

COURSE OVERVIEW DE0383
Foundations of Petrophysics

Course Title

Foundations of Petrophysics

Course Reference

DE0383

Course Duration/Credits

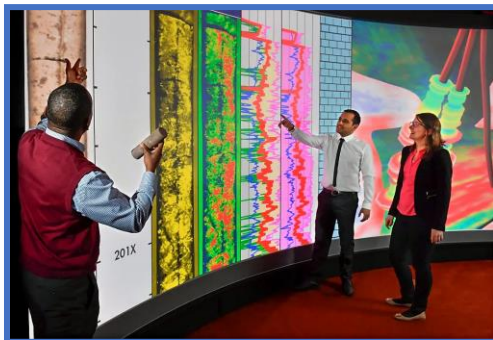
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

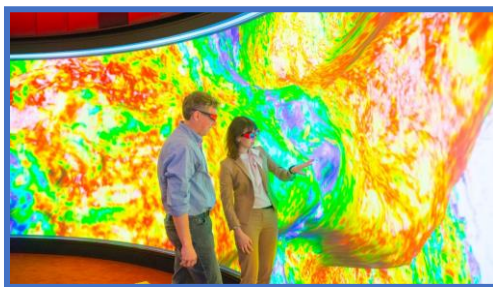
Session(s)	Date	Venue
1	May 05-09, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar
2	September 15-19, 2024	
3	November 03-07, 2024	



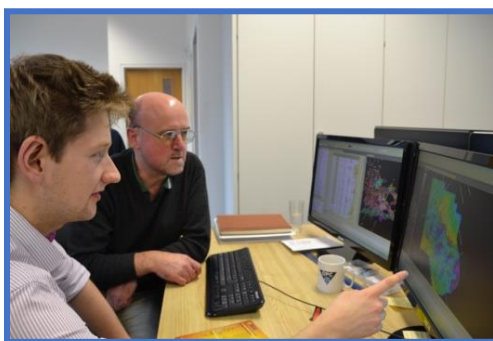
Course Description



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 Foundations of Petrophysics. It covers the role, importance, principles and terminologies of petrophysics in the oil and gas industry; the fundamental rock properties focusing on porosity and permeability and formation evaluation, well logging and core analysis; the resistivity and spontaneous potential (SP) log interpretation; the porosity logs, density, neutron and sonic logs; and the proper methods and tools used for lithology identification and techniques for calculating water and hydrocarbon saturations.



Further, the course will also discuss the cross-plotting techniques and data integration; the nuclear magnetic resonance (NMR) logging and its applications; the image logs for fracture analysis and reservoir characterization; the mud logging and formation testing operations; the techniques for logging and interpreting data in cased holes; and the specialized logging tools and their applications.

During this interactive course, participants will learn the rock typing, reservoir characterization and capillary pressure analysis and applications; the role of fluid properties (oil, water, gas) in petrophysical analysis; the wettability and its impact in petrophysical properties; integrating core and log data for a comprehensive analysis and strategies for comprehensive petrophysical interpretation; managing uncertainties in petrophysical data; the software tools commonly used in petrophysical analysis; and integrating petrophysical data with geological and geophysical information.

Course Objectives

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

- Apply and gain a basic knowledge on foundations of petrophysics
- Discuss the role, importance, principles and terminologies of petrophysics in the oil and gas industry
- Identify the fundamental rock properties focusing on porosity and permeability and apply formation evaluation, well logging and core analysis
- Employ resistivity and spontaneous potential (SP) log interpretation as well as interpret porosity logs including density, neutron and sonic logs
- Apply proper methods and tools used for lithology identification and techniques for calculating water and hydrocarbon saturations
- Carryout cross-plotting techniques and data integration and discuss nuclear magnetic resonance (NMR) logging and its applications
- Review image logs for fracture analysis and reservoir characterization
- Employ mud logging and formation testing operations and logging including the techniques for logging and interpreting data in cased holes
- Recognize the specialized logging tools and their applications
- Apply rock typing and reservoir characterization and capillary pressure analysis and applications
- Identify the role of fluid properties (oil, water, gas) in petrophysical analysis including the wettability and its impact in petrophysical properties
- Integrate core and log data for a comprehensive analysis and develop strategies for comprehensive petrophysical interpretation
- Manage uncertainties in petrophysical data, identify the software tools commonly used in petrophysical analysis and integrate petrophysical data with geological and geophysical information

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 petrophysics foundations for petrophysicists, geoscientists, reservoir engineers, well engineers, petroleum geologists, logging engineers, exploration and production (E&P) professionals and those who are involved in reservoir characterization and well log analysis.

