GOVT. POLYTECHNIC MAYURBHANJ
LESSON PLAN: 2020-21 (WINTER)

Discipline : CIVIL ENGG.	Semester: 3rd	Name of the Teaching Faculty : SUBHASMITA NAIK
Subject : GEOTECHNICAL ENGINEERING (TH.2)	No. of Days / per week class allotted : 04	Semester From date : 01.09.2020 To Date : 31.12.2020

MONTH	Week	Day	Unit	Topics
SEPTEMBER	1st	4th	UNIT-I	**Introduction**
		5th		Soil and Soil Engineering
	2nd	1st		Scope of Soil Mechanics
		2nd		Origin and formation of soil
		4th		**Question Discussion**
				Question Discussion
	3rd	1st	UNIT-II	**Preliminary Definitions and Relationship**
		2nd		Soil as a three Phase system.
				Water Content, Density, Specific gravity, Voids ratio, Porosity
		4th		Percentage of air voids, air content, degree of saturation, density Index, Bulk/Saturated/dry/submerged density
		5th		Interrelationship of various soil parameters
	4th	1st		**Question Discussion**
		2nd		**Question Discussion**
		4th	UNIT-III	**Index Properties of Soil**
		5th		Water Content
	5th	1st		Water Content
		2nd		Specific Gravity
		4th		Particle size distribution: Sieve analysis,wet mechanical analysis
OCTOBER	1st	5th		particle size distribution curve and its uses
	2nd	1st		Consistency of Soils, Atterberg's Limits,Plasticity Index, Consistency Index, Liquidity Index
		2nd		**Question Discussion**
				Question Discussion
		4th		**Question Discussion**
		5th		**CLASS TEST-1**
	3rd	1st	UNIT-IV	**Classification of Soil**
				General, I.S. Classification
				I.S. Classification
				Plasticity chart
	4th	1st		**Question Discussion**
		4th		**Question Discussion**
		5th		**Permeability and Seepage**
		1st		Concept of Permeability, Darcy's Law, Co-efficient of Permeability

	5th	2nd		Factors affecting Permeability
		4th		Constant head permeability
		5th	UNIT-V	falling head permeability Test
NOVEMBER	1st	1st		Seepage pressure
		2nd		effective stress, phenomenon of quick sand
		4th		flow net
		5th		**Question Discussion**
	2nd	1st		**Question Discussion**
		2nd		**Compaction and Consolidation**
		4th		**Compaction:** Compaction, Light compaction Test
		5th		heavy compaction Test, Optimum Moisture Content of Soil
	3rd	1st		Maximum dry density, Zero air void line
		2nd		Factors affecting Compaction
		4th		Field compaction methods and their suitability
			UNIT-VI	**Consolidation:** Consolidation, distinction between compaction and consolidation
	4th	1st		Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
		2nd		**Question Discussion**
		4th		**Question Discussion**
		5th		**INTERNAL ASSESSMENT**
	5th	1st		**Shear Strength**
		2nd		Concept of shear strength
				Mohr- Coulomb failure theory,Cohesion, Angle of internal friction
			UNIT-VII	strength envelope for different type of soil
DECEMBER	1st	4th		Measurement of shear strength;- Direct shear test
		5th		triaxial shear test
	2nd	1st		unconfined compression test
		2nd		vane-shear test
				Question Discussion
		4th		**Question Discussion**
		5th		**Earth Pressure on Retaining Structures**
	3rd	1st		Active earth pressure, Passive earth pressure, Earth pressure at rest.Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge
		2nd	UNIT-VIII	(ii) backfill with uniform surcharge
		4th		**Question Discussion**
		5th		**Question Discussion**
	4th	1st		**Foundation Engineering**
		2nd		Functions of foundations, shallow and deep foundation
				different type of shallow and deep foundations with sketches
		4th		Types of failure (General shear, Local shear & punching shear)
		5th	UNIT-IX	Bearing capacity of soil,bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings
		1st		Effect water table on bearing capacity of soil

5th	2nd	Plate load test, standard penetration test
	4th	Question Discussion
	5th	Question Discussion

01/09/20

Subject Expert

01/09/20

HOD
Civil Department

Academic Co-ordinator