

Introduction to Drilling for New Engineers and Non-Specialists



Practical Understanding of Drilling Concepts, Terminology, Activities and Processes for New Engineers and Non-Drilling Professionals

⦿ Duration/Dates of Course

18 - 19 April 2016 | Yogyakarta, Indonesia
20 - 21 April 2016 | Kuala Lumpur, Malaysia

⦿ Overview

This comprehensive 2-day programme provides participants a practical understanding of the drilling process - without being too technically intensive, focuses on logistical considerations, professional roles, costing and risk awareness involved in drilling operations. This course gives new engineers and non-drilling professionals familiarity with drilling language well operations and processes enabling them to facilitate productive, cross-functional projects.

The course discusses the fundamentals of drilling, types of rigs used, procedures and the people who make the drilling equipment work. It also provides an overview of the key issues involved in selecting drilling targets, well planning, evaluation and completion, while ensuring drilling safety and efficiency. Typical challenges in drilling operations are also examined, offering solutions to overcome the hazards and risk that can exist. Advanced drilling concepts, principles and latest technology are also covered, further exploring industry dynamics which drive today's drilling and well operating activities.

⦿ Target Participants

This 2 day programme benefits all professionals and non-drilling support executives requiring a comprehensive introduction to drilling and well operations;

- New Personnel and New Engineers requiring a solid grounding in drilling operations - such as Geologists, Reservoir Engineers, Completion, Production and Process Staff, Platform Designers.
- Accounting, Finance and Administration.
- Supply Chain, Procurement, Sourcing and Contract Management.
- Health, Safety and Environmental (HSE).
- Law and Legal Departments.
- Technical Staff in Drilling and Associated Departments.
- Personnel from other Industries or Petroleum. Departments who have no knowledge of drilling.
- Other Oil and Gas Professionals Interested in Drilling Fundamentals.

⦿ Purpose

Obtain an knowledge and awareness as to how onshore and offshore drilling operations work, function, are managed and controlled.

⦿ Goals and Objectives

This 2-day industry fundamentals training course will ensure you are better skilled to:

- Know the drilling processes, language and role it plays in the Oil and Gas industry.
- Learn the various roles and responsibilities of the people involved in the activity such as the E&P team, on-site drilling team, contractors and service companies.
- Become familiar with the drilling operations, main and technical functions of the drilling equipment.
- Have a greater awareness of the major cost components, logistical, technical and safety considerations of drilling operations
- Examine typical uncertainties, risks and problems inherent in drilling operations
- Gain invaluable insights into latest drilling techniques, technologies, ideas and market factors directly impacting drilling activities

⦿ Course Take Away

Enable persons to apply the drilling knowledge and awareness gained as relevant to their personal or organizational business requirements.

The suggested topics are preliminary and only serve as a guide. Elected trainer may modify, amend and improve specific topic contents or reorder presentation sequence as deemed appropriate.



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Course Details

Introduction to Drilling



Day 1

E&P Drilling Industry

- Drilling History, Well Life-cycles
- Design construct and engineer wells
- Drilling well life cycle video

Petroleum Geology and Drilling Operations

- Hydrocarbons: Origin, Formation, Migration, Traps
- How Reservoir 'Targets' are found
- Exp, App and Development Drilling
 - Onshore and offshore drilling
 - Drilling Rig Facilities

Organisation of Drilling Operations

- People and team Involved in drilling
- Managing a drilling work scope
- Costing Hazards of a drilling project
- Contracting and the supply chain
- Quality control, and HSE aspects

Drilling Fundamentals

- Sedimentary Geology and data acquisition basis
- Offset well analysis and FEL
- Pressure management
- Bits, BHA and drillstring design
- Introduction to casing design
- Completion and drilling tubulars
- Basic drilling engineering
- Drilling and cementing fluids design

Preliminaries of Well Design

- Land Leasing, Contracting
- Site specific preparations
- Well design essentials

Types of Wells (Directional Profile)

- Vertical
- High-Angle, Horizontal
- Complex, Subsea well profiles

Basic / Critical Drilling Equipment Used

- Basic Land Rigs - Light, Heavy and Specialized
- Fixed Offshore Rigs - Barge, Tender and Platform
- Mobile Drilling Units - Jack up, Semisubmersible, Drillship

Day 2

The Drilling Process

- Preparing to drill
 - Hoisting, Rotating, Circulating,
 - Power, Well Control Systems
- Drilling Stages
 - Spud, Drill to casing depth
 - Wellbore evaluation (logging)
 - Casing and cementing
 - Pressure and wellbore stability
 - Well control, learning from failure

Evaluating and Completing the Well

- Evaluation Methods
 - Mud and Wireline Logging
 - Coring, MWD and LWD, Testing
- Types of Well Completions
 - Mechanical and Electrical Pumps
 - Multiple, SMART completions
- Well completion components

Well Integrity in Drilling Operations

- Well integrity (Ref Norsok D-010)
- Well suspension and Abandonment
- Decommissioning

Well Cycle Problems / Operations Risks

- Drilling and workover problems
- Challenges, causes and solutions

Drilling Cost Calculations – Well Costing

- Cost components of drilling a well

Supply Chain considerations

- Prior to commencement of drilling
- During and after the drilling process

New Technology Adaptation

- Narrow margin complex wells
- OBD, MPD, UBD and CWD
- Through tubing coiled tubing drilling
- Seabed drilling
- Technology transfer and QHSE
- Drilling cost drivers, \$/bbl

Summary and
Wrap-Up,
Questions and
Answers