TH 2 GEOTECHNICAL ENGG. 3RD SEMESTER LESSON PLAN

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