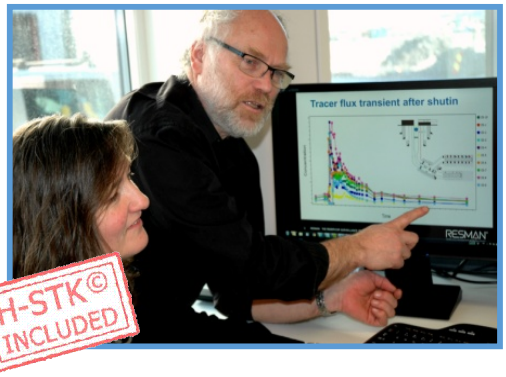
COURSE OVERVIEW DE0873
Production Logging and Reservoir Monitoring

Course Title
Production Logging and Reservoir Monitoring

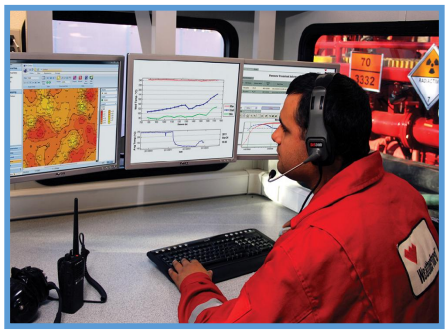


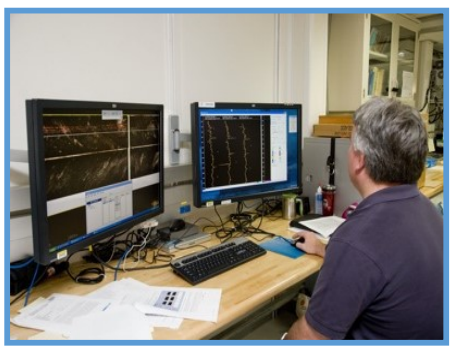
Course Date/Venue
Session 1: April 28-May 02, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: October 26-30, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
DE0873

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.

Production logging are those logs that are performed on production wells to evaluate the performance of the well and to monitor the reservoir. Other production logs can evaluate the well completion or look behind pipe to evaluate the formation and its fluids in the near-well vicinity. In the absence of production logs, the performances of production or injection wells are evaluated on the basis of data obtained from surface measurements, volumes measured in reservoirs, flow rates from separators and pressure measurements at a given down hole point. These data are generally insufficient to determine the flow rate and nature of the fluids produced from or injected into each point in the well.

Production logs are playing an increasing role in modern reservoir management by providing the only means of identifying downhole fluid movements directly. Their main advantage lies in the capacity for determining how and where fluids flow, even outside tubing's or casings under production conditions. Production logs are very often used for diagnosing defects altering the proper functioning of well, i.e. tubing leaks, casing leaks, communications due to channeling as result of improper cementing, low-pressure intervals taking up part of the effluent.

This course is designed to provide participants with advanced techniques for production logging and reservoir monitoring. You will learn to design a data acquisition program to evaluate wellbore or reservoir behavior based on field development objectives. You will learn in-depth log interpretation techniques such as interpreting three phase fluid flow in deviated and horizontal wells. You will also learn quick look techniques for log quality control as well as how to plan and integrate multi-source data to complete your evaluation. Using hands-on examples, you will learn to interpret behind casing resistivity, three phase flow in horizontal wells, and evaluating fluid saturations using logging tools.

The course will cover fluid flow in pipes (both single and multiphase flow), the theoretical bases of production logging techniques, production log interpretation, and operational considerations. Numerous field examples are used to illustrate the principles of production log interpretation.

Course Objectives

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

- Apply and gain an in-depth knowledge on applied production logging and reservoir monitoring
- Discuss the inflow and outflow performance and productivity
- Determine flow regimes and slippage velocities in vertical, deviated and horizontal wells
- Identify the problem and perform solution with production logs
- Carryout various techniques of measuring of oil, water and gas velocity
- Explain slip velocity correlations and measure three-phase holdups using electrical optical
- Recognize multiphase flow effect and spinner flowmeter logs
- Calibrate spinner in vertical, deviated and horizontal wells
- Apply log combinations for injection well profiling and three-phase production logging in horizontal wells
- Describe temperature logs, radioactive tracer logs and deflector or basket flowmeters
- Discuss fluid density logs, fluid capacitance logs, noise logs, cement bond logs and ultrasonic pulse-echo logs
- Carryout pulsed neutron logs for flow identification and explain the physics of pulsed neutron and carbon/oxygen logging
- Analyze PNC and pressure data sampling, recognize pressure data and formation fluid sample acquisition behind casing and interpret multiphase log

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 production logging and analysis for petrophysicists, petroleum engineers, production engineers, drilling engineers, reservoir engineers, log analysts, and anyone interested in understanding what production logs and cased-hole surveys.

