

**BHUBANANANDA ODISHA SCHOOL OF ENGINEERING,
CUTTACK
DEPARTMENT OF CIVIL ENGINEERING**



LESSON PLAN

SUBJECT: GEOTECHNICAL ENGINEERING (TH 2)

FACULTY: MANISHA PRIYADARSHINEE TRIPATHY

ACADEMIC SESSION: 2024-25

SEMESTER: 3RD

SEC: C

**Sd/-
H O D (Civil Engg.)**

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Discipline: Civil Engineering	Semester: 3 rd C		Name of the teaching faculty: : MANISHA PRIYADARSHINEE TRIPATHY
Subject: Geotechnical Engineering	No. of Days/ per week class allotted: 04 periods per week. (Mon-1,Tue-1 Wed-2)		Semester From Date: 01-07-2024 To Date: 08-11- 2024 No. of weeks: 18 weeks
Week	Class Day	No of period available	Theory Topics
1ST	01/07/2024	1	1. Introduction 1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanics
	02/07/2024	1	1.3 Origin and formation of soil
	03/07/2024	2	2. Preliminary Definitions and Relationship 2.1 Soil as a three Phase system. 2.2 Water Content, Density, Specific gravity, 2.2 Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation,
2ND	08/07/2024	1	2.2 density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters
	09/07/2024	1	Problem solving of 2 nd chapter
	10/07/2024	2	Problem solving of 2 nd chapter

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3RD	15/07/2024	1	3. Index Properties of Soil 3.1 Water Content
	16/07/2024	1	3.2 Specific Gravity 3.3 Particle size distribution: Sieve analysis
4TH	22/07/2024	1	3.3 wet mechanical analysis, particle size distribution curve and its uses
	23/07/2024	1	3.3 wet mechanical analysis, particle size distribution curve and its uses
	24/07/2024	2	3.4 Consistency of Soils, Atterberg's Limits,
5TH	29/07/2024	1	3.4 Plasticity Index, Consistency Index , Liquidity Index, Indices
	30/07/2024	1	Problems solving on chapter 3
	31/07/2024	2	4. Classification of Soil 4.1 General 4.2 I.S. Classification
6TH	05/08/2024	1	4. Classification of Soil 4.1 General 4.2 I.S. Classification
	06/08/2024	1	Plasticity chart Problems solving on chapter 4
	07/08/2024	2	5. Permeability and Seepage 5.1 Introduction to chapter 5 5.1 Concept of Permeability

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7TH	12/08/2024	1	5.1 Darcy's Law, Co-efficient of Permeability 5.2 Factors affecting Permeability
	13/08/2024	1	5.3 Constant head permeability and falling head permeability Test
	14/08/2024	2	5.4 Seepage pressure , effective stress
8TH	20/08/2024	1	phenomenon of quick sand
	21/08/2024	2	Problems solving on chapter 5
9TH	27/08/2024	1	MONTHLY CLASS TEST
	28/08/2024	2	6.1 Compaction: Compaction, Light and heavy compaction Test 6.1 Optimum Moisture Content of Soil, Maximum dry density, Zero air void line, Factors affecting Compaction
10TH	02/09/2024	1	
	03/09/2024	1	6.1 Field compaction methods and their suitability
	04/09/2024	2	6.2 Consolidation: Consolidation 6.2 distinction between compaction and consolidation.
11TH	09/09/2024	1	Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
	10/09/2024	1	Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications

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	11/09/2024	2	Problems solving on chapter 6
12TH	17/09/2024	1	7. Shear Strength 7.1 Concept of shear strength
	18/09/2024	2	7.1 Mohr- Coulomb failure theory, Cohesion, Angle of internal friction. 7.1 strength envelope for different type of soil.
13TH	23/09/2024	1	7.1 Measurement of shear strength- Direct shear test, triaxial shear test.
	24/09/2024	1	7.1 unconfined compression test and vane-shear test
	25/09/2024	2	Problems on chapter 7
14TH	30/09/2024	1	8 Earth Pressure on Retaining Structures 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest
	01/10/2024	1	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge
15TH	14/10/2024	1	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (ii) backfill with uniform surcharge
	15/10/2024	1	MONTHLY CLASS TEST
16TH	21/10/2024	1	9. Foundation Engineering 9.1 Types of failure (General shear, Local shear & punching shear
	22/10/2024	1	9.1 Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches

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	23/10/2024	2	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings
17TH	28/10/2024	1	9.2 Effect water table on bearing capacity of soil.
	29/10/2024	1	9.3 Plate load test and standard penetration test.
	30/10/2024	2	Problems on Chapter 9
18TH	04/11/2024	1	REVISION
	05/11/2024	1	REVISION
	06/11/2024	2	PREVIOUS YEAR QUESTION DISCUSSION