semester : 3th  
Subject : Construction material lab  
Lesson Plan Duration : 14 weeks (from 1/08/2025 to 26/11/2025)  
Work load(lecture/practical) per week(in hour): Practical 2

| Lecture | Topic                                                                                                                                                                                                      | Date       | Remarks |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|
| 1       | Identify various sizes of available coarse aggregates from sample of 10 kg in laboratory and prepare report (60,40, 20,10 mm)                                                                              | 8/4/2025   |         |
| 2       | Identify the available construction materials in the laboratory based on their sources.                                                                                                                    | 8/11/2025  |         |
| 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)                                              | 8/18/2025  |         |
| 4       | Prepare the lime putty by mixing lime (1 kg) with water in appropriate proportion and pre-pare report on slaking of lime.                                                                                  | 8/25/2025  |         |
| 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      | 9/1/2025   |         |
| 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     | 9/8/2025   |         |
| 7       | Select first class, second class and third class bricks from the stake of bricks and prepare report on the basis of its properties.                                                                        | 9/15/2025  |         |
| 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.                               | 9/22/2025  |         |
| 9       | Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, antiskid tiles, checkered tiles, paving blocks and prepare report about the specifications. | 9/29/2025  |         |
| 10      | Apply the relevant termite chemical on given damaged sample of timber                                                                                                                                      | 10/6/2025  |         |
| 11      | Identify the type of glasses from the given samples.                                                                                                                                                       | 10/13/2025 |         |
| 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                                | 10/27/2025 |         |
| 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                               | 11/3/2025  |         |
| 14      | Prepare the cement mortar of proportion 1:3 or 1:6 using artificial sand as a special processed construction material.                                                                                     | 11/17/2025 |         |
| 15      | Prepare mortar using cement and Fly ash or Granite/marble polishing waste in the proportion 1:6 or 1:3.                                                                                                    | 11/24/2025 |         |

  
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Naulakha, P. O. Kanakda,  
Sunder Nagar, Mandi (H.P.)



# SIRDA Polytechnic, Naulakha

## Lesson Plan (Odd Semester)

Name of the Faculty : Er. Anu Singha  
 Discipline : Civil Engineering  
 Semester : 3rd  
 Subject : Geotechnical Engineering  
 Lesson Plan Duration : 16 Week ( from 01 Aug/2025 to 26 Nov/2025)  
 Work Load (Lectures/Practical) per week (in hours) : Lectures -04

| Week | Lecture Day | Date       | Topic                                                                                                                                              |
|------|-------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
|      | 1           | 04.08.2025 | Unit - I Overview of Geology and Geotechnical Engineering                                                                                          |
|      | 2           | 05.08.2025 | Introduction of Geology, Branches of Geology, Importance of Geology for civil engineering structure and composition of earth,                      |
|      | 3           | 06.08.2025 | Definition of a rock: Classification based on their genesis (mode of origin), formation,                                                           |
|      | 4           | 07.08.2025 | Classification, and engineering uses of igneous, sedimentary, and metamorphic rocks.                                                               |
|      | 5           | 11.08.2025 | Importance of soil as construction material in Civil engineering structures, foundation bed for structures                                         |
|      | 6           | 12.08.2025 | Field application of geotechnical engineering for foundation design, Pavement design, design of earth retaining structures, design of earthen dam, |
|      | 7           | 13.08.2025 | Unit- II Physical and Index Properties of Soil                                                                                                     |
|      | 8           | 18.08.2025 | Soil as a three-phase system, water content, determination of water content by oven drying method as per BIS code,                                 |
|      | 9           | 19.08.2025 | void ratio, porosity and degree of saturation, density index,                                                                                      |
|      | 10          | 20.08.2025 | Unit weight of soil mass – bulk unit weight, dry unit weight                                                                                       |
|      | 11          | 21.08.2025 | Determination of bulk unit weight, dry unit weight by core cutter                                                                                  |
|      | 12          | 28.08.2025 | sand replacement method, Consistency of soil,                                                                                                      |
|      | 13          | 04.09.2025 | Atterberg limits of consistency, Liquid limit, plastic limit and shrinkage limit, Plasticity index                                                 |
|      | 14          | 08.09.2025 | Particle size distribution test and plotting of curve, Determination of effective diameter of soil                                                 |
|      | 15          | 09.09.2025 | well graded and uniformly graded soils,                                                                                                            |
|      | 16          | 10.09.2025 | Unit- III Permeability and Shear Strength of Soil                                                                                                  |
|      | 17          | 11.09.2025 | Definition of permeability, coefficient of permeability, factors affecting permeability                                                            |
|      | 19          | 15.09.2025 | determination of coefficient of permeability by constant head tests, falling head tests,                                                           |
|      | 20          | 16.09.2025 | simple problems to determine coefficient of permeability                                                                                           |
|      | 21          | 17.09.2025 | Seepage through earthen structures, seepage velocity, Seepage pressure, phreatic line                                                              |
|      | 22          | 18.09.2025 | CLASS TEST -1                                                                                                                                      |

