COURSE OVERVIEW DE0780-4D
Drilling Fluids

Course Title
Drilling Fluids

Course Date/Venue
August 12-15, 2024/Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA

Course Reference
DE0780-4D

Course Duration/Credits
Four days/2.4 CEUs/24 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 for engineers and field personnel involved in the planning and implementation of drilling programs. This course covers all aspects of drilling fluids technology, emphasizing both theory and practical application. Drilling is a complex operation requiring the marriage of different technologies and disciplines. Today's drilling personnel must have a working knowledge of drilling fluid in order to effectively drill a well. This course provides the fundamentals necessary to drill a well, whether it is a shallow well or a complex, high pressure well.

During this interactive course, participants will learn the basic system classifications and function of additives; the various types of fluids including clear fluid systems, solids-enhanced fluids, contaminants, and handling and transporting fluids treatments and corrosive; the corrosion, including drilling-fluids corrosive agents and packer fluids; the drilling fluid contaminants and corrective treatments; the selection of water phase salinity and activity for bore hole stability as well as non-aqueous fluids to meet drilling requirements and environmental concerns; and the non-aqueous drilling fluid systems

Course Objectives

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

- Apply a comprehensive knowledge on drilling fluids
- Determine the basic system classifications and function of additives
- Discuss the various types of fluids including clear fluid systems, solids-enhanced fluids, contaminants, and handling and transporting fluids treatments and corrosive
- Identify the corrosion, including drilling-fluids corrosive agents and packer fluids
- Identify drilling fluid contaminants and prescribe corrective treatments
- Select water phase salinity and activity for bore hole stability and select non-aqueous fluids to meet drilling requirements and environmental concerns
- Manage non-aqueous drilling fluid systems

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 drilling fluids technology for drilling engineers, drilling representatives, drilling fluid engineers and contractor personnel, drilling supervisors, mud engineers, cementing engineers (offshore and onshore personnel), tool pushers, managers and technical support involved with drilling operations and responsible for the development, planning and application of the drilling fluids program.

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.

Course Fee

US$ 6,750 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: -

- 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 **2.4 CEUs** (Continuing Education Units) or **24 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 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 Drilling & Petroleum Engineer** with over **20 years** of **onshore & offshore** experience within the **Oil & Gas**, **Refinery** and **Petroleum** industries. His specialization widely covers in the areas of **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, **CO_2 & Injection** System, **Fracture** Characterization & Modelling, **PVT** Analysis, **Fluid** Mechanics, **Fluid** Dynamics, Water Shutoff, **Water Injection** Technology, **Water Flooding**, **Petroleum** Engineering, **Petroleum Geology**, **Petroleum** Physics, **Petroleum** Data Management, **Petroleum** Exploration, **Reservoir** Engineering & Management, **Reservoir** Simulation, **Reservoir** Geophysics, **Naturally Fractured Reservoir**, **Streamline** Simulation, **Carbonate Rocks & Siliciclastic Rocks**, Applied **Rock Mechanics**, **Rock Physics**, Sedimentology & Sequence Stratigraphy, Special Core Analysis, **Artificial Lift** Design, **Enhanced Oil Recovery**, **Subsurface Production** Operation, **Rig** Inspection, **Logging**, **Hydraulic & Pneumatic**, Heterogeneity Modelling for Reservoir Characterization, Prosper, 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, Petroleum/Production Engineer & Consultant**, **Project Engineer/Risk Advisor**, **Petroleum Consultant/Advisor**, **Inspector/Study Leader** 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** and delivered numerous trainings, workshops, courses, seminars and conferences internationally.

