

**COURSE OVERVIEW DE0886**  
**NMR Fundamentals and Advanced Interpretation**

**Course Title**

NMR Fundamentals and Advanced Interpretation

**Course Date/Venue**

Session 1: July 28-August 01, 2025/Fujairah  
 Meeting Room, Grand Millennium Al  
 Wahda Hotel, Abu Dhabi, UAE  
 Session 2: December 21-25, 2025/Boardroom 1,  
 Elite Byblos Hotel Al Barsha, Sheikh  
 Zayed Road, Dubai, UAE



**Course Reference**

DE0886



**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

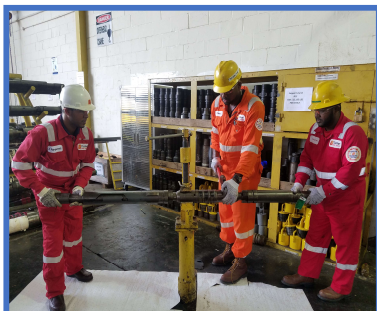
**Course Description**



***This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.***



This course is designed to provide participants with a detailed and up-to-date overview of Advanced Production Logging & Horizontal Production Logging. It covers the production logging tools and their importance in the petroleum industry; the basics of production logging tools, data acquisition in production logging and safety considerations in production logging; analyzing wellbore conditions that affect logging data accuracy; reading and interpreting initial production log data; the multi-finger caliper tools and noise logging for leak detection; and the high-resolution temperature logging, spectral noise logging and flow regime identification.



Further, the course will also discuss the challenges in horizontal production logging; the techniques and tools for effective conveyance in horizontal wellbores; comparing the advantages and limitations of memory and real-time logging in horizontal wells; using tracer dyes in horizontal logging; the pressure transient analysis in horizontal wells; integrating log data with reservoir performance models; using production log data to optimize well performance; and the reservoir heterogeneity and its impact on logging.

During this interactive course, participants will learn the advanced interpretative techniques; combining production logging with other surveillance techniques; planning horizontal production logging operations; the real-time decision making in horizontal logging; the advanced software for logging data analysis; troubleshooting common problems; and the future trends in production logging technology.

### **Course Objectives**

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

- Apply and gain an advanced knowledge on production logging and horizontal production logging
- Discuss production logging tools and their importance in the petroleum industry
- Recognize the basics of production logging tools, data acquisition in production logging and safety considerations in production logging
- Analyze wellbore conditions that affect logging data accuracy as well as read and interpret initial production log data
- Identify multi-finger caliper tools and apply noise logging for leak detection
- Illustrate high-resolution temperature logging, spectral noise logging and flow regime identification
- Discuss the challenges in horizontal production logging and apply techniques and tools for effective conveyance in horizontal wellbores
- Compare the advantages and limitations of memory and real-time logging in horizontal wells
- Use tracer dyes in horizontal logging and apply pressure transient analysis in horizontal wells
- Integrate log data with reservoir performance models and use production log data to optimize well performance
- Discuss reservoir heterogeneity and its impact on logging, apply advanced interpretative techniques and combine production logging with other surveillance techniques
- Plan horizontal production logging operations and apply real-time decision making in horizontal logging
- Recognize advanced software for logging data analysis, troubleshoot common problems and discuss the future trends in production logging technology

### **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 a complete and up-to-date overview of advanced production logging and horizontal production logging for operations managers, reservoir engineers, production engineers, well log analysts, petro-physicists, geoscientists, drilling engineers and production technologists.

