Gas Processing Operations

Course Price

£2750

Course Description

This short course is designed to give the attendants the fundamentals of natural gas and its by-products conditioning and processing including some of the details of the process. Typical equipment and facilities that are found in typical natural gas processing operations will also be discussed. Hands on process simulation exercises.

The course covers topics such as origins, properties, uses, advantages and specifications of natural gas; Thermodynamics of gases and liquids; Physical properties, phase equilibrium and vapour liquid equilibrium calculations; Natural gas processing plant basics; Hydrates; Inhibitors; Gas and Glycol dehydration; Acid gas treating and Gas sweetening processes; Dew point control and natural gas liquids recovery; Condensate stabilisation; Basic principles of LNG plants; Principles and operation of refrigeration systems and liquefaction of natural gas to make LNG; Multi-stage refrigeration and mixed refrigerant units; Gas Plant Process Dynamics and the Control of Critical Loops

Course Objectives

- Gain a deep knowledge of the properties, specifications and end uses of natural gas.
- Gain a deeper understanding of typical natural gas processing operations, including: Dehydration, acid gas removal (gas sweetening), hydrocarbon dew point control, recovery of ethane, LPG production, propane and NGL (natural gas liquids), and Sulfur recovery
- Gain a deeper understanding of the production of liquefied natural gas (LNG).
- Gain a deeper knowledge of the different equipment and facilities found in natural gas processing plants.
- Learn about fundamentals of gas transportation and distribution.

- Know the different problems posed by the undesirable components present in natural gas well effluent and the required treatments.
- Know the gas treatment and liquefaction processes, their typical operating conditions, and the influence of each operating parameter.
- Be able to perform hand calculations for summary design of main equipment used for gas processing.
- Know the main operating problems encountered in gas processing and conditioning and the main technical solutions.
- Know how to apply physical and thermodynamic property correlations and principles to the design and evaluation of gas production and processing facilities.
Acquire a deep understanding of the thermodynamics applied to the gas processing facilities
Know the technology and operating rules of the static equipment and rotating machinery used in the gas production facilities

Who Should Attend

- Technical and non-technical personnel involved in the activities of natural gas industry
- Specifically, technical, operations and maintenance personnel who had limited exposure to this area
- Professionals involved in other areas of the gas industry who require a comprehensive overview of natural gas processing
- Junior and senior and more experienced engineers involved in the operation and/or design of the Oil & Gas field processing facilities
- Maintenance and operations foremen and superintendents; plant engineering technicians; plant operators; process control technicians; and new plant engineers desiring a knowledge of operational issues
- Those directly involved in supervising gas processing operations
- Managers and Project Managers involved in the development or re-design of new/existing facilities
- Professionals who are familiar with Gas Gathering and Processing but are unfamiliar with how process simulators can be used to improve equipment and plant design and optimize equipment and plant profitability

Course Content

Day 1

Origins, properties, uses, advantages and specifications of natural gas; Thermodynamics of gases and liquids; Physical properties, phase equilibrium and vapor liquid equilibrium calculations;

Natural gas processing plant basics;

Hydrates; Inhibitors; Gas and Glycol dehydration;

Hands on process simulation* exercises

Day 2

Acid gas treating and Gas sweetening processes;

Dew point control and natural gas liquids recovery; Condensate stabilisation;

Hands on process simulation* exercises
Day 3

Basic principles of LNG plants; Principles and operation of refrigeration systems and liquefaction of natural gas to make LNG; Multi-stage refrigeration and mixed refrigerant units;

Gas Plant Process Dynamics and the Control of Critical Loops

Hands on process simulation* exercises

CPD Unit

Continuing Professional Development

21 HOURS CPD