

COURSE OVERVIEW DE0748(NS1)

Advanced Operations Geology: Well Placement Optimization and Well Planning

Course Title

Advanced Operations Geology: Well Placement Optimization and Well Planning

Course Date/Venue

Session 1: July 20-24, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
 Session 2: December 22-26, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE



Course Reference

DE0748(NS1)



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 provides a complete overview of wellsite operations from the perspective of the Operations Geologist and the Wellsite Geologist. The focus is on being able to understand the job functions that are typically performed at the wellsite, and what use is made of the large amounts of data collected. The course will also provide an overview of essential drilling operations that have a direct bearing on these disciplines.



Wellsite geologists study rock cuttings from oil and gas wells to determine what rock formations are being drilled into and how drilling should proceed. They identify critical strata from core samples and rock-cutting data and build up knowledge of the structure being drilled. They are experienced geologists, deciding when specialized tests should be carried out and, ultimately, when to stop drilling. They send reports and logs of completed drilling to the operations geologist and offer geological advice to oil company representatives. They also incorporate health and safety requirements in daily geological operations. Wellsite geologists also liaise with drilling engineers, petroleum engineers and mudloggers during the course of projects.



Participants will learn the techniques used by wellsite geologists in formation evaluation through a combination of lectures and exercises that can typically be done at the wellsite. At the end of the course, the participants should have a good understanding and knowledge of the requirements of both Operations and Wellsite Geology.

The course will blend classroom instruction with several practical exercise sessions. If location permits, a visit to a wellsite can be arranged.

Course Objectives

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

- Apply and gain an in-depth knowledge on operations and wellsite geology
- Define operations and wellsite geologist and discuss exploration and drilling that includes risk assessment, regional analysis and pre-drill data acquisition
- Identify the components of a prospect as well as the elements and processes of petroleum system
- Explain the sedimentary environments of reservoir and the structure and stratigraphy of the trap
- Illustrate mapping, cross-sections, pore systems and flow units
- Recognize the classification and categories of reserves and resources as well as the data types and management
- Review the wireline data, mud logging data and core data
- Carryout drilling operations and identify the drilling team and their responsibilities
- Enumerate the types of drilling rigs and recognize rig sub-systems, drilling tools and components
- Perform well control, well costs, planning a well, well design and the methods and calculations of directional drilling
- Illustrate geosteering and mud logging and list the components and functions of logging unit
- Employ proper monitoring, sampling and analysis of various services and describe cuttings analysis and mud log
- Implement safety considerations that includes monitoring, overpressure and downtime
- Detect and analyze the various types of gas, equipment and methods
- Describe pore pressure, wellbore stability, overburden, compaction and pore pressure generation
- Perform detection from seismic and identify the stress and strain, wellsite geologist responsibilities and the types and preservation of sampling
- Employ quality control of acquired wellsite data, coring and core analysis, coring methods and equipment, whole core and sidewall core, core handling, preservation and basic calculations of core-log integration
- Identify the wireline logging tools and measurements and review the basic logging tools for lithology, porosity and saturation
- Explain resistivity and invasion, interpret wireline log, determine the basic concepts, lithology, shale, porosity and water saturation and apply analysis techniques for crossplots

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 operations and wellsite geology for wellsite geologists and geologists.

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\$ 8,000 per Delegate + **VAT**. 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 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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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.

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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.

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:



Ms. Diana Helmy, PgDip, MSc, BSc, is a **Senior Petroleum & Geologist** with extensive years of experience within the **Oil & Gas, Refinery and Petrochemical** industries. Her expertise widely covers in the areas of **Tubular & Pipe Handling, Tubular Strength, Casing & Tubing Design, Production/Injection Loads** for Casing Strings & Tubing, **Drilling Loads, Drilling & Production Thermal Loads, Well Architecture, Wellhead Integrity, Well Integrity & Artificial Lift, Well Integrity Management, Well Completion & Workover, Applied Drilling Practices, Horizontal Drilling, Petroleum Production, Resource & Reserve Evaluation, Reserves Estimation & Uncertainty, Methods for Aggregation of Reserves & Resources, Horizontal & Multilateral Wells, Well Completion & Stimulation, Artificial Lift System Selection & Design, Well Testing & Oil Well Performance, Well Test Design Analysis, Well Test Operations, Well Testing & Perforation, Directional Drilling, Formation Damage Evaluation & Preventive, Formation Damage Remediation, Drilling & Formation Damage, Simulation Program for The International Petroleum Business, Well Testing & Analysis, Horizontal & Multilateral Wells & Reservoir Concerns, Oil & Gas Analytics, Petrophysics & Reservoir Engineering, Subsurface Geology & Logging Interpretation, Petroleum Geology, Geophysics, Seismic Processing & Exploration, Seismic Interpretation, Sedimentology, Stratigraphy & Biostratigraphy, Petroleum Economy, Core Analysis, Well Logging Interpretation, Core Lab Analysis & SCAL, Sedimentary Rocks, Rock Types, Core & Ditch Cuttings Analysis, Clastic, Carbonate & Basement Rocks, Stratigraphic Sequences, Petrographically Analysis, Thin Section Analysis, Scanning Electron Microscope (SEM), X-ray Diffraction (XRD), Cross-Section Tomography (CT), Conventional & Unconventional Analysis, Porosity & Permeability, Geological & Geophysical Model, Sedimentary Facies, Formation Damage Studies & Analysis, Rig Awareness, 2D&3D Seismic Data Processing, Static & Dynamic Correction, Noise Attenuation & Multiple Elimination Techniques, Velocity Analysis & Modeling and various software such as Petrel, OMEGA, LINUX, Kingdom and Vista. She is currently a **Senior Consultant** wherein she is responsible in different facets of **Petroleum & Process Engineering** from managing **asset integrity, well integrity process, pre-commissioning/commissioning and start up** onshore & offshore process facilities.**

