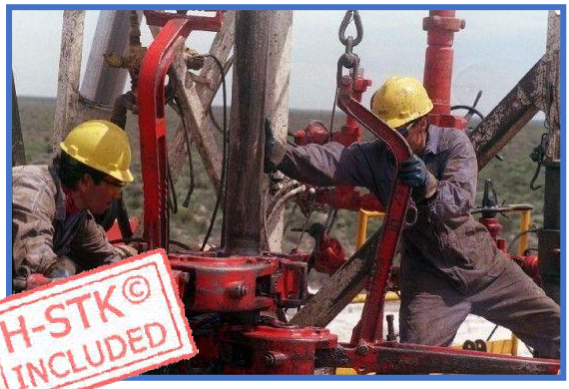
COURSE OVERVIEW DE0612
Drilling Practices

Course Title
Drilling Practices

Course Date/Venue
Session 1: July 06-10, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar
Session 2: November 16-20, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar



Course Reference
DE0612

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

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.

Drilling is an essential, ubiquitous, and expensive part of the oil and gas industry. Improving the drilling operation carries the greatest interest by the oil and gas operating companies. Drilling operation improvements can fall in one of two categories: reducing the cost of conventional drilling processes, where "conventional" includes even high-risk, high-cost operations such as offshore horizontal drilling; or providing a revolutionary new capacity that did not exist, regardless of cost.

The oil & gas drilling industry is changing rapidly in the areas of technology, safety, environment, management, contractual relationships, training, etc. Drilling operators must confront and solve extremely difficult technical, safety, and control problems as they bore through layers of subsurface rock to access oil or gasbearing strata. Furthermore, drilling must be done in a way that protects the geologic formation, the ultimate productive capacity of the well, and the surface environment. Drilling problems must first be diagnosed using the information or data that is transmitted from the bottom of the well to the surface, where the information is collected on the rig floor. Drilling operations must be managed in an efficient manner by improving skills and developing new technologies and ways of working.

This course is designed to provide participants with an up-to-date overview of advanced drilling practices and techniques. The course covers well design, pre-completion and completion design, casing design, directional design, drilling programming, well control planning, directional planning, drillbit selection and hydraulics, drilling fluids program, casing running program, cementing program, formation evaluation, well control operations, drilling fluids operations, drilling problem solving, casing operations, cementing operations, drillbit operations & monitoring, directional drilling operations and reporting procedures.

The course covers all aspects of drilling technology, emphasizing both theory and practical application. Today's drilling personnel must have a working knowledge of all these disciplines in order to effectively drill a well. The course provides all the fundamentals necessary to drill a well whether it is a shallow well or a complex, high pressure well. Computer programs are used to design many aspects of the modern well and the course will also provide the participants with the theory behind most programs along with practical implementation. The course will also include advanced mud logging principles and operations.

Course Objectives

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

- Apply and gain an advanced knowledge on drilling practices
- Implement preliminary work for the well design, pre-completion and completion design, casing design and directional design
- Describe in detail the preliminary work for the drilling program, well control planning, directional planning, drillbit selection, parameters and hydraulics
- Drill a well cost effectively and maximize penetration rate
- Evaluate stuck pipe problems and avoid potential problems by optimizing hole cleaning and ROP
- Design drill string and BOP/wellheads as well as design and implement bit and hydraulic programs
- Recognize and evaluate well control problems by effectively using mud logging principles
- Discuss drilling fluids program, casing running program and the potential casing problems that occur in the drilling program, cementing program, formation evaluation and drilling problems – avoidance planning
- Explain well control operations, drilling fluids operations, drilling problem solving, casing operations, cementing operations, drillbit operations and monitoring, directional drilling operations
- Determine HSE related issues and write a final well report

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 advanced knowledge on drilling practices for senior engineers, field and drilling personnel, drilling engineering supervisors, drilling operations section leaders, tool pushers, managers, well engineers and other technical staff who are involved in the planning and implementation of drilling programs.

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.

