

Course Type	Course Code	Name of Course	L	T	P	Credit
DP (Hons)	NGLH304	Petroleum Geology Practical	0	0	3	1.5

(Practical)

Course Objective			
The objective of the course is about basic principles and applications of petroleum geology with special emphasis to industry needs			
Learning Outcomes			
The primary objective of the course is			
<ul style="list-style-type: none"> • Students will demarcate various types of hydrocarbon traps through practical exercises • They will also learn to interpret Rock Eval pyrolysis data • They will learn Kerogen/ organic rich shale samples by using TC-TOC, CHNS, FTIR spectroscopy analyser • They will learn the use the Petrel software • Calculation of hydrocarbon reserves 			
Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Preparation of structure contour and isopach maps of reservoir facies and drawing oil/water contact from borehole data.	1	Identify and delineate various types of structures in order to locate suitable hydrocarbon prospective zones from maps and bore hole data.
2	Interpretation of geologic structures from surface geological maps and borehole data	1	Identify and delineate various types of structures in order to locate suitable hydrocarbon prospective zones from maps and bore hole data.
3	Demarcation of stratigraphic hydrocarbon traps via lateral facies variation exercises.	1	To learn how traps are created without involvement of
4	Source rock evaluation by using van-krevelen diagram	1	Van-krevelen diagram is very important for understanding evolution of kerogen to hydrocarbon
5	Interpretation of Rock Eval pyrolysis data for study of geochemical methods of hydrocarbon exploration	2	Analysis and interpretation of rock eval pyrolysis data for hydrocarbon exploration.
6	Analysis of Kerogen/ organic rich shale samples by DST-FIST sponsored equipment TC-TOC, CHNS and FTIR spectroscopy analyser and the resulting data interpretation.	2	Students will get an exposure to experimental set up of instruments used in oil industries for source rock evaluation.
6	Construction of fence diagrams with special reference to hydrocarbon trap delineation.	2	To learn drawing fence diagrams
7	Introduction to Petrel software and exercises related to hydrocarbon exploration as per industry requirements	2	Students will get an exposure to such advanced software used in oil industries for hydrocarbon exploration.
7	Hydrocarbon Reserve Estimation exercises	1	Learning how to estimate HC reserves
8	Practical examination	1	
	Total	14	

Recommended Books:

1. Tissot, B. P., and Welte, D. H., 1984, Petroleum Formation and Occurrence. Springer-Verlag, Germany, Edition : 2nd Revised enlarged.
2. North F. K., 1985. Petroleum Geology. Allen & Unwin Inc., London. 1st Edition

Other References:

1. Bastia Rabi, 2024. Atlas, A ready reckoner for decoding the hydrocarbon traps. Technology Publications, India. 1st edition.
2. Selley, R. C., 1998. Elements of Petroleum Geology. Academic Press, USA. 2nd edition.
3. Slatt, R. M., 2006. Stratigraphic Reservoir Characterization for Petroleum Geologists, Geophysicists, and Engineers. Elsevier, Hungary. 1st Edition.
4. Mishra S, Banerjee, S. Petroleum Systems, 2026. Analysis of Indian Sedimentary Basins; Understanding Hydrocarbon Prospectivity. Springer Geology. 414p