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 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.

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: -

- 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.

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:

Ms. Diana Helmy, PgDip, MSc, BSc, is a **Senior Petroleum & Geologist** with extensive years of experience within the **Oil & Gas**, **Refinery** and **Petrochemical** industries. Her expertise widely covers in the areas of **Tubular & Pipe** Handling, **Tubular Strength**, **Casing & Tubing** Design, **Production/Injection Loads** for Casing Strings & Tubing, **Drilling** Loads, **Drilling & Production Thermal** Loads, **Well** Architecture, **Wellhead Integrity**, **Well Integrity & Artificial Lift**, **Well Integrity** Management, **Well** Completion & Workover, Applied **Drilling** Practices, Horizontal **Drilling**, **Petroleum** Production, **Resource & Reserve Evaluation**, **Reserves Estimation & Uncertainty**, Methods for **Aggregation of Reserves & Resources**, **Horizontal & Multilateral Wells**, **Well Completion & Stimulation**, **Artificial Lift System Selection & Design**, **Well** Testing & Oil Well Performance, **Well** Test Design Analysis, **Well Test** Operations, **Well Testing & Perforation**, **Directional** Drilling, **Formation Damage** Evaluation & Preventive, **Formation Damage** Remediation, **Drilling & Formation Damage**, Simulation Program for The **International Petroleum Business**, **Well** Testing & Analysis, **Horizontal & Multilateral Wells & Reservoir** Concerns, **Oil & Gas Analytics**, **Petrophysics & Reservoir Engineering**, **Subsurface Geology & Logging** Interpretation, **Petroleum Geology**, **Geophysics**, **Seismic** Processing & Exploration, **Seismic** Interpretation, **Sedimentology**, **Stratigraphy & Biostratigraphy**, **Petroleum Economy**, **Core** Analysis, Well Logging Interpretation, **Core Lab Analysis** & **SCAL**, **Sedimentary Rocks**, **Rock** Types, Core & Ditch Cuttings Analysis, Clastic, Carbonate & Basement Rocks, **Stratigraphic Sequences**, **Petrographically** Analysis, Thin Section Analysis, Scanning Electron Microscope (**SEM**), X-ray Diffraction (**XRD**), Cross-Section Tomography (**CT**), **Conventional & Unconventional** Analysis, **Porosity & Permeability**, **Geological & Geophysical** Model, **Sedimentary** Facies, **Formation Damage** Studies & Analysis, **Rig** Awareness, 2D&3D **Seismic** Data Processing, Static & Dynamic Correction, Noise Attenuation & Multiple Elimination Techniques, Velocity Analysis & Modeling and various software such as Petrel, OMEGA, LINUX, Kingdom and Vista. She is currently a **Senior Consultant** wherein she is responsible in different facets of **Petroleum & Process Engineering** from managing **asset integrity**, **well integrity process**, **pre-commissioning/commissioning** and **start up** onshore & offshore process facilities.

During her career life, Ms. Diana worked as a **Reservoir Geologist**, **Seismic Engineer**, **Geology Instructor**, **Geoscience Instructor & Consultant** and **Petroleum Geology Researcher** from various international companies like the **Schlumberger**, Corex Services for Petroleum Services, Petrolia Energy Supplies and Alexandria University.

Ms. Diana has a **Postgraduate Diploma** in **Geophysics**, **Master's** degree in **Petroleum Geology** and **Geophysics** and a **Bachelor's** degree in **Geology**. Further, she is a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has delivered numerous trainings, courses, workshops, seminars and conferences internationally.

