PetroSkills

Fractionation Fundamentals for Facilities Engineers- Virtual, Blended Short Course

COURSE

About the Course

This short course is from the industry-standard Gas Conditioning and Process course (G-4), known globally as the Campbell Gas Course. Each session will follow the format below:

Days 1-2:

- 5.5 hours prerequisite e-Learning modules (participants may test out)
- 2.5 hours required e-Learning modules

Day 3:

- 2 hours virtual, instructor-led session, 9:00-11:00 CST (GMT-6)
- 2 hours e-Learning and problem assignments

Day 4:

- 2 hours virtual, instructor-led session, 9:00-11:00 CST (GMT-6)

Click here to see the full G-4 Short Course listing

This short course covers fractionation and stabilization of hydrocarbon liquids at both the basic and fundamental levels. Fractionation is one of the most complex processing units in a gas production and processing facility, and is often the least understood. This short course will prepare a facilities engineer to understand the operating envelop of stabilization and fractionation columns, what sets the operating pressure and bottoms temperature required, typical fractionation column control options and how to troubleshoot fractionation column operations.

The self-paced online modules cover the following topics:

- NGL extraction (note: this sets the feed composition of the liquids to the first column)
- Stage Separation vs Fractionation
- Relative Volatility
- Operation of Key Fractionation Equipment
- Fractionator Design Concepts
- Types of Internals in Mass Transfer Columns

The virtual,instructor-led lecture will cover how to estimate the fractionation column operating pressure and bottoms temperature, as well as cover the different column process control options. The problem assignment

will reinforce the key operating principles covered in the instructor lead session, and will lead to more effective column troubleshooting skills.

The problem debrief will include a process simulation tool that will run the participants through a number of what-if scenarios that will deepen their understanding of how these columns separate the components, but also how they respond depending upon changing inlet conditions, such as ambient temperatures, feed composition changes, and feed rate cooling and heating rate changes. With this knowledge, facility engineers will be better equipped to support operations staff, as well as be more proficient in understanding the critical components for system design, troubleshooting and debottlenecking.

Prerequisites (of which participants can test out) include Basic Conversion, Basic Terminology, Gas and Liquid Physical Properties, Pure Component Phase Behavior, Multicomponent Phase Behavior, Vapor Liquid Equilibrium, Multi-Stage Stabilization of Crude Oil and Condensate, RVP and TVP of Condensate and Crude Oils.

Target Audience

Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations.

This course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

These short courses are ideal for mid-career professionals that have experience in the industry and have been transferred to a new role or assignment.

They are also ideal for new engineers that need to get up to speed quickly on the primary principles of gas processing with a deep dive on the issues of the short course topics.

You Will Learn

Participants will learn how to:

- Understand Relative Volatility and how it affects separation in a fractionation column
- Explain how a fractionation column separates components
- Describe the purpose and operation of the condenser, accumulator and reboiler
- Discuss fractionation system design factors and how they are related to unit operating costs
- Estimate the operating pressure, and bottoms temperature required for a fractionation column
- Describe fractionation column process control options
- Troubleshoot fractionation column operations

Course Content

- NGL Extraction
- Stage Separation vs Fractionation
- Relative Volatility
- Operation of Key Fractionation Equipment
- Fractionator Design Concepts
- Types of Internals in Mass Transfer Columns
- Fundamentals of Fractionation Lecture
- Self-Directed Problem Assignment
- Problem Debrief and Experience Round Table

Product Details

Categories: Midstream

Disciplines: Gas Processing

Levels: Foundation

Product Type: Course

Formats Available: Virtual

Instructors: Mahmood Moshfeghian Kindra Snow-McGregor