

KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN

Session(2022-23)

Discipline : Civil Engineering	Semester: 3rd sem/winter/2022	Name of the Faculty: Mrs. Nivedita Panda (Lecturer) Email: nivedita.pandafce@kp.kiit.ac.in
Subject: Geotechnical Engineering(Th.2)	No. Of Days/Week Class Allotted:4	Start Date :14/09/22 End Date:21/01/23
Week	Class Day	Theory/Practical Topics
1st	1st	Soil and Soil Engineering
	2nd	Scope of Soil Mechanics
	3rd	Origin and formation of soil
	4th	Revision
2nd	1st	Soil as a three Phase system.
	2nd	Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation,
	3rd	density Index, Bulk/Saturated/dry/submerged density,
	4th	Interrelationship of various soil parameters
3rd	1st	Practice Questions
	2nd	Practice Questions
	3rd	Practice Questions
	4th	Revision
4th	1st	Water Content , Specific Gravity
	2nd	Sieve analysis, wet mechanical analysis
	3rd	particle size distribution curve and its uses
	4th	Consistency of Soils, Atterberg's Limits, Plasticity Index, Consistency Index, Liquidity Index
5th	1st	Practice Question
	2nd	Doubt Clarification and revision
	3rd	Classification of Soil
	4th	I.S. Classification, Plasticity chart
6th	1st	Class Test
	2nd	Test Answers Discussion
	3rd	Concept of Permeability, Darcy's Law, Co-efficient of Permeability

	4th	Factors affecting Permeability
7th	1st	Constant head permeability and falling head permeability Test.
	2nd	Practice Questions
	3rd	Seepage pressure, effective stress
	4th	phenomenon of quick sand
8th	1st	Practice Questions
	2nd	Doubt Clarification and Revision
	3rd	Compaction, Light and heavy compaction Test
	4th	Optimum Moisture Content of Soil, Maximum dry density, Zero air void line
9th	1st	Factors affecting Compaction
	2nd	Field compaction methods and their suitability
	3rd	Class test
	4th	Test Answers Discussion and revision
10th	1st	Consolidation, distinction between compaction and consolidation.
	2nd	Terzaghi's model analogy of compression/ springs showing the process of consolidation
	3rd	field implications
	4th	Revision
11th	1st	Concept of shear strength, Mohr- Coulomb failure theory
	2nd	Cohesion, Angle of internal friction, strength envelope for different type of soil
	3rd	Practice Questions
	4th	Measurement of shear strength;- Direct shear test, triaxial shear test, unconfined compression test and vane-shear test
12th	1st	Revision
	2nd	Active earth pressure, Passive earth pressure, Earth pressure at rest.
	3rd	Use of Rankine's formula for the following cases (cohesion-less soil only) (i) Backfill with no surcharge, (ii) backfill with uniform surcharge
	4th	Practice Questions
13th	1st	Revision
	2nd	Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches.

	3rd	Types of failure (General shear, Local shear & punching shear)
	4th	Bearing capacity of soil, bearing capacity of soils using Terzaghi's formulae & IS Code formulae for strip, Circular and square footings
14th	1st	Practice Questions
	2nd	Effect water table on bearing capacity of soil
	3rd	Practice Questions
	4th	Plate load test and standard penetration test
15th	1st	Previous Year Questions
	2nd	Previous Year Questions
	3rd	Previous Year Questions
	4th	Previous Year Questions