COURSE OVERVIEW DE0384
Integrated Petrophysics for Reservoir Characterization

Course Title
Integrated Petrophysics for Reservoir Characterization

Course Reference
DE0384

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

Course Date/Venue

Session(s)	Date	Venue
1	February 18-22, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar
2	April 21-25, 2024	
3	September 08-12, 2024	
4	November 10-14, 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 Integrated Petrophysics for Reservoir Characterization. It covers the basic petrophysical concepts and their relevance in reservoir characterization; the role of petrophysics in reservoir engineering including rock properties and their measurements; the log interpretation, core analysis and correlation with log data; the data acquisition techniques in petrophysics and advanced log interpretation techniques; the quantitative log analysis and calibration, shaly sand analysis and carbonate reservoir characterization; identifying and analyzing fractures using petrophysical data; and integrating petrophysical data with geological models.

During this interactive course, participants will learn the reservoir heterogeneity and petrophysical models; the fluid saturation distribution; the capillary pressure analysis and applications; the techniques for mapping petrophysical parameters across the reservoir; the NMR (nuclear magnetic resonance) logging and interpretation, formation testing and pressure analysis; integrating production data with petrophysical analysis; the role of geomechanics aspects in petrophysics; the latest technologies in petrophysics; the uncertainties in petrophysical interpretation; the advanced reservoir characterization techniques, petrophysical analysis for unconventional reservoirs; and the simulation and modeling based on petrophysical data.

Course Objectives

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

- Apply and gain an in-depth knowledge on integrated petrophysics for reservoir characterization
- Discuss the basic petrophysical concepts and their relevance in reservoir characterization
- Identify the role of petrophysics in reservoir engineering including rock properties and their measurements
- Carryout log interpretation, core analysis and correlation with log data
- Carryout data acquisition techniques in petrophysics and advanced log interpretation techniques
- Employ quantitative log analysis and calibration, shaly sand analysis and carbonate reservoir characterization
- Identify and analyze fractures using petrophysical data and integrate petrophysical data with geological models
- Analyze reservoir heterogeneity and petrophysical models and apply fluid saturation distribution analysis
- Carryout capillary pressure analysis and applications including techniques for mapping petrophysical parameters across the reservoir
- Illustrate NMR (nuclear magnetic resonance) logging and interpretation, formation testing and pressure analysis
- Integrate production data with petrophysical analysis and discuss the role of geomechanics aspects in petrophysics
- Discuss the latest technologies in petrophysics as well as assess and manage uncertainties in petrophysical interpretation
- Employ advanced reservoir characterization techniques, petrophysical analysis for unconventional reservoirs and simulation and modeling based on petrophysical data

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 integrated petrophysics for reservoir characterization for geoscientists, petrophysicists, reservoir engineers, drilling and completion engineers, oil and gas managers, consultants and those who work in the oil and gas industry, specifically those involved in reservoir characterization and exploration.

