

Discipline: Drilling Engineering	Semester: 5th Semester	Name of the Teaching Faculty: Er. Brushabhanu Sahoo, Lecturer Stage-I	
Subject(Theory): PETROLEUM ENGINEERING Subject Code: DEPC301	No. of Periods /week: 03	Session: 2026-27 (Winter 2026) No. of weeks: 15 Semester from date 01.07.2026 to 05.11.2026	
Week	Class Day	Theory Topics	Remarks
1 st	1 st	Introduction to petroleum exploration and Indian energy scenario.	
	2 nd	Energy security and global energy balance.	
	3 rd	Classification of petroleum and petroleum products.	
2 nd	1 st	Classification of petroleum and petroleum products.	
	2 nd	Organization of oil field and oil companies.	
	3 rd	Layout of oil and gas fields.	
3 rd	1 st	Basics of reservoir Fluid properties- Crude oil properties.	
	2 nd	Basics of reservoir Fluid properties- Crude oil properties.	
	3 rd	Basics of reservoir Fluid properties- Natural gas properties.	
4 th	1 st	Basics of reservoir Fluid properties- Water properties.	
	2 nd	Flow of Fluids through Porous Media.	
	3 rd	Flow of Fluids through Porous Media.	
5 th	1 st	Basics of Petroleum Exploration- Geological Methods.	
	2 nd	Basics of Petroleum Exploration- Geochemical Methods.	
	3 rd	Basics of Petroleum Exploration- Geophysical Methods.	
6 th	1 st	Basics of Petroleum Exploration- Geophysical Methods.	
	2 nd	Basics of Petroleum Exploration- Gravity Method.	
	3 rd	Basics of Petroleum Exploration- Seismic Methods.	
7 th	1 st	Basics of reservoir rock properties-Porosity & Permeability: Types & Determination.	
	2 nd	Basics of reservoir rock properties-Porosity & Permeability: Types & Determination.	
	3 rd	Permeability in Series & parallel combination of beds Fluid saturation, Wettability, Surface and interfacial tension, Capillary Pressure.	
8 th	1 st	Permeability in Series & parallel combination of beds Fluid saturation, Wettability, Surface and interfacial tension, Capillary Pressure.	
	2 nd	Permeability- Klinkenberg effect, averaging absolute permeabilities, Rock compressibility, net pay thickness, reservoir heterogeneity.	
	3 rd	Permeability- Klinkenberg effect, averaging absolute permeabilities, Rock compressibility, net pay thickness, reservoir heterogeneity.	
9 th	1 st	Basics of petroleum production operation-Basics of drilling systems of oil and gas wells.	
	2 nd	Basics of petroleum production operation- Basics of drilling systems of oil and gas wells.	
	3 rd	Well equipment- Surface Production Equipment.	
10 th	1 st	Well equipment- Surface Production Equipment.	
	2 nd	Well equipment- Subsurface Production Equipment.	
	3 rd	Well equipment- Subsurface Production Equipment.	
11 th	1 st	Introduction to Well Completion types, planning, design, equipment and fluids etc.	
	2 nd	Introduction to Well Completion types, planning, design, equipment and fluids etc.	
	3 rd	Well Activation-methods.	
12 th	1 st	Well Activation-methods.	
	2 nd	Workover rigs: Types & selection, Work over & Completion, Fluids.	
	3 rd	Workover rigs: Types & selection, Work over & Completion, Fluids.	
13 th	1 st	Gathering and collection of oil and gas-layout and safety features.	

	2 nd	Gathering and collection of oil and gas-layout and safety features.	
	3 rd	Storage of Petroleum and Petroleum Products-API and ASTM codes, Metering and Measurements.	
14 th	1 st	Storage of Petroleum and Petroleum Products-API and ASTM codes, Metering and Measurements.	
	2 nd	Storage of Petroleum and Petroleum Products-API and ASTM codes, Metering and Measurements.	
	3 rd	Alternate energy sources and application of advanced technology.	
15 th	1 st	Alternate energy sources and application of advanced technology.	
	2 nd	Digital oil field, Satellite oil fields and SCADA systems.	
	3 rd	Digital oil field, Satellite oil fields and SCADA systems.	

Signature
25/06/20
Lecturer (Stage-I)
Drilling Engineering
O.S.M.E., Keonjhar

Signature
25.6.20
I/C Head of the Department
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