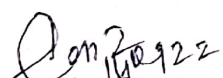


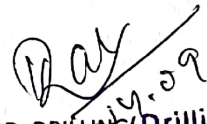
LESSON PLAN (WINTER-2022), DRILLING MACHINERY-II

Branch: DRILLING ENGINEERING					Faculty:- Tapas Sutar				
Subject: Drilling Machinery-II (TH-03)			No of periods: 4hrs/week		Total Period: 60 week: 15		Total	End Sem exam: 80 Internal assesment: 20	
Scheduled Session: From 15.09.2022 to 22.12.2022									
Month	Week	Date	Period	Topics to be covered					Remarks
September	3rd	16.09.22	2P	1.0 Oil Well Drill Rig					
				1.1	Give a brief description about different oil well drill rigs used in both offshore and onshore.				
	4th	19.09.22	2P	1.2	Systems used in oil well drill rig. (Power generating & transmitting, Rotating and Feeding, Hoisting, Tubing, Circulating, Well head, Fishing etc.)				
				2.0 Power Generating & Transmitting System					
				2.1	Explain the sources of power supply for oil well drill along with comparison between them				
	23.09.22	2P	2.2	Calculate power requirement of power plant for oil well drill rig					
			2.3	Explain the type of drives for power transmission in oil well drilling					
	5th	26.09.22	2P	3.0 Rotating & Feeding Mechanism					
				3.1	Explain requirement rotating & feeding mechanisms in oil well drill rig				
				3.2	State components in rotating & feeding system				
				3.3	Explain the different systems of transmission of power to rotary table of oil well drill.				
				3.4	Explain rotating and feeding mechanism in top drive system				
3.5				Explain different components in top drive system.					
October	2nd	10.10.22	2P	3.6	Enumerate different feeding mechanism and explain such.				
				4.0 Hoisting Mechanism					
	14.10.22	2P	4.1	Requirement of hoisting mechanism and Components in such (Derrick, Mast, Substructure, Hoisting line, Draw work, Travelling block, Swivel, Weight Indicator etc.)					
			4.2	Different types of Derrick & Mast along with field of application					
	17.10.22	2P	4.3	Factors consideration in designing derrick & derrick load calculation					
			4.4	Calculate the mechanical advantages of block & tackle system.					
	21.10.22	2P	4.5	Hoisting power calculation.					
			4.6	Components of draw work (Hoisting drum, cathead, clutch & break along with types)					
	4th	28.10.22	2P	5.1	State the components of rotary drill string and explain their functions.				
				5.2	Tubings				
				5.2.1	Kelly, Drill pipe, Drill collar, Drill string auxiliaries along with types & functions.				
				5.2.2	Reason of drill pipe failure.				
5th	31.10.22	2P	5.2.3	Drill string design.					
			5.3 Bits						
November	1st	04.11.22	2P	5.3.1	State the different types of bits used in oil well drilling.				
				5.3.2	Bit design features.				
	07.11.22	2P	5.3.3	Possible causes of bit dullness & remedies					
			5.3.4	Bit selection methods					
	2nd	11.11.22	2P	6.0 Casing & Well Head Fittings					
				6.1	Casing				
				6.1.1	State the different casing used in oil well drilling & their functions.				
	3rd	14.11.22	2P	6.1.2	Explain the different designs of well casings.				
				6.1.3	Give the specifications of different casings.				
				6.1.4	Enumerate the casing appliances used.				
	18.11.22	2P	6.1.5	Explain factors influence casing design & design criteria of casing.					

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			6.2	Well head fittings.		
4th	21.11.22	2P		6.2.1	Explain the procedure of installation of wellhead fittings & function of wellhead fittings.	
	25.11.22	2P		6.2.2	State the different types of B.O.P. and explain the mechanism involved.	
				6.2.3	State the function of B.O.P.	
	5th	28.11.22	2P		6.2.4	Control mechanism of B.O.P.
				6.2.5	Operational procedure of B.O.P.	
		7.0 Circulating system				
December	1st	2.12.22	2P	7.1	Equipments used in Circulating system	
				7.2	Classify the different types of pumps used in oil fields.	
	2nd	05.12.22	2P	7.3	Derive the formula for fluid pumping rate (GPM/Volume) of a duplex double action pump operating at 100% volume efficiency.	
				7.4	Derive the formula for hydraulic H.P. of pump.	
	2nd	09.12.22	2P	7.5	Derive the formula for the horsepower available for speedy digging of hole due to mud jetting action of bit.	
				7.6	Work out some problems on size of pumps for lifting of drill cuttings efficiently.	
	3rd	12.12.22	2P	7.7	Explain the steps to be taken against cavity and water hammer of reciprocating pump.	
				8.0 Fishing		
		16.12.22	2P	8.1	Define Fish & Fishing.	
	8.2			Describe the probable causes of fishing in oil wells.		
	8.3			Enumerate the fishing tools used in oil well drilling.		
	4th	19.12.22	2P	8.4	Derive the formula of calculating the depth of a fish.	
				8.5	Explain the various techniques to be adopted for fishing operation.	


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