COURSE OVERVIEW DE0538
Oilfield Analysis

Course Title
Oilfield Analysis

Course Date/Venue
Session 1: April 07-11, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: August 31-September 04, 2025/ Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
DE0538

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 one of our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Oilfield Analysis. It covers the importance of oilfield analysis and its role in reservoir management; the composition and classification of crude oil; the physical and chemical properties of oil and gas; the basics of reservoir rock properties, well testing and production analysis; the oilfield sampling, laboratory analysis and safety considerations in oilfield analysis; the core analysis and reservoir characterization, pressure-volume-temperature (PVT) analysis and crude oil and gas composition analysis; and the water analysis in oilfields including gas analysis and characterization.

During this interactive course, participants will learn the fluid flow and multiphase behavior in reservoirs; the oilfield production data analysis; the decline curve analysis, production forecasting, enhanced oil recovery (EOR) methods and wax, asphaltene and scale deposition analysis; the artificial lift optimization, corrosion monitoring and control, pipeline flow assurance and integrity analysis; the oil spill detection, environmental impact assessment and produced water treatment and disposal; the HSE compliance and regulatory standards in oilfield analysis; the digital transformation in oilfield analysis; and the real-time data acquisition, remote monitoring, risk assessment and decision-making in oilfield analysis.

Course Objectives

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

- Apply and gain a good working knowledge on oilfield analysis
- Discuss the importance of oilfield analysis and its role in reservoir management
- Identify the composition and classification of crude oil as well as the physical and chemical properties of oil and gas
- Explain the basics of reservoir rock properties and apply well testing and production analysis
- Carryout oilfield sampling and laboratory analysis including safety considerations in oilfield analysis
- Apply core analysis and reservoir characterization, pressure-volume-temperature (PVT) analysis and crude oil and gas composition analysis
- Employ water analysis in oilfields including gas analysis and characterization
- Discuss fluid flow and multiphase behavior in reservoirs and apply oilfield production data analysis
- Carryout decline curve analysis, production forecasting, enhanced oil recovery (EOR) methods and wax, asphaltene and scale deposition analysis
- Apply artificial lift optimization, corrosion monitoring and control, pipeline flow assurance and integrity analysis
- Employ oil spill detection, environmental impact assessment and produced water treatment and disposal
- Implement HSE compliance and regulatory standards in oilfield analysis and digital transformation in oilfield analysis
- Carryout real-time data acquisition, remote monitoring, risk assessment and decision-making in oilfield analysis

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 the oilfield analysis for petroleum engineers, geologists and geophysicists, reservoir engineers, production engineers, drilling engineers, field engineers, oilfield service technicians, energy consultants, professionals in environmental engineering and other technical staff.

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 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:

Dr. Hesham Abdou, PhD, MSc, BSc, is a **Senior Drilling & Petroleum Engineer** with over **30 years** of integrated industrial and academic experience as a **University Professor**. His specialization widely covers in the areas of **Drilling & Completion** Technology, **Directional Drilling**, **Horizontal & Sidetracking**, **Drilling Operation** Management, **Drilling & Production** Equipment, **ERD Drilling & Stuck Pipe** Prevention, **Natural & Artificial Flow Well Completion**, **Well Testing** Procedures & Evaluation, **Well** Performance, **Coiled Tubing** Technology, **Oil Recovery Methods** Enhancement**, Well Integrity** Management, **Well Casing & Cementing**, **Acid Gas** Removal, **Heavy Oil Production** & Treatment Techniques, **Crude Oil Testing & Water Analysis**, **Crude Oil & Water** Sampling Procedures, **Equipment Handling** Procedures, **Crude & Vacuum Process** Technology, **Gas Conditioning & Processing**, **Cooling Towers** Operation & Troubleshooting, **Sucker Rod Pumping**, **ESP & Gas Lift**, **PCP & Jet Pump**, **Pigging** Operations, Electric Submersible Pumps (**ESP**), Progressive Cavity Pumps (**PCP**), **Water Flooding**, **Water Lift Pumps** Troubleshooting, **Water System Design** & Installation, **Water Networks Design** Procedures, **Water Pumping** Process, **Pipelines**, **Pumps**, **Turbines**, **Heat Exchangers**, **Separators**, **Heaters**, **Compressors**, **Storage Tanks**, **Valves** Selection, **Compressors**, **Tank & Tank Farms** Operations & Performance, **Oil & Gas Transportation**, **Oil & Gas Production** Strategies, **Artificial Lift** Methods, **Piping & Pumping** Operations, Oil & Water Source Wells Restoration, **Pump** Performance Monitoring, **Rotor Bearing** Modelling, **Hydraulic** Repairs & Cylinders, **Root Cause Analysis**, **Vibration & Condition** Monitoring, **Piping Stress** Analysis, **Amine Gas Sweetening & Sulfur Recovery**, Heat & Mass Transfer and Fluid Mechanics.

During his career life, Dr. Hesham held significant positions and dedication as the **General Manager**, **Petroleum Engineering Assistant General Manager**, **Workover Assistant General Manager**, **Workover Department Manager**, **Artificial Section Head**, **Oil & Gas Production Engineer** and **Senior Instructor/Lecturer** from various companies and universities such as the Cairo University, Helwan University, British University in Egypt, Banha University and Agiba Petroleum Company.

Dr. Hesham has a **PhD** and **Master** degree in **Mechanical Power Engineering** and a **Bachelor** degree in **Petroleum Engineering**. Further, he is a **Certified Instructor/Trainer** and a **Peer Reviewer**. Dr. Hesham is a member of Egyptian Engineering Syndicate and the Society of Petroleum Engineering. Moreover, he has published technical papers and journals and has delivered numerous trainings, workshops, courses, seminars and conferences internationally.

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 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	***Introduction to Oilfield Analysis*** *Definition and Importance of Oilfield Analysis • Role of Oilfield Analysis in Reservoir Management • Key Parameters Analyzed in Oilfield Fluids and Formations • Approach to Oilfield Data Assessment*
0930 - 0945	*Break*
0945 – 1045	***Oilfield Fluids & Their Properties*** *Composition and Classification of Crude Oil • Physical and Chemical Properties of Oil and Gas • Water Content and its Impact on oil Production • Gas-Oil Ratio (GOR) and its Significance*
1045 - 1145	***Reservoir Rock & Fluid Interactions*** *Basics of Reservoir Rock Properties (Porosity, Permeability) • Capillary Pressure and Wettability • Fluid Saturation and Recovery Efficiency • Impact of Rock-Fluid Interactions on Oil Production*
1145 - 1230	***Well Testing & Production Analysis*** *Objectives of Well Testing in Oilfield Operations • Flow Rate and Pressure Measurement Techniques • Drawdown and Buildup Tests • Interpretation of Well Test Data*
1230 – 1245	*Break*
1245 – 1330	***Oilfield Sampling & