

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