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

LESSON PLAN

SUBJECT: Th-2 (GEOTECHNICAL ENGINEERING)

Name Of The Faculty :- Er. Satyajit Panda
Branch :- Civil Engineering **Semester :-** 3rd
Session :- 2024-25 **Examination :-** 2024 (W)

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

S. Panda 28.06.24
Sign of Faculty

28.06.24
Sign of H.O.D.

Discipline: CIVIL ENGINEERING	Semester: 3rd	**Name of the Teaching Faculty:** Er. Satyajit panda
		SESSION : 2024-25 **EXAMINATION :** 2024 (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

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