

NATURAL GAS ENGINEERING

(1) Fundamentals of Natural Gas Technology

WHO SHOULD ATTEND

- Engineers (production engineers, reservoir engineer and field engineer)
- Geologists, reservoir engineers, line managers, operational staff, shift foremen, those new to the industry such as entry-level engineers, as well as anyone interested in a general, technically oriented overview of the gas processing industry.
- Gas process and facility personnel
- Technical, project and managers responsible in the production development and field operation for gas facilities operation
- Sales and marketing professionals wishing to gain an understanding of Gas

COURSE OBJECTIVES

This course aims to give deep knowledge to production and processing personnel involved with natural gas and associated liquids to acquaint or reacquaint themselves with gas conditioning and processing unit operations. Some of the objectives include:

- The selection and evaluation processes used to dehydrate natural gas, meet hydrocarbon dew point specifications and extract natural gas liquids
- How to apply thermodynamic property correlations to the design and evaluation of gas processing facilities
- Equipment sizing methods for major process equipment
- To recognize and develop solutions to operating problems and control issues in gas processing facilities
- Technical fundamentals, property correlations, phase behavior and applied thermodynamics
- How to apply phase behavior principles and phase diagrams to design and operating problems
- How to apply thermodynamic laws and principles to equipment design and operation

CONTENT

- Gas processing systems
- Terminology
- Chemistry of gases
- Gas composition and physical properties of gases
- Qualitative phase behavior of gases
- Vapor-liquid equilibrium
- Basic thermodynamic concepts
- General system energy changes and rate processes
- Process control fundamentals
- Gas production facilities
- Separation equipment

- Heat transfer, heat exchange and compression
- Pumps and Compressors
- Refrigeration
- Fractionation/distillation
- Hydrates, hydrate inhibition
- Gas dehydration
- Glycol dehydration
- Adsorption systems
- Gas sweetening and sulfur recovery
- Acid gas re-injection
- Natural gas liquids and dew point control
- Condensate stabilization
- Nitrogen rejection and helium recovery
- Fractionation and stabilization
- Gas transportation options
- Effect of impurities found in natural gas

INTENDED FOR

This course is for facilities engineers, process engineers, operations personnel, field supervisors and others that select, design, install, evaluate or operate gas processing plants and related facilities. This course is designed for those who desire a brief but intensive overview of gas process engineering fluid principles. Course emphasis is on the application of engineering principles to solve operating and design issues common in gas processing facilities.