NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: Th-2 (GEOTECHNICAL ENGINEERING)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	INTRODUCTION	4	4
2	Preliminary Definitions and Relationship.	7	8
3	Index Properties of soil	4	4
4	Classification of Soil	5	6
5	Permeability and Seepage	6	6
6	Compaction and Consolidation.	6	7
7	Shear Strength	6	6
8	Earth Pressure on Retaining Structures	5	5
9	Foundation Engineering	6	7
	TOTAL:	60	64

Discipline: CIVIL ENGINEERING	Semester: 3RD	**Name of the Teaching Faculty:** Er.SATYAJIT PANDA
		SESSION : 2023-24 **EXAMINATION :** 2023 (W)
Week	**Class Day**	**Topics to be Covered**
1st	1st	1 Introduction 1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanics
	2nd	1.3 Origin and formation of soil
	3rd	2 Preliminary Definitions and Relationship 2.1 Soil as a three Phase system.
	4th	2 Preliminary Definitions and Relationship 2.1 Soil as a three Phase system.
2nd	1st	2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids
	2nd	2.2 air content, degree of saturation, density Index
	3rd	2.2 Bulk/Saturated/dry/submerged density
	4th	2.2Interrelationship of various soil parameters
3rd	1st	3 Index Properties of Soil 3.1 Water Content
	2nd	3.2 Specific Gravity
	3rd	Numericals Practice
	4th	Numericals Practice
4th	1st	Numericals Practice
	2nd	3.3 Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses
	3rd	3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
	4th	4 Classification of Soil 4.1 General
5th	1st	4 Classification of Soil 4.1 General
	2nd	4 Classification of Soil 4.1 General

	3rd	4.2 I.S. Classification, Plasticity chart
	4th	4.2 I.S. Classification, Plasticity chart
6th	**1st**	4.2 I.S. Classification, Plasticity chart
	2nd	5 Permeability and Seepage 5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability
	3rd	5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability
	4th	Numericals Practice
7th	**1st**	Numericals Practice
	2nd	5.2 Factors affecting Permeability
	3rd	5.2 Factors affecting Permeability
	4th	5.3 Constant head permeability and falling head permeability Test.
8th	**1st**	5.3 Constant head permeability and falling head permeability Test.
	2nd	5.4 Seepage pressure, effective stress, phenomenon of quick sand
	3rd	6 Compaction and Consolidation 6.1 Compaction: Compaction, Light and heavy compaction Test
	4th	6.1 Optimum Moisture Content of Soil, Maximum dry density
9th	**1st**	6.1 Zero air void line, Factors affecting Compaction
	2nd	6.1 ield compaction methods and their suitability
	3rd	6.2 Consolidation: Consolidation, distinction between compaction and consolidation
	4th	Numericals Practice
10th	**1st**	Numericals Practice
	2nd	Numericals Practice
	3rd	6.2 Consolidation: Consolidation, distinction between compaction and consolidation
	4th	6.2Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
11th	**1st**	INTERNAL ASSESMENT.

	2nd	INTERNAL ASSESMENT.
11th	**3rd**	7.1 Cohesion, Angle of internal friction
	4th	7.1 strength envelope for different type of soil
12th	**1st**	7.1 Measurement of shear strength
	2nd	7.1 Direct shear test, triaxial shear test
	3rd	7.1 unconfined compression test and vane-shear test 8
	4th	8 Earth Pressure on Retaining Structures 8.1 Active earth pressure,
13th	**1st**	Numericals Practice
	2nd	Numericals Practice
	3rd	Numericals Practice
	4th	Numericals Practice
14th	**1st**	8.1 Passive earth pressure
	2nd	8.1 Earth pressure at rest.
	3rd	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge
	4th	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge.
15th	**1st**	8.2(ii) backfill with uniform surcharge
	2nd	8.2(ii) backfill with uniform surcharge
	3rd	9 Foundation Engineering 9.1 Functions of foundations,
	4th	9.1 shallow and deep foundation
16th	**1st**	9.2 Bearing capacity of soil
	2nd	9.2bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip,
	3rd	9.2Circular and square footings
	4th	9.2Circular and square footings
17th	**1st**	9.2Effect water table on bearing capacity of soil
	2nd	9.3 Plate load test
	3rd	9.3 Plate load test
	4th	9.3standard penetration test