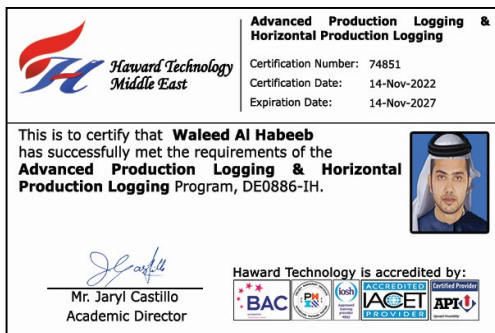
**Course Certificate(s)**

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

**Recertification is FOC for a Lifetime.**

**Sample of Certificates**

The following are samples of the certificates that will be awarded to course participants: -





- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*



**Haward Technology Middle East**  
Continuing Professional Development (HTME-CPD)

**CEUs**

**CEU Official Transcript of Records**

**TOR Issuance Date:** 14-Nov-22  
**HTME No.** 74851  
**Participant Name:** Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
DE0886-IH	Advanced Production Logging & Horizontal Production Logging	November 10-14, 2022	32.5	3.25

**Total No. of CEU's Earned as of TOR Issuance Date** **3.25**

**TRUE COPY**



**Jaryl Castillo**  
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 800, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2018 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2018 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 is accredited by



P.O. Box 26070, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | E-mail: info@haward.org | Website: www.haward.org


\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*

### Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- 
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.

- 
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.

### 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 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. Brendon Billings, MSc, BSc, is a Senior Petroleum Engineer and Well Service Consultant with over 30 years of international experience in Drilling/Reservoir/Petroleum Engineering and Well Service Operations. He is a recognized authority in “Hands On” Service and Drilling Operations, Well Completions (Riggless Operations), Product Optimization, Wellhead Operations, Wellbore Interventions, High Volume Lift Project Management, Reservoir Optimization, Well Testing, Wire/Slickline Equipment and Operations, Coil Tubing, Water Flooding, Electric Submersible Pumps (ESPs), Gas Lifts & Steam Assist Gravity Drain (SAGD) Applications, Facility Inspection, Root Cause Failure Management and Power Factor Management. Currently, he is the President of a large specialized engineering services provider to the North-American Sedimentary Basin Production and other international clients. Moreover, he occupies a consultant position and remains to offer his expertise in many areas of the drilling discipline and is well recognized & respected for his process, procedural expertise, modus operandi as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.**

Throughout his long career life, Mr. Billings 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, procedural expertise** and **modus operandi**. Further, he was the **Projects Manager** at **Sherrit Petreola** where he was fully responsible for all **Reservoir Development** activities. He has spent **more than 2000 days** total on **Rig Floors** for **Drilling (onshore/offshore)** and **Well Servicing Operations** jobs. Mr. Billings was the **Senior Applications Expert** for **Schlumberger Canada (REDA Services)** where he was greatly involved in high volume lift and reservoir optimization projects including specialty endeavours like **SAGD and Gas Lift**. He lead special projects for alternative technology applications and was referred to as the **‘technical specialist’** for severe services on ESP applications and had provided in-house & client instruction for ESP application schooling. Previously, he was the **Artificial Lift Services Developer** for **Weatherford**, a leading provider of oilfield services equipment for drilling, evaluation, completion, production and intervention areas. Herein, he was tasked to introduce new ESP technology and lead a project team for ESP facility development & design. Much earlier in his career, he has held positions such as **Operations Supervisor, Rig Consultant, Project Manager, Regional Manager, Engineering Representative, International Engineering Support Technician, Facility Services Manager** and **Power Plant Engineer**.

Mr. Billings has **Master and Bachelor** degrees in **Petroleum Engineering** and **Power Engineering**. He is a **licensed Professional Engineer**, a **Certified Instructor/Trainer** and a well respected member of the **Society of Petroleum Engineers (SPE)**. Further, he has conducted **numerous industry short courses** and **SPE workshops**.