|    |            |                                                                                                                                                                                          |
|----|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23 | 22.09.2025 | Flow lines, application of flow net,                                                                                                                                                     |
| 24 | 23.09.2025 | Shear failure of soil, concept of shear strength of soil                                                                                                                                 |
| 25 | 24.09.2025 | Components of shearing resistance of soil - cohesion, internal friction, Direct shear and vane shear test - laboratory methods                                                           |
| 26 | 25.09.2025 | Mohr-Coulomb failure theory, Strength envelope, strength equation for purely cohesive and cohesion less soils                                                                            |
| 28 | 29.09.2025 | <b>Unit - IV Bearing Capacity of Soil</b> Bearing capacity and theory of earth pressure                                                                                                  |
| 29 | 30.09.2025 | Introduction to Terzaghi's analysis and assumptions,                                                                                                                                     |
| 30 | 01.10.2025 | effect of water table on bearing capacity, Field methods for determination of bearing capacity - Plate load                                                                              |
| 31 | 06.10.2025 | Standard Penetration Test, Test procedures as per IS:1888 & IS:2131.                                                                                                                     |
| 32 | 08.10.2025 | Definition of earth pressure, Active and for no surcharge condition, coefficient of earth pressure                                                                                       |
| 33 | 09.10.2025 | Definition of Passive earth pressure for no surcharge condition, coefficient of earth pressure                                                                                           |
| 34 | 13.10.2025 | <b>CLASS TEST -II</b>                                                                                                                                                                    |
| 36 | 14.10.2025 | <b>Unit- V Compaction and stabilization of soil</b> Concept of compaction, Standard and Modified proctor test as per IS code,                                                            |
| 37 | 15.10.2025 | Plotting of Compaction curve for determining Optimum moisture content (OMC), maximum dry density (MDD), Zero air voids line.                                                             |
| 38 | 24.10.2025 | Factors affecting compaction, field methods of compaction - rolling, ramming and vibration.                                                                                              |
| 39 | 27.10.2025 | Suitability of various compaction equipment -smooth wheel roller, sheep foot roller, pneumatic tyre roller, Rammer and Vibrator, <u>Difference between compaction and consolidation.</u> |
| 40 | 28.10.2025 | pneumatic tyre roller, Rammer and Vibrator, <u>Difference between compaction and consolidation.</u>                                                                                      |
| 41 | 29.10.2025 | Concept of soil stabilization, necessity of soil stabilization, different methods of soil stabilization                                                                                  |
| 42 | 30.10.2025 | California bearing ratio (CBR) test - Meaning and Utilization in Pavement Construction                                                                                                   |

|      |    |            |                                                                                        |
|------|----|------------|----------------------------------------------------------------------------------------|
| Week | 43 | 03.11.2025 | Necessity of site investigation and soil exploration.Types of exploration.             |
|      | 44 | 04.11.2025 | criteria for deciding the location and number of test pits and bores.                  |
|      | 45 | 06.11.2025 | Field identification of soil – dry strength test, dilatancy test and toughness test.   |
|      | 46 | 13.11.2025 | necessity of soil stabilization,different methods of soil stabilization                |
|      | 47 | 17.11.2025 | California bearing ratio (CBR) test - Meaning and Utilization in Pavement Construction |
|      | 48 | 18.11.2025 | Necessity of site investigation and soil exploration.Types of exploration.             |
|      | 49 | 19.11.2025 | criteria for deciding the location and number of test pits and bores.                  |
|      | 50 | 20.11.2025 | Field identification of soil – dry strength test, dilatancy test and toughness test.   |

Signature of Teacher  
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Sunder Nagar, Mandi (HP)

