



Oil Field Surface Facility Operations

Course Introduction:

This training course is designed to meet the required specification of oil and gas by purchaser, crude oil and gas have to be treated to remove all impurities which reduce oil and gas qualities. Surface facilities equipment is an important training course in oil and gas industry as it describes most facilities which are used in oil and gas fields, Surface Facilities Equipment course is intended to describe features and how to operate oil and gas fields equipment efficiently with minimum breakdown and failure. This course describes how oil and raw natural gas are produced from different producing wells and how to be treated by production separators, heater- treater, then transferred via pumps and compressor. Heat exchangers are used during oil and gas operation for efficient energy saving. Oil and gas facilities equipment have to be operated by competent staff to maintain them running smoothly without any breakdown.

Course Objectives:

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

- Apply proper techniques and procedures on the operation of process equipment such as crude desalter, fired heaters, air coolers, heat exchangers, pumps, compressors, process vessels and valves.
- Enumerate the characteristics of crude oil and identify the function of chemicals used in the process such as composition of petroleum, hydrocarbon properties, salt concentration and emulsions.
- Discuss oil treating, dehydration and desalting including the process & equipment operations.
- Identify the different types and function of process vessels, direct fired heaters and heat exchangers as well as their safety aspects.
- Employ the sequence of desalter plant start-up and carryout systematic methodology of maintaining and troubleshooting of different equipment and process

Who Should Attend?

This course is intended for engineers and other technical staff involved in the operation and troubleshooting of process equipment. The course is also beneficial to design engineers and maintenance staff.

Course Outline:

Day 1:

- 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

Day 2:

- Piping & Flow lines
- Fluid flow principles.
- Pressure loss categories.
- Flow line construction steps
- Pipe properties.
- Sizing methods and criteria.
- Two-phase flow
- Pigging
- Conventional Separators
- Types and functions.
- Sizing criteria and method.
- Design considerations and internals.
- Process operating problems

Day 3:

- 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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Day 4:

- 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

Day 5:

- 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

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures

- Case Studies and Self Questionnaires
- Group Work

Course Fees:

To be advice as per course location. This rate includes participant's manual, Hands-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session

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