



DE123

Advanced Drilling Practice Technology

Course Introduction:

This five-day advanced training course provide a comprehensive overview of drilling technologies currently available and covers the essential principles and practices of Drilling Engineering. The course provides participants with an introduction to advanced drilling topics such as High Pressure High Temperature (HPHT) drilling, modern drilling technologies (i.e. casing drilling, unconventional drilling methods), special well design, drilling problems and their solutions.

Throughout the course, delegates will be guided through the planning and evaluation stages of drill string design. They will learn how to perform simple calculations associated with well tubular design. Advanced drilling techniques such as casing drilling or coiled tubing drilling are also covered in the course.

In addition, participants will become confident using the tools and techniques for casing or tubing drilling such as surface equipment, bottomhole assemblies (BHA), etc. At the end of the course, participants will be able to decide which technology is more suitable for their business using decision matrix.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- ✓ Drill string mechanics: loads, cause of failure, design concepts
- ✓ Mechanized drilling operations: makeup of tubular, mechanized drilling rigs
- ✓ Drilling problems: stuck pipe situations, fishing operations
- ✓ Advanced drilling technologies - casing drilling, HPHT, coiled tubing drilling
- ✓ Proper selection of drilling technology for shale gas, geothermal drilling, etc.
- ✓ Non-conventional drilling methods and equipment including environmental aspects of drilling activities
- ✓ Drilling through gas hydrates
- ✓ Understand the process of well design which include
- ✓ lithological description of a given formation, formation pressures (pore, fracture and overburden pressures
- ✓ Understand well pressure control and its calculations
- ✓ Perform basic Well Engineering calculations (casing and cement jobs, drill string design, directional drilling and drilling fluid calculations)
- ✓ Interpret data from the Well Engineering morning reports (reading and discussing)
- ✓ Understand well engineering terminology and abbreviations
- ✓ Describe common drilling problem (Stuckpipe, loss circulation etc.)
- ✓ Contribute immediately in their first work assignments

- ✓ Recognize the value and function of data collected during well construction.
- ✓ Be able to present his participation on a project to design a complete well
- ✓ Enhance; presentation and technical writing skills

Who Should Attend?

This course is intended for engineers with a good understanding of the principles of drilling engineering; Drilling Engineers, Production and operations engineers, Field supervisors, Managers and technical support personnel are the main target of the course and Maintenance personnel who are involved in drilling and completion technology.

Course Outline:

Day 1:

- Well Engineering & Operations
 - Drilling fluids and cementing
 - Well-site data acquisition and quality control
 - HSE - Risk management
 - Well Delivery Process
- Rig Types and Personnel
 - Types of rigs
 - Land rigs
 - Rig components
 - Offshore rigs: jack-up rigs, submersible rigs, platform rigs, semi-submersible rigs, drill ships
- Rolling Cutter Bit
 - Bit types
 - Specification
 - Grading worn bit
 - Bit performance

Day 2:

- Drilling Fluids
 - Types and components
 - Properties
 - Testing equipment
 - Selection
- Well Completion
 - Completion configuration

- Completion equipment
- Perforation
- Depth selection
- Casing design
- Types of casings
- Introduction to completion
- Types of completion
- Completion design criteria
- Gun systems & types
- Gun conveyance
- Perforating environment
- Drilling & completion fluids
- Drilling methods and drilling technologies
- Drilling operations, calculations and hydraulics
- Drill and casing string design

Day 3:

- Drilling problems and their solutions in modern drilling operations
- Coiled tubing drilling technology
- Casing drilling technology and casing fatigue
- Expandable tubular and their applications
- Drilling fluids for HPHT environment

Day 4:

- Wellbore hydraulics
- Non-conventional drilling methods
- High performance drilling concepts
- Bit separation and evaluation
- Well evacuation (coring, logging and testing)
- Abnormal pressure prediction and detection
- Cementing

Day 5:

- Directional well planning
- Stuck pipe and finishing
- Drilling optimization and problems
- Aspects wellbore construction and wellbore integrity

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Fees:

To be advised as per course location. This rate includes participant's manual, and-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session