

PE5040 Surface Facilities for Oil and Gas Handling

Course Content:

Two and Three Phase Separators, Emulsion Treatment theory and Practice, Emulsifiers & Demulsifiers, Coalescence, Coalescing Media, Electrostatic Coalescers. Natural Gas Dehydration, Glycol Process: Effect of Variables, Natural Gas Sweetening: Effect of Variables. Evaporative Emissions, Storage Tanks, Strategic Storage. • Mechanism of Heat Transfer, Process Heat Duty, Sensible Heat of Natural Gas, Water, Heat Transfer from a Fire-Tube, Heat Exchangers- Types, Sizing, Number of Tubes. • Pressure Vessel Design, Wall Thickness and Stress, Corrosion allowance. Pressure Relief and Safety System, Valves, Fittings and Piping's. Material Considerations. • Natural Gas Handling Compressors- Reciprocating, Centrifugal and Other Types. Surge Control, Process Parameters, Compressor Selection Calculations. Pumps on the Surface Facilities, Selections. • Prime Movers: internal Combustion Engines, Fuel, Gas Turbine Engines, Construction and Mechanism of the Engines, Pollutions

Text Books:

1. **Maurice Stewart, Ken arnold**, Surface Production Operations (Vol I & II), Gulf Professional Publishing.2007.
2. **Maurice Stewart**, Surface Production Operations (Vol III & IV), Gulf Professional Publishing. 2018.

Reference Books:

1. **William C. Lyons, Gary J Plisga, BS**, Standard Handbook of Petroleum and Natural Gas Engineering, Gulf Professional Publishing.2004, Book ISBN: 978-0750677851
2. **Larry W. Lake**, Petroleum Engineering Handbook, Editor-In-Chief, SPE Publication, Vol-III, 2007.
3. **A P.Szilas**, Production and Transportation of Oil and Gas, Part B, Elsevier, 1986.

Prerequisite:

NIL