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:



Dr. Bassem Nabawy, Post-Doc, PhD, MSc, BSc is a **Senior Petroleum Engineer** with over **20 years** of extensive experience within the **Oil & Gas, Refinery and Petrochemical** industries. His wide experience covers **Coring & Core Analysis, Core Handling & Sample Preparation, Conventional & Special Core Analysis, Petrophysical Core Analysis, SCAL Analysis & Properties, Coring & Wellsite, Porosity & Permeability, Wettability Concepts, Petroleum Geology, Petroleum Exploration & Production, Geological Studies, Geophysical Characterization of Sedimentary Rocks, Petrophysical Reservoir Rocks, Rock Mechanics, Assessment of Mineral Resources, Reservoir Engineering, Carbonate Reservoir, Fractured Reservoirs, Carbonate Reservoir, Formation Evaluation & Reservoir Characterization, Petroleum Geology, Hydrogeology, Well Logging, Advanced Well Log Interpretation, Applied Well Log Interpretation, Open Hole Logs Evaluation, Pore Fabric, Applied Petrophysics, Petrographical & Geographical Studies, Microfacies Analysis, SCAL Analysis, Diagenetic Studies, Subsurface Water Equifer, Field Development Planning, Mineral Resources Assessment, Rock Mechanics, Geophysical Characterization, Sedimentary & Reservoir Rocks, Oil Exploration, Petrography, Minerology, SEM, Diagenetic History and Paleoenvironment Criteria.** He is currently the **Professor of Applied Research & Senior Geology Instructor** wherein he responsible in teaching and developing courses in the area of coring and core analysis, hydrogeology and petroleum geology.

Throughout his career life, Dr. Bassem has gained his practical and field experience through his various significant positions as the **Principal Investigator, Co-Principal Investigator, Associate Professor, Senior Researcher, Instructor/Trainer, Assistant Journal Editor, Treasurer, Electric Coordinator** and **Assistant Researcher** wherein he was greatly involved in supervising thesis for different universities as well as organized and taught experimental courses in Geology and Petrophysical properties.

Dr. Bassem has a **Postdoctoral in Petrophysics** from the **Ecole Normale Supérieure, Laboratoire de Géologie, Paris, France**. Further, he has a **PhD in Petrophysics**, a **Master degree in Hydrogeology & Petroleum Geology** and a **Bachelor degree in Geology**. Further, he is a **Certified Instructor/Trainer** and **Board Member** of the Egyptian Society of Applied Petrophysics (**ESAP**) and the Society of Petrophysicists and Well Log Analysts (**SPWLA**). He has further delivered numerous trainings, courses, seminars, conferences and workshops worldwide.

Accommodation

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

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 workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	Overview of Petrophysics: The Role & Importance of Petrophysics in the Oil & Gas Industry
0930 – 0945	<i>Break</i>
0945 – 1030	Basic Principles & Terminologies: Key Petrophysical Concepts & Terminologies
1030 – 1130	Rock Properties - Porosity & Permeability: Studying Fundamental Rock Properties, Focusing on Porosity & Permeability
1130 – 1215	Formation Evaluation Basics: Formation Evaluation & its Objectives
1215 – 1230	<i>Break</i>
1230 – 1330	Well Logging: Overview of Well Logging Tools & Techniques
1330 – 1420	Core Analysis Fundamentals: Core Analysis & its Importance in Petrophysics
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0830	Resistivity & SP Log Interpretation: Detailed Study of Resistivity & Spontaneous Potential (SP) Logs
0830 – 0930	Porosity Logs - Density, Neutron, & Sonic: Interpreting Porosity Logs Including Density, Neutron & Sonic Logs
0930 – 0945	<i>Break</i>
0945 – 1100	Lithology Identification Techniques: Methods & Tools Used for Lithology Identification
1100 – 1215	Saturation Calculations & Models: Techniques for Calculating Water & Hydrocarbon Saturations



1230 – 1245	Break
1245 – 1330	Cross-Plotting & Data Integration: Cross-Plotting Techniques for Integrating Log Data
1330 – 1420	Hands-On Log Interpretation Exercise: Practical Session of Log Interpretation Using Real Data
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 3