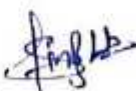
# SIRDA Polytechnic, Naulakha

## Lesson Plan (Odd Semester)

Name of the Faculty : Er. Anu Singha  
 Discipline : Civil Engineering  
 Semester : 5th  
 Subject : Green Building and Energy Conservation  
 Lesson Plan Duration : 14 Week ( from 04Aug/2025 to 26Nov/2025)  
 Work Load (Lectures/Practical) per week (in hours) : Lectures -03

| Week | Lecture Day | Date       | Topic                                                                                                        |
|------|-------------|------------|--------------------------------------------------------------------------------------------------------------|
|      |             |            | <b>Unit - I: Overview of Building Components</b>                                                             |
|      | 1           | 04.08.2025 | Unit I: Introduction to Green Building and Design Features                                                   |
|      | 2           | 05.08.2025 | Definition of Green Building, Benefits of Green building, Components/Features of Green                       |
|      | 3           | 08.08.2025 | Building, Site selection, Energy Efficiency, Water efficiency, Material Efficiency,                          |
|      | 4           | 11.08.2025 | Indoor Air Quality                                                                                           |
|      | 5           | 12.08.2025 | Site selection strategies, Landscaping, building form,                                                       |
|      | 6           | 18.08.2025 | orientation, advanced passive heating                                                                        |
|      | 7           | 19.08.2025 | cooling techniques, waste reduction during construction                                                      |
|      |             | 22.08.2025 | <b>Unit-II Energy Audit and Environmental Impact Assessment (EIA)</b>                                        |
|      | 8           | 23.08.2025 | Energy Audit: Meaning, Necessity, Prerequisites, Types, Energy Management Programs                           |
|      | 9           | 29.08.2025 | Environmental Impact Assessment (EIA)                                                                        |
|      | 10          | 30.08.2025 | Introduction, EIA regulations,                                                                               |
|      | 11          | 05.09.2025 | Steps in environmental impact assessment process,                                                            |
|      | 12          | 06.09.2025 | Benefits of EIA, Limitations of EIA, Environmental                                                           |
|      | 13          | 08.09.2025 | clearance for the civil engineering projects                                                                 |
|      | 14          | 09.09.2025 | <b>Unit- III Energy and Energy conservation</b>                                                              |
|      | 15          | 12.09.2025 | Renewable Energy Resources: Solar Energy, Wind Energy, Ocean Energy, Hydro Energy, Biomass Energy            |
|      |             | 15.09.2025 | Renewable Energy Resources: Solar Energy, Wind Energy, Ocean Energy, Hydro Energy, Biomass Energy            |
|      |             | 16.09.2025 | Revision                                                                                                     |
|      |             | 19.09.2025 | <b>CLASS TEST 1</b>                                                                                          |
|      | 16          | 20.09.2025 | Non-renewable Energy Resources: Coal, Petroleum, Natural Gas, Nuclear Energy,                                |
|      | 17          | 22.09.2025 | Non-renewable Energy Resources: Coal, Petroleum, Natural Gas, Nuclear Energy,                                |
|      | 18          | 23.09.2025 | Energy conservation: Introduction, Specific objectives, present scenario, Need of energy                     |
|      | 19          | 26.09.2025 | conservation, LEED India Rating System and Energy Efficiency                                                 |
|      | 20          | 27.09.2025 | <b>Unit- IV Green Building</b>                                                                               |
|      | 21          | 29.09.2025 | Principles: Principles and planning of Green building                                                        |
|      | 22          | 30.09.2025 | Features: Salient features of Green Building, Environmental design (ED) strategies for building construction |
|      | 23          | 04.10.2025 | Process: Improvement in environmental quality in civil structure Civil Engineering Curriculum Structure      |
|      | 24          | 14.10.2025 | <b>CLASS TEST 2</b>                                                                                          |
|      | 25          | 24.10.2025 | Materials: Green building materials and products- Bamboo, Rice husk ash concrete, plastic                    |
|      |             | 25.10.2025 | bricks, Bagasse (Sugar cane) particle board, Insulated concrete forms, Reuse of waste                        |
|      | 26          | 28.10.2025 | materials - Plastic, rubber, Newspaper wood, Non-toxic paint, Green roofing                                  |
|      | 27          | 31.10.2025 | <b>Unit V Rating System</b>                                                                                  |
|      | 28          | 01.11.2025 | Introduction to (LEED) criteria,                                                                             |
|      | 29          | 04.11.2025 | Indian Green Building council (IGBC) Green rating,                                                           |
|      |             | 07.11.2025 | Green Rating for Integrated Habitat Assessment (GRIHA) criteria                                              |
|      | 26          | 11.11.2025 | Heating Ventilation Air Conditioning (HVAC) unit in green Building                                           |
|      | 27          | 14.11.2025 | Functions of Government organization working for Energy conservation and Audit(ECA)                          |
|      | 28          | 15.11.2025 | National Productivity council(NPC)                                                                           |
|      |             | 17.11.2025 | Ministry of New and Renewable Energy (MNRE)                                                                  |
|      | 29          | 18.11.2025 | Bureau of Energy efficiency (BEE)                                                                            |
|      | 30          | 21.11.2025 | Same                                                                                                         |

