

**LESSON PLAN OF Th2. GEOTECHNICAL ENGINEERING FOR 3RD SEM, CIVIL ENGG, WINTER 2022 W.E.F. 15.09.2022**

**Faculty Name- Smt. Swetapadma Sahoo (Sr.Lectuer of Civil Engg.)**

WEEK NO.	DATE	TOPIC	PERIODS ASSIGNED PER TOPIC	PERIODS AVAILABLE PER WEEK
W-1	15.09.22 TO 17.09.22	<b>1 Introduction</b> 1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanics 1.3 Origin and formation of soil	2	2
W-2	19.09.22 TO 23.09.22	<b>2 Preliminary Definitions and Relationship</b> 2.1 Soil as a three Phase system. 2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation, density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil	6	4
W-3	26.09.22 TO 01.10.22	<b>3 Index Properties of Soil</b> 3.1 Water Content 3.2 Specific Gravity 3.3 Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses 3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index	4	2
W-4	10.10.22 TO 15.10.22	<b>4 Classification of Soil</b> 4.1 General 4.2 I.S. Classification, Plasticity chart	6	2
W-5	17.10.22 TO 22.10.22	<b>5 Permeability and Seepage</b> 5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability, 5.2 Factors affecting Permeability. 5.3 Constant head permeability and falling head permeability Test. 5.4 Seepage pressure, effective stress, phenomenon of quick sand	7	4
W-6	31.10.22 TO 05.11.22	<b>6 Compaction and Consolidation</b> 6.1 Compaction: Compaction, Light and heavy compaction Test, Optimum Moisture Content of Soil, Maximum dry density, Zero air void line, Factors affecting Compaction. Field compaction methods and their	8	3
W-7				1+2 EC

W-8	07.11.22 TO 12.11.22	Compaction, field compaction methods and their suitability 6.2 Consolidation: Consolidation, distinction between compaction and consolidation. Terzaghi's model analogy of compression/ springs <del>showing the process of consolidation – field implications</del>		4+1 EC
W-9	14.11.22 TO 19.11.22	<b>7 Shear Strength</b> 7.1 Concept of shear strength, Mohr- Coulomb failure theory, Cohesion, Angle of internal friction, strength envelope for different type of soil, Measurement of shear strength;- Direct shear test, triaxial shear test, unconfined compression test and vane-shear test	6	4
W-10	21.11.22 TO 26.11.22			2
W-11	28.11.22 TO 03.12.22	<b>8 Earth Pressure on Retaining Structures</b> 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest. 8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge, (ii) backfill with uniform surcharge	7	2+2 EC
				3
W-12	05.12.22 TO 10.12.22	<b>9 Foundation Engineering</b> 9.1 Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches. Types of failure (General shear, Local shear & punching shear) 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 9.3 Plate load test and standard penetration test	14	1+2 EC
W-13	12.12.22 TO 17.12.22			4
W-14	19.12.22 TO 22.12.22 & Onwards			4
		<b>DISCUSSION &amp; REVISION</b>	-	-