COURSE OVERVIEW DE0745
Basic Geology

Course Title
Basic Geology

Course Date/Venue
Session 1: February 09-13, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar
Session 2: August 10-14, 2024/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar

Course Reference
DE0745

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 the. basic geology. It covers the geology and earth science that includes structure of earth and evolution of earth; the geological time scale and earth surface; the rock types and cycling comprising of igneous rocks/volcanic and volcanism, metamorphic rocks, sedimentary rocks/sedimentary process and rock cycling; and the structural geology, the primary structures, stresses/strains and their relations to rock deformation and the faults fractures and unconformities of secondary structures.

Further, the course will also discuss the petroleum and petroleum system process; the origin and occurrence of petroleum including the principal forms of petroleum and unconventional resources; the petroleum system elements covering petroleum source rocks, cap rocks, reservoir rocks and rock property analysis; the exploration techniques for petroleum including geophysical methods, geochemical methods, subsurface methods and exploration application; and the drilling methods and techniques for vertical wells, deviated wells and horizontal wells.

During this interactive course, participants will learn well casing, cementing, well completion, stimulation, fracking and oil refinery; monitoring the well while drilling; the mud logging, log time calculation, rate penetration and its implementation, sample collection and preparation; the ditch sample, hydrocarbon and gas shows evaluation; monitoring the well post drilling and the wireline operations and logging while drilling operations; and the logging tools, basic petrophysical terminology, petrophysical interpretation and petroleum field cycle.

Course Objectives

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

- Apply and gain a basic knowledge on geology
- Discuss the geology and earth science covering the structure of earth and evolution of earth
- Describe geological time scale and earth surface
- Identify the rock types and cycling comprising of igneous rocks/volcanic and volcanism, metamorphic rocks, sedimentary rocks/sedimentary process and rock cycling
- Explain structural geology and identify the primary structures, stresses/strains and their relations to rock deformation and the faults fractures and unconformities of secondary structures
- Carryout petroleum and petroleum system process and discuss the origin and occurrence of petroleum including the principal forms of petroleum and unconventional resources
- Recognize petroleum system elements covering petroleum source rocks, cap rocks, reservoir rocks and rock property analysis
- Implement exploration techniques for petroleum including geophysical methods, geochemical methods, subsurface methods and exploration application
- Employ drilling methods and techniques for vertical wells, deviated wells and horizontal wells
- Carryout well casing, cementing, well completion, stimulation, fracking and oil refinery
- Monitor a well while drilling and apply mud logging, log time calculation, rate penetration and its implementation, sample collection and preparation
- Illustrate ditch sample, hydrocarbon and gas shows evaluation
- Monitor well post drilling and apply wireline operations and logging while drilling operations
- Discuss logging tools, basic petrophysical terminology, petrophysical interpretation and petroleum field cycle

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 basic geology for engineering, geophysical and technical personnel who are in need of basic geological training including support and administrative personnel. The course is also beneficial for well-site geologists, drilling and operation engineers and other staff involved in the acquisition and use of well-site (geological) data.

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:-

- 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. Ron Guney, MSc, BSc, is a **Senior Geophysicist** with over **35 years** of **Offshore & Onshore** experience within the **Oil**, **Gas**, **Refinery** and **Petrochemical** industries. His expertise widely covers **Geophysics**, **Geophysical** Technology, **Borehole Geophysics**, **Seismology**, **Wave** Propagation & Velocities, **Seismic Acquisition** Techniques, **Seismic Data** Processing, **Vertical Seismic Profiling** (**VSP**), **Seismic Data** Interpretation, **Geomodelling**, Prospect Generation-Delineation & **Reservoir** Modelling, **Static** Modelling, Prospect Generation through **Seismic Structural & Stratigraphic** Interpretation, **Prospect-Play Risk** Assessment & Ranking, **Resource & Reserve Estimations**, **Post Stack Seismic Attribute** Analysis, **Post Stack Seismic** Inversion, Traveltime Inversion, **Crossborehole Seismic Tomography**, **Seismic Sequence Stratigraphy**, Program Coding (**VSP & Cross-borehole** Travel Time Inversion ART and SIRT), **Post Drill Well Assessment**, **Field** Development, **Seismostratigraphy**, **Seismotectonics & Geodynamics** & Modelling, Cartographic Information Systems (**CIS**), Geographic Information Systems (**GIS**), **Geodesy & Topography**, **Geodesy**, **Map Projections** & Coordinate Systems, Geological Maps (**GM**), **Topographic & Geologic Maps**, Cartography Assisted by Computer (**CAC**), Global Positional System (**GPS**), **Petroleum Geology**, **Advanced Petrophysics**, **Petroleum Exploration**, **Petroleum Economics**, **Drilling**, **Core-to-Log Data Integration** (**SCAL**), **Basin Modelling** & **Total Petroleum System** (**TPS**), **Well Logging**, **Formation Evaluation**, **Well Testing & Data** Interpretation, **Pore Pressure Prediction** and **Oil & Gas Reserves** Estimations. He is also an expert in **2D & 3D Seismic Interpretation Oil Risk** Analysis, **Landmark**, **Zmap+ Mapping** Package, **Petrel** Schlumberger, **Promax** Processing System and 3D Seismic Data Acquisition. Currently, he is the **Senior Geophysicist Consultant** of Eastern Offshore Black Sea E&P Projects.