  
 Signature of Teacher

  
 Signature of HOD

11/11/2025,  
 SIRDA Polytechnic,  
 Naulakha, P. O. Kanaid  
 Sarda Nagar, Mandi (H.P.)



# SIRDA Polytechnic, Naulakha

## Lesson Plan (Even Semester)

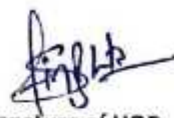
Name of the Faculty : Er. Anu Singhta  
 Discipline : Civil Engineering  
 Semester : 5th  
 Subject : Water Resources  
 Lesson Plan Duration : 14 Week ( from 04/Aug/2025 to 26/Nov/2025)  
 Work Load (Lectures/Practical) per week (in hours) : Lectures -04

| Week | Lecture Day | Date       | Topic                                                          |
|------|-------------|------------|----------------------------------------------------------------|
|      | 1           | UNIT -1    | Unit-I Introduction to Hydrology                               |
|      | 2           | 04.08.2025 | Hydrology: Definition and Hydrological cycle.                  |
|      | 3           | 07.08.2025 | Rain Gauge: Symons rain gauge, automatic rain gauge,           |
|      | 4           | 08.08.2025 | Rain Gauge: automatic rain gauge,                              |
|      | 5           | 11.08.2025 | Methods of calculating average rainfall: Arithmetic mean       |
|      | 6           | 14.08.2025 | Arithmetic mean, Iso-hyetal, and Thiessen polygon method.      |
|      | 7           | 18.08.2025 | Runoff, Factors affecting Runoff, Computation of run-off.      |
|      | 8           | UNIT -II   | Crop water requirement and Reservoir Planning                  |
|      | 9           | 19.08.2025 | Irrigation and its classification. Crop Water requirement:     |
|      | 10          | 21.08.2025 | Cropping seasons,                                              |
|      | 11          | 22.08.2025 | Crop period, base period, Duty,                                |
|      | 12          | 23.08.2025 | Delta, CCA, GCA, intensity of irrigation,                      |
|      | 13          | 29.08.2025 | Delta, CCA, GCA, intensity of irrigation,                      |
|      | 14          | 30.08.2025 | factors affecting duty, Problems on water requirement          |
|      | 15          | 04.09.2025 | Methods of application of irrigation water and its assessment. |
|      | 16          | 05.09.2025 | Silting of reservoir                                           |
|      | 17          | 08.09.2025 | Rate of silting,                                               |
|      | 18          | 11.09.2025 | factors affecting silting and control measures.                |
|      | 19          | UNIT -III  | Dams and Spillways                                             |
|      | 20          | 12.09.2025 | Dams and its classification: Earthen dams                      |
|      | 21          | 15.09.2025 | Gravity dams (masonry and concrete).                           |
|      | 22          | 18.09.2025 | Revision Work                                                  |
|      | 23          | 19.09.2025 | CLASS TEST-1                                                   |
|      | 24          | 20.09.2025 | Earthen Dams- Components with function,                        |
|      | 25          | 22.09.2025 | typical cross-section, seepage through                         |
|      | 26          | 25.09.2025 | embankment and foundation and its control,                     |
|      | 27          | 26.09.2025 | Methods of construction of earthen dam,                        |
|      | 28          | 27.09.2025 | types of failure of earthen dam and cross-section.             |

