

**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	September 08-12, 2024	Boardroom, Warwick Hotel Doha, Doha, Qatar
2	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 Sweetening, 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	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<i>Overview of Petrophysical Concepts: Basic Petrophysical Concepts &amp; their Relevance in Reservoir Characterization</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Role of Petrophysics in Reservoir Engineering: The Integration of Petrophysical Data in Reservoir Engineering</i>
1030 – 1130	<i>Rock Properties &amp; their Measurements: Key Rock Properties like Porosity, Permeability &amp; Saturation</i>
1130 – 1215	<i>Log Interpretation: Basic Principles of Well Log Interpretation</i>
1215 – 1230	<i>Break</i>
1230 – 1330	<i>Core Analysis &amp; Correlation with Log Data: Techniques for Correlating Core Data with Log Interpretations</i>
1330 – 1420	<i>Petrophysical Data Acquisition: Overview of Data Acquisition Techniques in Petrophysics</i>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

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



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

**Day 3**

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

**Day 4**

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

**Day 5**

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



1230 – 1245	Break
1245 – 1345	<i>Simulation &amp; Modeling Based on Petrophysical Data: Using Petrophysical Data for Simulation &amp; Modeling Purposes</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Practical Sessions**

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



**Course Coordinator**

Jaryl Castillo, Tel: +974 4423 1327, Email: [jaryl@haward.org](mailto:jaryl@haward.org)