



COURSE OVERVIEW DE0300 Integration of Rocks, Log & Test Data

Course Title

Integration of Rocks, Log & Test Data

Course Reference

DE0300

Course Duration/Credits

Five days/3.0 CEUs/30 PDHS



Course Date/Venue

Session(s)	Date	Venue
1	April 28-May 02, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha- Al Sadd, Doha, Qatar
2	September 22-26, 2024	
3	December 08-12, 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.



Well logs have become an indispensable tool for evaluating hydrocarbon reservoirs. But, taken alone, they are not the complete answer; indeed, they sometimes can be very misleading. This course will show you how to avoid the common errors in formation evaluation by collecting and integrating all the data you need into a reliable model of your reservoir. How can you identify ineffective porosity? Confronted by shale sand, what's the first question you should ask? Which shale sand equation should you use? What does a karstic reservoir look like? How can it be evaluated? Is your value of porosity reliable? Is the water saturation correct? Can you be sure of your fluid contacts? The instructor uses clear and easy-to-understand power-point slides and loads of practical examples, livened with entertaining anecdotes from a lifetime's experience in the oil-patch.



Which tools to use to evaluate your reservoir, and what their limitations are. How to combine all the information—from all your wells—using methods which optimize the data you need to model your reservoir and estimate reserves: porosity, saturation, net pay, permeability and fluid distribution. When you can use core data to calibrate your logs – and when you can't. You will work on examples from a wide variety of formation types—shale sands, granular carbonates, karsts—from all over the world. You will learn how to use modern high-tech methods—FMS, MDT, NMR, LWD—and when they are a waste of time and money.





This course will teach you how to evaluate reservoirs and quickly identify flawed results. Robust, minimum error reserves are achieved by a logical, systematic integration of all relevant data. Interpretation is cost-effective compared with data acquisition or development mistakes and essential for the complex reservoirs and marginal fields being re-evaluated today. Systematic integration can often replace the need to run logs and explain apparent data conflicts. It provides the right answer faster, minimizes uncertainty and precludes criticism. By contrast stand-alone log analysis often results in bad economic decisions and bad personal reputations.

Further, this course demonstrates through an experienced consultant how robust answers are achieved by the integration of diverse data. Basic economic questions are addressed head-on by a disciplined, logical process which optimizes the interpretation of porosity, permeability, saturation, net pay, and fluid contacts - the basis of reserves. Low contrast low resistivity pay (LCLRP) classics and carbonates are evaluated by simple integration techniques which surpass stand-alone log analysis. LWD, wireline, NMR, image logs, routine core, special core and MDTs are brought innovatively together to interpret difficult exploration wells, improve reservoir simulation and typically increase reserves. The seismic petrophysics work flow to project these results into inter-well regions is then reviewed. This course is a condensed packet of powerful integration techniques and it will fully integrate data sets to understand reservoir performance.

Course Objectives

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

- Apply an in-depth knowledge on the integration of rocks, logs and test data
- Solve complex reservoir evaluation and productivity problems in exploration through understanding rock properties, logging tools and engineering data
- Identify rock properties, basic log analysis and logging tools
- Differentiate formation water resistivity, water saturated resistivity and resistivity saturation
- Define contacts, fluid zone and capillary pressure
- Perform seismic petrophysical integration and report results

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 integration of rocks, log and test data for parapsycists, reservoir engineers and geologists.

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 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.

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 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. Stan Constantino, MSc, BSc, is a Senior Petroleum & Reservoir Engineer with over 40 years of Offshore & Onshore extensive experience within the Oil, Gas & Petroleum industries. His area of expertise include Cased Hole Logging, Advanced Petrophysics/Interpretation of Cased Hole Logs, Cased Hole Formation Evaluation, Cased Hole Formation Evaluation, Cased Hole Evaluation, Cased-Hole Logging, Applied Production Logging & Cased Hole & Production Log Evaluation, Cased Hole Logging & Formation Evaluation, Open & Cased Hole Logging, Fractured Reservoir Classification & Evaluation, Screening of Oil Reservoirs for Enhanced Oil Recovery, Oil Reservoir Evaluation