|      |    |                |                                                                                              |
|------|----|----------------|----------------------------------------------------------------------------------------------|
| Week | 32 | 04.10.2025     | Drip and Sprinkler Irrigation-Need, components, and Layout.                                  |
|      | 33 | 06.10.2025     | Well irrigation: types and yield of wells, advantages and disadvantages of well irrigation   |
|      | 34 | <b>Unit-V</b>  | <b>Diversion Head Works &amp; Canals</b>                                                     |
|      | 35 | 09.10.2025     | Weirs-components, parts,                                                                     |
|      | 36 | 13.10.2025     | CLASS TEST-II                                                                                |
|      | 37 | 24.10.2025     | types of weirs Barrages-components and their functions. Difference between weir and Barrage. |
|      | 38 | 25.10.2025     | Canals- Classification according to alignment                                                |
|      | 39 | 27.10.2025     | Canals- Classification according to position in the canal network,                           |
|      | 40 | 30.10.2025     | Cross section of canal in embankment and cutting,                                            |
|      | 41 | 31.10.2025     | partial embankment and cutting.                                                              |
|      | 42 | 01.11.2025     | Canal lining-Purpose, material used and its properties, advantages.                          |
|      | 43 | 06.11.2025     | Same                                                                                         |
|      | 44 | <b>Unit-VI</b> | <b>Water logging</b>                                                                         |
|      | 45 | 07.11.2025     | Cross Drainage Works-Aqueduct, siphon aqueduct, super passage, level crossing.               |
|      | 46 | 14.11.2025     | Canal Regulators- Head regulator, Cross regulator, Escape, Falls and Outlets                 |
|      | 47 | 15.11.2025     | Definition, Causes, Preventive &                                                             |
|      | 48 | 17.11.2025     | Remedial measures, Reclamation of waterlogged areas                                          |
|      | 49 | 20.11.2025     | Same                                                                                         |



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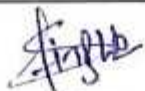
**SIRDA Polytechnic, Naulakha**  
**Lesson Plan**

Name of the Faculty : Er. Ritika gill  
Discipline : Civil Engineering  
Semester : 5th  
Subject : Design Of RCC Structures  
Lesson Plan Duration : 14 weeks (from 4/08/2025 to 26/11/2025)  
Work load(lecture/practical) per week(in hour): Lecture-02

| Lecture | Topic                                                                                                                                                                                                                                                      | Date      | Remarks |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|
| 1       | <b>UNIT-I Introduction to RCC Designing using limit state method :-</b> Design Philosophies: Working Stress Theory, Ultimate design Theory, Limit state Theory, concept of RCC, Reinforcing material                                                       | 8/5/2025  |         |
| 2       | Same                                                                                                                                                                                                                                                       | 8/6/2025  |         |
| 3       | Suitability of steel as reinforcing material, Properties of mild steel and HYSD steel, Loading on structure as I.S 875                                                                                                                                     | 8/7/2025  |         |
| 4       | Study of BIS: 456:2000- clause 5, clause 6, clause 9, clause 18, clause 19, clause 22, clause 23.0, clause 23.2, clause 23.3, clause 25, clause 26, clause 35, clause 36, 37, 38, 39, 40, 41, 42, 43, Annexure-B, C, D, E, G                               | 8/8/2025  |         |
| 5       | <b>Unit-2 Shear, Bond, development length(LSM) :-</b> Nomial shear stree in R.C. section, Design Shear stregh of concrete, max. shear stress, Design of shear reinforcement, min. shear reinforcement, Forms of shear Reinforcement with numerical problem | 8/12/2025 |         |
| 6       | Same                                                                                                                                                                                                                                                       | 8/13/2025 |         |
| 7       | Same                                                                                                                                                                                                                                                       | 8/14/2025 |         |
| 8       | Bond and types of bonds, bond stress , check for bond stress, development length in tension and compression, anchorage value for hooks 90 bend and 45 bend. Standard lapping of bars, check for development length.                                        | 8/19/2025 |         |
| 9       | Same                                                                                                                                                                                                                                                       | 8/20/2025 |         |
| 10      | Same                                                                                                                                                                                                                                                       | 8/21/2025 |         |
| 11      | Determination of development length required for tension reinforcement of cantilevers beam and slab, check for development length                                                                                                                          | 8/22/2025 |         |
| 12      | <b>Unit-3 Analysis and design of singly reinforced section:-</b> Limit state of collapse(flexure) , assumption stress, Strain relationship for concrete and steel, neutral axis, Stress block diagram for singly reinforced section                        | 8/27/2025 |         |
| 13      | Same                                                                                                                                                                                                                                                       | 8/28/2025 |         |
| 14      | Concept of under- reinforced, over- reinforced and balanced section, neutral axis, limiting value of moment of resistance and limiting percentage of steel required for balanced singly R.C. section                                                       | 8/29/2025 |         |
| 15      | Same                                                                                                                                                                                                                                                       | 8/29/2025 |         |
| 16      | Simple numerical problem on determining design constants, moment of resistance and area of steel                                                                                                                                                           | 9/4/2025  |         |
| 17      | Same                                                                                                                                                                                                                                                       | 9/5/2025  |         |
| 18      | Same                                                                                                                                                                                                                                                       | 9/9/2025  |         |
| 19      | Design of Singly reinforced simply supported beam and cantilever beam                                                                                                                                                                                      | 9/10/2025 |         |
| 20      | Same                                                                                                                                                                                                                                                       | 9/11/2025 |         |
| 21      | Same                                                                                                                                                                                                                                                       | 9/12/2025 |         |
| 22      | <b>Class test-1</b>                                                                                                                                                                                                                                        | 9/17/2025 |         |
| 23      | <b>Unit-IV Analysis and Design of Doubly Reinforced Sections(LSM):</b> General features, necessity of providing doubly reinforced reinforcement, limitations                                                                                               | 9/18/2025 |         |
| 24      | Same                                                                                                                                                                                                                                                       | 9/19/2025 |         |
| 25      | Analysis of doubly reinforced section, strain diagram, stress diagram, depth of neutral axis, moment of resistance of the section.                                                                                                                         | 9/23/2025 |         |
| 26      | Same                                                                                                                                                                                                                                                       | 9/24/2025 |         |
| 27      | Numerical problems on finding moment of resistance                                                                                                                                                                                                         | 9/25/2025 |         |
| 28      | Same                                                                                                                                                                                                                                                       | 9/26/2025 |         |

