

COURSE OVERVIEW DE0490(DP1) Directional Drilling

<u>Course Title</u> Directional Drilling

<u>Course Reference</u> DE0490(DP1)

Course Duration/Credits
Five days/3.0 CEUs/30 PDHS

H-STK® INCLUDED

Course Date/Venue

Session(s)	Date	Venue
1	April 21-25, 2024	
2	May 26-30, 2024	Oryx Meeting Room, DoubleTree By Hilton
3	September 08-12, 2024	Doha-Al Sadd, Doha, Qatar
4	November 17-21, 2024	

Course Description



This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.



This course is designed to provide participants with a good working knowledge on directional drilling. Design considerations and operational aspects of directional drilling will be highlighted in the course. The course will increase the understanding of the operations carried out by directional drillers and how directional wells are planned and optimized.



The course will provide participants with necessary skills to plan and execute the drilling of directional wells. It emphasizes the planning of well paths with single and multiple targets and selection of appropriate bottomhole assembly and drillstring for a given well path trajectory. The course also provides several opportunities for practical learning using videos.





















Specific problems associated with directional drilling such as torque, drag, hole cleaning, logging, and drill string component design are included. Participants will receive instruction on planning and evaluating directional wells based on the objectives of the well. They will become familiar with the tools and techniques used in directional drilling such as survey instruments, bottomhole assemblies, motors, steerable motors, and steerable rotary systems. Participants will be able to predict wellbore path based on historical data and determine the requirements to hit the target.

Course Objectives

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

- Apply and gain a comprehensive knowledge on directional drilling
- Discuss the directional drilling and terminology of fundamentals, applications limitations including its, well objectives, target issues and well planning positioning and coordinate systems
- Employ systematic techniques on survey calculation methods, anti-collision and well planning, and advanced well planning covering survey surveying tools, MWD, LWD and mudlogging
- Identify downhole equipment that include drilling tools, deflection methods, drilling motors, BHA design and rotary steerable systems
- Illustrate well planning and path design including directional well path design, horizontal well planning and calculations, horizontal drilling planning, drill sting design torque, drag, shocks and vibrations
- Carryout hole cleaning and discuss wellbore stability and geo-steering
- Recognise directional drilling problems and its solutions

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 drilling for drilling engineers, wellsite geologist and operation geologists.

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.

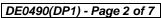




















Course Certificate(s)

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

Course 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.



British Accreditation Council (BAC)

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 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.

Accommodation

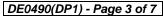
Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.



















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. Sigve Hamilton MSc, BSc, is a Senior Reservoir Engineer & Geologist with over 20 years of onshore & offshore experience within the Oil & Gas, Refinery and Petroleum industries. His specialization widely covers in the areas of **Sedimentology** & **Sequence Stratigraphy** Analysis, Seismic Depositional Sequence Stratigraphy, Environments, Stratigraphic **High-resolution** Sequence Stratigraphy, Modeling, Geophysical Characterization of Sedimentary Rocks, Sedimentary &

Reservoir Rocks, Petrophysical Reservoir Rocks, Rock Mechanics, Rock Properties, Reservoir Distribution & Geometry, Quantitative Prediction of Source Rocks & Reservoir, Carbonate Rocks & Siliciclastic Rocks, Applied Rock Mechanics, Rock Physics, Petroleum Geology, Play Assessment & Prospect Evaluation, Oil In Place (OIP) Estimation & Range of Uncertainty, Enhanced Oil Recovery, Reservoir Engineering & Management, Reservoir Simulation, Reservoir Geophysics, Naturally Fractured Reservoir, Special Core Analysis, Integrated Production System, Drilling Fluids Technology, Fluid Flow, Fluid Mechanics, Drilling Fluids Technology, Fluid Separation & Processing Techniques, Network Design, Network Optimization, Advanced Drilling Operation Management, Drilling Fluid Technology, Directional & Horizontal Drilling, Drilling Optimization & Well Planning, Drilling Operation Management, Drilling Control & Operation, Drilling & Completion Design, Drilling & Stuck Pipe Prevention, Gas Lift Operations, Gas Lift Design & Technology, Production Technology, Production Logging, Well Logging, Well Test Analysis, Well Testing Procedures & Evaluation, Well Performance & Control, Wellhead Operations, Wellhead Design, Tubing Design & Casing, Well Production Optimization, Well Control & Blowout Prevention, Coiled Tubing Technology, Coring & Core Analysis, Core & Log Integration, Core Logging, Carbonate & Seismic Sequence Stratigraphy, Completion & Casing Design, CO₂ & Injection System, Fracture Characterization & Modelling, PVT Analysis, Fluid Mechanics, Fluid Dynamics, Water Shutoff, Water Injection Technology, Water Flooding, Petroleum Engineering, Petroleum Physics, Petroleum Data Management, Petroleum Exploration, Streamline Simulation, Artificial Lift Design, Subsurface Production Operation, Rig Inspection, Logging, Hydraulic & Pneumatic, Heterogeneity Modelling for Reservoir Characterization, Prosper, 2D & 3D Geological Modelling, Property & Heterogeneity Modelling, IRAP RMS Streamlines, Grid Design & Upscaling for Reservoir Simulation and MBAL, Prosper and GAP Software,

