

PRPC3003 PETROLEUM EXPLORATION & EXPLOITATION (3-0-0)

Course Objectives:

To familiarize the students with all aspects of petroleum, distribution and geological, geophysical and geochemical methods for locating hydrocarbon deposits.

Module-I (12 Hours)

Origin of oil – Important factors that control petroleum occurrence – Migration and accumulation – Source and reservoir rocks – Oil bearing rocks – Continental environment – Transitional environment – Marine environment.

Module-II (10 Hours)

Geological exploration methods – Geophysical exploration methods – Geochemical methods prognostication – Classification of drilling locations – Economic analysis – Well programme – Geotechnical order.

Module-III (08 Hours)

Various traps – Anticline – Fracturing – Well logging – Geological control – Gas logging – Drilling control important formation evaluation using wireline logging data.

Module-IV (08 Hours)

Drilling Fluids: Function, composition, and classification – Packer fluid – Casing packs – Solids removal – Completion methods – Various stimulation methods, Seismic technology – Sniffer survey – Drilling technology – Off-share rigs – Primary and secondary enhanced oil recovery techniques and methods – Major well complication and Remedies.

Course Outcomes:

Students will be able to

- CO1: Define the Hydrocarbons, origin, migration and concentration
- CO2: Describe about the Geological Methods
- CO3: Classify the Geophysical Methods, Data acquisition, processing and interpretation
- CO4: Explain about the Geochemistry of petroleum, paraffins, napthenes, aromatics
- CO5: Study the Integration and interpretation of geoscientific data
- CO6: Study about geological, geophysical and geochemical exploration methods.

Text Books

1. Bhagwan Sahay "Petroleum Exploration and Exploitation Practices" Allied Publishers Ltd., Chennai, 1994.
2. Richard Dawe, "Modern Petroleum Technology", Vol.I, Upstream, 6th Edition, John and Wiley Sons Ltd, 2000.

References

1. Howard B. Bradley, "Petroleum Engineering Handbook", Society of Petroleum Engineers, 1987.
2. Norman J. Hyne., "Nontechnical Guide to Petroleum Geology, Exploration, Drilling and Production", 2nd Edition, Pennwell Books, 2001.
3. Shay B., "Wellsite Geological Techniques for Petroleum Exploration" Allied Publishers Ltd., 1991.