Optimizing Oil & Gas Facility Design and Operations Course

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Cape Town (South Africa)



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Why This Course

As global energy demand evolves, oil and gas facilities must operate with greater efficiency, reliability, and cost-effectiveness than ever before. Modern facility design and operations require a deep understanding of infrastructure components, process optimization, equipment selection, and economic evaluation — all while navigating new technologies and rapidly shifting industry conditions.

The Oil & Gas Facility Design & Optimization Executive Program provides a comprehensive 1-week experience for engineers, technical professionals, and operations leaders who want to enhance their facility design strategies and improve operational performance. This program combines real-world industry practices, engineering fundamentals, and forward-looking technologies to help participants design smarter, more efficient, and economically sound facilities across upstream, midstream, and downstream operations.

What You'll Learn and Practice

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

- Develop optimized design strategies for oil and gas facilities across all sectors
- Understand key infrastructure components and how they interact within integrated systems
- Select and evaluate equipment using proven engineering and operational criteria
- Apply economic evaluation frameworks to guide facility design and operational decisions
- Recognize emerging technologies and industry trends shaping future facility operations

The Program Flow

Day 1 - Oil & Gas Infrastructure Overview

- Overview of field processing facilities
- Water injection systems and integration
- Power generation and distribution fundamentals
- Refining facility components and operations
- Lifecycle cost analysis for facility planning



Day 2 - Equipment & Process Optimization

- Flowlines, pipeline systems, and design considerations
- Crude separation and treatment technologies
- Gas handling, compression, and conditioning
- Oil pumping systems and transportation operations

Day 3 - Water Management Systems

- Seawater treatment and injection processes
- Produced water handling and reinjection techniques
- Pump selection criteria and performance optimization
- Water quality control for facility reliability

Day 4 - Midstream Operations

- Transportation infrastructure and pipeline logistics
- Pump and compressor station design and operation
- Storage facilities for oil, gas, and LNG components
- Monitoring, control systems, and digital operations

Day 5 - Gas Operations & Economic Evaluation

- Gas processing and treatment technologies
- LNG facility design and operational considerations
- Technical and economic analysis for facility design options
- Optimization strategies, best practices, and industry case studies

Individual Impact

Participants will gain:

- The ability to identify cost-effective improvements in facility design and operations
- Enhanced capability in optimizing production output and operational efficiency
- Stronger technical judgment when evaluating facility upgrades and investments
- Broader insight into industry best practices and modern technologies

Organizational Impact

Organizations will benefit through:

- Improved facility performance and reduced operational costs
- Enhanced reliability, safety, and optimization of energy assets
- Better investment decisions supported by thorough economic evaluation
- Stronger competency in planning and managing facility life cycles



Training Methodology

The program uses an applied, engineering-focused approach built on:

- Real-world case studies from upstream, midstream, and downstream operations
- Hands-on exercises in process optimization and equipment selection
- Technical discussions and problem-solving workshops
- Industry benchmarking and scenario-based learning
- Interactive sessions with seasoned oil and gas professionals

Beyond the Course

Participants will return prepared to:

- Lead facility design and optimization initiatives
- Apply integrated engineering and economic evaluation methods
- Implement modern technologies to enhance facility performance
- Support strategic decisions that improve operational outcomes and cost efficiency

