AMERICAN GLOBAL INSTITUTE FOR PRIVATE TRAINING

External Training Course

Advanced Oil & Gas Separator Operations: Stability, Efficiency & Upset Prevention

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From 29 Mar. 2026 To 02 Apr. 2026
From 24 May 2026 To 28 May 2026
From 21 Jun. 2026 To 25 Jun. 2026

InterContinental Cairo Semiramis by IHG Hotel, Cairo, Egypt

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Advanced Oil & Gas Separator Operations: Stability, Efficiency & Upset Prevention

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Course Overview

This course provides practical, field-oriented knowledge for operating oil and gas separators under normal and unstable production conditions. Participants learn how to control pressure and liquid levels, prevent carryover and carryunder, handle slug flow, and respond effectively to operational upsets such as foaming and emulsions. The program also focuses on improving separation efficiency, minimizing hydrocarbon losses, and maintaining stable production while coordinating with downstream facilities. By the end of the course, participants will confidently operate separators, troubleshoot problems quickly, and support safe and reliable plant performance.

Course Objectives

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

- Understand the role of separators in overall production stability.
- Interpret separator P&IDs and operating parameters.
- Control pressure and liquid levels for stable separation.
- Prevent liquid carryover and gas carryunder.
- Handle slug flow entering the separator.
- Diagnose foaming and emulsion problems.
- Respond effectively to upset operating conditions.
- Adjust operation for changing well rates and water cut.
- Optimize separation efficiency and retention time.
- Reduce hydrocarbon losses to flare.
- Coordinate separator operation with downstream facilities.
- Apply safe startup, shutdown, and restart procedures.
- Monitor and evaluate separator performance daily.
- Troubleshoot common operational problems in the field.
- Improve overall plant reliability and product quality.

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Training Methodology

Interactive instructor-led sessions (practical, field-oriented explanations).
Illustrated equipment and internal component walkthroughs.
Troubleshooting workshops and guided diagnostics.
Group discussions and experience sharing.
Step-by-step operational decision exercises.
Simplified operational calculations for operators.
Daily review and knowledge reinforcement sessions.

Organizational Impact

Improved production stability and reduced process upsets.
Lower hydrocarbon losses and reduced flaring.
Fewer emergency shutdowns and operational interruptions.
Better coordination between field and processing facilities.
Enhanced equipment reliability and longer separator life.
Improved product quality before downstream processing.
Reduced maintenance and chemical treatment costs.
Stronger operational safety performance.

Personal Impact

Higher confidence in daily separator operation.
Faster and more accurate troubleshooting decisions.
Better understanding of multiphase production behavior.
Ability to handle unstable operating conditions calmly.
Improved communication with control room and engineers.
Stronger practical field operation skills.
Reduced operational errors.
Professional growth in production operations expertise.

Course Content & Outline

Day 1 — Separator Process Fundamentals

- Role of separators in the production system.
- Multiphase flow behavior (oil–gas–water).
- Types of separators (2-phase & 3-phase, vertical & horizontal).
- Operating pressure and temperature effects.
- Retention time and separation efficiency.
- Basic PFD & P&ID interpretation.
- Normal operating indicators and limits.
- Common operational risks in early production stages.

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Day 2 — Internal Components & Control Systems

- Inlet diverters and momentum breakers.
- Gravity settling and phase separation zones.
- Mist extractor / demister operation.
- Weirs and interface level control.
- Level controllers and dump valves.
- Pressure control valves and backpressure control.
- Instrument readings and signal interpretation.
- Causes of unstable levels and pressure fluctuations.

Day 3 — Operational Upsets & Troubleshooting

- Liquid carryover to gas outlet.
- Gas carryunder to liquid outlet.
- High-level and low-level trips.
- Foaming and emulsion formation.
- Slugging impact on separator stability.
- Incorrect controller tuning.
- Diagnosing unstable separator behavior.
- Immediate corrective operating actions.

Day 4 — Operating Procedures & Safety

- Normal daily operating monitoring.
- Startup procedures and line-up checks.
- Shutdown and emergency shutdown handling.
- Restart after trip conditions.
- Manual vs automatic operation decisions.
- Chemical injection effects on separation.
- Safety devices and PSV behavior.
- Operator daily checklist and reporting.

Day 5 — Performance Optimization & Field Practices

- Improving separation efficiency.
- Handling high water cut conditions.
- Production balancing between wells.
- Minimizing hydrocarbon losses to flare.
- Interface stabilization techniques.
- Coordination with downstream processing units.
- Best operating practices in the field.
- Practical case studies and lessons learned.

Course Agenda:

(1st Day) Agenda

9.00	11.30	Discuss Course Major Points • Separator Process Fundamentals. • Internal Components & Control Systems. • Operational Upsets & Troubleshooting. • Operating Procedures & Safety. • Performance Optimization & Field Practices.
11.30	12.00	Coffee Break
12.00	14.00	Separator Process Fundamentals • Role of separators in the production system. • Multiphase flow behavior (oil–gas–water). • Types of separators (2-phase & 3-phase, vertical & horizontal). • Operating pressure and temperature effects. • Retention time and separation efficiency. • Basic PFD & P&ID interpretation. • Normal operating indicators and limits. • Common operational risks in early production stages.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(2nd Day) Agenda

9.00	11.30	Internal Components & Control Systems • Inlet diverters and momentum breakers. • Gravity settling and phase separation zones. • Mist extractor / demister operation. • Weirs and interface level control.
11.30	12.00	Coffee Break
12.00	14.00	Internal Components & Control Systems • Level controllers and dump valves. • Pressure control valves and backpressure control. • Instrument readings and signal interpretation. • Causes of unstable levels and pressure fluctuations.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(3rd Day) Agenda

9.00	11.30	Operational Upsets & Troubleshooting • Liquid carryover to gas outlet. • Gas carryunder to liquid outlet. • High-level and low-level trips. • Foaming and emulsion formation.
11.30	12.00	Coffee Break
12.00	14.00	Operational Upsets & Troubleshooting • Slugging impact on separator stability. • Incorrect controller tuning. • Diagnosing unstable separator behavior. • Immediate corrective operating actions.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(4th Day) Agenda

9.00	11.30	Operating Procedures & Safety • Normal daily operating monitoring. • Startup procedures and line-up checks. • Shutdown and emergency shutdown handling. • Restart after trip conditions.
11.30	12.00	Coffee Break
12.00	14.00	Operating Procedures & Safety • Manual vs automatic operation decisions. • Chemical injection effects on separation. • Safety devices and PSV behavior. • Operator daily checklist and reporting.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(5th Day) Agenda

9.00	11.30	Performance Optimization & Field Practices • Improving separation efficiency. • Handling high water cut conditions. • Production balancing between wells. • Minimizing hydrocarbon losses to flare.
11.30	12.00	Coffee Break
12.00	14.00	Performance Optimization & Field Practices • Interface stabilization techniques. • Coordination with downstream processing units. • Best operating practices in the field. • Practical case studies and lessons learned.
14.00	14.30	Questions, Discussion & Conclusion Training Course.
14.30		Buffet Lunch