Lesson Plan:

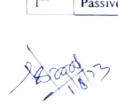
(4 periods per week, total 60 periods in SEM)

Discipline : civil engineeri ng	Sem.: 3rd	Name of teaching faculty: Ganesh Pradhan (PTGF)
Sub: geotech nical enginee ring	No. of days/pe r week class alloted:	Sem. From date: 01-08-2023 To date: No. of weeks: 15
Week	Class Day	Topics
		1. Introduction
1 ST	1 ST 1	1.1 Soil and Soil Engineering
	2 ND 1	1.2 Scope of Soil Mechanics 1.3 Origin and formation of soil
		2. Preliminary Definitions and Relationship
		2.1 Soil as a three Phase system
	4 TH	2.2 Water Content, Density, Specific gravity
2^{ND}	0.75	Voids ratio, Porosity, Percentage of air voids,
		air content, degree of saturation, density Index,
		Bulk/Saturated/dry/submerged density,
	4 TH 1	Interrelationship of various soil parameters
		3. Index Properties of Soil
3 RD	1 ST	3.1 Water Content
	2 ND	3.2 Specific Gravity
		3.3 Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses
*	4 TH 3	3.4 Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
-		4. Classification of Soil
4 TH	1 ST	4.1 General 4.2 I.S. Classification
	NW .	4.2 I.S. Classification, Plasticity chart
	3 RD	4.2 I.S. Classification, Plasticity chart
	-	4.2 I.S. Classification, Plasticity chart
5 TH	1 ST	4.2 I.S. Classification, Plasticity chart



(glorolla)

	2 ND	1.2 I.S. Classification, Plasticity chart
		2. Permeability and Seepage
	3 RD	5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability,
	4 TH	5.2 Factors affecting Permeability.
6 TH	157	5.2 Factors affecting Permeability.
	2 ND	5.3 Constant head permeability and falling head permeability Test.
	3 RD	5.4 Seepage pressure, effective stress, phenomenon of quick sand
	4 [™]	5.4 Seepage pressure, effective stress, phenomenon of quick sand
7 ^{11H}	1 ST	phenomenon of quick sand
		3. Compaction and Consolidation
	2 ND	6.1 Compaction: Compaction, Light and heavy compaction Test,
	3 RD	Optimum Moisture Content of Soil
	4 TH	Maximum dry density, Zero air void line,
8 TH	1 ST	Factors affecting Compaction,
	2 ND	Field compaction methods and their suitability
	3 RD	6.2 Consolidation: Consolidation, distinction between compaction and consolidation.
	4 TH	Terzaghi's model analogy of compression/springs showing the process of consolidation – field implications
9 ^{1H}	1 ST	Terzaghi's model analogy of compression/springs showing the process of consolidation – field implications
		4. Shear Strength
	2 ND	7.1 Concept of shear strength, Mohr- Coulomb failure theory
	3 RD	Cohesion, Angle of internal friction,
	4 TH	strength envelope for different type of soil,
10 TH	1 ST	Measurement of shear strength;- Direct shear test, triaxial shear test, unconfined
	- ND	compression test and vane-shear test
	2 ND	Measurement of shear strength;- Direct shear test, triaxial shear test, unconfined
	3 RD	compression test and vane-shear test Measurement of shear strength;- Direct shear test, triaxial shear test, unconfined
		compression test and vane-shear test
		5. Earth Pressure on Retaining Structures
	4 TH	Active earth pressure, ,
11 TH	1 ST	Passive earth pressure
	•	i assire cardi pressure



	2^{ND}	Earth pressure at rest.
	3 RD	Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge,
	4 TH	Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge,
12 TH	1 ST	Use of Rankine's formula for the following cases (cohesion-less soil only)
		(ii) backfill with uniform surcharge
	2 ND	Use of Rankine's formula for the following cases (cohesion-less soil only) (ii) backfill with uniform surcharge
		6. Foundation Engineering
	3 RD	9.1 Functions of foundations, shallow and deep foundation,
	4 TH	different type of shallow foundation with sketches.
13 TH	1 ST	different type deep foundations with sketches.
	2 ND	Types of failure (General shear, Local shear & punching shear)
	3 RD	Types of failure (General shear, Local shear & punching shear)
	4 TH	9.2 Bearing capacity of soil,
14 ^{1H}	1 ST	9.2 Bearing capacity of soil,
	2 ND	bearing capacity of soils using Terzaghi's formulae
	3 RD	bearing capacity of soils using Terzaghi's formulae
	4 TH	IS Code formulae for strip, Circular and square footings
15 TH	1 ST	IS Code formulae for strip, Circular and square footings
	2 ND	water table on bearing capacity of soil
	3 RD	9.3 Plate load test
	4 TH	standard penetration test
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Faculty signature

Civil Engineering

Principal Govt. Polytechnic Malkangiri