

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

SUBJECT: GEOTECHNICAL ENGINEERING (TH 2)

FACULTY: MISS IPSITA THAKUR

ACCADEMIC SESSION: 2022-23

SEMESTER: 3RD

SEC: B

Sd/-
H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 3 rd		Name of the teaching faculty: MISS IPSITA THAKUR
Subject: Geotechnical Engineering	No. of Days/ per week class allotted: 04 periods per week. (Mon, Wed, Thu, & Sat – 1 period each)		Semester From Date: 15-10-2022 To Date: 22-12-2022 No. of weeks: 14 weeks
Week	Class Day	No of period available	Theory Topics
1st	15/09/2022	1	1. Introduction 1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanics 1.3 Origin and formation of soil
	17/09/2022	1	2. Preliminary Definitions and Relationship 2.1 Soil as a three Phase system.
2nd	19/09/2022	1	2.2 Water Content, Density, Specific gravity,
	21/09/2022	1	2.2 Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation,
	22/09/2022	1	2.2 density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters
	24/09/2022	1	Problem solving of 2 nd chapter
3rd	26/09/2022	1	Problem solving of 2 nd chapter
	28/09/2022	1	3. Index Properties of Soil 3.1 Water Content 3.2 Specific Gravity
	29/09/2022	1	3.3 Particle size distribution: Sieve analysis,
	01/10/2022	1	3.3 wet mechanical analysis, particle size distribution curve and its uses
	10/10/2022	1	3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index , Liquidity Index, Indices

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LESSON PLAN

4th	12/10/2022	1	Monthly class test
	13/10/2022	1	Problems solving on chapter 3
	15/10/2022	1	4. Classification of Soil 4.1 General 4.2 I.S. Classification, Plasticity chart
5th	17/10/2022	1	Problems solving on chapter 4
	19/10/2022	1	Exam on Chapter 1, 2,3,4
	20/10/2022	1	5. Permeability and Seepage 5.1 Introduction to chapter 5 5.1 Concept of Permeability
	22/10/2022	1	5.1 Darcy's Law, Co-efficient of Permeability 5.2 Factors affecting Permeability
6th	26/10/2022	1	5.3 Constant head permeability and falling head permeability Test
	27/10/2022	1	5.4 Seepage pressure , effective stress, phenomenon of quick sand
	29/10/2022	1	Problems solving on chapter 5
7th	31/10/2022	1	6.1 Compaction: Compaction, Light and heavy compaction Test
	02/11/2022	1	6.1 Optimum Moisture Content of Soil, Maximum dry density, Zero air void line, Factors affecting Compaction
	03/11/2022	1	Monthly class test
	05/11/2022	1	6.1 Field compaction methods and their suitability

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

8th	07/11/2022	1	6.2 Consolidation: Consolidation
	09/11/2022	1	6.2 distinction between compaction and consolidation. Terzaghi's model analogy of compression/ springs showing the process
	10/11/2022	1	consolidation – field implications, Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
	12/11/2022	1	consolidation – field implications, Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
9th	14/11/2022	1	Problems solving on chapter 6
	15/11/2022	1	INTERNAL EXAM
	17/11/2022	1	7.Shear Strength 7.1 Concept of shear strength
	19/11/2022	1	7.1 Mohr- Coulomb failure theory, Cohesion, Angle of internal friction.
10th	21/11/2022	1	7.1 strength envelope for different type of soil.
	23/11/2022	1	7.1 Measurement of shear strength- Direct shear test, triaxial shear test.
	24/11/2022	1	7.1 unconfined compression test and vane-shear test.
	26/11/2022	1	Problems on chapter 7
11th	28/11/2022	1	Exam on chapter 6 & 7
	30/11/2022	1	8 Earth Pressure on Retaining Structures 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest.
	01/12/2022	1	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge

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LESSON PLAN

	03/12/2022	1	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (ii) backfill with uniform surcharge
12th	05/12/2022	1	Monthly class test
	07/12/2022	1	9.1 Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches.
	08/12/2022	1	9. Foundation Engineering 9.1 Types of failure (General shear, Local shear & punching shear)
	10/12/2022	1	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings.
13th	12/12/2022	1	9.2 Effect water table on bearing capacity of soil. 9.3 Plate load test and standard penetration test.
	14/12/2022	1	Problems on Chapter 9
	15/12/2022	1	Problems on Chapter 9
	17/12/2022	1	REVISSION
14th	19/12/2022	1	REVISSION
	21/12/2022	1	REVISSION
	22/12/2022	1	REVISSION