During his long career, Mr. Guney has gained his practical and field experience through his various significant positions and dedication as the **Senior Geophysicist Consultant**, **Senior Geophysicist**, **Senior Project Geophysicist**, **Teaching Assistant**, **Lecturer**, **Instructor/Trainer** from numerous international companies such as the Eastprime Service Co., Emirates National Oil Company (ENOC) - Dragon Oil, OMV Petrol and Turkish Petroleum Corp, just to name a few.

Mr. Guney has a **Master's** degree in **Geology** from the **University of New Orleans**, **USA** and a **Bachelor's** degree in **Geophysics** from the Istanbul Technical University. Further, he is a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) and has **published books** and **scientific papers** such as Iterative Wavefront Reconstruction Technique (**IWR**), **Mathematical Geophysics**, **Model Optimisation in Exploration Geophysics**, **Importance of Seismic Interpretation Systems** and delivered various trainings, seminars, workshops, courses and conferences 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.

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	***Introduction*** *Objectives & Outlines of the Course • Free Discussion*
0830 – 0930	***Introduction to Geology & Earth Science*** *Overview on Earth • Structure of Earth (Hydrosphere, Atmosphere, Geosphere & Biosphere) ● Evolution of Earth (Nebular Hypothesis – Plate Tectonic)*
0930 – 0945	*Break*
0945 – 1100	***Geological Time Scale***
1100 – 1230	***Representing of Earth Surface***
1230 – 1245	*Break*
1245 – 1420	***Rock Types & Cycling*** *Igneous Rocks/Volcanic & Volcanism ● Metamorphic Rocks ● Sedimentary Rocks/Sedimentary Process ● Rock Cycling*
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0900	***Structural Geology*** *Introduction to Structural Geology ● Primary Structures ● Stresses/Strains & their Relations to Rock Deformation*
0900 – 0915	*Break*
0915 – 1230	***Structural Geology (cont'd)*** *Secondary Structures (Faults Fractures & Unconformities)*
1230 – 1245	*Break*

1245 – 1320	***Petroleum & Petroleum System Process*** *Definition ● Petroleum (Origin/Occurrence) ● Kerogen (Definition, Formation)*
1320 – 1420	***Petroleum & Petroleum System Process (cont'd)*** *Petroleum (Migration, Accumulation & Timing) ● Principal Forms of Petroleum & Unconventional Resources*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Petroleum System Elements*** *Petroleum Source Rocks ● Petroleum Cap Rocks*
0930 – 0945	*Break*
0945 – 1100	***Petroleum System Elements (cont'd)*** *Petroleum Reservoir Rocks ● Rock Property Analysis*
1100 – 1215	***Exploration Techniques for Petroleum*** *Introduction to Exploration Techniques ● Geological Concept & Surface Geology ● Geophysical Methods (Gravity, Magnetic & Seismic)*
1215 – 1230	*Break*
1230 – 1420	***Exploration Techniques for Petroleum (cont'd)*** *Geochemical Methods ● Subsurface Methods ● Exploration Application*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Drilling Methods & Techniques*** *Vertical Wells ● Deviated Wells & Horizontal Wells ● How to Drill a Well? ● Drilling Problems*
0930 – 0945	*Break*
0945 – 1100	***Drilling Methods & Techniques (cont'd)*** *Well Casing & Cementing ● Well Completion & Stimulation ● Fracking ● Oil Refinery*
1100 – 1215	***Monitoring a Well While Drilling*** *Mud Logging ● Lag Time Calculation ● Rate of Penetration & it's Interpretation ● Sample Collection & Preparation*
1215 – 1230	*Break*
1230 – 1420	***Monitoring a Well While Drilling (cont'd)*** *Ditch Sample Evaluation ● Hydrocarbon & Gas Shows Evaluation*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Monitoring a Well Post Drilling*** *Introduction to Petrophysics ● Wireline Operations ● Logging While Drilling Operations*
0930 – 0945	*Break*
0945 – 1100	***Monitoring a Well Post Drilling*** *Logging Tools ● Basic Petrophysical Terminology ● Petrophysical Interpretation*
1100 – 1215	***Petroleum Field Life Cycle***

1215 – 1230	*Break*
1230 – 1345	***Petroleum Field Life Cycle (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 the real-life case studies and exercises: -

Course Coordinator

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