

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN



LESSON PLAN

SUBJECT: GEO-TECHNICAL ENGINEERING (TH2)
FACULTY: MANISHA PRIYADARSHINI TRIPATHY

ACADEMIC SESSION: 2023-24

SEMESTER: 3RD

SEC: A

HOD/Sr. Lecturer (Civil Engg.)

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Discipline: Civil Engineering	Semester/Section: 3RD/A		Name of the teaching faculty: Manisha Priyadarshini Tripathy
Subject: Th2.Geotechnical Engineering	No. of Days/ per week class allotted: 04 period per week. (Tue, Wed, Fri)		Semester From Date: 01-07-2023 To Date: 08-11-2023 No. of weeks: 18
Week	Class Day	No. of period available	Topics to be covered
1ST	01/08/2023	1	1 Introduction: 1.1 Soil and Soil Engineering
	03/08/2023	1	1.2 Scope of Soil Mechanics, 1.3 Origin and formation of soil
	04/08/2023	1	2 Preliminary Definitions and Relationship: 2.1 Soil as a three Phase system.
	05/08/2023	1	2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content.
2ND	08/08/2023	1	2.2 degree of saturation, density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters.
	10/08/2023	1	Problems on chapter 2.
	11/08/2023	1	Problems on chapter 2.
	12/08/2023	1	3 Index Properties of Soil: 3.1 Water Content
3RD	17/08/2023	1	3.2 Specific Gravity
	18/08/2023	1	3.3 Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses.
	19/08/2023	1	3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index.
4TH	22/08/2023	1	3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
	24/08/2023	1	Problems on chapter 3
	25/08/2023	1	Problems on chapter 3
	26/08/2023	1	4 Classification of Soil: 4.1 General
5TH	29/08/2023	1	4.2 I.S. Classification, Plasticity chart
	31/08/2023	1	5 Permeability and Seepage: 5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability.
	01/09/2023	1	5.4 Seepage pressure, effective stress, phenomenon of quick sand
	02/09/2023	1	5.4 Seepage pressure, effective stress, phenomenon of quick sand

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6TH	02/09/2023	1	Problems on chapter 5
	07/09/2023	1	Problems on chapter 5
	08/09/2023	1	6 Compaction and Consolidation: 6.1 Compaction: Compaction, Light and heavy compaction Test
	09/09/2023	1	6.1 Optimum Moisture Content of Soil, Maximum dry density, Zero air void line.
7TH	12/09/2023	1	6.1 Factors affecting Compaction, Field compaction methods and their suitability and problems.
	14/09/2023	1	6.2 Consolidation: Consolidation, distinction between compaction and consolidation.
	15/09/2023	1	6.2 Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications.
	16/09/2023	1	Class test 1
8TH	21/09/2023	1	Problems on chapter 6.
	22/09/2023	1	7 Shear Strength: 7.1 Concept of shear strength, Mohr-Coulomb failure theory
	23/09/2023	1	7.1 Cohesion, Angle of internal friction, strength envelope for different type of soil.
9TH	26/09/2023	1	7.1 Measurement of shear strength;- Direct shear test.
	29/09/2023	1	7.1 triaxial shear test, unconfined compression test and vane-shear test.
	30/09/2023	1	7.1 triaxial shear test, unconfined compression test and vane-shear test.
10TH	03/10/2023	1	8 Earth Pressure on Retaining Structures: 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest.
	05/10/2023	1	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only)
	06/10/2023	1	8.2 (i) Backfill with no surcharge.
	07/10/2023	1	8.2 (ii) backfill with uniform surcharge.
11TH	10/10/2023	1	IA
	12/10/2023	1	Problems on chapter 8
	13/10/2023	1	Problems on chapter 8
12TH	17/10/2023	1	Problems on chapter 8
	20/10/2023	1	Class test 2
13TH	31/10/2023	1	9 Foundation Engineering: 9.1 Functions of foundations, shallow and deep

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13TH			foundation.
	02/11/2023	1	9.1 different type of shallow and deep foundations with sketches.
	03/11/2023	1	9.1 Types of failure (General shear, Local shear & punching shear)
14TH	07/11/2023	1	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings, Effect water table on bearing capacity of soil.
	09/11/2023	1	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings, Effect water table on bearing capacity of soil.
	10/11/2023	1	9.3 Plate load test and standard penetration test.
	11/11/2023	1	9.3 Plate load test and standard penetration test.
15TH	14/11/2023	1	9.3 Plate load test and standard penetration test.
	16/11/2023	1	Revision
	17/11/2023	1	Revision
	18/11/2023	1	Revision
16TH	21/11/2023	1	Revision
	23/11/2023	1	Revision
	24/11/2023	1	Revision
	25/11/2023	1	Revision
17TH	28/11/2023	1	Previous year questions discussion.
	30/11/2023	1	Previous year questions discussion.