

20PEB330E					Seismic Sequence Stratigraphy					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
2	0	0	2	2	25	50	25	-	-	100

COURSE OBJECTIVES

- To define the genetic reflection packages by the surfaces that envelope seismic sequences and systems tracts.
- To recognize geological information embedded and concepts of Sequence Stratigraphy and Interpret Seismic data and observations, and fitting them to a larger context of Hydrocarbon Exploration

UNIT 1 Methods of sequence stratigraphic analysis**6 Hrs.**

Facies analysis using outcrops, core and model analogues; Well Logs; Seismic data's and age determination techniques, System Tracts; High stand system tract, Falling- stage system tract, Low stand system tract, Transgressive system tract, Regressive systems tracts.

UNIT 2 Sequence Models**6 Hrs.**

Types of stratigraphic sequences, sequences in fluvial systems, sequences to coastal to shallow water Clastic systems, sequences in deep water Clastic systems

UNIT 3 Seismic attributes in understanding sequences**8 Hrs.**

Horizon and Formation attributes (Time derived attributes, coherence, Post stack amplitude attribute, Frequency derived attributes, Spectral attributes), Visualization of Horizon attributes.

UNIT 4 Depth Conversion of Sequence attributes**6 Hrs.**

Sources and computation of velocities, general consideration in depth conversion, depth conversion using single velocity function, depth conversion using mapped velocity function

Max. 26 Hrs.**COURSE OUTCOMES**

On completion of the course, student will be able to

- CO1: Able to apply fundamentals of Geophysical techniques to recognize geological information embedded within seismic
- CO2: Able to reconstruct and interpret chronostratigraphic charts, sea level curves, and seismic facies maps.
- CO3: Apply knowledge of sedimentary depositional system/Sequence Stratigraphy for predicting reservoir architecture and seal potential of the basin.
- CO4: Able to interpret clastic and carbonate depositional system processes and its affect upon reservoir architecture and seal potential for hydrocarbon exploration.
- CO5: Application of key terms and concepts of Sequence Stratigraphy and Interpret Seismic data and observations, and fitting them to a larger context of Hydrocarbon Exploration
- CO6: Systematically reconstruct basinal geohistory for its petroleum system analysis and effective hydrocarbon exploration.

TEXT/REFERENCE BOOKS

1. Principles of Sequence Stratigraphy, By- O. Catuneanu
2. Interpretation of Three- dimensional seismic Data- Sixth Edition, By Alistair R. Brown

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100**

Part A/Question: <Short Notes, Problems, Numerical>

Part B/Question: <Justification, Criticism, Long answers, Interpretation >

Exam Duration: 3 Hrs

<5-7 > Marks (each)

<8-10> Marks (each)