

COURSE OVERVIEW DE0187 <u>Directional, Horizontal and Multilateral Drilling</u>

Course Title

Directional, Horizontal and Multilateral Drilling

Course Date/Venue

Session 1: May 18-22, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar

Session 2: October 12-16, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar



DE0187

Course Duration/Credits

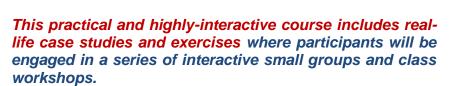
Five days/3.0 CEUs/30 PDHs

Course Description









This course is designed to provide participants with a detailed and up-to-date overview of directional, horizontal and multilateral drilling. It covers the horizontal and multilateral well technology; the horizontal and multilateral well design and the applications for directional drilling; the directional profiles and extended reach wells; the directional measurement, surveying, survey calculations and accuracy; the dogleg severity calculations and planning directional and horizontal wells; the horizontal drilling methods and applications; and kicking off the well, drilling the tangent section, dropping hole angle, logging high angle wells and hole cleaning.

During this interactive course, participants will learn the well control in horizontal wells and multi-laterals; the various types of survey instruments and the tools used to deflect a wellbore; the torque and drag calculations; the drilling fluids, turbodrills and measurement while drilling (MWD); the formation evaluation, kick detection and response; the general considerations for BOP equipment, cementing and drilling problems in horizontal and multilateral wells; the control over borehole trajectory and tools used to deflect a wellbore; freeing stuck pipe, baking-off the drill string, fishing and milling; the sidetracking and lost circulation; the productivity of horizontal and multilateral wells; and the influence of well eccentricity and formation damage.





















Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain a comprehensive knowledge on directional, horizontal and multilateral drilling
- Make survey calculations as well as interpret TVD, polar and rectangular coordinates and vertical section including dogleg severity and the problems associated with it
- Plan a two-dimensional directional well including the horizontal wells based on the objectives of the well
- Determine the best multi-lateral completion for an application and the declination and non-magnetic drilling collar selection
- Apply the best survey instrument for the job and determine directionally drill with rotary BHAs, jetting, whipstocks, motor, steerable motors and rotary steerable systems
- Discuss drill horizontally underbalanced and interpret torque and drag
- Determine what factors will affect the torque and drag as well as cementing requirements for directional wells
- Discuss the horizontal and multilateral well technology including the horizontal, multilateral wells and reservoir concerns
- Illustrate horizontal and multilateral well design and the applications for directional drilling
- Recognize directional profiles and extended reach wells as well as apply directional measurement, surveying, survey calculations and accuracy
- Employ dogleg severity calculations, planning directional and horizontal wells and horizontal drilling methods and applications
- Describe kicking off the well, drilling the tangent section, dropping hole angle, logging high angle wells and hole cleaning
- Illustrate well control in horizontal wells and multi-laterals
- Identify the various types of survey instruments and the tools used to deflect a wellbore
- · Carryout torque and drag calculations and discuss drilling fluids, turbodrills and measurement while drilling (MWD)
- Illustrate formation evaluation, kick detection and response and well killing in horizontal wells
- Determine general considerations for BOP equipment, cementing, drilling problems in horizontal and multilateral wells, control over borehole trajectory and tools used to deflect a wellbore
- Describe freeing stuck pipe, baking-off the drill string, fishing and milling
- Discuss the sidetracking and lost circulation as well as productivity of horizontal and multilateral wells
- Recognize the influence of well eccentricity and formation damage

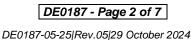




















Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive "Haward Smart Training Kit" (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes electronic version of the course materials conveniently saved in a Tablet PC.

Who Should Attend

This course provides an overview of all significant aspects and considerations of directional, horizontal and multilateral drilling for drilling engineers, reservoir engineers, geologists, production and completion engineers and supervisors.

Training Methodology

All our Courses are including Hands-on Practical Sessions using equipment, State-ofthe-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures 20% Practical Workshops & Work Presentations 30% Hands-on Practical Exercises & Case Studies

20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Fee

US\$ 8,500 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

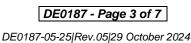




















Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:

The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the ANSI/IACET 2018-1 Standard which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET 2018-1 Standard.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking Continuing Education Units (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award 3.0 CEUs (Continuing Education Units) or 30 PDHs (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.



Haward Technology is accredited by the British Accreditation Council for Independent Further and Higher Education as an International Centre. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

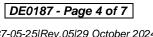




















Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Hossam Mansour is a Senior Drilling & Petroleum Engineer with almost 25 years of Offshore & Onshore experience within the Refinery, Petroleum and Oil & Gas industries. His expertise covers the areas of **Drill-String** Design, Failure Prevention & Optimization, Advanced Drilling Practices, Horizontal & Directional Drilling (Planning, Techniques & Procedures), Horizontal & Multilateral Drilling, Directional & Horizontal Drilling Techniques & Procedures, Directional Drilling, Horizontal & Multilateral Drilling, Advanced

