

AMPE20 PETROLEUM PRODUCTION ENGINEERING

UNIT-1 COMPONENTS OF THE PETROLEUM SYSTEMS.

- 1.1 Well productivity engineering.
- 1.2 Production from under saturated oil reservoirs. Production from two-phase reservoirs.
- 1.3 Production from gas reservoirs.
- 1.4 Pseudo critical properties of natural gases.
- 1.5 Gas well deliverability for non – Darcy flow.

UNIT-2 THE NEAR-WELL BORE CONDITION AND DAMAGE CHARACTERIZATION

- 2.1 The effect of perforation conditions on well performance.
- 2.2 Well bore flow performance. Well deliverability.
- 2.3 Well head surface gathering systems.
- 2.4 Artificial lift systems. Horizontal well production.
- 2.5 System analysis. Production Chemistry Basics (Wax, Scale, Corrosion, Emulsions).

UNIT-3 SURFACE EQUIPMENT AND OPERATIONS.

- 3.1 Flow control and well heads.
- 3.2 Gathering systems; service and cleaning systems; design and testing of flow lines.
- 3.3 Separation and separators; separator components, stage separation; design and construction of separators.
- 3.4 Meeting- Oil and gas metering techniques.

UNIT-4 FLOW MEASUREMENT SYSTEM

- 4.1 Liquid level controllers. Emulsion problems; oil emulsions; emulsifying agents and de-emulsifiers, choice and dosage of de-emulsifiers,
- 4.2 Heat treatment, heat treaters, desalting, oil storage and tank farms.
- 4.3 Gauging, sampling and quality control.
- 4.4 Underground storage – caverns etc. Water disposal, corrosion.
- 4.5 Water injection systems. Subsurface equipment.

UNIT-5 WELL COMPLETION TECHNIQUES AND EQUIPMENT

- 5.1 Drill stem test (DST) flowing well performance, vertical lift performance, optimum size tubing and chokes, production forecast for a pool.
- 5.2 Design and analysis of artificial methods of petroleum production.
- 5.3 Work over and sand exclusion technique.

References Book:

1. T.O.allen and A.P.Roberts. “Production operations” –SPE - Vol-I 4-th edition.