Drilling Engineering, Well Design & Safety Management

11 – 15 April 2027
Online



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Introduction

Drilling Engineering, Well Design & Safety Management is a cornerstone discipline in the oil and gas industry, ensuring efficient drilling operations, safe and sustainable well designs, and strict compliance with safety standards. This comprehensive training program provides participants with the theoretical knowledge and practical skills needed to manage every stage of drilling — from planning and design to execution, risk management, and operational safety.
Through an integrated training approach, participants will learn to analyze geological variables, select appropriate drilling techniques, design high-performance wells, and apply safety procedures that minimize operational risks while maintaining production continuity.

Course Objectives

- Understand fundamental and advanced principles of drilling engineering.
- Develop skills to design wells according to technical and industry standards.
- Select appropriate drilling techniques based on geological formations.
- Apply occupational health and safety standards in drilling operations.
- Manage potential risks during drilling activities.
- Use design and simulation software to support technical decisions.
- Monitor and ensure drilling quality compliance.
- Create emergency response plans for drilling operations.

Course Outlines

Day 1: Fundamentals of Drilling Engineering

- Overview of drilling engineering and its role in the oil and gas sector.
- Components and functions of drilling rigs.
- Types of drilling operations and their characteristics.
- Factors influencing drilling method selection.
- Monitoring and control techniques during drilling.
- Case study: Improving drilling performance.



Day 2: Well Design

- Engineering principles of well design.
- Selection of casing and cementing materials.
- Determining casing depths and stage programs.
- Impact of geological pressures on design.
- Well-designed simulation tools and techniques.
- Workshop: Designing a virtual well.

Day 3: Advanced Drilling Techniques

- Directional drilling and its role in reservoir targeting.
- Horizontal drilling and its production benefits.
- Managed pressure drilling techniques.
- Modern drilling tools and smart monitoring systems.
- Enhancing drilling efficiency through data analytics.
- Practical exercise: Analyzing drilling data.

Day 4: Safety & Risk Management

- Global safety standards in drilling operations.
- Risk assessment methodologies during drilling.
- Emergency response and evacuation planning.
- Blowout prevention BOP systems and controls.
- Managing environmental risks in drilling.
- Case study: Incident management in drilling sites.

Day 5: Evaluation & Course Wrap-Up

- Comprehensive review of learned concepts.
- Evaluation of participant well designs and drilling plans.
- Analyzing safety issues and mitigation strategies.
- Developing drilling performance improvement plans.
- Final integrated exercise combining design and safety.
- Certificate award and course closure.



Why Attend this Course: Wins & Losses!

- Gain a complete understanding of drilling engineering, well design, and safety management.
- Improve technical decision-making in complex operational environments.
- Learn the latest drilling and design technologies.
- Enhance operational efficiency and reduce costs.
- Strengthen safety measures and reduce operational risks.
- Apply knowledge through hands-on exercises and real-world scenarios.
- Earn an internationally recognized professional certificate.
- Improve leadership in managing field and technical teams.

Conclusion

The Drilling Engineering, Well Design & Safety Management course delivers a complete framework for developing the technical and managerial skills needed to execute drilling operations efficiently while ensuring the highest safety standards. By combining theory with practical application, it enables participants to design and execute safe, efficient wells, manage operational risks, and achieve production goals with quality and precision.
Mastering these skills will not only improve operational performance but also enhance the ability to face technical and field challenges with confidence and competence.

