Training Course on Digital Well Planning and Real-Time Drilling Monitoring

Professional Development Training Course Outline

Category	Oil and Gas	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The oil and gas industry is rapidly transforming, with digital technologies reshaping how wells are planned and drilling operations are monitored. Digital well planning and real-time drilling monitoring are now critical to enhancing operational efficiency, minimizing non-productive time (NPT), and ensuring safety and sustainability in drilling activities. Training Course on Digital Well Planning & Real-Time Drilling Monitoring delivers the essential knowledge and tools required to successfully implement digital workflows, integrate real-time data, and optimize well performance through analytics and automation.

Participants will gain hands-on skills in data-driven well design, advanced drilling analytics, machine learning applications, and remote operations. By mastering the latest industry tools and digital platforms, professionals will be equipped to lead their teams through the digital transformation journey in upstream operations. This course is designed to empower engineers, planners, and drilling managers with cutting-edge solutions and strategic thinking for real-time decision-making and enhanced collaboration across drilling operations.

Programme Curriculum

Training Course on Digital Well Planning & Real-Time Drilling Monitoring

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Course Objectives

1. Understand the fundamentals of digital transformation in oil & gas.
2. Apply digital workflows in well planning and design.
3. Leverage real-time data to optimize drilling performance.
4. Interpret drilling analytics dashboards for decision-making.
5. Utilize cloud-based tools for remote well collaboration.
6. Integrate machine learning into drilling operations.
7. Analyze non-productive time (NPT) trends using digital tools.
8. Design KPIs for real-time performance tracking.
9. Apply automated alerts to improve drilling safety.
10. Conduct risk analysis using real-time monitoring tools.
11. Understand digital twin applications in well planning.
12. Utilize IoT and edge computing for data acquisition.
13. Implement best practices in digital drilling operations.

Target Audiences

1. Drilling Engineers
2. Well Planning Specialists
3. Oil & Gas Data Analysts
4. Petroleum Engineers
5. Digital Transformation Officers
6. Wellsite Geologists
7. Operations Managers
8. Asset Development Teams

Course Duration: 10 days

Course Modules

Module 1: Introduction to Digital Drilling

- Overview of digital transformation in drilling
- Importance of digital well planning
- Key digital tools and platforms
- Benefits of real-time monitoring
- Industry trends and future outlook
- **Case Study:** Digital implementation at a leading offshore rig

Module 2: Fundamentals of Well Planning

- Lifecycle of a well plan
- Digital vs traditional planning workflows
- Key metrics and planning tools
- Data inputs and validation
- Collaborative planning with digital tools
- **Case Study:** Streamlining planning in a North Sea field

Module 3: Real-Time Data Acquisition

- Sensors and data sources in drilling operations
- Types of real-time data (MWD, LWD, etc.)
- Edge computing in drilling
- Data quality control techniques
- Real-time visualization platforms
- **Case Study:** High-frequency data optimization in the Permian Basin

Module 4: Drilling Performance Analytics

- Introduction to drilling KPIs
- Predictive analytics and trend analysis
- Benchmarking and performance comparison
- Identifying inefficiencies via data
- Visualization tools (Power BI, Spotfire)
- **Case Study:** Performance improvement using analytics in deepwater wells

Module 5: Managing NPT with Digital Tools

- Definition and impact of NPT
- Common causes of NPT
- Real-time detection and reporting systems
- Using ML to predict NPT events
- Workflow redesign to mitigate risks
- **Case Study:** Reducing NPT in horizontal drilling operations

Module 6: Cloud-Based Collaboration for Well Planning

- Advantages of cloud platforms in planning
- Real-time team communication
- Version control and planning history
- Multi-user access and remote approval workflows
- Security and data governance
- **Case Study:** Cross-continental team collaboration via cloud

Module 7: Machine Learning in Drilling Operations

- Role of ML in identifying drilling patterns
- Model training using historical data
- Anomaly detection
- ML tools used in the industry
- Challenges in ML deployment
- **Case Study:** AI-assisted optimization in shale drilling

Module 8: Automated Alerts & Safety Systems

- Digital alarms for pressure, vibration, and torque
- Safety dashboards and thresholds
- Predictive alerts to prevent kicks or stuck pipe
- Integration with rig control systems
- Regulatory compliance via automation
- **Case Study:** Automated kick detection in offshore rig

Module 9: Risk Management in Digital Environments

- Identifying digital risks in well planning

- Cybersecurity in drilling operations
- Real-time risk modeling
- Contingency planning with live data
- Regulatory considerations
- **Case Study:** Risk mitigation in high-pressure HPHT well

Module 10: Digital Twin for Wells

- Definition and architecture of digital twins
- Real-time model updates
- Virtual simulations for planning validation
- Integration with IoT
- Benefits and limitations
- **Case Study:** Twin-based re-drill planning in the Gulf of Mexico

Module 11: IoT Integration in Drilling

- Types of IoT devices in well operations
- Data streams from field sensors
- Integrating IoT into the rig's digital ecosystem
- Troubleshooting and maintenance
- Data reliability and synchronization
- **Case Study:** IoT-driven optimization in desert field

Module 12: Remote Operations Centers (ROC)

- Role and structure of ROCs
- Staffing and communication
- Workflow design for ROCs
- Real-time KPIs and dashboards
- Cost reduction via remote ops
- **Case Study:** 24/7 monitoring success from a remote center in Houston

Module 13: Environmental & Regulatory Considerations

- ESG and sustainability in digital drilling
- Emissions monitoring in real-time
- Digital documentation for audits
- Regulatory platforms and digital submission
- Reducing carbon footprint using data
- **Case Study:** Emissions reduction in a digitalized onshore operation

Module 14: Hands-On Simulation & Practice

- Real-time drilling simulator introduction
- Planning exercise using actual field data
- Data stream interpretation practice
- Troubleshooting drills
- Simulation-based decision making
- **Case Study:** Participant team project based on real field case

Module 15: Final Project and Evaluation

- Group project assignment
- End-to-end digital well plan design
- Integration of all course elements

- Presentation of findings
- Feedback and certification
- **Case Study:** Real-time evaluation from a completed well operation

Training Methodology

- Interactive instructor-led sessions
- Real-time drilling simulation software
- Group discussions and digital breakout sessions
- Case study analysis and practical applications
- Assessments and personalized feedback

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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