Course Description

The course is designed to familiarize technical professionals with the design and operation & maintenance of several common gas plant processing blocks. Provide details explanation on dehydration systems used in typical field gathering and plant facilities, including a review of options available. And will focus on mechanical propane refrigeration systems typically used in Hydrocarbon Dew Point and NGL, LPG and LNG Recovery systems, including a review of design and performance enhancements. Also will focus on tower operations and troubleshooting used in absorption and fractionation services, with optimization and key performance indicators discussed for each tower in each application.

Course Objectives

- To determine the water content of feed & product natural gas
- The problems and dangers of hydrate formation
- Effective methods of hydrate inhibition
- Principles and operational elements of TEG gas dehydration
- Principles and operational elements of Mole Sieve gas dehydration
- Principle and operation element of Mechanical Refrigeration
- Principle and operation element of fractionation process

Who Should Attend?

- Technologists,
- Process engineers
- Mechanical engineers,
- Inspection engineers
- Maintenance or project engineers.
- Operations personnel (operators & supervisors)

Program Schedule

DAY 1

- Water content of natural gas
Hydrate formation, hazard, prevention and handling
Types of dehydration processes: absorption, adsorption and condensation
Dew point & Dew point depression

DAY 2

- Glycol dehydration size
- Mass transfer operations: absorption and stripping, trays vs. packing
- TEG equipment: gas scrubbers, glycol contactors, flash tank, filters, lean/rich heat exchanger, regenerator, stripping gas
- Operating procedures and problems for TEG systems: startup and shutdown, normal operations, glycol losses, corrosion, troubleshooting
- Care of the TEG solution

DAY 3

- Mole sieve gas dehydration
- Adsorbers and desiccants
- Mass transfer zone
- Regeneration system
- Operation and adsorbent life
- Mole Sieve operating problems and troubleshooting
- Mole Sieve loading & unloading procedures

DAY 4

- Refrigeration circuit basic design/operation
- Capacity control
- Refrigeration equipment: surge drum, expansion valve, chiller, compressor and condenser
- Operation troubleshooting and optimization

DAY 5

- Fractionation process principle
- Fractionation tower design trays & packaging
Fractionation equipment: preheater, tower, reflux condenser, reflux pump, and reboiler.
Fractionation process variable and control system
Fractionation process troubleshooting and optimization