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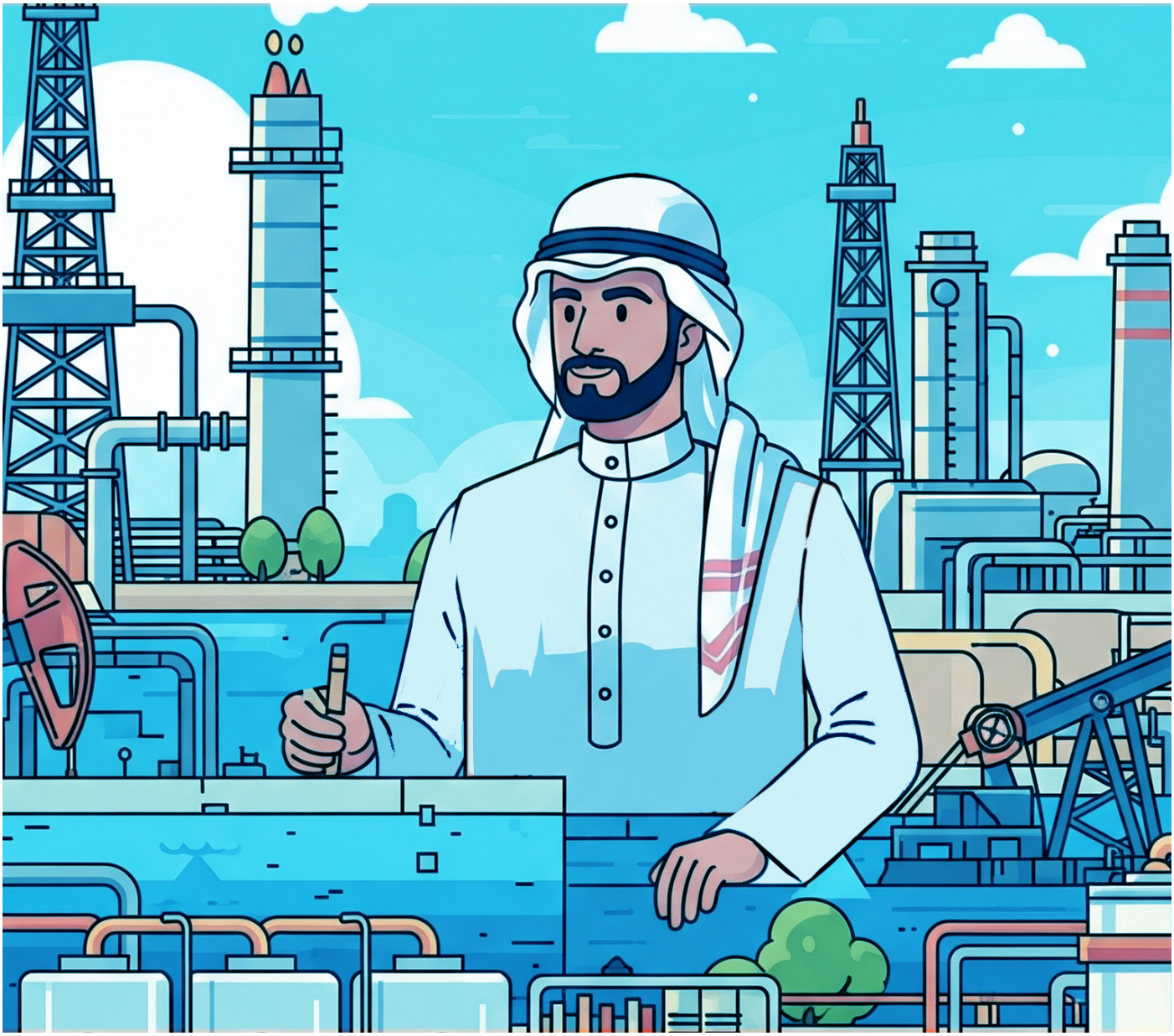

Oil, Gas and Chemical

Surface Production Facilities Operations

Course Introduction

This course is designed to ensure awareness and effective understanding of various phases of production operations fundamentals throughout understanding the functions of various oil field components from the well to processing facilities.

The course also addresses and emphasizes the fundamental understanding of wide range of oilfield production handling and treatment equipment not only “what” but “how” the field fluid treating equipment works. The major objective of this course is to improve communication amongst the technical disciplines across organizations in order to enhance operational and cross functional work performance , promote cooperation and team work spirit amongst the teams across various organizations, optimize cost and improve production economics. This can be the operator's best insurance to achieve successful safe and cost effective operations.

