LESSON PLAN: (GEOTECHNICAL ENGINEERING)		
Discipline :	**CIVIL ENGINEERING**	
Faculty :	**SUBHENDU NAIK**	
Semester :	**3RD**	
Duration :	**14 WEEKS (1ST AUGUST 2023 to 30TH NOVEMBER 2023)**	
Work Load :	**Lecture :**	**4 Lectures per week (50 minutes per Class)**
Week	**Week Day**	**Theory**
1st	1st	Introduction and scope of soil Mechanics
	2nd	Origin and formation of soil
	3rd	Preliminary definitions and relationship of soil
	4th	Water content, Density, Specific Gravity,
2nd	5th	Void ratio, Porosity, Percentage of air voids, air content
	6th	Degree of saturation, Density index,
	7th	Bulk/saturated/dry/submerged density
	8th	Interrelationship of various soil parameters
3rd	9th	Index Properties of Soil
	10th	Water Content , Specific Gravity
	11th	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
	12th	Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses
4th	13th	Classification of Soil
	14th	General
	15th	I.S. Classification
	16th	Plasticity chart
5th	17th	Concept of Permeability
	18th	Darcy's Law
	19th	Co-efficient of Permeability
	20th	Factors affecting Permeability
6th	21st	Constant head permeability
	22nd	falling head permeability Test
	23rd	Seepage pressure
	24th	effective stress, phenomenon of quick sand
7th	25th	Compaction, Light and heavy compaction Test
	26th	Optimum Moisture Content of Soil, Maximum dry density
	27th	Zero air void line, Factors affecting Compaction,
	28th	Field compaction methods and their suitability
8th	29th	Consolidation,
	30th	Distinction between compaction and consolidation.
	31st	Terzaghi's model analogy of compression
	32nd	Springs showing the process of consolidation
9th	33rd	field implications
	34th	Concept of shear strength
	35th	Mohr- Coulomb failure theory
	36th	Cohesion, Angle of internal friction,
10th	37th	strength envelope for different type of soil
	38th	Measurement of shear strength;- Direct shear test
	39th	Triaxial shear test
	40th	unconfined compression test and vane-shear test
11th	41st	Active earth pressure

	42nd	Passive earth pressure
	43rd	Earth pressure at rest.
	44th	Use of Rankine's formula
12th	45th	Backfill with no surcharge
	46th	backfill with uniform surcharge
	47th	Functions of foundations
	48th	Shallow and deep foundation, different type of shallow and deep foundations with sketches.
13th	49th	Types of failure
	50th	Bearing capacity of soil
	51st	bearing capacity of soils using Terzaghi's formulae
	52nd	IS Code formulae for strip
14th	53rd	Circular and square footings
	54th	Effect water table on bearing capacity of soil
	55th	Plate load test
	56th	standard penetration test