|    |                                                                                                                                                                                                                                                  |            |  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--|
| 29 | Same                                                                                                                                                                                                                                             | 10/1/2025  |  |
| 30 | <b>Unit-V Design of One-Way Slab:</b> Analysis & Design of simply supported one-way slab                                                                                                                                                         | 10/3/2025  |  |
| 31 | Same                                                                                                                                                                                                                                             | 10/8/2025  |  |
| 32 | Same                                                                                                                                                                                                                                             | 10/9/2025  |  |
| 33 | <b>Unit-VI- Two way slab:-</b> Design of two -way simply supported slab with corners free & no provision for torsion reinforcement                                                                                                               | 10/14/2025 |  |
| 34 | <b>Class test-2</b>                                                                                                                                                                                                                              | 10/15/2025 |  |
| 35 | Same                                                                                                                                                                                                                                             | 10/24/2025 |  |
| 36 | Same                                                                                                                                                                                                                                             | 10/28/2025 |  |
| 37 | <b>Unit-VII Design of Axially Loaded Column(LSM):</b> Assumptions in limit state of collapse-compression                                                                                                                                         | 10/29/2025 |  |
| 38 | Definition and classification of columns, effective length of column. Specifications for minimum reinforcement, cover, maximum reinforcement, number of bars in rectangular, square and circular sections, diameter and spacing of lateral ties. | 10/30/2025 |  |
| 39 | Same                                                                                                                                                                                                                                             | 10/31/2025 |  |
| 40 | Same                                                                                                                                                                                                                                             | 11/4/2025  |  |
| 41 | Same                                                                                                                                                                                                                                             | 11/6/2025  |  |
| 42 | Same                                                                                                                                                                                                                                             | 11/7/2025  |  |
| 43 | Analysis and design of axially loaded: Uniaxial & Biaxial Bending along with axial loading: short, square, rectangular, and circular columns with lateral ties only; check for minimum eccentricity may be applied                               | 11/14/2025 |  |
| 44 | Same                                                                                                                                                                                                                                             | 11/18/2025 |  |
| 45 | Same                                                                                                                                                                                                                                             | 11/19/2025 |  |
| 46 | Same                                                                                                                                                                                                                                             | 11/20/2025 |  |
| 47 | Same                                                                                                                                                                                                                                             | 11/21/2025 |  |

  
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Nautokha, P. O. Kanala,  
Sunder Nagar, Mandi (HP)



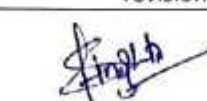
Name of the Faculty : Er. Ritika gil  
 Discipline : Civil Engineering  
 Semester : 3th  
 Subject : Basic surveying  
 Lesson Plan Duration : 14 weeks (from 1/08/2025 to 26/11/2025)  
 Work load(lecture/practical) per week(in hour): Lecture-2

