Discipline: **Drilling Engineering**	Semester: **6th Semester**	Name of the Teaching Faculty: **Er. Brushabhanu Sahoo**	
Subject(Theory): **OIL WELL DRILLING** Subject Code: **TH4**	No. of Periods /week: **04**	Session: **Summer 2022** No of weeks:**15**	
Week	Class Day	Theory Topics	Remarks
1st	1st	Introduction to oil well drilling and well planning. Function of oil or gas well.	
	2nd	Objectives of well planning.	
	3rd	Flow path for well planning.	
	4th	Activities before start of drilling operation. Input data for well planning.	
2nd	1st	Geo-Technical Order and drilling program preparation.	
	2nd	Important stages of construction and completion of oil wells.	
	3rd	Considerations involved in developing the drilling program.	
	4th	Salient features for preparation of oil well planning.	
3rd	1st	Preliminary arrangements at oil well drill site.	
	2nd	Preliminary arrangements at oil well drill site.	
	3rd	Explain the procedure of management technique to maintain camp, office, store, transport and communication.	
	4th	Explain the procedure of management technique to maintain camp, office, store, transport and communication.	
4th	1st	Camp equipment required for establishment of drilling personnel.	
	2nd	Camp equipment required for establishment of drilling personnel.	
	3rd	Definition of core. State the general coring methods and equipment used in oil well drilling. Geological data from conventional cores.	
	4th	Coring operation with conventional core barrel.	
5th	1st	Wire line coring. Explain core bits for core sampling.	
	2nd	Advanced conventional coring tools.	
	3rd	Side wall coring. Geological data from side wall coring. Advantages and limitations of side wall coring.	
	4th	Coring operation with side wall coring device.	
6th	1st	Handling and sampling of core recovery.	
	2nd	Routine core analysis and bulk volume determination.	
	3rd	Definition of logging.	
	4th	Purpose of well log.	
7th	1st	Explain conventional logging methods such as drillers log, cutting log, time log and mud log.	
	2nd	Explain sample logs and mud logging.	
	3rd	Basic principle of electric logging.	
	4th	Explain self potential logging.	
8th	1st	Explain single point resistance logging.	
	2nd	Explain resistivity logging.	
	3rd	Explain natural gamma ray logging and neutron logging.	
	4th	Explain caliper logging.	
9th	1st	Define drill stem testing.	

		Purpose of drill stem testing.	
	2nd	Equipments for drill stem test.	
	3rd	Basic test tool assembly.	
	4th	General procedure of drill stem testing.	
10th	1st	General consideration in drill stem test.	
	2nd	Explain straddle packer test and cone packer test.	
	3rd	Explain wall over cone packer test and testing through perforations in the casing.	
	4th	Test tool components and arrangement.	
11th	1st	Analysis of test data.	
	2nd	Estimation of formation productivity	
	3rd	Classification of the major categories of well completion.	
	4th	State the field of application of open hole completion.	
12th	1st	Describe the methods of completion of open hole.	
	2nd	State the field of application of conventional perforated method of well completion.	
	3rd	Explain the various conventional casing perforated completion method of well activation.	
	4th	Describe the process of Bullet perforating and Jet perforating.	
13th	1st	Compare and contrast Bullet perforating and Jet perforating methods of oil well development for penetration of multiple casing stings.	
	2nd	Advantages of bullet perforation and jet perforation.	
	3rd	Principal factors to be considered for perforated completions.	
	4th	Problems occurred during production if sand will not be checked.	
14th	1st	Common methods employed for excluding sand and explain the technologies.	
	2nd	State the primary advantages, technology and operational principle permanent completion.	
	3rd	Factors to be considered for economical production and exploration of petroleum.	
	4th	Factors to be considered for economical production and exploration of petroleum.	
15th	1st	Factors to be considered for economical production and exploration of petroleum.	
	2nd	Silent features for reducing drill cost.	
	3rd	Silent features for reducing drill cost.	
	4th	Silent features for reducing drill cost.	

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