GANDHI SCHOOL OF ENGINEERING

BHABANDHA, BERHAMPUR

BRANCH- CIVIL ENGINEERING

SEMESTER- 3RD

SUBJECT- Th2. GEOTECHNICAL ENGINEERING

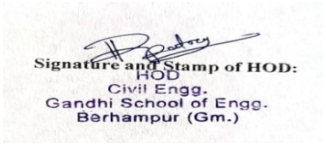
NAME OF THE FACULTY- ER. ROJALI PATRA

		Topic to be taken				Actual topic taken		
Sl. No	**Topic/ Module**	**No. of period**	**Details of the topics**	Date	**Topic No.**	**Topic Name**	**Date**	**Remarks**
1	Introduction	2	1.1 Soil and Soil Engineering 1.2 Scope of Soil Mechanics 1.3 Origin and formation of soil	01.08.2023 - 02.08.2023	1.1 1.2 1.3	Soil and Soil Engineering Scope of Soil Mechanics Origin and formation of soil	01.08.2023 02.08.2023 03.08.2023	
2	Preliminary Definitions and Relationship	6	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 parameters	03.08.2023 - 14.08.2023	2.1 2.2	Soil as a three Phase system. 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 parameters	07.08.2023 08.08.2023 09.08.2023 10.08.2023 14.08.2023 16.08.2023 17.08.2023	

3	Index Properties of Soil	4	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	16.08.2023 - 22.08.2023	3.1 3.2 3.3 3.4	Water Content Specific Gravity Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index	21.08.2023 22.08.2023 23.08.2023 24.08.2023	
4	Classification of Soil	6	4.1 General 4.2 I.S. Classification, Plasticity chart	23.08.2023 - 04.09.2023	4.1 4.2	General I.S. Classification, Plasticity chart	28.08.2023 29.08.2023 31.08.2023 04.09.2023 07.09.2023 11.09.2023	
5	Permeability and Seepage	7	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	07.09.2023 - 25.09.2023	5.1 5.2 5.3 5.4	Concept of Permeability, Darcy's Law, Co-efficient of Permeability, Factors affecting Permeability. Constant head permeability and falling head permeability Test. Seepage pressure, effective stress, phenomenon of quick sand	12.09.2023 13.09.2023 14.09.2023 21.09.2023 25.09.2023 26.09.2023 27.09.2023	

6	Compaction and Consolidation	8	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 suitability 6.2 Consolidation: Consolidation, distinction between compaction and consolidation. Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications	26.09.2023 - 11.10.2023	6.1 6.2	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 suitability Consolidation: Consolidation, distinction between compaction and consolidation. Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications	03.10.2023 04.10.2023 05.10.2023 09.10.2023 10.10.2023 11.10.2023 12.10.2023 16.10.2023	
7	Shear Strength	8	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	12.10.2023 - 31.10.2023	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	17.10.2023 18.10.2023 19.10.2023 31.10.2023 01.11.2023 02.11.2023	
8	Earth Pressure on Retaining Structures	6	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	01.11.2023 - 15.11.2023	8.1 8.2	Active earth pressure, Passive earth pressure, Earth pressure at rest. Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge, (ii) backfill with uniform surcharge	06.11.2023 07.11.2023 08.11.2023 09.11.2023 15.11.2023 16.11.2023 20.11.2023	

9	Foundation Engineering	7	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	16.11.2023 - 13.12.2023	9.1 9.2 9.3	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) 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 Plate load test and standard penetration test	21.11.2023 22.11.2023 23.11.2023 28.11.2023 29.11.2023 30.11.2023 04.12.2023 06.12.2023 07.12.2023	



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