Advanced Drilling Best Practices Training Course

Professional Development Training Course Outline

Category	Construction Institute	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Advanced Drilling Best Practices Training Course provides professionals with the essential knowledge and **advanced drilling techniques** to master modern **well construction** and **operational excellence**. In today's dynamic energy sector, where efficiency, **safety**, and **environmental stewardship** are paramount, this program equips participants with cutting-edge skills to overcome complex challenges. By focusing on **data-driven decision-making**, **risk mitigation**, and the latest **digital technologies**, this course ensures participants are at the forefront of the industry. The curriculum covers a wide range of **drilling operations**, from **well design** and **drilling fluid management** to **directional drilling** and **well control**, preparing attendees to handle high-pressure situations and optimize performance.

This program delves into the **best practices** that are revolutionizing the **oil and gas drilling** landscape. Participants will gain a deep understanding of how to reduce **non-productive time (NPT)**, enhance **wellbore integrity**, and implement sustainable drilling methods. Through a blend of theoretical knowledge and **practical application**, the course empowers professionals to make informed decisions that drive **cost-effectiveness** and **operational safety**. Whether working **onshore or offshore**, the insights and skills acquired will enable attendees to navigate the complexities of **unconventional reservoirs** and **high-pressure, high-temperature (HPHT) wells**, ultimately contributing to their organization's growth and success.

Programme Curriculum

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Course Duration

5 days

Course Objectives

1. Master the principles of wellbore stability and borehole integrity management.
2. Apply real-time data analytics and digital twin technologies for drilling optimization.
3. Implement managed pressure drilling (MPD) and automated drilling systems to enhance efficiency.
4. Develop comprehensive well design and directional drilling plans for complex trajectories.
5. Analyze and mitigate non-productive time (NPT) and common drilling problems like stuck pipe and lost circulation.
6. Optimize drilling fluid and hydraulics programs for diverse geological formations.
7. Enhance well control and blowout prevention (BOP) strategies to ensure operational safety.
8. Evaluate and select advanced drill bits and bottom-hole assembly (BHA) designs.
9. Strengthen environmental, social, and governance (ESG) compliance in drilling operations.
10. Utilize predictive maintenance and machine learning to prevent equipment failure.
11. Assess torque and drag models for extended reach drilling (ERD) and horizontal wells.
12. Formulate cost-effective and sustainable drilling strategies.
13. Cultivate advanced troubleshooting and problem-solving skills for complex scenarios.

Organizational Benefits

- By minimizing **NPT** and optimizing **drilling parameters**, organizations can significantly reduce operational costs and maximize returns.
- Equipping personnel with advanced **well control** and **risk assessment** skills leads to a safer working environment and fewer incidents.
- Implementing **best practices** in **wellbore stability** and **casing design** ensures the long-term integrity and productivity of the well.
- The training fosters the use of **digital solutions**, **automation**, and **real-time data analytics**, positioning the company as a technological leader.
- A focus on **ESG** and **low-impact drilling fluids** helps organizations meet regulatory requirements and improve their environmental reputation.
- Investing in professional development attracts and retains highly skilled and motivated personnel.

Target Audience

1. Drilling Engineers and Well Engineers
2. Drilling Supervisors and Superintendents
3. Operations Managers and Field Supervisors
4. Petroleum Engineers
5. Drilling Consultants
6. Wellsite Geologists
7. Drilling Contractors
8. Technical Support Staff

Course Modules

Module 1: Fundamentals of Advanced Drilling Engineering

- Overview of modern drilling practices and challenges.
- Advanced **well design** for complex **well construction**.
- **Drill string design** and mechanics for high-load applications.
- **Drill bit selection** and performance optimization.
- **Case Study:** Designing a drill string and bit program for an **HPHT well** in the Gulf of Mexico.

Module 2: Drilling Fluid & Hydraulics Management

- Rheology and properties of advanced drilling fluids.
- Hydraulics optimization and pressure management.
- Preventing and managing **lost circulation** events.
- Solids control and fluid additives for complex formations.
- **Case Study:** Troubleshooting a **lost circulation** event in a fractured reservoir using real-time data.

Module 3: Wellbore Stability & Geomechanics

- Principles of rock mechanics and in-situ stress analysis.
- Modeling and predicting **wellbore instability** and collapse.
- Causes and prevention of **differential pressure sticking**.
- Managing **pore pressure** and **fracture gradient** for safe drilling.
- **Case Study:** Analyzing a **shale instability** event and implementing a new fluid system.

Module 4: Directional & Horizontal Drilling

- Fundamentals of **directional well planning** and trajectory control.
- **Rotary steerable systems (RSS)** and **bottom-hole assembly (BHA)** design.
- **Extended reach drilling (ERD)** techniques and anti-collision planning.
- Measurement While Drilling (**MWD**) and Logging While Drilling (**LWD**) technologies.
- **Case Study:** Planning and executing a **multi-lateral well** to maximize reservoir contact.

Module 5: Well Control & Emergency Response

- Advanced **kick detection** and well control procedures.
- Blowout Prevention (**BOP**) systems and equipment.
- Managing **underground blowouts** and contingency planning.
- Implementing **drillers' method** and **volumetric control** techniques.
- **Case Study:** Simulating an induced kick scenario and applying emergency response protocols.

Module 6: Drilling Automation & Digitalization

- Introduction to **automated drilling systems** and **smart rigs**.
- Utilizing **real-time data analytics** for performance enhancement.
- Applying **machine learning** for **predictive maintenance** and failure prevention.
- **Digital twin** technology for simulating and optimizing drilling operations.
- **Case Study:** Using an AI-driven system to optimize drilling parameters and reduce **NPT**.

Module 7: Non-Productive Time (NPT) Mitigation

- Identifying and classifying different types of **NPT**.
- Root cause analysis of **stuck pipe**, **lost circulation**, and equipment failure.
- Implementing a proactive **risk management** framework.
- Developing and applying a **continuous improvement** process.
- **Case Study:** Conducting a post-drilling review to identify and mitigate future **NPT** risks.

Module 8: Sustainable & Cost-Effective Drilling

- Integrating **environmental, social, and governance (ESG)** principles.
- Selecting and managing environmentally friendly drilling fluids.
- Waste management and emissions reduction in drilling operations.
- Strategies for maximizing **rate of penetration (ROP)** and reducing costs.
- **Case Study:** Designing a drilling plan for a sensitive ecological area, balancing efficiency and **environmental stewardship**.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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