MERCURY

Oil and Gas Well Design and Engineering Optimization

12 – 16 July 2027
Brussels (Belgium)



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Oil and Gas Well Design and Engineering Optimization

Ref: 15132_255764 **Date:** 12 – 16 July 2027 **Location:** Brussels (Belgium) **Fees:** 6200 Euro

Introduction:

This oil and gas well design and engineering optimization course will increase the participant's understanding of the oil and gas well construction process and offer a comprehensive overview of the oil and gas well construction cycle and drilling operations. Emphasis is on both conceptual design and detailed engineering design calculations, which are critical in planning a well for the oil and gas industry.

The training will cover aspects of the oil well design process, gas lift well design, and well optimization to enhance oil and gas production. Participants will explore oil and gas well design oil and gas theories, along with practical applications of oil and gas well engineering.

Lift and Optimization in Oil and Gas Wells

In the dynamic field of oil and gas well optimization, techniques such as oil and gas lift well design play a significant role in enhancing the productivity of oil and gas reservoirs.

This oil and gas well design and engineering optimization course will delve into the application and theory behind oil and gas lift and other optimization strategies, equipping well optimization engineers with the necessary skills to optimize well performance.

Targeted Groups:

- Drilling engineers.
- Completion engineers.
- Drilling supervisors with experience in drilling operations.

Course Objectives:

At the end of this oil and gas well design and engineering optimization course, participants will be able to:

- Achieve an optimal well design and mitigate risk in oil and gas well design and engineering.
- Extend the life of the well and maintain control over its operation.
- Ensure integrity throughout all stages of oil and gas well engineering and completion design.
- Obtain integrated knowledge to address and resolve drilling challenges effectively.
- Develop confidence in conducting proper well design, preventing problems.
- Understand key concepts associated with the construction of multilateral wells.

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Targeted Competencies:

This oil and gas well design and engineering optimization training course will feature:

- Identify Drill string and Bottom Hole Assembly BHA Design and Bit technology.
- Concepts related to wellbore stability and casing point selection.
- Drill fluids management and solids control.
- Techniques in casing design for oil and gas wells.
- Best practices in primary cementing for oil and gas well integrity.
- Trajectory design for directional drilling.

Course Content:

Unit 1: Well Engineering and Drilling Operations Overview:

- Explore and production licenses, roles of drilling personnel, and rotary drilling equipment.
- Compare the drilling process onshore and offshore.
- Drill economics and budget considerations.
- Rig Components and their functions.
- Drill string components and design considerations.
- Drill Bit selection and performance optimization.

Unit 2: Formation Pressures, Well Control, and Recovery:

- Pore pressures and fracture pressures: their origins and implications.
- Identify and manage abnormal pressures in oil and gas well engineering.
- Strategies for predicting and confirming formation fracture pressures.
- Primary and secondary oil and gas well control principles and procedures.
- Early detection and response to oil and gas well control incidents.

Unit 3: Drilling Fluids, Hydraulics, and Casing Design:

- Functions and properties of drilling fluids customizing fluids to oil and gas well conditions.
- Implement a solid control system.
- Design for minimizing pressure losses in the drilling system.
- Optimize bit hydraulics for oil and gas well efficiency.
- Design and run casing for oil and gas well construction.

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Unit 4: Cementing Practices and Directional Drilling Techniques:

- Cement properties and operations designed for zonal isolation.
- Tailor cementing operations to optimize well integrity.
- Directional drilling methodologies and trajectory planning.
- BHA and directional drilling tools necessary for trajectory control.
- Wellbore surveying fundamentals for accurate oil and gas well placement.

Unit 5: Advanced Monitoring and Offshore Considerations:

- Measurement While Drilling MWD for real-time data acquisition.
- Key techniques for MWD data collection and interpretation.
- Subsea drilling operations and unique engineering challenges.