

17MPE114 : Petroleum Formation Evaluation

Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	1	0	4	4	25	50	25	-	-	100

Unit-1: Hours: 9

Fundamentals

Formation evaluation basics, Borehole environment, Invasion, Log acquisition, representation of log data on different tracks, Basic working principle of various logging tools, Coring and Core analysis, data collected on Mud logs. Temperature logs, Closed hole environment

Unit 2 : Hours:12

Routine Logging

Lithology logs (SP, Caliper, and Gamma); Porosity Logs (Density, neutron and Sonic), Resistivity, Induction logs. Quick look analysis :-Overlay, (Logarithmic movable oil plot, Neutron density, density sonic, dielectric-porosity overlay) Cross Plots (Trend analysis and Grouping, Extrapolation, frequency plots, Z Plots. Sandy shale interpretation Fracture detection, Porosity from Resistivity

Unit 3 : Hours : 10

Special Logging Technique

Nuclear magnetic resonance logging, Dip meter, image logging, gyroscopic log, geochemical log, vertical seismic profiling, Cement bond log, variable density log, Logging while drilling and Measurement while drilling, Production Logging

Unit 4: Hours : 8

Integrating and Interpreting data

Synthetic seismogram preparation using seismic and well log, dual mineral interpretation, multi mineral interpretation, static model interpretation using well log and seismic, reservoir property evaluation for reserve estimation (gross sand, net sand, gross pay and net pay), R_w calculation and use of the same in S_w , Understanding S_w and S_{wi} and its effect in reserve estimation, thin resistive sand interpretation in facies classification and reservoir property evaluation

Total Hrs -39

Texts and References:

1. Malcom Rider, Second Edition, 2002: The Geological Interpretation of well logs, Rider-French Consulting limited
2. Oeberto Serra & Lorenzo Serra, 2004 : Well logging - data acquisition and applications, Edition Serralog, France