& Estimation, Reserves & Resources, Reserves Estimation & Uncertainty, Reserve Evaluation, OIP Estimation & Range of Uncertainty, Reservoir Characterization, Water Flooding, Reservoir Souring & Water Breakthrough, Reservoir Performance Using Classical Methods, Fractured Reservoir Evaluation & Management, Reservoir Surveillance & Management, Reservoir Engineering & Simulation, Reservoir Monitoring, Pressure Transient Testing & Reservoir Performance Evaluation, Reservoir Characterization, Reservoir Engineering Applications with ESP & Heavy Oil, Reservoir Volumetrics, Water Drive Reservoir, Unconventional Resource & Reserves Evaluation, Oil & Gas Reserves Estimation, Petrophysics & Rock Properties, Seismic Technology, Geological Modelling, Water Saturation, Crude Oil & Natural Gas Demand, Exploration Agreements & Financial Modelling, Seismic Survey Evaluation, Exploration Well Identification, Field Production Operation, Field Development Evaluation, Crude Oil Marketing, Core & Log Data Integration, Core Logging, Advanced Core & Log Integration, Well Logs & Core Analysis, Enhanced Oil Recovery, Enhanced Oil Recovery Techniques, Petroleum Economic Analysis, Oil Industry Orientation, Oil Production & Refining, Crude Oil Market, Global Oil Supply & Demand, Global Oil Reserves, Crude Oil Types & Specifications, Oil Processing, Oil Transportation-Methods, Oil & Gas Exploration and Methods, Oil & Gas Extraction, Technology Usage in Industrial Security; Upstream, Midstream & Downstream Operations; Oil Supply & Demand, Oil Contracts, Government Legislation & Oil Contractual Agreements, Oil Projects & Their Feasibility (revenue and profitability), Rock & Fluid Properties, Fluid Flow Mechanics, PVT Analysis, Material Balance, Darcy's Law & Applications, Radial Flow, Gas Well Testing, Natural Water Influx, EOR Methods, Directional Drilling, Drilling Production & Operations, Field Development & Production of Oil & Gas, Wireline Logging, Mud Logging, Production Logging, Slick Line, Coil Tubing, Exploration Wells Evaluation, Horizontal Wells, Well Surveillance, Well Testing, Design & Analysis, Well Testing & Oil Well Performance, Well Log Interpretation (WLI), Formation Evaluation, Well Workover Supervision, Pressure Transient Analysis and Petrophysical Log Analysis. Currently, he is the CEO & Managing Director of Geo Resources Technology wherein he is responsible in managing the services and providing technical supports to underground energy related projects concerning field development, production, drilling, reservoir engineering and simulation.

Throughout his long career life, Mr. Stan has worked for many international companies such as the Kavala Oil, North Aegean Petroleum Company and Texaco Inc., as the Managing Director, Operations Manager, Technical Trainer, Training Consultant, Petroleum Engineering & Exploration Department Head, Assistant Chief Petroleum Engineer, Reservoir Engineer, Resident Petroleum Engineer, Senior Petroleum Engineer and Petroleum Engineer wherein he has been managing the evaluation of exploration wells, reservoir simulation, development training, production monitoring, wireline logging and well testing including selection and field application of well completion methods.

Mr. Stan has a Master's degree in Petroleum Engineering and a Bachelor's degree in Geology from the New Mexico Institute of Mining & Technology (USA) and from the Aristotelian University (Greece) respectively. Further, he is a Certified Instructor/Trainer, a Certified Internal Verifier/Assessor/Trainer by the Institute of Leadership of Management (ILM) and a member of the Society of Petroleum Engineers, USA (SPE), Society of Well Log Professional Analysts, USA (SPWLA) and European Association of Petroleum Geoscientists & Engineers (EAGE). Moreover, Mr. Stan published numerous scientific and technical papers and delivered various trainings, courses and workshops worldwide.