Accommodation

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

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: Monday, 12th of August 2024

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Classification of Drilling Fluids & Additives*** *Basic System Classifications • Functions of Additives*
0930 – 0945	*Break*
0945 – 1100	***Completion Fluids*** *Overview • Clear-Fluid Systems • Solids-Enhanced Fluids • Contaminants • Handling & Transporting Fluids*
1100 – 1200	***Basic Chemistry***
1200 - 1230	***Clay Chemistry***
1230 – 1245	*Break*
1245 - 1315	***Corrosion*** *Corrosion Overview • Drilling-Fluid Corrosive Agents • Packer-Fluid Treatments • Corrosivity of Completion/Wo Fluids • Corrosion Test Corrosion Troubleshooting • Product Information*
1315 - 1345	***Displacement*** *Displacement Overview • Displacement Procedure • Spacer Recommendations & Formulations*
1345– 1420	***Drill-In Fluids*** *Overview Drill-In Fluid Systems • Available DIF Systems*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2: Tuesday, 13th of August 2024

0730 – 0830	***Field & Specialized Tests*** *Overview Field Testing • Field Tests Explained • Overview Specialized Tests • Specialized Tests Explained • Test Equipment, Procedures & Results*
0830 – 0930	***Foam & Aerated Fluids*** *Overview • Air Drilling • Foam Drilling • Aerated Mud • Determining Hydrostatic Loss Caused by Gas-Cut Mud • Corrosion*
0930 – 0945	*Break*
0945 – 1045	***Lost Circulation*** *Overview Lost Circulation • Formations in Which Circulation May Be Lost • Corrective Procedures & Formulations • Locating the Loss Zone*
1045 – 1145	***Oil-Based Muds*** *Overview • Oil-Based-Mud (OBM) Systems • Mud Management • Logging in OBM Special Applications • Product Usage Information*

1145 - 1230	***Rheology & Hydraulics*** *Overview • Rheological Terms • Flow Regimes • Fluid Types • Rheological Models • Hydraulics Calculation Terms • Fluid Hydraulics Equations*
1230 – 1245	*Break*
1245 – 1420	***Solids Control*** *Overview • Sources & Sizes of Solids • Mechanical Solids-Removal Equipment*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3: Wednesday, 14th of August 2024

0730 – 0830	***Screen Devices***
0830 – 0930	***Centrifugal Separation Devices*** *Dilution • Efficiency of Solids-Control Equipment*
0930 – 0945	*Break*
0945 – 1045	***Stuck Pipe*** *Overview • Differential Sticking • Determining Depth to Stuck Zone • Packing off • Undergauge Hole • Keyseating • Freeing Stuck Pipe*
1045 – 1130	***Synthetic Based Muds (SBM)*** *Classification of SBM Systems • SBM Systems Overview • Commercial SBM Systems • Logging Through SBM*
1130 - 1230	***Tables-Charts-Calculations*** *Overview • Formulas for Adjusting Drilling Fluid Properties • Formulas for Calculating Area & Volume • Dimensions • Chemical Properties • Physical Properties • Specific Materials • Metric & Standard Conversion Factors*
1230 – 1245	***Break***
1245 – 1330	***Troubleshooting*** *Completion/Workover Fluids • Foam/Aerated Drilling Fluids • Oil-Based Muds • Synthetic-Based Muds • Water-Based Muds*
1330 – 1420	***Water-Based Drilling Fluids*** *Water-Based Mud (WBM) Systems • High Performance Water-Based Muds (HPWM)*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4: Thursday, 15th of August 2024

0730 - 0830	***Well Cementing***
0830 – 0930	***HS&E Considerations (Health, Safety & Environmental)***
0930 – 0945	*Break*
0945 – 1045	***Well Control*** *Overview • Kicks • Shut-In Procedures • Kill methods • Kick Control Problems*
1045 – 1230	***Cuttings, Cleaning & Disposal***

1230 – 1245	*Break*
1245 – 1345	***Drill Cuttings Evaluation*** *Overview Drill Cuttings Evaluation • Cuttings Description Format • Clastic Rocks • Carbonate Rocks • Chemical Rocks • Carbonaceous Rocks • Igneous Rocks • Metamorphic Rocks • Sample Contamination*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
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

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