

LESSON PLAN

Discipline: Drilling Engineering			Semester: 5th semester	Name of the Teaching Faculty: Sabyasachi Biswal (PTGF)
Subject: Engineering Geology - III Sub No: Th.3			No of days /week class allotted: 04	Semester from Date: 01/08/2023 to 30/11/2023 No of weeks: 19
Month	Week	No of periods available	Class Day	Theory topics to be covered
AUGUST	1 st	04	01.08.2023	Briefing about the Syllabus Geology of Soils Introduction about soil and its formation Define soil and the various types of soils
			03.08.2023	Soil Forming process and factors <u>Types of soil</u> <ul style="list-style-type: none"> Residual soil Transported soil
			03.08.2023	Soil profile/horizons, Soil mineralogy
			04.08.2023	<u>Engineering properties of soils</u> ; Introduction, Specific gravity, particle size analysis, particle size distribution curve.
	2 nd	04P	08.08.2023	<u>Engineering properties of soils</u> ; Permeability, shear strength, cohesion, capillarity, moisture content Atterberg limits, compaction.
			10.08.2023	Groundwater Engineering What is groundwater & origin of groundwater.
			10.08.2023	Occurrence of groundwater & Hydrological cycle
			11.08.2023	<u>Vertical distribution of groundwater.</u> Zone of aeration
	3 rd	3P	17.08.2023	<u>Vertical distribution of groundwater.</u> Zone of saturation and water table.
			17.08.2023	Types of water bearing formation, Aquifer and its types.
			18.08.2023	Aquiclude, aquifuge and aquitard.
	4 th	4P	22.08.2023	Porosity and its types and factors controlling porosity.
			24.08.2023	Permeability and its types.
			24.08.2023	What is safe yield and overdraft, Impacts of overdraft on environment.
			25.08.2023	What is artificial recharge and why it is needed.
	5 th	3P	29.08.2023	Methods of artificial recharge, Direct methods; surface methods, sub-surface method.
			31.08.2023	Monthly Test-01
			31.08.2023	
SEPTEMBER	6 th	01	1.09.2023	Methods of artificial recharge, Indirect method.

7 TH	4P	05.09.2023	Engineering geology Engineering properties of rocks; Use of rocks in Engineering projects, what are the various engineering properties of rocks.
		07.09.2023	Monthly test results and discussion.
		07.09.2023	<u>Engineering properties of rocks;</u> Crushing strength, transverse strength, shear strength, Tensile strength, porosity & its types, permeability & its type.
		08.09.2023	<u>Engineering properties of rock;</u> Absorption value, density, abrasive resistance, frost & fire resistance, modulus of deformation.
	4P	11.09.2023	What is dam, terminology associated with dam.
		14.09.2023	Different types of Dams.
		14.09.2023	Criteria for selection of dam site. Reservoir and describe the criteria for selection of a Reservoir site.
		15.09.2023	Describe the geology of bridge sites. What is bridge and terminology associated with it and its type.
	3P	21.09.2023	Describe the geology of bridge sites.
		21.09.2023	Forces acting on bridge and criteria for site selection
		22.09.2023	Describe the geology of tunnel sites. What is a tunnel and its constructional features.
	3P	26.09.2023	Describe the geology of tunnel sites. Criteria for site selection.
		28.09.2023	Monthly Test-02
		28.09.2023	
11 TH	4P	03.10.2023	Formation of ore deposits What is ore, gangue, tenor & grade with example.
		05.10.2023	Introduction about different process of formation ore deposits
		05.10.2023	
		06.10.2023	<u>Magmatic concentration deposits</u> What are magmatic concentration deposits, early magmatic deposits.
	4P	10.10.2023	Revision and Doubt Clearing class
		12.10.2023	Internal Assessment/Class Test
		12.10.2023	
		13.10.2023	
	4P	17.10.2023	<u>Magmatic concentration deposits</u> late magmatic deposits.
		19.10.2023	CLASS TEST RESULTS AND DISCUSSION
		19.10.2023	<u>Hydrothermal deposits</u> Hydrothermal solutions, how these are deposited, classification based on temperature of deposition.
		20.10.2023	<u>Hydrothermal deposits</u> Classification based on mode of formation, cavity filling deposits.
	1P	31.10.2023	Replacement deposits and doubt clearing.

NOVEMBER	15 TH	3P	02.11.2023	Sedimentation process helps in formation of mineral deposits. How the sedimentation occurs and how it helps in ore formation.
			02.11.2023	
			03.11.2023	Contact metasomatism; how these processes help in ore deposits with example.
	16 TH	4P	07.11.2023	Pegmatite; what are pegmatite and how these are the store house of minerals
			09.11.2023	Oxidation and supergene enrichment process
			09.11.2023	
			10.11.2023	How the process occurs, zone of oxidation, supergene enrichment with examples.
	17 TH	4P	14.11.2023	<u>Residual and mechanical concentration deposits</u> What are residual deposits and how these are formed with example
			16.11.2023	<u>Residual and mechanical concentration deposits.</u>
			16.11.2023	How the mechanical concentration occurs,
			17.11.2023	Placers and its types. • ALLUVIAL PLACER • EOLIAN PLACER
	18 TH	4P	21.11.2023	Revision.
			23.11.2023	BEACH PLACER STREAM PLACER
			23.11.2023	Placers and its types. • ELUVIAL PLACER • RESIDUAL PLACER
			24.11.2023	COLLUVIAL PLACER
	19 TH	3P	28.11.2023	DOUBT CLEARING CLASSES.
			30.11.2023	Very Similar Test
			30.11.2023	

Sabyasachi Biswas
3/07/23
PREPARED BY
GUEST FACULTY (GEOLOGY)
OSME, KEONJHAR.

VERIFIED BY
HOD
DRILLING ENGINEERING
OSME, KEONJHAR.

31.7.23
PRINCIPAL
OSME, KEONJHAR.