- 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 **Drilling Techniques**, **Hole Cleaning**, **Sloughing**, **Nozzle Selection**, **BOP Equipment**, **Seepage Losses Control**, **Well Completion Design**, **Well testing**, **Well Testing Analysis**, **Well Cementing**, **Oil** & **Gas**, **Refinery** & **Petrochemical** industries. His wide expertise includes **Workovers & Completions**, **Petroleum Risk & Decision Analysis**, **Acidizing Application** in **Sandstone** & **Carbonate**, **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**), **Production Optimization**, **Sand Control**, **PLT Correlation**, **Slickline Operations**, **Acid Stimulation**, **Production Logging**, **Project Evaluation** & **Economic Analysis**. Further, he is actively involved in **Project Management** with special emphasis in production technology and field optimization, 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.

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$ 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 Program

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

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Preliminary Work for the Well Design*** *Planning Process Overview ● Data Acquisition Analysis*
0930 – 0945	*Break*
0945 – 1100	***Pre-Completion and Completion Design*** *How the Completion Relates to the Well Design ● Monobore Completions ● Multiple String Completions ● Completion Fluids ● Brines ● Points to Check on the Completion Design*
1100 - 1230	***Casing Design*** *General Points and Definitions ● Hole and Casing Sizes: Considerations ● Hole and Casing Sizes: Selection ● Pore Pressures and Fracture Gradients ● Casing Shoe Depth Determination: General Points ● Individual Casing Points ● Mechanical Properties of Steel ● Safety Factors ● Factors Affecting Pipe Yield Strengths ● Methods of Applying Buoyancy Effects ● Casing Design Criteria: Definitions and Methods of Calculation ● Calculating Burst and Collapse Load, Including Biaxial Effects ● Calculating Axial Loads ● Calculating for Buckling (N_b) ● Calculating Torsional Loads ● Triaxial Stress Analysis ● Design for Casing off Massive Salt Formations ● Casing Properties and Other Considerations ● Material Grades ● Casing Connections ● Casing and Liner Accessories ● Wellheads: General Descriptions ● Casing Design Criteria ● References for Casing Design*
1230 – 1245	*Break*

1245 – 1330	***Directional Design*** *Planning the Wellpath ● Dogleg Severity Limits – Combined Buildup and Turn Rate ● BHA Performance Considerations ● Multilateral Wellbores ● Slant Rig Drilling ● Targets and Wellpath*
1330 – 1420	***Preliminary Work for the Drilling Program*** *Drilling Program Checklist ● Technical Justification ● Formatting the Drilling Program ● Time Estimates ● Cost Estimates*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Well Control Planning*** *Shallow Gas ● Drilling with a BOP Stack ● High Pressure, High Temperature Wells (HPHT) ● Well Control in High-Angle and Horizontal Wells ● References for Well-Control – Shallow Gas*
0930 – 0945	*Break*
0945 – 1100	***Directional Planning*** *Downhole Tools Affecting Directional Control ● Directional Measurement and Surveying ● Kicking Off the Well ● Drilling the Tangent Section ● Dropping Hole Angle*
1100 -1230	***Drillbit Selection, Parameters and Hydraulics*** *Overview of the Structured Approach ● Evaluating Offset Well Drilling Data ● Drilling Hydraulics ● Using Log data to Ad in Bit Selection ● Types of Drillbits ● Defining Recommended Bits ● BHA Considerations Related to Bits ● Drilling Program: Bit Selection and Drilling Parameters ● References for Drillbit Selection ● Bit Selection & Hydraulics Applications Including Nozzle Selection ● BHA & Drill String Design, Selection of Casing Seats & BOP Equipment ● BHA Design for Proper Deviation, Directional & Horizontal Drilling Control*
1230 – 1245	*Break*
1245 – 1330	***Drilling Fluids Program*** *Drilling Fluids Planning & Control, Routine & Special Problems ● Reaction of Clays to Waiter: General Principles ● Dispersion and Flocculation of Clays in Water ● Mud Types Available ● Dispersed Water-Based Muds ● Non-dispersed or Polymer Water-Based Muds ● Formation Damage with Water-Based Muds (and Cements) ● Oil Muds ● Components of Invert Oil Emulsion Muds ● Environmental Aspects of Oil Muds ● Oil Mud Additives ● Formation Damage with Oil Muds ● Air, Foamed and Aerated Systems ● Tendering for Mud Services ● References for Drilling Fluids Program*
1330 – 1420	***Evaluating Alternative Drilling Methods & Maximizing Penetration Rate***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Casing Running Program*** *Normal Drilling Program Requirements for Running Casing ● Addressing Potential Casing Problems in the Drilling Program*
0930 – 0945	*Break*
0945 – 1045	***Cementing Program*** *Slurry Properties ● Chemical Washes and Spacers ● Factors for Ensuring a Good Cement Job ● Cementing Design for casing s and Liners ● Cementing Design for Cement Plugs and Squeezes ● Special Purpose Cementing ● References for Cementing Program Design*

