

Operation Of Process Equipment: Crude Desalter, Fired Heaters, Air Coolers, Heat Exchangers, Pumps, Compressors, Process Vessels and Valves Course

Introduction:

Designed as a comprehensive five-day course, this intensive program aims to equip participants with knowledge and skills in operating process equipment and troubleshooting. It presents a valuable opportunity for individuals to become acquainted with practical techniques and effective criteria, including helpful shortcuts, for designing and resolving issues related to process equipment commonly employed in gas processing and petrochemical plants.

Course Objectives:

By the end of the training, participants will be able to:

- Calculate, evaluate and compile process data for the specification, design, selection and operation of process equipment.
- Possess enhanced skills and knowledge in process engineering, including design methods, criteria, calculation procedures and short-cut techniques.
- Perform the evaluation, diagnostic monitoring and troubleshooting of existing process equipment, including de-bottlenecking and revamping methods.
- Evaluate technical proposals and prepare to scope cost estimates.
- Prepare comprehensive process specification documents for bid packages.

Who Should Attend?

This course is intended for those who are involved with process engineering, instrumentation & control including process engineers, mechanical & equipment engineers, project engineers and maintenance engineers, operators and technicians.

Course Outlines:

Introduction

- Course overview
- Gas processing overview
- Process equipment categories
- Mechanical and safety aspects

PROCESS CONTROL AND INSTRUMENTATION

- Instrumentation types and selection
- Control valves sizing and selection
- Pressure relief devices and systems

PIPING

- Fluid flow principles
- Pressure loss categories
- Pipe properties
- Sizing methods and criteria
- Two-phase flow

CONVENTIONAL SEPARATORS

- Types and functions
- Sizing criteria and method
- Design considerations and internals
- Process operating problems

PUMPS

- Categories and types
- Performance characteristics
- Control systems
- Design criteria and parameters
- Pump selection guidelines
- Process operation troubleshooting

COMPRESSORS

- Categories and types
- Compression process
- Characteristics and terminologies
- Design Criteria and parameters
- Compressor control methods
- Selection guidelines
- Drivers
- Process operation problems/troubleshooting
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FIRED HEATERS

- Heater types
- Process applications
- Selection guidelines
- Process operating problems

HEAT EXCHANGERS

- Heat exchanger types
- Process applications
- Heat transfer terms and equations
- Design criteria and parameters

- Fouling considerations
- Reboilers
- Calculation methods
- Selection guidelines
- Process operation problems/troubleshooting

AIR COOLERS

- Air cooler types
- Design and operating considerations
- Process operating problems/troubleshooting

FRACTIONATION COLUMNS

- Fractionator types
 - Process design methods
 - Trays vs packing
 - Operating parameters
 - Process operating problems/troubleshooting
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