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	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0900	Introduction
0900 – 0930	Rock Properties
0930 – 0945	Break
0945 – 1030	Basic Log Analysis
1030 – 1130	Logging Tools
1130 – 1215	Data Preparation
1215 – 1230	Break
1230 – 1330	Lithology & Clay Content: Vcl , Vsh
1330 – 1420	Porosity Core Sampling
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0830	Formation Water Resistivity: Rw
0830 – 0930	Water Saturated Resistivity: Ro
0930 – 0945	Break
0945 – 1115	Resistivity Saturation: Swrt
1115 – 1215	Shaly Sand Swrt
1215 – 1230	Break
1230 – 1330	Core Saturations
1330 – 1420	Magnetic Resonance Saturation, Swmr
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Contacts, Fluid Zones & Capillary Pressure Pressure Data
0930 – 0945	Break
0945 – 1115	Permeability: k
1115 – 1215	Capillary Pressure Saturation, Swpc
1215 – 1230	Break
1230 – 1330	Reconciliation of Swrt via n SW Calculation
1330 – 1420	Saturation Derivatives
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0930	Base Case Saturation - The Sw Decision Tree
0930 – 0945	Break
0945 – 1115	Netpay and Netrock: N:G
1115 – 1215	Uncertainty



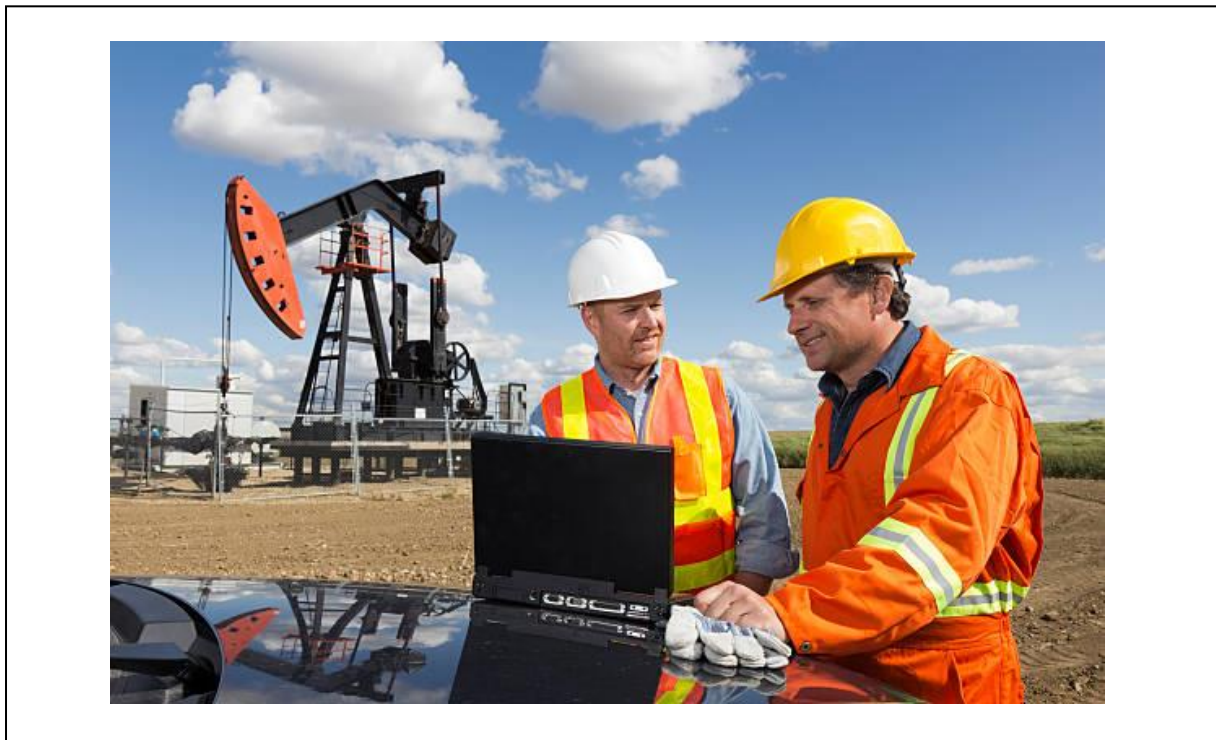
1215 - 1230	<i>Break</i>
1230 - 1330	<i>Seismic Petrophysical Integration</i>
1330 - 1420	<i>Reporting Results</i>
1420 - 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 - 0930	<i>Why Integrate?</i>
0930 - 0945	<i>Break</i>
0945 - 1115	<i>Formation Evaluation Recommendations</i>
1115 - 1215	<i>Case History: Low Porosity Resistivity</i>
1215 - 1230	<i>Break</i>
1230 - 1345	<i>Equations</i>
1345 - 1400	<i>Course Conclusion</i>
1400 - 1415	<i>POST-TEST</i>
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

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



Course Coordinator

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