Downstream Optimization

23 – 27 May 2027
Online



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Why This Course

The downstream sector faces constant pressure to improve efficiency, reduce costs, and adapt to market volatility — all while meeting sustainability, safety, and environmental standards.

Achieving operational excellence in this context requires the ability to integrate data, technology, and strategy for optimized decision-making across the entire downstream value chain.

The Downstream Optimization program equips participants with the frameworks, analytical tools, and strategic insights to maximize performance across refining, logistics, and commercial operations.

It combines technical fundamentals, process optimization, and digital transformation to help participants deliver higher margins, energy efficiency, and long-term competitiveness.

Through simulations, global case studies, and interactive sessions, participants will learn how to optimize refinery operations, integrate supply and demand planning, and lead downstream transformation initiatives.

What You'll Learn and Practice

By joining this program, you will:

- Understand the structure, economics, and dynamics of the downstream oil & gas sector.
- Learn to apply optimization models for refining, blending, and distribution.
- Master techniques for energy efficiency, yield improvement, and cost reduction.
- Explore digital and data-driven solutions for process and supply chain optimization.
- Manage asset integrity, safety, and environmental performance.
- Learn to balance operational decisions with commercial and strategic goals.
- Gain insight into market trends, energy transition, and downstream innovation.
- Develop a roadmap for sustainable downstream excellence.



The Program Flow

Day 1: The Downstream Value Chain and Market Context

- Overview of the downstream industry: refining, petrochemicals, and distribution.
- Global oil market dynamics, product pricing, and value chain integration.
- Key challenges: volatility, carbon regulation, and digital disruption.
- The role of optimization in enhancing profitability and sustainability.
- Case study: How leading refiners achieved performance breakthroughs through digital optimization.

Day 2: Refining and Process Optimization

- Refinery configuration and product yield management.
- Process integration and energy efficiency improvement.
- Catalytic and thermal processes — optimization opportunities.
- Advanced control systems and real-time monitoring.
- Workshop: Developing a refinery optimization model to maximize throughput and margin.

Day 3: Supply Chain and Logistics Optimization

- Crude sourcing, product blending, and inventory optimization.
- Transportation, storage, and terminal operations efficiency.
- Integration of logistics with refinery planning and scheduling.
- Demand forecasting and market response strategies.
- Simulation: Optimizing a downstream supply chain network under demand uncertainty.

Day 4: Digital Transformation and Predictive Operations

- The role of digital twins, AI, and analytics in downstream optimization.
- Predictive maintenance and reliability-centered operations.
- Integrating IoT sensors and data systems for performance visibility.
- Automation and advanced process control for sustainable productivity.
- Group exercise: Designing a digital roadmap for downstream performance excellence.

Day 5: Sustainability, Risk, and Strategic Alignment

- Decarbonization and energy transition in the downstream sector.
- ESG integration and carbon efficiency in refining operations.
- Risk management and operational resilience frameworks.
- Strategic decision-making and performance measurement.
- Final project: Developing a comprehensive downstream optimization strategy.



Individual Impact

- Gain a complete understanding of downstream operations and optimization levers.
- Strengthen technical and analytical decision-making capabilities.
- Learn to balance operational performance with strategic and sustainability goals.
- Build confidence in leading transformation initiatives in refining and logistics.
- Position yourself as a downstream optimization leader with a global perspective and technical acumen.

Work Impact

- Improve refinery performance, yield, and energy efficiency.
- Optimize costs across the supply, processing, and distribution chain.
- Strengthen digital readiness and predictive operations.
- Enhance compliance, safety, and environmental performance.
- Drive profitability and sustainability across the downstream business.

Training Methodology

This program integrates technical mastery, digital innovation, and strategic management to deliver immediate and lasting impact.

Learning methods include:

- Case studies from global refining and petrochemical companies.
- Simulation exercises on process and supply chain optimization.
- Workshops on digital transformation and predictive analytics.
- Group projects on operational excellence and strategic alignment.
- Toolkits, dashboards, and benchmarking models for downstream performance tracking.

Beyond the Course

Upon completion, participants will be equipped to design, implement, and manage downstream optimization strategies that enhance efficiency, profitability, and sustainability.

Graduates of this program will emerge as Downstream Optimization Professionals — capable of integrating technology, strategy, and performance management to lead the energy industry's next wave of transformation.