0730 – 0830	NMR Logging Principles & Applications: Exploring Nuclear Magnetic Resonance (NMR) Logging & its Applications
0830 – 0930	Image Logs & Fracture Analysis: Studying Image Logs for Fracture Analysis & Reservoir Characterization
0930 – 0945	Break
0945 – 1100	Mud Logging & Formation Testing: Mud Logging & Formation Testing Operations
1100 – 1215	Cased Hole Logging & Interpretation: Techniques for Logging & Interpreting Data in Cased Holes
1215 – 1230	Break
1230 – 1330	Specialized Logging Tools & Their Applications: Specialized Logging Tools like Dipmeter, FMI, etc.
1330 – 1420	Interactive Log Interpretation Session: Interactive Session to Consolidate Learning in Log Interpretation
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0830	Rock Typing & Reservoir Characterization: Techniques for Rock Typing & its Importance in Reservoir Characterization
0830 – 0930	Capillary Pressure Analysis & Applications: Capillary Pressure Measurements & Their Implications
0930 – 0945	Break
0945 – 1100	Fluid Properties in Petrophysical Analysis: Role of Fluid Properties (Oil, Water, Gas) in Petrophysical Analysis
1100 – 1215	Wettability & Its Impact on Petrophysical Properties: Studying Wettability & its Effect on Reservoir Behavior
1215 – 1230	Break
1230 – 1330	Core-Log Integration: Methods to Integrate Core & Log Data for a Comprehensive Analysis
1330 – 1420	Group Project on Rock & Fluid Properties Analysis: Collaborative Project to Apply Concepts of Rock & Fluid Properties
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

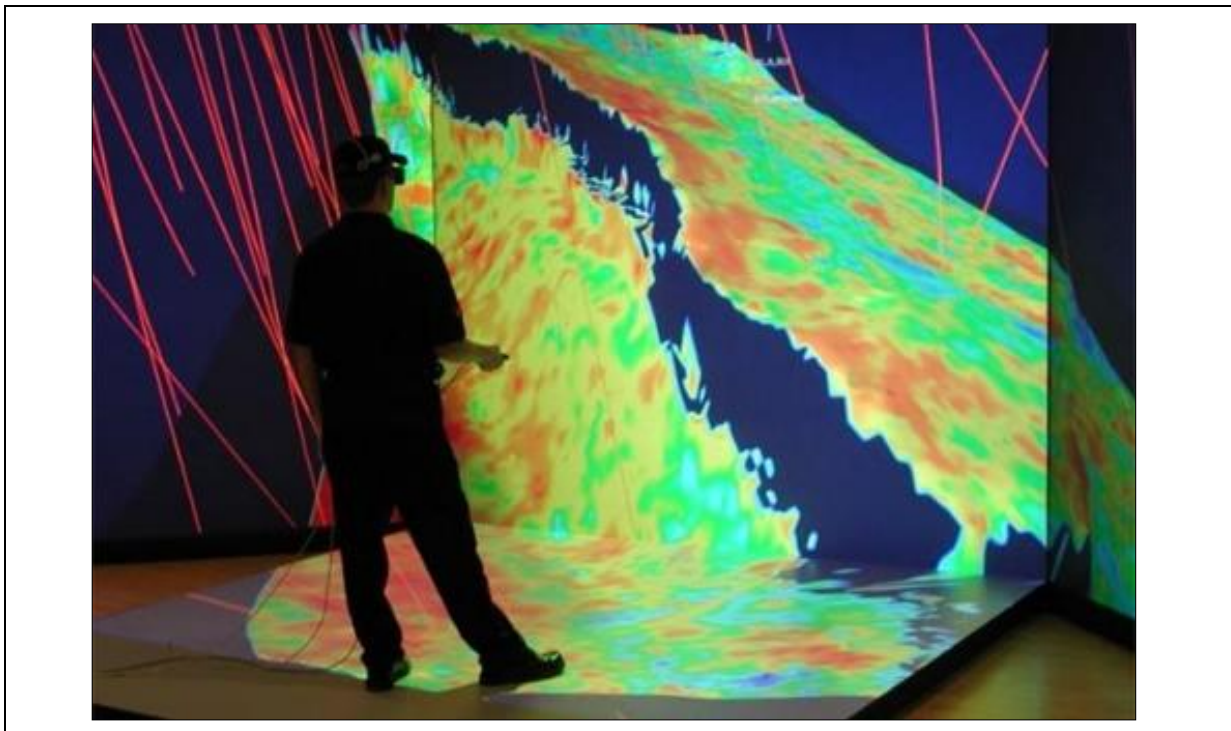
0730 – 0830	Petrophysical Interpretation Strategies: Developing Strategies for Comprehensive Petrophysical Interpretation
0830 – 0930	Uncertainty Analysis in Petrophysics: Managing Uncertainties in Petrophysical Data
0930 – 0945	Break



0945 – 1100	Case Studies in Petrophysical Analysis: Analysis of Case Studies to Apply Petrophysical Concepts in Real-World Scenarios
1100 – 1230	Software Tools in Petrophysics: Software Tools Commonly Used in Petrophysical Analysis
1230 – 1245	Break
1245 – 1345	Integrating Petrophysical Data with Geological & Geophysical Data: Techniques for Integrating Petrophysical Data with Geological & Geophysical Information
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

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