

Department of Drilling Engineering

Lesson Plan

Branch: DRILLING ENGINEERING				Faculty:- Tapas Sutar	
Subject: Adv. Drill. Tech. /TH-02		No of periods: 4hrs/week		Total Period: 60 Total week: 15	
				End Sem exam:20 Internal assesment:20	
Scheduled Session: SUMMER-2022					
Week	Period	Topics			Remarks
1.0 Directional Drilling Technique & Application					
1st	1st	1.1	Define directional drilling.		
	2nd	1.2	State the purposes of directional drilling.		
	3rd	1.3	State the factors that govern planning of directional drilling project.		
	4th	1.4	Classify the directional drilling and explain in brief.		
2nd	1st	1.5	Outline the concept on built – up chart.		
	2nd	1.6	Enumerated the requirements of surface and down hole equipment for directional drilling projects.		
	3rd	1.7	State the common deflecting tools used in oil well directional drilling.		
	4th	1.8	Directional drilling terminology.		
3rd	1st	1.9	Directional drilling techniques in oil well drilling.		
	2nd & 3rd	1.10	State the basic methods of orientation of deflection tools and explain comprehensively.		
	4th	1.11	Bottom hole assemblies.		
4th	1st & 2nd	1.12	Well bore survey calculations.		
	3rd	1.13	Survey Instruments used in directional drilling.		
	4th & 1st	1.14	Derive a formula to calculate the bottom hole position of directional drilling.		
5th	2nd	1.15	Work out some problems on above.		
	3rd	1.16	State and explain the common deflecting tools used for directional drilling at diamond drill holes.		
	4th	1.17	State the factors influencing structures and nature of the formation for deviation of diamond drill hole.		
2.0 Horizontal Drilling Technology					
6th	1st	2.1	Define horizontal drilling.		
	2nd & 3rd	2.2	Advantage of horizontal drilling and field of application.		
	4th & 1st	2.3	Considerations for planning a horizontal well.		
7th	2nd	2.4	Bottom hole assemblies for horizontal drilling.		
	3rd, 4th	2.5	Measuring while drilling in horizontal drilling.		
8th	1st, 2nd	2.6	Logging while drilling in horizontal drilling.		
	3.0 Bore Hole Surveying				
8th	3rd	3.1	State the necessity of bore hole surveying.		
	4th	3.2	State the various causes of deviation of bore holes.		
9th	1st, 2nd	3.3	State the factors that increase or decrease the deviation of bore hole.		
	3rd, 4th	3.4	Explain the methods of controlling deviations of bore holes.		
10th	1st, 2nd	3.4.1	State the general classes of instruments used for surveying bore holes.		
	3rd	3.5	Explain the methods of testing inclination of bore holes by		
	4th	3.5.1	Hydrofluoric acid method.		
11th	1st	3.5.2	Mass compass.		
	2nd	3.5.3	Gyroscopic clinograph.		
	4.0 Rotary Drills with Down Hole Motors				
11th	3rd	4.1	Compare the result of Turbo drill with conventional rotary system.		
	4th	4.2	Explain the merits and demerits of Turbo drilling over Rotary method.		
12th	1st	4.3	Specify the main operating characteristics of a give Turbo Drill.		
	2nd	4.4	State the different basic drilling mechanism of down hole motors.		
	3rd	4.5	Give a concept on Dyna drill.		
	4th	4.5.1	Explain how to achieve the require amount of hole deviation with dyna drill		


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13th	1st		4.5.2	State the special field of application of dyna drills.	
	2nd	4.6		State the main differences between various turbo drills.	
	3rd	4.7		Explain the working principle of down hole motor with hydro dynamic characteristics.	
	4th	4.8		Explain the working principle of positive displacement motor drill.	
14th	1st	4.9		Explain of structure of down the hole Electro motor drill.	
	2nd	4.10		Classify the types of Turbo drills according to their design features.	
	3rd		4.10.1	Explain the performance characteristics of turbo drill.	
	4th		4.10.2	Derive the formula for power output of turbo drill	

NOTES:-


Lecturer (Drilling)
O.S.M.E., Keonjhar


Senior Lecturer (Drilling)
OSME, Keonjhar