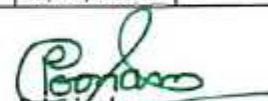
| Lecture | Topic                                                                                                                                                                                                                                                                                                                                                                   | Date       | Remarks |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|
| 1       | <b>Unit-I Overview and Classification:-</b> Survey - pupose and use                                                                                                                                                                                                                                                                                                     | 8/1/2025   |         |
| 2       | Types of Surveying:- Primary and Secondary, Clasification: Plane, Geodetic, Cadastral,Hydrographic, Photogrammetry and aerial                                                                                                                                                                                                                                           | 8/4/2025   |         |
| 3       | same                                                                                                                                                                                                                                                                                                                                                                    | 8/8/2025   |         |
| 4       | Principles of Surveying                                                                                                                                                                                                                                                                                                                                                 | 8/11/2025  |         |
| 5       | Scales: Engineer's scale, Representative fraction (RF)                                                                                                                                                                                                                                                                                                                  | 8/14/2025  |         |
| 6       | <b>Unit-II Chain Surveying:-</b> Instruments used in chain survey: Metric chain, Tapes, Arrow, ranging rod, Line ranger, Offset rod, open cross staff, optical square                                                                                                                                                                                                   | 8/18/2025  |         |
| 7       | Chain survey Station, Base line, Check line, Tie line, offset, Tie station, Ranging : Direct and Indirect Ranging                                                                                                                                                                                                                                                       | 8/21/2025  |         |
| 8       | Method of chaining, obstacles in chaining                                                                                                                                                                                                                                                                                                                               | 8/22/2025  |         |
| 9       | Errors in length: Instrumental error, personal error, error due tonatural cause, random error.                                                                                                                                                                                                                                                                          | 8/28/2025  |         |
| 10      | Principles of triangulation                                                                                                                                                                                                                                                                                                                                             | 8/29/2025  |         |
| 11      | Types of offsets: Perpendicular and oblique                                                                                                                                                                                                                                                                                                                             | 9/4/2025   |         |
| 12      | Conventional Signs, Recording of meaurements in a field book                                                                                                                                                                                                                                                                                                            | 9/5/2025   |         |
| 13      | <b>Unit-III Compass Traverse Survey :-</b> Compass Traversing- open, closed                                                                                                                                                                                                                                                                                             | 9/8/2025   |         |
| 14      | Technical terms: Geographic/ True Magnetic Meridian and bearings, Whole circle bearing sysytem and Reduced Bearing System and examples on conversion of given bearing to another bearing (from one from to another ), Fore bearing and back bearing. Calculation of internal and external angle from bearing at a station, Dip Of magnetic needle, Magnetic Declination | 9/11/2025  |         |
| 15      | same                                                                                                                                                                                                                                                                                                                                                                    | 9/12/2025  |         |
| 16      | Components of Prismatic Compass and their Functions, Methods of using Prismatic Compass-                                                                                                                                                                                                                                                                                | 9/15/2025  |         |
| 17      | same                                                                                                                                                                                                                                                                                                                                                                    | 9/18/2025  |         |
| 18      | <b>Class test-1</b>                                                                                                                                                                                                                                                                                                                                                     | 9/19/2025  |         |
| 19      | Local attraction, Methods of correction of observed bearing- Correction at station and correction to included angles                                                                                                                                                                                                                                                    | 9/22/2025  |         |
| 20      | Same                                                                                                                                                                                                                                                                                                                                                                    | 9/25/2025  |         |
| 21      | <b>Unit-IV Levelling and Contouring:-</b> Basic Terminologies: Level Surfaces, Horizontal and vertical surfaces, Datum, Benchmarks- GTS Permanent, Arbitrary and Temporary, Reduced Level, Rise, Fall, Line of collimation, Station, Back sight,                                                                                                                        | 9/26/2025  |         |
| 22      | Types of levels: Dumpy, Tilting, Auto level, Digital level, Components of Dumpy Level and its fundamental axes, Temporary adjustments of Level                                                                                                                                                                                                                          | 9/29/2025  |         |
| 23      | Same                                                                                                                                                                                                                                                                                                                                                                    | 10/3/2025  |         |
| 24      | Types of Levelling Staff: Self-reading staff and Target staff. Reduction of level by Line of collimation and Rise and Fall Method.                                                                                                                                                                                                                                      | 10/6/2025  |         |
| 25      | Levelling Types: Simple, Differential, Fly, Profile and Reciprocal Levelling. Contour, contour intervals, horizontal equivalent.                                                                                                                                                                                                                                        | 10/9/2025  |         |
| 26      | <b>Class test-2</b>                                                                                                                                                                                                                                                                                                                                                     | 10/13/2025 |         |



