

19PEM113					Geology for Reservoir Description					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	0	0	3	3	25	50	25	-	-	100

COURSE OBJECTIVES

- Demonstrate the concepts of Geoscience.
- Develop skills to predict lithology of Hydrocarbon bearing reservoirs.
- Develop Skills to identify and evaluate reservoir geology, its lithology, structure, Petrophysics etc.
- Imbibe and integrate the geological knowledge for reservoir description.

Unit-1:

TOTAL-- 8 Hrs.

Introduction to Geology for Reservoir description, Reservoir rocks and minerals: Identification and classification; Rock forming processes, Plate Tectonics and Basin formation, Structural aspect of basins and its stress patterns.

Unit-2:

TOTAL-- 12 Hrs.

Reservoir sedimentology, Sediment fabric and texture (Grain size and shape analysis), development of porosity and permeability in sedimentary rocks, Petrophysical properties of rocks (porosity, permeability). Reservoir geometry and sedimentology of rocks deposited in various Depositional environments (Continental, Marine, Evaporates).

Unit-3

TOTAL-- 8 Hrs.

Different types of reservoirs and their properties: sandstone reservoirs, carbonate reservoirs, evaporate reservoirs, shale reservoirs, unconventional reservoirs and basement reservoirs.

Unit-4

TOTAL-- 12Hrs.

Concept of Petroleum System, Proliferous basins of India, Petroleum system of selected basins of India and globe, Reservoir description of Important oilfields of India: (Bombay High –Carbonate, offshore) and Assam (Clastic-onshore), Reservoir description of Important oilfields of World selected examples: Carbonate reservoir-Ghawar, Saudi Arabia; and Clastic reservoirs-North Sea.

TEXT / REFERENCE BOOKS

1. Levenson, A. I., Geology of Petroleum, 2^{ed}
2. Selley, R., 1985, Elements of petroleum Geology
3. Yu, X., Li, S and Li, S., 2018 Clastic Hydrocarbon Reservoir Sedimentology
4. Zou et al, 2013 Volcanic reservoirs in Petroleum exploration
5. Morton-Thompson and Woods, 1992, Development geology reference manual, AAPG methods in Exploration