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 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 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. Chris Kapetan, PhD, MSc, is a **Senior Drilling & Petroleum Engineer** with **40 years** of international experience within the **onshore** and **offshore oil** & **gas** industry. His wide experience covers **Cased Hole Logging** Interpretation, **Cased Hole Formation** Evaluation, **Cased Hole** Applications, **Data Acquisition** in **Cased-hole Logging**, **Drill String Design & Drilling** Optimization, **Drill String Design** Calculations, Enhanced Oil Recovery (**EOR**), Improved Oil Recovery (**IOR**), Performance Analysis, Prediction, and Optimization Using **NODAL** Analysis, **Stuck Pipe** Prevention, **Stuck Piping & Fishing** Operation, **Fishing** Operations, **Fishing** Techniques, **Fishing** Methodologies, **Wireline Fishing** Procedures, **Wireline & Coil Tubing**, **Coiled Tubing Fishing** Operation, **Coiled Tubing Technology**, **Fishing** Options in **Horizontal Wells**, **Horizontal & Multilateral Wells**, **Well Completion & Stimulation**, **Artificial Lift System Selection & Design**, **Drilling Practices**, **Drilling Fluids Technology**, **Drilling** Operations, Simulation Program for **The International Petroleum Business**, **International Oil Supply**, **Transportation**, **Refining & Trading**, **Control Well-Flow Lines Parameters**, **Decision Analytic Modelling Methods** for **Economic Evaluation**, **Probabilistic Risk Analysis** (**Monte Carlo Simulator**) **Risk Analysis Foundations**, **Global Oil Demand**, Crude Oil Market, Global Oil Reserves, Oil Supply & Demand, Governmental Legislation, Contractual Agreements, **Financial** Modeling, **Oil Contracts**, **Project Risk Analysis**, **Feasibility Analysis** Techniques, **Capital Operational Costs**, Oil & Gas Exploration Methods, **Reservoir** Evaluation, **Extraction of Oil & Gas**, **Crude** Oil Types & Specifications, Sulphur, Sour Natural Gas, **Natural Gas Sweeting**, **Petroleum Production**, Field Layout, **Production** Techniques & Control, **Surface Production** Operations, **Oil Processing**, Oil Transportation-Methods, **Flowmetering & Custody Transfer** and **Oil Refinery**. Further, he is also well-versed in Enhanced Oil Recovery (**EOR**), Electrical Submersible Pumps (**ESP**), **Oil Industries Orientation**, **Geophysics**, Production **Operations**, Production **Management**, Perforating **Methods & Design**, Perforating **Operations**, **Fishing** Operations, **Well & Reservoir** Testing, **Reservoir Stimulation**, **Hydraulic Fracturing**, **Carbonate** Acidizing, **Sandstone** Acidizing, **Petroleum Business**, **Petroleum Economics**, **Field Development Planning**, **Gas Lift Valve** Changing & Installation, **Well Completion** Design & Operation, Well **Surveillance**, Well **Testing**, Well **Stimulation** & **Control** and **Workover Planning**, **Completions** & **Workover**, **Rig Sizing**, **Hole Cleaning** & **Logging**, **Well Completion**, **Servicing** and **Work-Over Operations**, Practical **Reservoir Engineering**, **X-mas Tree & Wellhead** Operations, **Advanced Petrophysics/Interpretation** of **Well Composite**, **Construction Integrity** & **Completion**, **Corrosion Control**, **Slickline**, **Pipeline Pigging**, **Corrosion Monitoring**, **Cathodic Protection** as well as Root Cause Analysis (**RCA**), Root Cause Failure Analysis (**RCFA**), **Gas Conditioning & Process Technology**, **Production Safety** and **Delusion of Asphalt**. Currently, he is the **Operations Consultant** & the **Technical Advisor** at **GEOTECH** and an independent **Drilling Operations Consultant** of various engineering services providers to the international clients as he offers his expertise in many areas of the **drilling & petroleum discipline** and is well **recognized & respected** for his process and procedural expertise as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.

Throughout his long career life, Dr. Chris has worked for many international companies and has spent several years **managing** technically **complex wellbore interventions** in both **drilling** & **servicing**. He is a **well-regarded** for his **process** and **procedural expertise**. Further, he was the **Operations Manager** at **ETP Crude Oil Pipeline Services** where he was fully responsible for optimum operations of crude oil pipeline, **workover** and **directional drilling**, **drilling rigs** and equipment, drilling of various geothermal deep wells and **exploration wells**. Dr. Chris was the **Drilling** & **Workover Manager** & **Superintendent** for **Kavala Oil** wherein he was responsible for supervision of **drilling operations** and **offshore exploration**, quality control of performance of **rigs**, **coiled tubing**, crude oil transportation via pipeline and abandonment of **well** as per the API requirements. He had occupied various key positions as the **Drilling Operations Consultant**, **Site Manager**, **Branch Manager**, **Senior Drilling** & **Workover Manager** & **Engineer** and **Drilling** & **Workover Engineer**, **Operations Consultant**, **Technical Advisor** in several petroleum companies responsible mainly on an **offshore** sour oil field (under water flood and gas lift) and a gas field. Further, Dr. Chris has been a **Professor** of the **Oil Technology College**.