During her career life, Ms. Diana worked as a **Reservoir Geologist, Seismic Engineer, Geology Instructor, Geoscience Instructor & Consultant** and **Petroleum Geology Researcher** from various international companies like the **Schlumberger, Corex Services for Petroleum Services, Petrolia Energy Supplies** and **Alexandria University**.

Ms. Diana has a **Postgraduate Diploma in Geophysics, Master's degree in Petroleum Geology and Geophysics** and a **Bachelor's degree in Geology**. Further, she is a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)** and has delivered numerous trainings, courses, workshops, 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

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction What is an Operations and Wellsite Geologist? • Exploration and Drilling Programs – Risk Assessment, Regional Analysis, Pre-Drill Data Acquisition • Components of a Prospect
0930 – 0945	Break
0945 – 1100	Overview of Petroleum Geology The Petroleum System – Elements & Processes • The Reservoir – Sedimentary Environments • The Trap – Structure & Stratigraphy • Mapping and Cross-Sections • Pore Systems and Flow Units • Reserves and Resources – Classification and Categories
1100 – 1230	Data Types & Management Wireline Data – Open and Cased Hole, Testing, LWD and MWD
1230 – 1245	Break
1245 – 1420	Data Types & Management (cont'd) Mud Logging Data – Geological, Drilling, Pressure • Core Data – Whole Core & Sidewall Core
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0930	Drilling Operations The Drilling Team – Who Does What? • Types of Drilling Rigs • Rig Sub-Systems – Power, Hoisting, Rotary, Circulating, Well Control • Drilling Tools & Components – Including Drilling Fluid • Well Control – Kicks Causes – Basic Calculations – Safety Equipment – Kill Methods • Well Costs
0930 – 0945	Break
0945 – 1100	Planning a Well Well Design • Directional Drilling – Methods & Calculations • Geosteering
1100 – 1230	Mud Logging The Logging Unit – Components & Functions • Services – Monitoring, Sampling, Analysis
1230 – 1245	Break
1245 – 1420	Mud Logging (cont'd) Cuttings Analysis & Description • The Mud Log • Safety Considerations – Monitoring, Overpressure, Downtime
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Mud Logging (cont'd) Gas Detection & Analysis – Types of Gas – Gas Shows – Equipment & Methods
0930 – 0945	Break
0945 – 1100	Pore Pressure & Wellbore Stability Overburden & Compaction • Pore Pressure Generation – Estimation – Normal And Abnormal Pressure
1100 – 1230	Pore Pressure & Wellbore Stability (cont'd) Detection from Seismic – Pre-Drill Prediction
1230 – 1245	Break
1245 – 1420	Pore Pressure & Wellbore Stability (cont'd) Stress & Strain – Wellbore Failure – Lost Circulation
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0930	Wellsite Geologist Responsibilities Sampling – Types & Preservation
0930 – 0945	Break
0945 – 1100	Wellsite Geologist Responsibilities (cont'd) Quality Control of Acquired Wellsite Data
1100 – 1230	Coring & Core Analysis Coring Methods & Equipment • Whole Core and Sidewall Core
1230 – 1245	Break
1245 – 1420	Coring & Core Analysis (cont'd) Core Handling & Preservation • Basic Calculations – Core-Log Integration
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	Wireline Logging Tools & Measurements Review of Basic Logging Tools for Lithology, Porosity, Saturation
0930 – 0945	Break
0945 – 1100	Wireline Logging Tools & Measurements (cont'd) Resistivity and Invasion
1100 – 1230	Wireline Log Interpretation Basic Concepts – Quicklook Workflow • Determination of Lithology • Shale – Calculation of Shale Volume - Effects & Corrections
1230 – 1245	Break
1245 – 1345	Wireline Log Interpretation (cont'd) Determination of Porosity • Determination of Water Saturation – Resistivity Effects – Formation Water • Analysis Techniques - Crossplots
1345 – 1400	Course Conclusion
1400 – 1415	POST TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

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



Course Coordinator

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