**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 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 &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Production Logging: Overview of Production Logging Tools and their Importance in the Petroleum Industry</b>
0930 – 0945	<i>Break</i>
0945 – 1030	<b>Basics of Production Logging Tools: Detailed Examination of Tool Types, Including Temperature, Pressure, and Flow Rate Sensors</b>
1030 – 1130	<b>Data Acquisition in Production Logging: Techniques and Technologies Used for Capturing Accurate Logging Data</b>
1130 – 1230	<b>Safety Considerations in Production Logging: Best Practices and Safety Protocols for Logging Operations</b>
1230 – 1245	<i>Break</i>
1245 – 1345	<b>Understanding Wellbore Conditions: Analyzing Wellbore Conditions that Affect Logging Data Accuracy</b>
1345 – 1420	<b>Interpreting Basic Log Outputs: Skills for Reading and Interpreting Initial Production Log Data</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

**Day 2**

0730 – 0830	<b>Multi-Finger Caliper Tools: Usage and Data Interpretation from Advanced Caliper Tools for Well Integrity</b>
0830 – 0930	<b>Noise Logging for Leak Detection: Techniques for Using Noise Logs to Detect and Locate Leaks</b>
0930 – 0945	<i>Break</i>
0945 – 1130	<b>High-Resolution Temperature Logging: Applications of High-Resolution Temperature Tools in Detecting Flow Anomalies</b>
1130 – 1230	<b>Spectral Noise Logging: Advanced Understanding and Application of Spectral Noise Logs in Production Diagnosis</b>
1230 – 1245	<i>Break</i>
1245 – 1330	<b>Flow Regime Identification: Identifying and Analyzing Different Flow Regimes Using Production Logs</b>
1330 – 1420	<b>Case Studies: Review of Real-World Case Studies Highlighting the Application of Advanced Production Logging Tools</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>



**Day 3**

0730 – 0930	<b>Challenges in Horizontal Production Logging:</b> Discussing the Specific Challenges Faced While Logging Horizontal Wells
0930 – 0945	Break
0945 – 1030	<b>Tool Conveyance in Horizontal Wells:</b> Techniques and Tools for Effective Conveyance in Horizontal Wellbores
1030 – 1130	<b>Memory Logging vs. Real-Time Logging:</b> Comparing the Advantages and Limitations of Memory and Real-Time Logging in Horizontal Wells
1130 – 1230	<b>Using Tracer Dyes in Horizontal Logging:</b> Application of Tracer Dyes to Enhance the Interpretation of Flow Profiles
1230 – 1245	Break
1245 – 1345	<b>Pressure Transient Analysis in Horizontal Wells:</b> Techniques for Conducting Pressure Transient Analysis in Complex Well Architectures
1345 – 1420	<b>Workshop: Simulating Horizontal Well Logging:</b> Practical Exercises in Planning and Simulating a Horizontal Well Logging Operation
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

0730 – 0930	<b>Linking Production Logging to Reservoir Performance:</b> Methods for Integrating Log Data with Reservoir Performance Models
0930 – 0945	Break
0945 – 1030	<b>Production Optimization Using Log Data:</b> Techniques for Using Production Log Data to Optimize Well Performance
1030 – 1130	<b>Reservoir Heterogeneity &amp; Its Impact on Logging:</b> Understanding How Reservoir Characteristics Affect Logging Data
1130 – 1230	<b>Advanced Interpretative Techniques:</b> Using Advanced Software and Analytical Methods to Interpret Log Data
1230 – 1245	Break
1245 – 1330	<b>Combining Production Logging with Other Surveillance Techniques:</b> Integration with Seismic, Microseismic, and Other Surveillance Data
1330 – 1420	<b>Group Project:</b> Participants Work in Groups to Design a Logging Program Based on Hypothetical Reservoir Data
1420 – 1430	Recap
1430	Lunch & End of Day Four

