

NATURAL GAS PROCESSING

Objective

The course provides basic understanding of gas processing plants starting from basics of gas handling gas receiving terminal with slug catcher to sweetening dehydration low temperature processing and compression to pipeline. The course is designed for operating and production personnel in gas processing plants. It is also suitable for design engineers involved in design and engineering of gas processing plants.



Course Content.

No.	Topic	Content
1.	Basic Principles	<ul style="list-style-type: none"> • Characteristics of natural gas • Composition of natural gas • Physical properties • Hazardous properties • Concept of standard volume • Hydrocarbon phase behavior • Water hydrocarbons phase behavior • Hydrate formation <p>Quiz Session</p> <ul style="list-style-type: none"> • Quiz on general understanding of natural gas properties and composition <p>Exercise</p> <ul style="list-style-type: none"> • Review of typical drawings and P&IDs
2.	Gas Liquid Separation	<ul style="list-style-type: none"> • Separators – description, types and selection, • Slug formation during transportation • Slug catcher • Condensate stabilization.
3.	Gas compression	<ul style="list-style-type: none"> • Types of compressors and selection • Drive • Compressor Performance Curves • Compressor controls and trips • Surge control <p>Quiz Session</p> <ul style="list-style-type: none"> • Operation and Trouble shooting • Q/A Session
4.	Acid Gas Sweetening	<ul style="list-style-type: none"> • Sweetening processes and process selection criteria • Amine processes – description • Amine processes – operating variables and controls • Equipment description – Absorber, Stripper, Flashing, Recirculation Pump • Understanding of P&IDs • Common problems and trouble shooting in Gas sweetening Plants <p>• Quiz Session</p>

No.	Topic	Content
5.	Gas Dehydration	<ul style="list-style-type: none"> • Types of Processes, their application and selection • Absorption & Adsorption processes • Dehydration & regeneration – process description • Equipment description • Common problems and trouble shooting <p>Exercise and Group Task</p> <ul style="list-style-type: none"> • Review and understanding of typical P&IDs
6.	Cryogenic & Fractionation System	<ul style="list-style-type: none"> • External Refrigeration based processes • Turbo expander based processes • Combination of the two types of processes • Equipment description • Heat transfers & heat exchangers and Chillers (Cold Boxes) <p>Exercise and Group Task</p> <ul style="list-style-type: none"> • Review of drawings and P&IDs • Special maintenance problems • Common operating problems and troubleshooting
7.	Health, safety and Environment	<ul style="list-style-type: none"> • Normal Hazards in a Gas Plant • Hazardous Properties of Natural Gas • Accident Case Histories and Causes • Handling Gas Fire • Case Studies • Handling Hydrogen Sulfide • Gas Detection and Safety Systems in Gas Processing Plant • Emergency Response Plan • Overview of Hazard Identification Techniques – overview of HAZOP, Risk Analysis, FMEA <ul style="list-style-type: none"> • Quiz Session

Methodology of Presentation

- Microsoft Power Point with colorful slides packed with information
- Real life P&ID exercises
- Highly interactive with total involvement of the participants.
- Interesting and Interactive Quiz Sessions, Group Tasks for better assimilation.