

# AMDE10 FUNDAMENTALS OF PETROLEUM GEOLOGY

## UNIT-1 INTRODUCTION TO EARTH SCIENCE

- 1.1 Origin of earth.
- 1.2 Sedimentation and sedimentary environment.
- 1.3 Introduction of plate tectonics.
- 1.4 Nature and properties of minerals and rocks.
- 1.5 Stratigraphy and geological time scale.

## UNIT-2 SEDIMENTOLOGY OF PETROLEUM BEARING SEQUENCES

- 2.1 Sedimentary basins.
- 2.2 Generation and Migration of Petroleum.
- 2.3 Physical and Chemical properties of Petroleum.

## UNIT-3 SUBSURFACE ENVIRONMENT

- 3.1 Formation fluids- Composition, temperature, pressure and dynamics.
- 3.2 Traps and Seals.
- 3.3 The Reservoir.
- 3.4 Generation and Migration and Distribution.

## UNIT-4 EXPLORATION METHODS

- 4.1 Well drilling.
- 4.2 Formation Evaluation.
- 4.3 Geophysical.
- 4.4 Borehole Seismic and 4D Seismic.
- 4.5 Subsurface geology.

## UNIT-5 NON CONVENTIONAL PETROLEUM RESOURCES AND RESERVE ESTIMATION

- 5.1 Plastic and solid hydrocarbons.
- 5.2 Tar sands.
- 5.3 Oil and gas shales.
- 5.4 Coal bed methane.
- 5.5 Assessment of reserves.

### References Books:

1. Boggs, S., "Principles of Sedimentology and Stratigraphy", second edition, Merrill Publishing Co., Toronto, 1995.
2. Krumblein, W.C. and Sloss, L.L., "Stratigraphy and Sedimentation", second edition W.H. Freeman and Co., 1963.