Target Audience

- Production Operators and Technicians in the Oil & Gas Industry
- Field Supervisors and Operations Managers
- Process Engineers and Plant Managers
- Maintenance Technicians and Engineers
- Health, Safety, and Environment (HSE) Personnel
- Regulatory Compliance Officers in the Energy Sector

Learning Objectives

- Understand surface facilities components from well to production station
- Familiarize with the principles of Oil & Gas Separation
- Familiarize with the principles of Oil & Gas Dehydration
- Familiarize with the principles of Fractionation & Operations

- Familiarize with the principles of Refrigeration Operations
- Understand and identify the Operating problems
- Familiarize with the Pipeline Operations & Maintenance, Problems & Troubleshooting.
- Familiarize with the pipeline Pigging Operations
- Familiarize with types of Storage tanks, associated hazards & Safety
- Familiarize with various equipment and tools and its function.

Course Outline

- **01 Day One**

Module1. Introduction and Overview on Oil & Gas

  - Petroleum Geology and Origin of Hydrocarbons
  - Formation of Oil
  - Oil and gas reservoirs
  - Reservoir rock and fluid properties
  - 1.2 Exploration and Appraisal
  - Geological and commercial factors necessary for successful exploration and appraisal
  - Seismic surveys
  - 1.3 Drilling
  - Drilling rigs
  - Equipment and processes involved in drilling a well
  - Completing a well and preparing it for production
  - Horizontal Drilling
  - Well workover operations
  - 1.4 Oil Recovery Methodologies
  - Reservoir production mechanisms
  - Artificial lift systems
  - Well stimulation - fracturing, acidizing and sand control
  - Production and treatment of reservoir fluids
  - Processing the production from oil and gas fields
- **02 Day Two**

Module2. Surface Facilities

- 2.1 Introduction
- Field Development Overview
- Why do we need Surface Facilities?
- Data Required
- Fluids Characterization
- Surface Facilities Processes
- Function of Surface Facilities
- Hydrocarbon Specification
- 2.2 Well Control and Safety System
- Wellhead, X-mas Tree and Wellhead equipment
- Wellhead Control and Safety System
- Choke valve (fixed, adjustable)
- Flow Principles through Chokes
- 2.3 Gathering System
- The manifold function in gathering stations
- Flowlines
- Horizontal pipe flow patterns
- Multiphase flow Fundamental
- Multiphase Flow Meters
- Flowlines
- Surge phenomenon
- Manifold
- Onshore
- Offshore
- Subsea
- Pipelines
- Monitoring
- Maintenance
- Pigging

• 03 Day Three

Module3. Oil & Gas Separation System

- Introduction
- Oil field separation Process
- Principles of Separation
- Phases Separation
- Stage Separation

- Separator Configurations
- Separator Internals
- Separation Operation problems & Troubleshooting

Module4. Oil Dehydration System

- Introduction
- Emulsions & Emulsion Terminology
- Emulsion Treatment Equipment
- Emulsifying Agents
- Demulsifiers
- Factors affecting Emulsion Breakdown
- Emulsion Treatment and process description
- Factors affecting Emulsion Treatment

- **04 Day Four**

Module5. Gas Dehydration

- Introduction
- Definition
- Water/Hydrocarbon system Behaviors
- Water content in in Natural gas
- Water dew point
- Dew point depression
- Hydrates Control in Natural gas Systems
- Gas Dehydration system
- Absorption using Liquid Desiccants (Glycol Dehydration)
- Process flow & components
- Process Operation& Variables
- Operational Problems & Troubleshooting
- Hydrate Inhibition at low temperature processing plant

Module6. Refrigeration

- Introduction
- Liquid Separation Economics
- Lean Oil Absorption
- Refrigeration
- Cryogenic
- Gas Chilling
- Cryogenic Process
- Dehydration
- Chilling
- Fractionation
- Refrigeration Systems
- Single Component Refrigeration (Propane)
- Refrigerant
- Equipment
- Principle of Operation, Problems and Controls

• **05 Day Five**

Module7. Equipment & Process System

- Pipe, Pipe fittings and associated equipment
- Valves, Control valves, actuators & solenoids
- Strainers & filters
- Separators & Vessels
- Heat & Heat transfer equipment; Coolers & Fin Fans
- Pumps – centrifugal and reciprocating
- Pressure, temperature, flow & level measurement
- Turbines
- Emergency Generators
- DCS Basics
- Process Drawings and nomenclature – P&IDs, PFDs

Module8. Chemical Injection & Sampling

- Basic Production Chemistry
- Chemical Injection

- Chemicals Handling procedures
- Sampling

Module9. Oil Storage & Shipping Facilities

- Tanks and Tank Storage facilities
- Types of Storage Tanks
- Associated Hazardous Conditions

Module10. HSE Requirements

- Authorization and Competency of Production Personnel
- General Safety Procedures
- Handling Chemicals

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 13, 2025	April 17, 2025	5 days	4250.00 $	KSA - Al Khobar
July 7, 2025	July 11, 2025	5 days	4950.00 $	England - London
Oct. 27, 2025	Oct. 31, 2025	5 days	4250.00 $	UAE - Dubai
Jan. 26, 2025	Jan. 30, 2025	5 days	4250.00 $	KSA - Jeddah