



COURSE OVERVIEW DE0045
Carbonate Petrophysics

Course Title

Carbonate Petrophysics

Course Date/Venue

Session 1: July 20-24, 2025/Boardroom 1,
Elite Byblos Hotel Al Barsha,
Sheikh Zayed Road, Dubai, UAE
Session 2: December 22-26, 2025/Fujairah
Meeting Room, Grand Millennium
Al Wahda Hotel, Abu Dhabi, UAE



Course Reference

DE0045



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

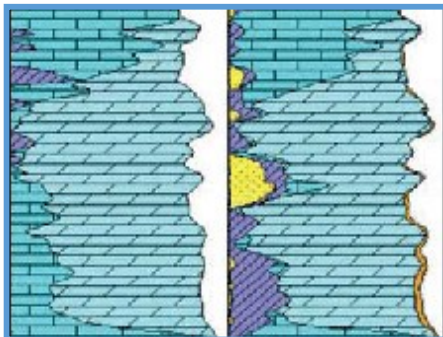
Course Description



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 tackles the important and nontrivial problem of practical formation evaluation in carbonate provinces. The presence of different carbonate minerals and shale laminations strongly affects the physical properties of the reservoir rock and induce significant effects on the response of most logging tools. These perturbations often result in low resistivity/low contrast pay zones that can be significant hydrocarbon producers but are often overlooked. A properly designed analytical program (cores and logs) for the evaluation of carbonate zones can add significant reserves in existing fields and can allow for the rapid identification of potential by-passed pay zones in exploration wells.



The course is practical and participants are given laboratory and field problems to emphasize the instruction. At the end of the course, the participants will be able to identify and evaluate pay intervals in carbonate zones.

Course Objectives

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

- Apply and gain an in-depth knowledge on carbonate petrophysics
- Determine the nature, volume and distribution of clay minerals and shales in carbonate zones and their impact on the analyses of cores and logs
- Integrate petrographic, core and log data to significantly improve reservoir evaluation in carbonates and other rock types containing significant amounts of microporosity
- Discuss history of logging and logging tools in the world today
- Employ systematic use of logging tools to find out hydrocarbon in the formation
- Identify archie water saturation equation and its components
- Determine R_w and its common problem as well as picket plot and its usage
- Discuss R_t and identify porosity and difficulties from each tools
- Illustrate conversion of porosity to formation factor a & m
- Discuss water saturation
- Identify various effects of clay minerals and shale on log responses in shaly
- Carryout various methods of shale content evaluation
- Illustrate the models for saturation determination covering waxman-smits, dual water, juhasz and modified simandix saturation method
- Explain continuous core for vertical resolution, rock type and porosity
- Use advanced logs including NMR, FMI, dipmeters, dielectric logs and ECS
- Integrate core data for purposes of evaluation

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard 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 a deeper appreciation and wider understanding of carbonate petrophysics for petrophysicists, geologists, geophysicists, engineers and explorationists involved in all phases of reservoir evaluation in carbonate provinces.

Training Methodology

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Workshops & Work Presentations
- 20% Case Studies & Practical Exercises
- 30% Videos, Software & Simulators


In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

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USA International Association for Continuing Education and Training (IACET)

Haward Technology is an Authorized Training Provider by the International Association for Continuing Education and Training (IACET), 12100 Sunset Hills R, Suite 130, Reston, Virginia 20190, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 1-2013 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 1-2013 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 Association 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 Fee

US\$ 8,000 per Delegate + **VAT**. 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 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. Fred Lazor is a **Senior Petrophysicist** and **Consultant** with **40 years** of extensive experience in the **Oil & Gas** industry. His area of expertise includes **AVO, Inversion & Seismic Attributes, Production Geology, Well Composite, Construction Integrity & Completion, Special Core Analysis, Field Development Planning, Cased Hole Log Analysis** of the Spectral Saturation Tool, **Production Logs, Sector Cement Bond Logs** and **Multi-finger Calliper Logs** using Warrior and other internal software analysis packages. Currently, he is working as a **Senior Petrophysicist** for **Shell Oil Company** in **Pittsburgh, USA**. Moreover, he is a **Trainer** in log analysis for petroleum engineers, geologists, petrophysicists and others involved in such activities.

During his career life, Mr. Lazor has lead various teams of **petroleum engineers, geologists, reservoir engineers** and **petrophysicists** to conduct **field studies** in **major oil companies** in the **USA, Europe, South East Asia** and the **Middle East**. One of his many achievements when he was a **Consultant Petrophysicist** at Kuwait Oil Company (**KOC**) was to lead a team of petrophysicists assigned to develop the **South Raqta Field** in to one of the **leading heavy oil producing reservoirs in the world**. Further, he has occupied numerous prime positions in multinational companies including **Vice President** and **Chief Petrophysicist** at the **National Petroleum Technology Company** in Saudi Arabia and **Chief Petrophysicist & Consultant** in **Shell Oil Company, Southwestern Energy Company, Schlumberger, TEXACO** and **Simon Geolithic**.