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 – 0930	***Inflow & Outflow Performance & Productivity***
0930 – 0945	*Break*
0945 – 1100	***Flow Regimes & Slippage Velocities in Vertical, Deviated & Horizontal Wells***
1100 – 1230	***Problem Identification & Solution with Production Logs***
1230 – 1245	*Break*
1245 – 1345	***Various Techniques of Measuring of Oil, Water & Gas Velocity***
1345 – 1420	***Slip Velocity Correlations***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Measurement of Three-Phase Holdups Using Electrical & Optical***
0830 – 0930	***Multiphase Flow Effect***
0930 – 0945	*Break*
0945 – 1100	***Spinner Flowmeter Logs***
1100 – 1230	***Spinner Calibrations in Vertical, Deviated & Horizontal Wells***
1230 – 1245	*Break*
1245 – 1420	***Log Combinations for Injection Well Profiling***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Three-Phase Production Logging in Horizontal Wells***
0830 – 0930	***Temperature Logs***
0930 – 0945	*Break*
0945 – 1100	***Radioactive Tracer Logs***
1100 – 1230	***Deflector or Basket Flowmeters***
1230 – 1245	*Break*
1245 – 1420	***Fluid Density Logs***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

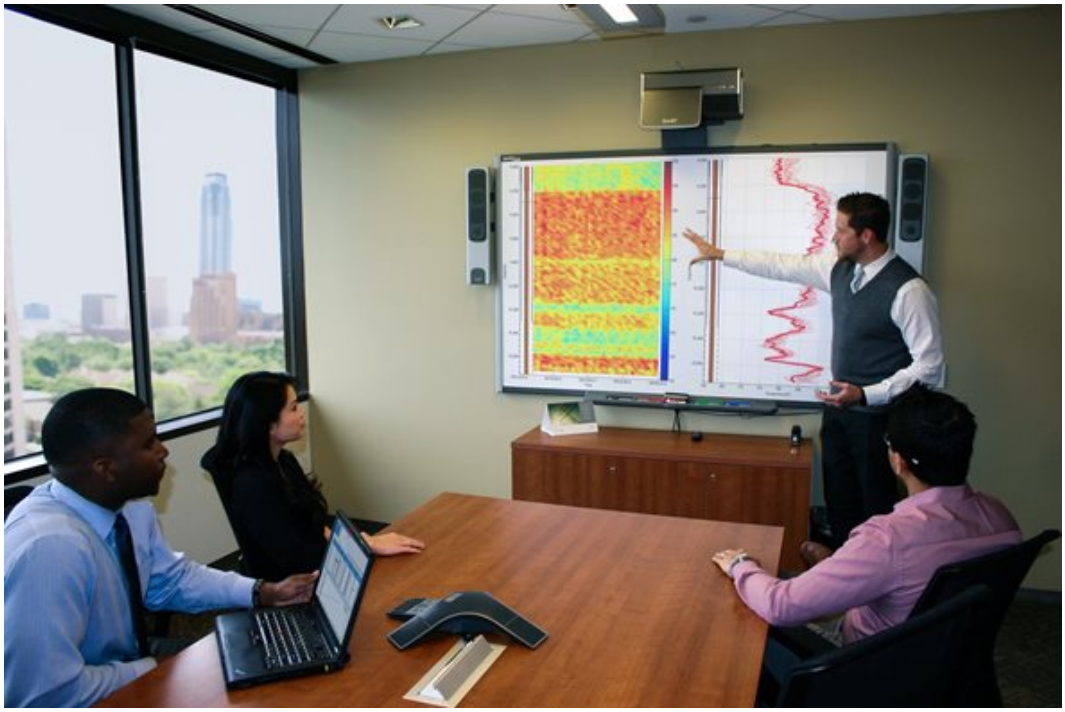
0730 – 0830	***Fluid Capacitance Logs***
0830 – 0930	***Noise Logs***
0930 – 0945	*Break*
0945 – 1100	***Cement Bond Logs***
1100 – 1230	***Ultrasonic Pulse-Echo Logs***
1230 – 1245	*Break*
1245 – 1420	***Pulsed Neutron Logs for Flow Identification***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Physics of Pulsed Neutron & Carbon/Oxygen Logging***
0830 – 0930	***Pressure Data & Formation Fluid Sample Acquisition Behind Casing***
0930 – 0945	*Break*
0945 – 1100	***Multiphase Log Interpretation***
1100 – 1230	***Workshop: Use of Capture & Carbon/Oxygen Modes for Evaluating Water & Gas Saturation***
1230 – 1245	*Break*
1245 – 1315	***Workshop: Interpreting Resistivity Logging Measurements Acquired Behind Casing***
1315 - 1345	***Workshop: Production Logging in Horizontal Wells with Three-Phase Flow***
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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