Drilling Technology, Drilling & Workover Operations, Offshore Drilling & Testing, Drilling & Completion Fluids, Extended Reach Drilling (ERD), Cementing Operations, Cementing Equipment, Cement Slurry Volumes, Casing, Directional & Horizontal Well (Planning, Techniques & Procedures), Horizontal & Multilateral Wells, Horizontal Well Control, Horizontal & Multilateral Wells (Analysis & Design), Directional, Horizontal Well Performance & Optimization, Geological & Engineering Aspects of Horizontal Wells, Sucker Rod Pumping System, SRP Maintenance, Rod Pumping Optimization, Rod Lift Method, Beam Pump, Well Production Control & Management, Rigging, Tubular Handling, HPHT, Well Stimulation, Well Cleaning, Well Testing Analysis & Design, Well Control, Well Reconciliation, Drilling Water Wells Design & Operations, Coiled Tubing Perforating Operations, Gas Lift Operations, ESP Design & Operation, Tubing, Well Heads, Drill Stem Test (DST) Operations, Offshore Drilling and Drill String. Further, he is also a well-versed in Workover Rigs, Open & Cased Hole Logging, Wire Line Perforations, FRAC Design & Operations, Log Interpretation, Stuck Pipe Prevention, Fishing Operations, Tools & BHA Design and Rig & Rigless Completion Operations. He is currently the Operations General Manager of IPR Energy Group-International Oilfield Services, where-in he is managing, planning, directing and coordinating the operations of companies and responsible for formulating policies, managing daily operations and planning the use of materials.

During his career life, Mr. Mansour held significant positions such as the **Operations** General Manager, Drilling Engineering Manager, Drilling Superintendent, Drilling & Workover Superintendent, Senior Drilling Supervisor, Drilling & Workover Supervisor, Night Drilling Supervisor, Land Rig Drilling Supervisor, Senior Drilling Engineer, Senior Drilling Consultant, Trainer/Instructor and Cement Operator for numerous international companies like the Saudi ARAMCO. PetroSannan-JV NaftoGaz, PetroShahd, ENAP Sipetrol, NAFTOGAZ, Apache, Khalda Petroleum Company, RWE Dea AG Co., SUCO (Suez Oil Company) and Halliburton.

Mr. Mansour has a Bachelor's degree in Petroleum Engineering with the major in Drilling, Production & Reservoir. Further, he is a Certified Instructor/Trainer and a Certified Internal Verifier/Assessor/Trainer by the Institute of Leadership & Management (ILM). Moreover, he is a member of the Society of Petroleum Engineers (SPE) and has delivered innumerable technical courses, related sciences and studies, seminars, workshops and conferences worldwide.





















Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

Registration and Coffee
Welcome & Introduction
PRE-TEST
Overview of Horizontal & Multilateral Well Technology
Horizontal & Multilateral Wells & Reservoir Concerns
Break
Horizontal & Multilateral Well Design
Applications for Directional Drilling
Directional Profiles
Break
Extended Reach Wells
Directional Measurement & Surveying
Survey Calculations & Accuracy
Recap
Lunch & End of Day One

Dav 2

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0730 - 0845	Dogleg Severity Calculations & Problems Associated with
0845 - 0915	Planning Directional & Horizontal Wells
0915 - 0930	Break
0930 - 1030	Horizontal Drilling Methods & Applications
1030 - 1100	Kicking Off the Well
1100 - 1215	Drilling the Tangent Section
1215 - 1230	Break
1230 - 1300	Dropping Hole Angle
1300 - 1330	Logging High Angle Wells
1330 - 1420	Holecleaning
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 - 0845	Well Control in Horizontal Wells
0845 - 0915	Multi-laterals
0915 - 0930	Break
0930 - 1030	Types of Survey Instruments
1030 - 1100	Tools Used to Deflect a Wellbore
1100 - 1215	Torque & Drag Calculations
1215 - 1230	Break
1230 - 1300	Drilling Fluids
1300 - 1330	Turbodrills
1330 - 1420	Measurement While Drilling (MWD)
1420 - 1430	Recap
1430	Lunch & End of Day Three



















0730 - 0845	Formation Evaluation
0845 - 0915	Kick Detection & Response
0915 - 0930	Break
0930 - 1030	Well Killing in Horizontal Wells
1030 - 1100	General Considerations for BOP Equipment
1100 - 1215	Cementing
1215 - 1230	Break
1230 - 1300	Drilling Problems in Horizontal & Multilateral Wells
1300 - 1330	Control Over Borehole Trajectory
1330 - 1420	Tools Used to Deflect a Wellbore
1420 - 1430	Recap
1430	Lunch & End of Day Four

Day 5	
0730 - 0845	Freeing Stuck Pipe
0845 - 0915	Baking-off the Drill String
0915 - 0930	Break
0930 - 1030	Fishing & Milling
1030 - 1100	Sidetracking & Lost Circulation
1100 - 1140	Productivity of Horizontal & Multilateral Wells
1215 – 1230	Break
1230 - 1300	Influence of Well Eccentricity
1300 - 1345	Formation Damage
1345 - 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

<u>Practical Sessions</u>
This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

Reem Dergham, Tel: +974 4423 1327, Email: reem@haward.org











