COURSE OVERVIEW DE0387
Integrated Petrophysics for Carbonate & Fractured Reservoirs – A Roadmap

Course Title
Integrated Petrophysics for Carbonate & Fractured Reservoirs – A Roadmap

Course Reference
DE0387

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

Course Date/Venue

Session(s)	Date	Venue
1	April 21-25, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar
2	May 26-30, 2024	
3	September 22-26, 2024	
4	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 Integrated Petrophysics for Carbonate & Fractured Reservoirs. It covers the characteristics, importance and global distribution of carbonate and fractured reservoirs; the geological characteristics of carbonate reservoirs; the types, formation mechanisms and impacts of fractured reservoirs; and the petrophysical properties of carbonate rocks.

Further, the course will also discuss the basic tools and techniques in petrophysical analysis; the challenges in petrophysical evaluation of carbonate and fractured reservoirs; the log interpretation in carbonate settings, advanced logging tools applicable to carbonates and quantitative evaluation of porosity and permeability; and the fluid typing and saturation analysis and integration of core and log data and characterizing fractures.

During this interactive course, participants will learn the petrophysical modeling of fractured reservoirs; the fracture porosity and permeability estimation; the role of geomechanics in understanding fractured reservoirs; the well test interpretation in fractured reservoirs; the integrated geological models, reservoir characterization and zonation; upscaling petrophysical data for reservoir simulation; the uncertainty analysis in petrophysical interpretation; the advanced software tools and techniques and field development strategies for carbonate and fractured reservoirs; the enhanced oil recovery (EOR) in complex reservoirs and carbon capture and storage (CCS) in carbonates and fractures; and the emerging technologies and innovations in petrophysics and best practices and workflow optimization.

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 carbonate and fractured reservoirs
- Discuss the characteristics, importance and global distribution of carbonate and fractured reservoirs
- Describe the geological characteristics of carbonate reservoirs and identify the types, formation mechanisms and impacts of fractured reservoirs
- Recognize petrophysical properties of carbonate rocks and the basic tools and techniques in petrophysical analysis
- Identify the challenges in petrophysical evaluation of carbonate and fractured reservoirs
- Apply log interpretation in carbonate settings, advanced logging tools applicable to carbonates and quantitative evaluation of porosity and permeability
- Carryout fluid typing and saturation analysis, integration of core and log data and identifying and characterizing fractures
- Illustrate petrophysical modeling of fractured reservoirs and fracture porosity and permeability estimation
- Identify the role of geomechanics in understanding fractured reservoirs and apply well test interpretation in fractured reservoirs
- Build integrated geological models and describe reservoir characterization and zonation
- Upscale petrophysical data for reservoir simulation and apply uncertainty analysis in petrophysical interpretation
- Explore advanced software tools and techniques and carryout field development strategies for carbonate and fractured reservoirs
- Recognize enhanced oil recovery (EOR) in complex reservoirs and carbon capture and storage (CCS) in carbonates and fractures
- Discuss the emerging technologies and innovations in petrophysics and implement best practices and workflow optimization

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 carbonate and fractured reservoirs for petrophysicists, geologist, reservoir engineers, drilling engineers, production engineers, geoscientists, oil and gas industry professionals and those who have a background or interest in petrophysics and want to advance their skills and knowledge in integrated petrophysics for carbonate and fractured reservoirs.

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 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:

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, **Flow metering & 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**.

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 Carbonate & Fractured Reservoirs**: Characteristics, Importance & Global Distribution*
0930 – 0945	*Break*
0945 – 1030	***Geological Characteristics of Carbonate Reservoirs**: Depositional Environments, Facies & Diagenetic Processes*
1030 – 1130	***Fractured Reservoirs:** Types of Fractures, Formation Mechanisms & Their Impacts*
1130 – 1215	***Petrophysical Properties of Carbonate Rocks**: Porosity Types, Permeability & Fluid Saturation Characteristics*
1215 – 1230	*Break*
1230 – 1330	***Basic Tools & Techniques in Petrophysical Analysis**: Well Logging & Core Analysis*
1330 – 1420	***Challenges in Petrophysical Evaluation of Carbonate & Fractured Reservoirs:** Identifying & Addressing Common Challenges*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Log Interpretation in Carbonate Settings**: Specific Considerations for Log Responses in Carbonates*
0830 – 0930	***Advanced Logging Tools Applicable to Carbonates:** NMR, Dielectric & Spectral Logs*
0930 – 0945	*Break*
0945 – 1100	***Quantitative Evaluation of Porosity & Permeability**: Techniques for Accurate Estimation*
1100 – 1215	***Fluid Typing & Saturation Analysis:** Distinguishing Hydrocarbon from Water in Complex Settings*
1215 – 1230	*Break*
1230 – 1330	***Integration of Core & Log Data:** Maximizing Insights from Combined Data Sources*
1330 – 1420	***Case Studies:** Real-World Examples of Log Interpretation in Carbonate Reservoirs*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Identifying & Characterizing Fractures:** Utilizing Logs, Cores & Seismic Data for Fracture Analysis*
0830 – 0930	***Petrophysical Modeling of Fractured Reservoirs:** Approaches & Challenges*
0930 – 0945	*Break*
0945 – 1100	***Fracture Porosity & Permeability Estimation:** Quantitative Methods for Fractured Zones*

