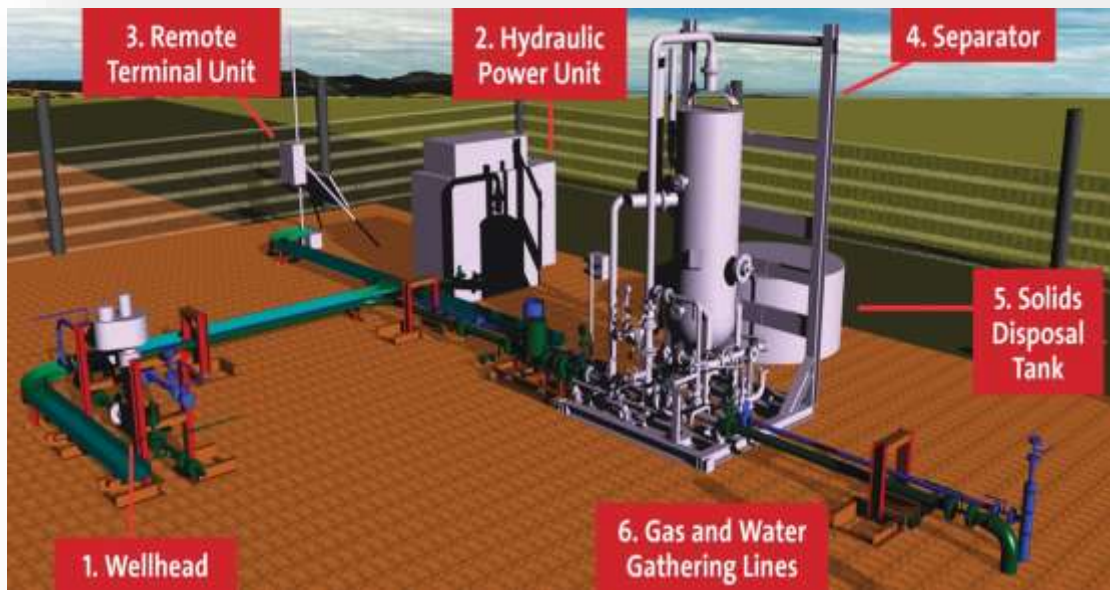




PCE100

Surface Facility

Production Operations

Course Introduction:

This course will provide participants with the fundamental and principles of production fluid behavior, conditioning, and processing from the wellhead to custody transfer. The participants will learn oilfield production handling at the surface, the treatment equipment, and the processes.

Natural gas and oil physics characteristics, gathering system, separation, treatment, pigging, transportation, measurements, rotating equipment, vessel and piping design, and operations will all be covered to enhance operational efficiencies.

Course Objectives:

Upon successful completion of this course, the delegates will learn how to design and operate the surface facilities production equipment and processes through daily exercises:

- ✓ The physical properties and phase behavior of crude oil and natural gas that govern production operations
- ✓ Field processes for treating and conditioning full well stream production for sales or final disposition
- ✓ An introduction to the wide range of equipment used to process, treat, transport, and store oilfield produced fluids
- ✓ The basics of oilfield corrosion prevention, detection and treatment
- ✓ How to determine and minimize pressure drop in pipelines, valves and pressured vessels.
- ✓ Internal workings of separators, pumps, compressors, valves and other treating equipment
- ✓ An overview of the processes and equipment used to handle acid gases
- ✓ A basic understanding of a wide range of produced fluid volume measurement and metering devices

Who Should Attend?

This course is intended for all surface facility operation engineers, surface facility design engineers, production operation engineers, and production managers.

Course Outline:

Day 1:

Module (01) Introduction to Surface Facilities

Module (02) Field Development, Facilities Processes

- Production system analysis
- Oilfield fluids

- Hydrocarbon properties exercise
- The focus on day one of this course participants will learn about production system analysis, fluid properties, and oilfield fluids. Hydrocarbon properties, such as gas solubility in crude oil, crude oil volumetric factors, viscosity, density, and interfacial tension will be covered. To end the day attendees will participate in hydrocarbon properties exercises.

Day 2:

Module (02) Well Control and Safety System

Module (03) Gathering System (Onshore, Offshore, and Subsea)

- Production manifolds
- Flow line characteristics
- Gathering systems
- Flow of fluids
- Safety System
- The focus of day two will be manifold and gathering systems. Production manifold onshore and offshore facilities will be discussed, along with flowline characteristics. Gathering systems, such as radial, axial, loop, well center, and truck line systems will be covered on this day. Pipeline systems including the analysis of single and multiphase flow will be covered. The day will end with fluid flow exercises. As well as the safety system.

Day 3:

Module (04) Separation System and Tests

- Pigging
- Separation
- Day three will teach participants about the configuration and operation of the pigging system. Separation design, selection, internal evaluation, problems, and troubleshooting will be covered in detail. The day will end with exercises on separation design and selection for different environments.

Day 4:

Module (05) Oil Treatment Process

Module (06) Water Treatment Technology

- Oil treatment
- Water treatment
- On day four participants will learn about the emulsion theory, emulsion destabilization, oil dehydration equipment, processes design and operation, and the desalting processes and equipment. Oil removal, suspended particles, oxygen removal, bacteria control are the

topics to be covered in the water treatment session. At the end of the day real cases will be discussed and run exercises to design a real oil and water treatment facilities.

Day 5:

Module (07) Gas Treatment and Contamination

Module (08) Custody Transfer/Measurements

Module (09) Pumping System & Auxiliaries

Module (10) Natural Gas Compression

- Gas treatment & Contamination
- Pumps, Compressors & Auxiliaries
- Natural Gas Compression
- On day five will be gas dehydration, the sweetening process, natural gas compression, custody transfer & measurement and equipment. Emphasis on design, technology selection, and operation problems will be the main topics to be covered in the gas treatment part of the day. Pumps and compressors design, selection, and operations will also be covered on this day. At the end of each session participants will learn how to design and select gas treatment facilities, pumps, and compressors.

Course Certificate:

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

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
- Discussion

- Presentation

Course Fees:

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

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

