The Ultimate Hydrocarbon Production Training Course

18 – 22 January 2027
Amsterdam

AGILE LEADERS
Training Center

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Overview

Managing upstream and midstream hydrocarbon production demands rigorous control over reservoir inflow, multiphase surface separation, and process safety barriers. Fluctuating wellhead pressures, emulsion stability challenges, and hydrate formation often threaten throughput and facility integrity. This practical programme equips technical personnel to optimise artificial lift systems, stabilise primary separation trains, and execute systematic flow assurance protocols across field installations. Participants examine diagnostic nodal analysis, produced water handling, and gas dehydration workflows that sustain field output. This course is delivered by Agile Leaders Training Center.

Who Should Attend

- Technical personnel responsible for monitoring wellhead flow performance, choke manifold operations, and artificial lift run-life.
- Operations staff responsible for balancing three-phase production separators, electrostatic coalescers, and oil stabilisation columns.
- Field specialists responsible for managing multiphase gathering networks, hydrate inhibition injection, and pipeline pigging programmes.
- Process safety personnel responsible for validating relief header capacities, flare knockout systems, and overpressure protection loops.
- Environmental compliance specialists responsible for overseeing produced water treatment units and associated gas recovery systems.

Departments and Industries

This course serves multidisciplinary engineering and operations personnel across high-volume extraction and fluid processing environments.

- Production Operations and Well Testing Units in Upstream Exploration and Production
- Surface Facilities Engineering Groups in Integrated Oil and Gas Companies
- Gas Processing and Fractionation Departments in Midstream Hydrocarbon Transport
- Field Asset Integrity Divisions in Offshore Platform and FPSO Operations
- Process Optimisation Teams in Unconventional Resource Gathering Networks

Learning Objectives

By the end of this course, participants will be able to:

- Apply nodal analysis models to diagnose reservoir inflow and surface piping bottlenecks.
- Evaluate three-phase separation performance using liquid-liquid settling and droplet retention metrics.
- Build flow assurance mitigation matrices for hydrate formation and wax deposition.
- Prioritise artificial lift methods using lifecycle power efficiency and operating envelope comparisons.
- Analyse produced water discharge streams using oil-in-water analytical thresholds.
- Diagnose process upset mechanisms across gas dehydration contactors and regeneration loops.

Course Agenda

Day 1: Well Inflow Performance and Surface Gathering

- Nodal Inflow Performance Relationship Modelling using Darcy and Vogel Equations
- Multiphase Flow Regime Mapping using Beggs and Brill Correlation Charts
- Wellhead Choke Performance Curves using Gilbert Production Nomographs
- Field Manifold Piping Design using API RP 14E Erosion Velocity Guidelines
- Sand Influx Monitoring Protocols using Acoustic Sand Detection Logs

Day 2: Artificial Lift Selection and Surface Drive Systems

- Electrical Submersible Pump Sizing using Pump Performance Curves and Head-Capacity Charts
- Gas Lift Optimisation using Dynamic Gradient Traversing and Valve Spacing Sheets
- Progressing Cavity Pump Failure Analysis using Elastomer Swell and Torque Logs
- Beam Pumping Unit Diagnostic Modelling using Surface Dynamometer Cards
- Surface Drive Variable Frequency Control using Motor Speed Optimization Worksheets

Day 3: Primary Separation and Fluid Treatment Trains

- Gravity Separator Internals Sizing using Souders-Brown Liquid Carryover Calculations
- Crude Oil Demulsification Monitoring using Chemical Bottle Testing Protocols
- Electrostatic Dehydrator and Desalter Optimization using Electric Field Gradient Charts
- Produced Water Polishing System Validation using Hydrocyclone Split Ratio Tables
- Flotation Cell Performance Tracking using Suspended Solids Turbidity Logs

Day 4: Natural Gas Processing and Flow Assurance

- Gas Dehydration Troubleshooting using Triethylene Glycol Circulation Rate Nomographs
- Acid Gas Sweetening Monitoring using Alkanolamine Solvent Loading Ratios
- Hydrate Equilibrium Curve Modelling using Hammerschmidt Thermodynamic Formulations
- Paraffin and Asphaltene Deposition Risk Mapping using Cloud Point Testing Results
- Mechanical Line Scraping Verification using Intelligent Pigging Tracking Protocols

Day 5: Production Safety, Measurement, and Integrated Simulation

- Surface Safety System Auditing using API RP 14C Safety Analysis Tables
- Hydrocarbon Fiscal Allocation Monitoring using Coriolis and Ultrasonic Meter Run Data
- Flare Header and Knockout Drum Verification using API Standard 521 Sizing Matrices
- Field Production Loss Accounting using Root Cause Failure Analysis Worksheets
- Capstone Integrated Field Hydrocarbon Production Debottlenecking Simulation

Practical Exercises

Participants complete practical scenarios using field data to resolve core production engineering challenges.

- Suggested activity: Construct an inflow performance relationship curve to evaluate artificial lift intake pressure for a declining well.
- Suggested activity: Calculate droplet settling times and weir heights for a horizontal three-phase production separator.
- Suggested activity: Determine chemical inhibitor dosage rates to prevent thermodynamic hydrate formation in a wet gas gathering trunkline.
- Suggested activity: Develop an API RP 14C safety analysis table for an offshore production manifold and separation train.

FAQs

What technical focus does this syllabus provide?

The syllabus provides an operational perspective on surface facilities engineering, multiphase fluid gathering, fluid separation trains, and flow assurance calculations required to maintain steady output across oil and gas assets.

Does this curriculum cover offshore and onshore field architectures?

Yes, the technical concepts address both onshore gathering manifolds and offshore topsides facilities, examining equipment selection, fluid conditioning, produced water disposal, and process safety systems applicable to both operating environments.

What engineering standards are examined throughout the sessions?

The curriculum references established standards including API RP 14E for erosion velocity, API RP 14C for surface safety analysis, and API Standard 521 for overpressure and flare header relief sizing.

Conclusion

Participants return to their assets with proven methods to debottleneck surface facilities, stabilise separation processes, and mitigate fluid flow interruptions. By integrating nodal inflow calculations, chemical treatment regimes, and industry safety standards, technical personnel protect equipment integrity, maintain export specifications, and sustain field recovery over the lifecycle of the production facility.