BALASORE SCHOOL OF ENGINEERING, BALASORE

LESSON PLAN/SEMESTER:- 3RD

SUBJECT:- **GEOTECHNICAL ENGG.** NAME OF THE FACULTY :- **S.L.Rout**

Branch-civil engg **section:-A & B**

SL. No.	CH. NO.	Month	DATE	NAME OF THE CHAPTER/OBJECTIVES	NO. OF PERIOD AVAIL. AS PER SYLLABUS	NO. OF PERIODS AVAILABLE AS PER PLAN
1	CH-1	sep	15/09/22	**Introduction** 1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanics	02	02
2			16/09	1.3 Origin and formation of soil		
3	CH-2		19/09	**Preliminary Definitions and Relationship** 2.1 Soil as a three Phase system.	06	07
4			20/09	2.2 Water Content, Density, Specific gravity,		
5			21/09	Voids ratio, Porosity, Percentage of air voids, air content,		
6			22/09	degree of saturation, density Index, Bulk/Saturated/dry/submerged density		
7			23/09	Interrelationship of various soil parameters		
8			26/09	PROBLEM		
9			27/09	PROBLEM		
10	CH-3		28/09	**Index Properties of Soil** 3.1 Water Content	04	08
11			29/09	3.2 Specific Gravity		
12			30/09	3.3 Particle size distribution: Sieve analysis, wet mechanical analysis,		
13		oct	10/10	particle size distribution curve and its uses		
14			11/10	3.4 Consistency of Soils,		
15			12/10	Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index		
16			13/10	PROBLEM		
17			14/10	PROBLEM		
18	CH-4		17/10	**Classification of Soil** 4.1 General	06	04
19			18/10	4.2 I.S. Classification Plasticity chart		
20			19/10	PROBLEM...		
21			20/10	PROBLEM		
22	CH-5		21/10	**Permeability and Seepage** 5.1 Concept of Permeability, Darcy's Law	07	07
23			25/10	Co-efficient of Permeability,		
24			26/10	5.2 Factors affecting Permeability.		

25			27/10	5.3 Constant head permeability and falling head permeability Test.		
26			28/10	5.4 Seepage pressure, effective stress, phenomenon of quick sand		
27			31/10	PROBLEM.....		
28		nov	01/11	PROBLEM....		
29	CH-6		02/11	**Compaction and Consolidation** 6.1 Compaction: Compaction, Light and heavy compaction Test, Optimum Moisture Content of Soil,	08	06
30			03/11	Maximum dry density, Zero air void line, Factors affecting Compaction,		
31			04/11	Field compaction methods and their suitability		
32			07/11	6.2 Consolidation: Consolidation, distinction between compaction and consolidation		
33			09/11	Terzaghi's model analogy of compression		
34			10/11	springs showing the process of consolidation – field implications		
35	CH-7		11/11	**Shear Strength** 7.1 Concept of shear strength,	06	07
36			21/11	Mohr- Coulomb failure theory,		
37			22/11	Cohesion, Angle of internal friction,		
38			23/11	strength envelope for different type of soil,		
39			24/11	Measurement of shear strength;- Direct shear test		
40			25/11	Triaxial shear test,		
41			28/11	unconfined compression test and vane-shear		
42	CH-8		29/11	**Earth Pressure on Retaining Structures** 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest	07	03
43			30/11	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only)		
44		dec	01/12	(i) Backfill with no surcharge, (ii) backfill with uniform surcharge		
45	CH-9		02/12	**Foundation Engineering** 9.1 Functions of foundations,	14	11
46			05/12	shallow and deep foundation, different type of shallow and deep foundations with sketches.		
47			06/12	Types of failure (General shear, Local shear & punching shear)		
48			07/12	9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae		
49			08/12	& IS Code formulae for strip, Circular and		
50			09/12	square footings,		
51			12/12	Effect water table on bearing capacity of soil		
52			13/12	9.3 Plate load test and standard penetration test		
53			14/12	Cont....		
54			15/12	Cont...		
55			16/12	Revision		

Brief Summary of the Plan

SL NO	MONTH	UNITS/CHAPTER TO BE COVERED	% OF COVERAGE
1	sep	Ch-1,CH-2,CH-3.....	15%
2	oct	CH-3.... ,CH-4,CH-5	35%
3	nov	CH-6,CH-7,CH-8....	30%
4	dec	CH-8.....,CH-9	20%

13.09.22

Signature of the Faculty

Date

23/9/22

Signature of the Principal

Date