During his career life, Mr. Hamilton held significant positions and dedication as the Petroleum Engineer, Drilling Engineer, Petroleum/QHSE Engineer, Reservoir Engineer, Field Manager, Laboratory Engineer, Mudlogging Geologist, Geoscientist, Geologist, Petrophysicist, Petroleum/Production Engineer & Consultant, Project Engineer/Risk Petroleum Consultant/Advisor. Inspector/Study Leader Advisor. and Senior Instructor/Lecturer from various companies and universities such as the University of Akureyri (UNAK), Stavanger Offshore Technical School, Akademiet, Peteka, FMC Technologies, Gerson Lehrman Group, Ocean Rig, Oilfield Technology Group, Talisman, IOR Chemco, Geoservices, ResLab and Roxar.

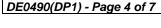
Mr. Hamilton has a Master's degree in Petroleum Engineering and a Bachelor's degree in Reservoir Engineering from The University of Stavanger, Norway. Further, he is a Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier by the Institute of Leadership & Management (ILM) and delivered numerous trainings, workshops, courses, seminars and conferences internationally.



















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

Day 1		
0730 - 0800	Registration & Coffee	
0800 - 0815	Welcome & Introduction	
0815 - 0830	PRE-TEST	
0830 - 0915	Directional Drilling Fundamentals & Terminology	
	Fundamentals • Applications • Limitations • Terminology	
0915 - 0930	Break	
	Directional Drilling Fundamentals & Terminology (cont'd)	
0930 - 1130	Well Objectives • Target Issues • Well Planning (Positing & Coordinate	
	Systems)	
1130 –1215	Surveying & Advanced Well Planning	
1130 -1215	Survey Calculation Methods • Anti-Collision • Well Planning	
1215 – 1230	Break	
1230 - 1420	Surveying & Advanced Well Planning (cont'd)	
	Surveying Tools • MWD, LWD & Mudlogging	
1420 – 1430	Recap	
1430	Lunch & End of Day One	

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0730 - 0915	Downhole Equipment Drilling Tools & Deflection Methods	
0915 - 0930	Break	
0930 - 1100	Downhole Equipment (cont'd) Drilling Motors Overview	
1100 – 1215	Downhole Equipment (cont'd) BHA Design	
1215 – 1230	Break	
1230 – 1420	Downhole Equipment (cont'd) Rotary Steerable Systems	
1420 – 1430	Recap	
1430	Lunch & End of Day Two	

Dav 3

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0730 - 0915	Well Planning & Path Design Directional Well Path Design • Horizontal Well Planning & Calculations	
0915 - 0930	Break	
0930 - 1100	Well Planning & Path Design (cont'd) Horizontal Drilling Planning	
1100 – 1215	Well Planning & Path Design (cont'd) Drill String Design	





















1215 – 1230	Break	
1230 – 1420	Well Planning & Path Design (cont'd)	
	Torque • Drag • Shocks • Vibration	
1420 - 1430	Recap	
1430	Lunch & End of Day Three	

Day 4

0730 - 0915	Hole Cleaning & Wellbore Stability	
	Hole Cleaning	
0915 - 0930	Break	
0930 - 1100	Hole Cleaning & Wellbore Stability (cont'd)	
	Well Bore Stability	
1100 – 1215	Hole Cleaning & Wellbore Stability (cont'd)	
	Well Bore Stability (cont'd)	
1215 - 1230	Break	
1230 – 1420	Hole Cleaning & Wellbore Stability (cont'd)	
	Introduction to Multilateral Wells	
1420 - 1430	Recap	
1430	Lunch & End of Day Four	

Day 5

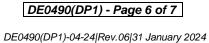
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0730 - 0915	Geo-steering
0915 - 0930	Break
0930 - 1100	Geo-steering (cont'd)
1100 – 1215	Directional Drilling Problems & Solutions
1215 - 1230	Break
1230 - 1345	Directional Drilling Problems & Solutions (cont'd)
1345 - 1400	Course Conclusion
1400 - 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course





















Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

Jaryl Castillo, Tel: +974 4423 1327, Email: jaryl@haward.org

