1100 – 1215	***Role of Geomechanics in Understanding Fractured Reservoirs:*** *Stress Regimes & Fracture Behavior*
1215 – 1230	*Break*
1230 – 1420	***Well Test Interpretation in Fractured Reservoirs:*** *Transient Pressure Behavior*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

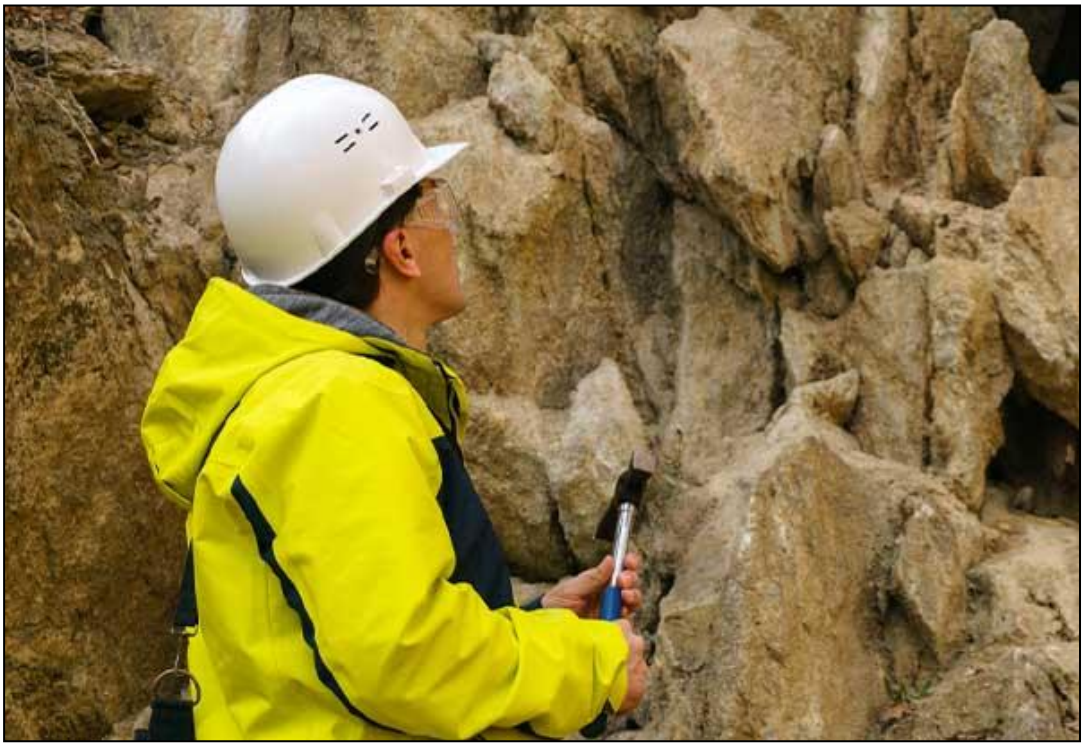
0730 – 0830	***Building Integrated Geological Models:*** *Incorporating Petrophysical Data into Geological Frameworks*
0830 – 0930	***Reservoir Characterization & Zonation****: Stratigraphic & Facies Analysis for Reservoir Modeling*
0930 – 0945	*Break*
0945 – 1100	***Scaling Up Petrophysical Data for Reservoir Simulation:*** *Techniques for Upscaling & its Impact*
1100 – 1215	***Uncertainty Analysis in Petrophysical Interpretation****: Assessing & Managing Uncertainties*
1215 – 1230	*Break*
1230 – 1330	***Advanced Software Tools & Techniques:*** *Exploring the Latest Technology in Petrophysical Analysis*
1330 – 1420	***Group Activity:*** *Developing an Integrated Reservoir Model Using Provided Data Sets*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Field Development Strategies for Carbonate & Fractured Reservoirs****: Tailoring Development Plans Based on Petrophysical Insights*
0830 – 0930	***Enhanced Oil Recovery (EOR) in Complex Reservoirs:*** *Role of Petrophysics in EOR Strategies*
0930 – 0945	*Break*
0945 – 1100	***Carbon Capture & Storage (CCS) in Carbonates & Fractures:*** *Petrophysical Considerations for CCS*
1100 – 1230	***Emerging Technologies & Innovations in Petrophysics:*** *Keeping Up with Industry Advancements*
1230 – 1245	*Break*
1245 – 1345	***Best Practices & Workflow Optimization:*** *Streamlining Petrophysical Analysis for Efficiency*
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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