

RKCAT POLYTECHNIC BALASOREW

LESSON PLAN: 2023-24 (WINTER)

Discipline : CIVIL ENGG.		Semester: 3rd		Name of the Teaching Faculty : SUKANTI JENA		
Subject : GEOTECHNICAL		No. of Days / per week class allotted :		Semester From date : 01.08.23 Date : 30.11.2023 To		
MONTH	Week	Day	Unit	Topics		
AUGUST	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.	
		4th	Water Content, Density, Specific gravity, Voids ratio, Porosity 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	Water Content				
		Specific Gravity				
		Particle size distribution: Sieve analysis,wet mechanical analysis				
	1st	5th		UNIT-III	particle size distribution curve and its uses Consistency of Soils, Atterberg’s Limits,Plasticity Index, Consistency Index, Liquidity Index	
		2nd			Question Discussion	
					Question Discussion	
			Question Discussion			
			5th		CLASS TEST-1	

SEPTEMBER	3rd	1st	UNIT-IV	Classification of Soil
				General, I.S. Classification
	4th	1st		I.S. Classification
		4th		Plasticity chart
		5th		Question Discussion
	5th	1st	UNIT-V	Question Discussion
		2nd		Permeability and Seepage
		4th		Concept of Permeability, Darcy's Law, Co-efficient of Permeability
		5th		Factors affecting Permeability
OCTOBER	1st	1st		Constant head permeability
		2nd		falling head permeability Test
		4th		Seepage pressure
		5th		effective stress, phenomenon of quick sand
	2nd	1st		flow net
		2nd		Question Discussion
		4th		Question Discussion
		5th		Compaction and Consolidation
	3rd	1st	UNIT-VI	Compaction: Compaction, Light compaction Test
		2nd		heavy compaction Test, Optimum Moisture Content of Soil
		4th		Maximum dry density, Zero air void line
		5th		Factors affecting Compaction
	4th	1st		Field compaction methods and their suitability
		2nd		Consolidation: Consolidation, distinction between compaction and consolidation
		4th		Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications
		5th		Question Discussion
	5th	1st		Question Discussion
		2nd		INTERNAL ASSESSMENT
		4th		Shear Strength
		5th		Concept of shear strength

NOVEMBER	5th	2nd	UNIT-VII	Mohr- Coulomb failure theory,Cohesion, Angle of internal friction
				strength envelope for different type of soil
	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	UNIT-VIII	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
		2nd		(ii) backfill with uniform surcharge
		4th		Question Discussion
		5th		Question Discussion
	4th	1st	UNIT-IX	Foundation Engineering
		2nd		Functions of foundations, shallow and deep foundation
		4th		different type of shallow and deep foundations with sketches
		5th		Types of failure (General shear, Local shear & punching shear)
	5th			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
		2nd		Plate load test, standard penetration test
		4th		Question Discussion
		5th		Question Discussion