UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

DISCIPLINE:	SEMESTER:	NAME OF THE TEACHING FACULTY: Er.Bijayalaxmi Sahoo	
Civil Engineering	3rd Sem		
SUBJECT: Geotechnical Engineering	No of Days/Per week class allotted: **4** Class P/W**(60)**	Semester From Date:15/09/2022 To Date:22/12/2022 No. Of Weeks: **15**	
WEEK	**CLASS DAY**	**THEORY TOPICS**	**REMARKS**
1st	1st	**Introduction :**Soil and Soil Engineering	Date / Dean/Principal
	2nd	Scope of Soil Mechanics	
	3rd	Origin and formation of soil.	
	4th	Revision of last Class about soil formation	

2nd	1st	Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation.		
	2nd	Density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters.		
	3rd	**Index Properties of Soil :**Water Content & Specific Gravity.		
	4th	Revision of last few Classes about Soil index and Various Parameters of soil.		

3rd	1st	Particle size distribution: Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses.		
	2nd	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, and Liquidity Index.		
	3rd	**Classification of Soil :**General & I.S. Classification, Plasticity chart.		
	4th	Revision of last few Classes about Consistency Soil and Classification of soil.		

4th	1st	**Permeability and Seepage:** Concept of Permeability, Darcy's Law, Co-efficient of Permeability.		
	2nd	Factors affecting Permeability.		
	3rd	Constant head permeability and falling head permeability Test.		
	4th	Assignment Of Seepage and Permeability.		
	1st	Seepage pressure, effective stress, phenomenon of quick sand.		
		Compaction and Consolidation:		

	2nd	**Compaction:** Compaction, Light and heavy compaction Test, Optimum Moisture.		
5th	3rd	Content of Soil, Maximum dry density, Zero air void line, Factors affecting Compaction, Field compaction methods and their suitability.		
	4th	Revision of Last Class About Compaction and Consolidation.		
	1st	**Consolidation:** Consolidation, distinction between compaction and consolidation.		

6th	2nd	Terzaghi‘s model analogy of compression/ springs showing the process of consolidation – field implications.		
	3rd	Revision of Last Class About Terzaghi’s Model of Compression.		
	4th	**Shear Strength:** Concept of shear strength, Mohr-Coulomb failure theory, Cohesion, Angle of internal friction		

7th	1st	Strength envelope for different type of soil, Measurement of shear strength; - Direct shear test.		
	2nd	Revision of Last class		
	3rd	Triaxial shear test, unconfined compression test and vane-shear test.		
	4th	Revision of Last Classes About Compaction, Consolidation & Shear Strength.		
8th	1st	**Earth Pressure on Retaining Structures:** Active earth pressure		
	2nd	Passive earth pressure.		

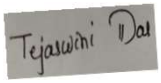
	3rd	Earth pressure at rest.		
	4th	Doubt Clearing Class and Assignment Questions Discussion.		
9th	1st	Use of Rankine's formula for the following cases (cohesion-less soil only).		
	2nd	(i) Backfill with no surcharge.		
	3rd	Revision Class About Rankine's Formulas		
	4th	Numerical based on Backfill with no surcharge.		
	1st	(ii) Backfill with uniform surcharge.		

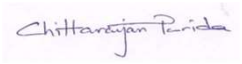
10th	2nd	Numerical based on backfill with with uniform surcharge.		
	3rd	Giving Assignment and Doubt Clearing Class.		
	4th	Overal Practice of both backfill with uniform and no Surcharge.		
11th	1st	**Foundation Engineering :**Functions of foundations		
	2nd	shallow and deep foundation (Rankine's Assumption)		
	3rd	Different type of shallow and deep foundations with sketches.		

	4th	Discussing About Last Class like Shallow and Deep Foundation.		
12th	1st	Types of failure (General shear)		
	2nd	Types of failure (Local shear)		
	3rd	Types of failure (Punching shear)		
	4th	Reminding about failure (General,Local&Punching Shear)		
13th	1st	Bearing capacity of soil		
	2nd	**Bearing capacity of soils using :**Terzaghi's formulae		
	3rd	Revision About Capacity of Soil		
	4th	Numerical Based Terzarghi's Formulae		

14th	1st	**Bearing capacity of soils using:** IS Code formulae for strip		
	2nd	Numerical Using IS Code For Strip		
	3rd	Circular and square footings		
	4th	Doubt Clearing Class About Previous Numerical.		
15th	1st	IS Code For Square and Circular Footing		
	2nd	Effect water table on bearing capacity of soil.		
	3rd	Plate load test and standard penetration test.		

	4th	Giving Assignment For Semester Exam And Previous Year Question Discussion.		





HOD **DEAN** **PRINCIPAL**