

COURSE OVERVIEW DE0187

Drilling and Work-Over Operations-Horizontal Drilling & Multi-Lateral Operations

Course Title

Drilling and Work-Over Operations-Horizontal Drilling & Multi-Lateral Operations

Course Date/Venue

February 04-08, 2024/The KooH Al Noor Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

Course Reference

DE0187

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



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



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, sample video clips of the instructor’s actual lectures & practical sessions during the course 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-of-the-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\$ 8,000 per Delegate + **VAT**. 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:

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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.

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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 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. Konstantin Zorbalas, MSc, BSc, is a Senior Petroleum Engineer & Well Completions Specialist with over 25 years of offshore and onshore experience in the Oil & Gas, Refinery & Petrochemical industries. His wide expertise includes Workovers & Completions, Petroleum Risk & Decision Analysis, Acidizing Application in Sandstone & Carbonate, Well Testing Analysis, Stimulation Operations, Reserves Evaluation, Reservoir Fluid Properties, Reservoir Engineering & Simulation Studies, Reservoir Monitoring, Artificial Lift Design, Gas Operations, Workover/Remedial Operations & Heavy Oil Technology, Applied Water Technology, Oil & Gas Production, X-mas Tree & Wellhead Operations & Testing, Artificial Lift Systems (Gas Lift, ESP, and Rod Pumping), Well Cementing, Production Optimization, Well Completion Design, Sand Control, PLT Correlation, Slickline Operations, Acid Stimulation, Well testing, Production Logging, Project Evaluation & Economic Analysis. Further, he is actively involved in **Project Management** with special emphasis in production technology and field optimization, performing conceptual studies, economic analysis with risk assessment and field development planning. He is currently the **Senior Petroleum Engineer & Consultant of National Oil Company** wherein he is involved in the mega-mature fields in the Arabian Gulf, predominantly carbonate reservoirs; designing the acid stimulation treatments with post-drilling rigless operations; utilizing CT with tractors and DTS systems; and he is responsible for gas production and preparing for reservoir engineering and simulation studies, well testing activities, field and reservoir monitoring, production logging and optimization and well completion design.

During his career life, Mr. Zorbalas worked as a **Senior Production Engineer, Well Completion Specialist, Production Manager, Project Manager, Technical Manager, Technical Supervisor & Contracts Manager, Production Engineer, Production Supervisor, Production Technologist, Technical Specialist, Business Development Analyst, Field Production Engineer and Field Engineer.** He worked for many **world-class oil/gas companies** such as **ZADCO, ADMA-OPCO, Oilfield International Ltd, Burlington Resources** (later acquired by **Conoco Phillips**), **MOBIL E&P, Saudi Aramco, Pluspetrol E&P SA, Wintershall, Taylor Energy, Schlumberger, Rowan Drilling and Yukos EP** where he was in-charge of the **design and technical analysis** of a gas plant with capacity **1.8 billion m³/yr gas**. His achievements include **boosting oil production 17.2% per year** since 1999 using **ESP and Gas Lift systems**.

Mr. Zorbalas has **Master and Bachelor** degrees in **Petroleum Engineering** from the **Mississippi State University, USA**. Further, he is an **SPE Certified Petroleum Engineer, Certified Instructor/Trainer, a Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)**, an active member of the **Society of Petroleum Engineers (SPE)** and has numerous scientific and technical publications and delivered innumerable training courses, seminars and workshops 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: Sunday, 04th of February 2024

0730 – 0800	<i>Registration and Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0900	<i>Overview of Horizontal & Multilateral Well Technology</i>
0900 – 0930	<i>Horizontal & Multilateral Wells & Reservoir Concerns</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Horizontal & Multilateral Well Design</i>
1030 – 1100	<i>Applications for Directional Drilling</i>
1100 – 1215	<i>Directional Profiles</i>
1215 – 1230	<i>Break</i>
1230 – 1300	<i>Extended Reach Wells</i>
1300 – 1330	<i>Directional Measurement & Surveying</i>
1330 – 1420	<i>Survey Calculations & Accuracy</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2: Monday, 05th of February 2024

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

Day 3: Tuesday, 06th of February 2024

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

Day 4: Wednesday, 07th of February 2024

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

Day 5: Thursday, 08th of February 2024

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

Practical Sessions

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



Course Coordinator

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