1045 - 1145	***Seepage Losses Control***
1145 - 1230	***Planning Including Mud Logging Requirements***
1230 – 1245	*Break*
1245 – 1330	***Formation Evaluation*** *Electric Logging and Sampling ● Coring ● Mud Logging*
1330 – 1420	***Drilling Problems – Avoidance Planning*** *Wellbore Stability ● Stuck Pipe ● Lost Circulation*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Well Control Operations*** *Kick Prevention ● Kick Detection and Response ● Drilling Below Normal Kick Tolerance Levels ● Well Kicking in a High-Angle Well ● General Considerations for BOP Equipment ● Surface BOP Stack Configurations ● Surface stack Control System Specifications ● Surface BOP Stack and Accumulator Testing ● Well Control: Other Equipment Requirement ● Suggested Rig Takeover Checklist ● Minimum Mud Chemical Stock Levels Held on Rig*
0930 – 0945	*Break*
0945 – 1045	***Drilling Fluids Operations*** *Solids Control ● Quality Control*
1045 – 1145	***Lifting Capacity of Drilling Fluids, Pressure Losses in the Circulating System and ECD***
1145 - 1230	***Hole Cleaning, Sloughing Scale, Lost Circulation, Stuck Pipe & Fishing Operations***
1230 – 1245	*Break*
1245 – 1330	***Drilling Problem Solving*** *Stuck Pipe ● Lost Circulation ● Preventing Wash Out and Twisting Off ● Washout Detection Procedure ● Backing Off ● Fishing Operations ● Using Cement to Stabilize the Wellbore ● Making Connections to Minimize Wellbore Instability and Losses ● Preplanned Wipertripping ● Baryte Plugs ● Diesel Oil Bentonite Plugs ("Gunk Plug")*
1330 – 1420	***Casing Operations*** *Conductor Placement ● Equipment Preparation for Casing ● Job Preparation for casing ● Casing Running Procedures*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Cementing Operations*** *Mud Conditioning for Maximum Displacement ● Slurry Mixing Options ● Preparation for Cementing ● Cement Displacement ● Post-Job Evaluation ● Field Cementing Quality Control Procedures*
0930 – 0945	*Break*
0945 – 1100	***Drillbit Operations & Monitoring*** *Alternative Bit Choices ● Drilling Parameters ● Mud Motors, Steerable Systems, and Turbines ● Monitoring Bit Progress while Drilling ● When to Pull the Bit ● Post-Drilling Bit Analysis*

1100 -1215	***Directional Drilling Operations*** *Rotary Bottom Hole Assemblies – General Points ● Preventing Keyseating ● Directional Jetting – Practical Considerations ● Single Shot Surveys – General Points ● Magnetic Single Shot Survey Tool ● Totco Single Shot Survey Tool ● Gyro Multishot Survey*
1215 – 1230	*Break*
1230 – 1300	***HSE Related Issues***
1300 - 1345	***Writing the Final Well Report***
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

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