Dr. Chris has **PhD** in **Reservoir Engineering** and a **Master's** degree in **Drilling & Production Engineering** from the **Petrol-Gaze Din Ploiesti University**. Further, he is a **Certified Surfaced BOP Stack Supervisor** of **IWCF**, a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has conducted **numerous short courses**, **seminars** and **workshops** and has published several technical books on **Production Logging**, **Safety Drilling Rigs** and **Oil Reservoir**.

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.

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	***Overview of Petrophysical Concepts**: Basic Petrophysical Concepts & their Relevance in Reservoir Characterization*
0930 – 0945	*Break*
0945 – 1030	***Role of Petrophysics in Reservoir Engineering**: The Integration of Petrophysical Data in Reservoir Engineering*
1030 – 1130	***Rock Properties & their Measurements**: Key Rock Properties like Porosity, Permeability & Saturation*
1130 – 1215	***Log Interpretation**: Basic Principles of Well Log Interpretation*
1215 – 1230	*Break*
1230 – 1330	***Core Analysis & Correlation with Log Data**: Techniques for Correlating Core Data with Log Interpretations*
1330 – 1420	***Petrophysical Data Acquisition**: Overview of Data Acquisition Techniques in Petrophysics*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Advanced Log Interpretation Techniques**: Complex Log Interpretation Methods*
0830 – 0930	***Quantitative Log Analysis & Calibration**: Techniques for Quantitative Log Analysis & Calibration with Core Data*
0930 – 0945	*Break*
0945 – 1100	***Shaly Sand Analysis**: Specific Methods for Interpreting Data in Shaly Sand Reservoirs*

1100 – 1215	***Carbonate Reservoir Characterization**: Special Considerations in Petrophysics for Carbonate Reservoirs*
1215 – 1230	*Break*
1230 – 1330	***Fracture Identification & Analysis**: Identifying & Analyzing Fractures Using Petrophysical Data*
1330 – 1420	***Case Studies in Log Analysis**: Analyzing Real-World Examples to Reinforce Learning*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Integrating Petrophysical Data with Geological Models**: Techniques for Integrating Petrophysical Data with Geological Models*
0830 – 0930	***Reservoir Heterogeneity & Petrophysical Models**: Understanding & Modeling Reservoir Heterogeneity*
0930 – 0945	*Break*
0945 – 1100	***Fluid Saturation Distribution Analysis**: Methods for Analyzing Fluid Saturation Distributions in Reservoirs*
1100 – 1215	***Capillary Pressure Analysis & Applications**: Capillary Pressure Measurement & its Implications in Reservoir Characterization*
1215 – 1230	*Break*
1230 – 1420	***Petrophysical Parameter Mapping**: Techniques for Mapping Petrophysical Parameters Across the Reservoir*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***NMR Logging & Interpretation**: Application of NMR (Nuclear Magnetic Resonance) Logging*
0830 – 0930	***Formation Testing & Pressure Analysis**: Techniques for Formation Testing & Pressure Data Analysis*
0930 – 0945	*Break*
0945 – 1100	***Integrating Production Data with Petrophysical Analysis**: How to Combine Production Data with Petrophysical Findings*
1100 – 1215	***Geomechanical Aspects in Petrophysics**: The Role of Geomechanics in Petrophysical Analysis*
1215 – 1230	*Break*
1230 – 1330	***Emerging Technologies in Petrophysics**: The Latest Technological Advancements in the Field*
1330 – 1420	***Case Study: Integrated Reservoir Characterization**: Detailed Analysis of a Case Study Involving Integrated Reservoir Characterization*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Uncertainty Analysis in Petrophysical Interpretation**: Techniques for Assessing & Managing Uncertainties in Petrophysical Interpretation*
0830 – 0930	***Advanced Reservoir Characterization Techniques**: Exploring Advanced Methodologies for Detailed Reservoir Characterization*
0930 – 0945	*Break*
0945 – 1230	***Petrophysical Analysis for Unconventional Reservoirs**: Special Considerations for Unconventional Resources Like Shale & Tight Gas*

1230 – 1245	*Break*
1245 – 1345	***Simulation & Modeling Based on Petrophysical Data:*** *Using Petrophysical Data for Simulation & Modeling Purposes*
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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