AI-Powered Drilling Engineering & Well Planning

30 November – 4 December 2026
London (UK)



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Introduction

The integration of Artificial Intelligence AI into the oil and gas industry is transforming how drilling engineering and well planning are executed. By combining advanced data analytics, machine learning models, and real-time monitoring, companies can improve drilling accuracy, reduce risks, and significantly lower operational costs.
This course is designed to equip professionals with practical knowledge and tools to apply AI in drilling and well planning processes, enabling higher efficiency, safety, and profitability.

Course Objectives

- Understand the fundamentals of drilling engineering and AI applications.
- Analyze geological and geophysical data for optimal drilling site selection.
- Apply machine learning algorithms to predict well performance.
- Optimize the selection of drilling equipment and measurement tools.
- Manage drilling risks and reduce deviations during operations.
- Integrate real-time data into decision-making processes.
- Assess the economic and operational feasibility of drilling plans.
- Develop strategies to enhance overall drilling project performance.

Course Outlines

Day 1: Fundamentals of Drilling Engineering & AI Applications

- Introduction to drilling engineering and its role in the industry.
- Overview of AI technologies in the energy sector.
- Comparison of conventional vs. AI-driven drilling approaches.
- Data sources used in drilling operations.
- Opportunities and challenges of AI implementation.
- Practical exercise: Identifying AI applications in drilling operations.

Day 2: Data Acquisition & Processing

- Types of data in drilling operations.
- Data cleaning and preprocessing techniques.
- Merging geological data with actual drilling data.
- Using IoT for equipment monitoring.
- Ensuring data security and integrity.
- Practical exercise: Building a complete drilling data pipeline.



Day 3: Modeling & Predictive Analytics

- Introduction to predictive modeling in drilling.
- Designing machine learning models for well behavior prediction.
- Improving drilling site selection with predictive analytics.
- Early detection of operational issues using AI models.
- Case study: Optimizing a drilling plan with AI.
- Practical exercise: Training a predictive model for well performance.

Day 4: Advanced Well Planning & Risk Management

- AI-powered well planning strategies.
- Managing drilling risks and minimizing deviations.
- Optimizing the use of drilling equipment.
- Applying real-time analytics during drilling operations.
- Integrating monitoring systems with contingency plans.
- Practical exercise: Developing a complete AI-driven drilling plan.

Day 5: Evaluation & Continuous Improvement

- Key performance indicators KPIs for drilling success.
- Post-drilling data analysis and review.
- Updating and refining models based on past operations.
- Economic feasibility assessment of AI-powered drilling projects.
- Creating a continuous improvement roadmap.
- Practical exercise: Preparing a comprehensive drilling project report.

Why Attend this Course: Wins & Losses!

- Gain advanced skills in AI-powered drilling engineering.
- Improve drilling accuracy and reduce operational errors.
- Lower operational costs while increasing productivity.
- Enhance safety standards during drilling operations.
- Integrate real-time data into decision-making processes.
- Learn about the latest technologies in drilling and well planning.
- Apply hands-on experience through practical exercises.
- Foster innovation in drilling project management.

Conclusion

AI is reshaping the future of drilling engineering and well planning by delivering higher precision, reducing risks, and generating substantial operational and financial benefits.

This course offers the perfect blend of theoretical knowledge and practical applications, empowering participants to leverage cutting-edge AI solutions for maximum efficiency in drilling projects.