**Day 5**

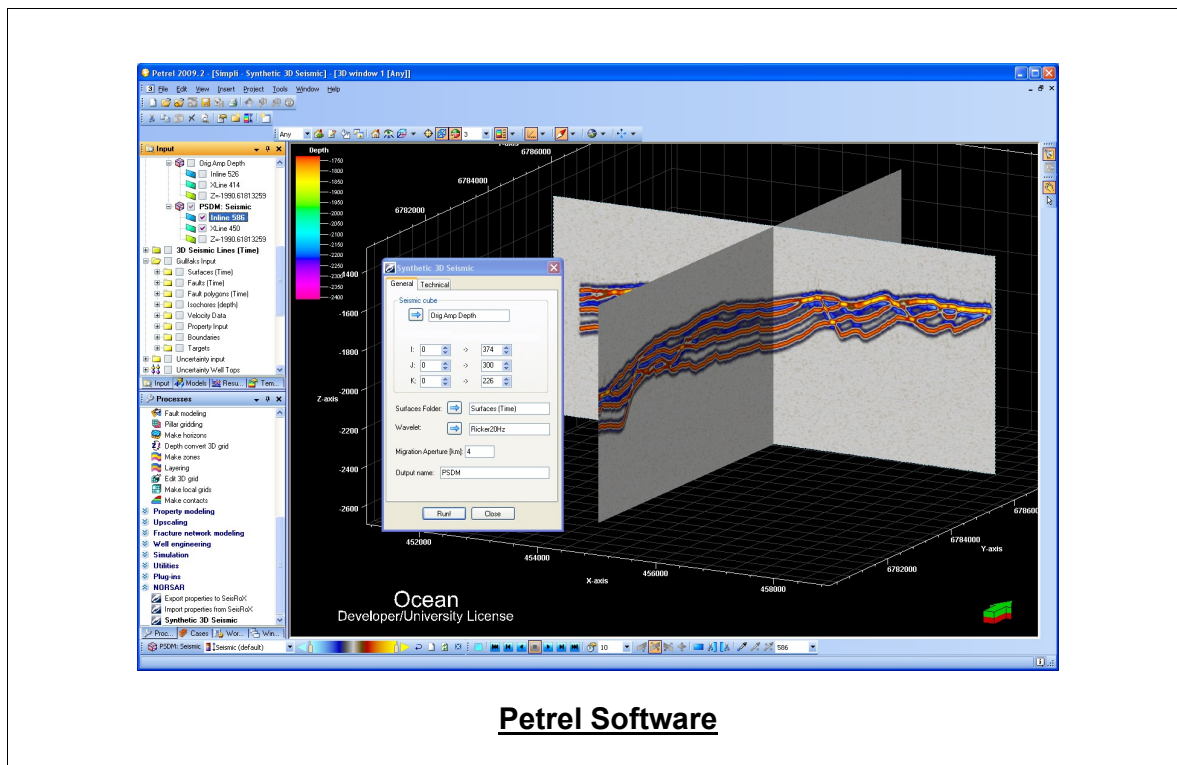
0730 – 0930	<b>Planning Horizontal Production Logging Operations:</b> Key Considerations in Planning a Logging Operation for Horizontal Wells
0930 – 0945	Break
0945 – 1030	<b>Real-Time Decision Making in Horizontal Logging:</b> Strategies for Making Real-Time Adjustments During a Logging Operation
1030 – 1130	<b>Advanced Software for Logging Data Analysis:</b> Training on Specific Software Tools Used for Horizontal Well Log Analysis
1130 – 1230	<b>Troubleshooting Common Problems:</b> Identifying and Solving Common Issues Encountered During Horizontal Production Logging.
1230 – 1245	Break



1245 – 1300	<i>Future Trends in Production Logging Technology: Discussion on Emerging Technologies and Their Potential Impact on Production Logging</i>
1300 – 1315	<i>Course Conclusion</i>
1315 – 1415	<b>COMPETENCY EXAM</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Simulator (Hands-on Practical Sessions)**

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the “Petrel” software.



**Petrel Software**

**Course Coordinator**

Mari Nakintu, Tel: +971 2 30 91 714, Email: [mari1@haward.org](mailto:mari1@haward.org)