

AMPE09 RESERVOIR ROCKS AND FLUID PROPERTIES

UNIT-1 THE EARTH, CRUST, PLATE TECTONICS AND GEOLOGIC TIMES.

- 1.1 Sedimentary geology, Basins and Margins.
- 1.2 Origin, accumulation and migration of petroleum.
- 1.3 Properties of subsurface fluids.
- 1.4 Petroleum Chemistry.

UNIT-2 POROSITY AND PERMEABILITY RELATIONSHIP

- 2.1 Porosity. Permeability. Porosity – Permeability relationship.
- 2.2 Electrical properties of rocks. Measurement of formation resistivity.
- 2.3 Correlation of FR with porosity, permeability and water saturation.
- 2.4 FR of Shaley Reservoir rocks.
- 2.5 Effect of stree on porous rocks. Formation evaluation.

UNIT-3 CAPILLARY PRESSURE AND WELLABILITY

- 3.1 Fluid Satuaration and Capacity pressure.
- 3.2 Determination of capillary pressure.
- 3.3 Pore size distribution.
- 3.4 Wettability. Evaluation of wettability and its effect on oil recovery.
- 3.5 Alteration of wettability.
- 3.6 Effect of wettability on electrical properties of rocks.

UNIT-4 LINEAR FLOW OF INCOMPRESSIBLE FLUIDS

- 4.1 Darcy's Law. Linear flow of gas.
- 4.2 Darcy's and Poiseuille's laws. Various flow systems.
- 4.3 Multiple permeability rocks.

UNIT-5 RESERVOIR FLUID PROPERTIES

- 5.1 Phase behaviour of hydrocarbon system.
- 5.2 Fluid rock interactions.
- 5.3 Reservoir fluid characteristics.
- 5.4 PVT analysis.
- 5.5 Flash liberation and differential liberation study.

References Books:

1. Amyx, J.W., Bass D.M. & Whiting., R.L., "Petroleum Reservoir Engineering" McGraw Hill 1998.