Mr. Lazor has a **Bachelor** degree in **Petroleum Engineering & Physics** from the **University of Texas, USA**. He is a **Fellow** of **SPE** and has various publications presented over the years and **circulated worldwide**. Further, he is a **Certified Instructor/Trainer**.

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	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	History of Logging
0930 – 0945	<i>Break</i>
0945 – 1100	Logging Tools in the World Today
1100 – 1230	How do We Use the Logging Tools to Find Out if There is Any Hydrocarbon in the Formation?
1230 – 1245	<i>Break</i>
1245 – 1420	Archie Water Saturation Equation & its Components
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>



Day 2

0730 – 0930	Rw: How is it Determined? <i>An Example Problem & A Problem for the Class to Solve</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Discussion About the Rw Problem <i>The Picket Plot & How to Use It?</i>
1100 – 1230	Discussion About Rt
1230 – 1245	<i>Break</i>
1245 – 1420	Porosity from Each of the Tool <i>Different Matrix Values for Different Minerals • Difficulties with Each Tool</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 0930	Conversion of Porosity to Formation Factor a & m
0930 – 0945	<i>Break</i>
0945 – 1100	Water Saturation and Example Problem for the Class
1100 – 1230	Carbonates
1230 – 1245	<i>Break</i>
1245 – 1420	Shales and Clays: What are They?
1420 – 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 4

0730 – 0930	Effects of Clay Minerals & Shale Laminations on Log Responses in Carbonates <i>Various Methods of Shale Content Evaluation</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Models for Saturation Determination <i>Waxman-Smits • Dual Water</i>
1100 – 1230	Models for Saturation Determination (cont'd) <i>Juhasz • Modified Simandiox Saturation Methods</i>
1230 – 1245	<i>Break</i>
1245 – 1420	Continuous Core for Vertical Resolution, Rock Type & Porosity
1420 – 1430	Recap
1430	<i>Lunch & End of Day Four</i>

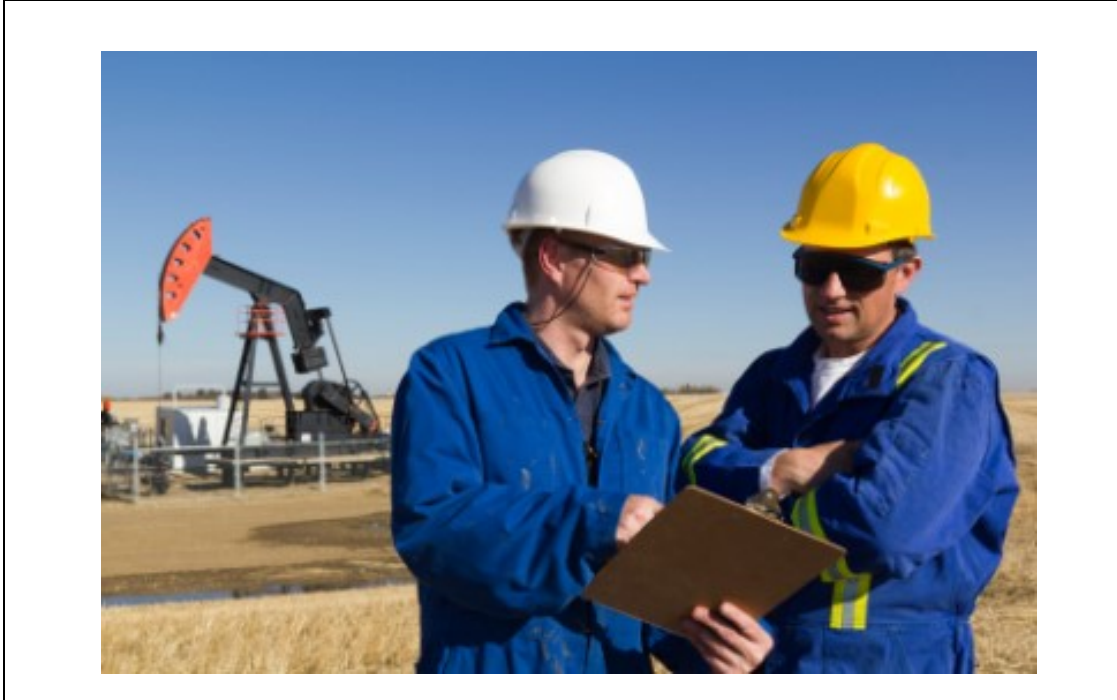
Day 5

0730 – 0930	Use of Advanced Logs <i>NMR • FMI • Dipmeters</i>
0930 – 0945	<i>Break</i>
0945 – 1145	Use of Advanced Logs (cont'd) <i>ECS • Dipole Sonic</i>
1145 – 1230	Integration with Core Data for Purposes of Evaluation
1230 – 1245	<i>Break</i>
1245 – 1345	Integration with Core Data for Purposes of Evaluation (cont'd)
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>



Practical Sessions

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



Course Coordinator

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