

Decipline: Civil Engineering	Semester: 3rd	Name of the Teaching Faculty: SUBRAT KUMAR PANIGRAHI
	No of days/ per week class allotted: 4	

Subject: Geotechnical Engineering	Semester From date :01.08.2023
No. of Periods: 60	To Date: 30.08.2023
No. of Weeks: 16	

Week	Class Day	Theory/ Practical Topics
Aug-1st	1st	<b>Introduction</b> 1.1 Soil and Soil Engineering
	2nd	1.2 Scope of Soil Mechanics 1.3 Origin and formation of soil
	3rd	<b>Preliminary Definitions and Relationship</b> 2.1 Soil as a three Phase system
	4th	2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity
Aug-2nd	5th	Percentage of air voids, air content, degree of saturation
	6th	Density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters.
	7th	Solving Problems
	8th	Solving Problems
Aug-3rd	9th	PUJA HOLIDAYS
	10th	PUJA HOLIDAYS
	11th	PUJA HOLIDAYS
	12th	PUJA HOLIDAYS
Aug-4th	13th	<b>Index Properties of Soil</b> 3.1 Water Content 3.2 Specific Gravity 3.3 Particle size distribution: Sieve analysis, wet mechanical analysis,
	14th	3.4 Particle size distribution curve and its uses Consistency of Soils, Atterberg's Limits , Plasticity Index, Consistency Index, Liquidity Index.
	15th	<b>Classification of Soil</b> 4.1 General
	16th	I.S Classification, Plasticity Chart
Sep-1st	17th	I.S Classification, Plasticity Chart
	18th	Problem Solving
	19th	Solving Problems
	20th	<b>Permeability and Seepage</b> 5.1 Concept of Permeability, Darcy's Law, Co-efficient of Permeability
Sep-2nd	21st	5.2 Factors affecting Permeability.
	22th	5.3 Constant head permeability and falling head permeability Test.
	23th	Problem Solving
	24th	5.4 Seepage pressure,
Sep-3rd	25th	Effective stress, phenomenon of quick sand
	26th	Solving Problems
	27th	<b>Compaction and Consolidation</b> 6.1 Compaction: Compaction, Light and heavy compaction Test
Sep-4th	28th	Optimum Moisture Content of Soil, Maximum dry density, Zero air void line,
	29th	Factors affecting Compaction, Field compaction methods and their suitability
	30th	Problem Solving
	31st	6.2 Consolidation: Consolidation, distinction between compaction and consolidation
	32nd	Terzaghi's model analogy of compression/ springs showing the process of consolidation field implications

Oct-1st	33rd	Solving Problems
	34th	<b>INTERNAL ASSESSMENT</b>
	35th	<b>Shear Strength</b> 7.1 Concept of shear strength, Mohr- Coulomb failure theory,
	36th	Cohesion, Angle of internal friction, strength envelope for different type of soil,
Oct-2nd	37th	Measurement of shear strength;- Direct shear test, triaxial shear test,
	38th	unconfined compression test and vane-shear test
	39th	<b>INTERNAL ASSESSMENT</b>
	40th	<b>Earth Pressure on Retaining Structures</b> 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest.
Oct-3rd	41st	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge
	42nd	Problem Solving
	43rd	(ii) backfill with uniform surcharge Problem Solving
	44th	<b>Foundation Engineering</b> 9.1 Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches
Oct-4th		Puja Holidays
Nov-1st	45th	8.2 Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge
	46th	Problem Solving
	47th	(ii) backfill with uniform surcharge Problem Solving
	48th	<b>Foundation Engineering</b> 9.1 Functions of foundations, shallow and deep foundation,
Nov-2nd	49th	different type of shallow and deep foundations with sketches
	50th	9.2 Bearing capacity of soil,
	51th	Bearing capacity of soils using Terzaghi's formulae
	52th	Problem Solving
Nov-3rd	53rd	different type of shallow and deep foundations with sketches
	54th	9.2 Bearing capacity of soil,
	55th	Bearing capacity of soils using Terzaghi's formulae
	56th	Problem Solving
Nov-4th	57th	IS Code formulae for strip, Circular and square footings
	58th	Effect water table on bearing capacity of soil
	59th	Problem Solving
	60th	Plate load test and standard penetration test

*Syhm*  
31.7.23  
Lecturer

*Syhm*  
31.7.23  
HOD  
Civil Engg.

*P.S.*  
31/7/23  
Academic  
Co-ordinator

*Principa*  
31/7/23  
Principal  
GP Nabarangpur