



Lesson Plan of GTE 3RD Sem 2022-2023

UNIT NO.	UNIT	TOPIC	PERIOD	TOTAL PERIOD
1	Introduction	Soil and Soil Engineering, Scope of Soil Mechanics Origin and formation of soil	1 1	2
2	Preliminary Definitions and Relationships	Soil as a three Phase system Water Content, Density (bulk/saturated/dry/submerged), Specific gravity Numerical practice Voids ratio, Porosity, Percentage of air voids, Air content, Degree of saturation, Density index Interrelationship of various soil parameters, numerical	1 1 1 1 2	6
3	Index Properties of Soil	Water Content, Specific Gravity Particle size distribution - Sieve analysis, wet mechanical analysis, Particle size distribution curve and its uses Consistency of soil, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index	1 1 2	4
4	Classification of Soil	General - grain size classification, textural classification, HRB classification Unified Soil Classification, Plasticity chart I.S. Classification, Plasticity chart	2 2 2	6
5	Permeability and Seepage	Concept of permeability, Darcy's law, coefficient of permeability Factors affecting Permeability Constant head permeability test Falling head permeability test Seepage pressure, effective stress, phenomenon of quick sand	2 1 1 1 2	7
6	Compaction and Consolidation	Compaction definition and concept, Light and Heavy compaction test, OMC, MDD Zero air void line, Factors affecting Compaction Field compaction methods and their suitability Consolidation, distinction between compaction and consolidation Terzaghi's model analogy showing the process of consolidation - field implications	2 1 1 1 2	7
7	Shear Strength	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	2 1 2 1	6
8	Earth Pressure on Retaining Structures	Concept of earth pressure, Active and Passive earth pressure, Earth pressure at rest Use of Rankine's formula for calculation of earth pressure in cohesionless soil incase of backfill with and without uniform surcharge Numerical practice	3 2 1	6
9	Foundation Engineering	Functions of foundations, Shallow and Deep foundation Different type of shallow and deep foundations with sketches Types of failure Bearing capacity of soil, Calculations using Terzaghi's formulae & IS Code formulae for strip, circular and square footings Numerical practice Effect of water table on bearing capacity of soil Numerical practice Plate load test and standard penetration test	1 2 1 3 1 2 1 2	13
10	Revision/ Doubt clearing/ Extra classes		10	10

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