|    |                                                                                               |            |  |
|----|-----------------------------------------------------------------------------------------------|------------|--|
| 27 | Uses of contour maps, Characteristics of contours, Methods of Contouring: Direct and indirect | 10/24/2025 |  |
| 28 | same                                                                                          | 10/27/2025 |  |
| 29 | <b>Unit- V Measurement of Area and Volume:-</b> Components and use of Digital planimeter.     | 10/30/2025 |  |
| 30 | Measurement of area using digital planimeter                                                  | 10/24/2025 |  |
| 31 | same                                                                                          | 10/27/2025 |  |
| 32 | same                                                                                          | 10/31/2025 |  |
| 33 | same                                                                                          | 11/3/2025  |  |
| 34 | Measurement of volume of reservoir from contour map                                           | 11/6/2025  |  |
| 35 | same                                                                                          | 11/7/2025  |  |
| 36 | same                                                                                          | 11/13/2025 |  |
| 37 | Revision                                                                                      | 11/14/2025 |  |
| 38 | revision                                                                                      | 11/17/2025 |  |
| 39 | revision                                                                                      | 11/20/2025 |  |
| 40 | revision                                                                                      | 11/21/2025 |  |

  
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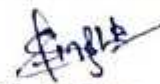
  
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**SIRDA Polytechnic, Naulakha**  
**Lesson Plan**

Name of the Faculty : Er. Ritika gil  
Discipline : Civil Engineering  
Semester : 3th  
Subject : Basic surveying lab  
Lesson Plan Duration : 14 weeks (from 1/08/2025 to 26/11/2025)  
Work load (lecture/practical) per week (in hour): Practical 2

| Sr. No. | Topic                                                                                                                                                                   | Date       | Remarks |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|
| 1       | Measure distance between two survey stations using chain, tape and ranging rods when two stations are inter-visible.                                                    | 8/4/2025   |         |
| 2       | Same                                                                                                                                                                    | 8/6/2025   |         |
| 3       | Undertake reciprocal ranging and measure the distance between two stations.                                                                                             | 8/11/2025  |         |
| 4       | Same                                                                                                                                                                    | 8/13/2025  |         |
| 5       | Determine area of open field using chain and cross staff survey.                                                                                                        | 8/18/2025  |         |
| 6       | Same                                                                                                                                                                    | 8/20/2025  |         |
| 7       | Measure Fore Bearing and Back Bearing of survey lines of open traverse using Prismatic Compass.                                                                         | 8/25/2025  |         |
| 8       | Same                                                                                                                                                                    | 8/27/2025  |         |
| 9       | 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.                       | 9/1/2025   |         |
| 10      | Same                                                                                                                                                                    | 9/3/2025   |         |
| 11      | Undertake Survey Project with chain and compass for closed traverse for minimum 5 sides around a building.                                                              | 9/8/2025   |         |
| 12      | Same                                                                                                                                                                    | 9/10/2025  |         |
| 13      | Plot the traverse on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No.6.                                                   | 9/15/2025  |         |
| 14      | Same                                                                                                                                                                    | 9/17/2025  |         |
| 15      | Undertake simple levelling using dumpy level/ Auto level and levelling staff.                                                                                           | 22-09-25   |         |
| 16      | Same                                                                                                                                                                    | 9/24/2025  |         |
| 17      | 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. | 9/29/2025  |         |
| 18      | Same                                                                                                                                                                    | 10/1/2025  |         |
| 19      | Undertake fly levelling with double check using dumpy level/ Auto level and levelling staff.                                                                            | 10/8/2025  |         |
| 20      | Same                                                                                                                                                                    | 10/13/2025 |         |
| 21      | Undertake Survey Project with Levelling instrument for Profile levelling and cross-sectioning for a road with cross-section.                                            | 10/15/2025 |         |
| 22      | Same                                                                                                                                                                    | 10/22/2025 |         |
| 23      | 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.                           | 10/27/2025 |         |
| 24      | Same                                                                                                                                                                    | 10/29/2025 |         |
| 25      | Undertake Survey Project for plotting contour map using block contouring method for a block of 150m x 150m with grid of 10m x 10m.                                      | 11/3/2025  |         |
| 26      | Same                                                                                                                                                                    | 11/17/2025 |         |
| 27      | Plot the contours on A1 size imperial drawing sheet for data collected in Survey Project mentioned at practical No.13.                                                  | 11/19/2025 |         |
| 29      | Measure area of irregular figure using Digital planimeter.                                                                                                              | 11/24/2025 |         |

  
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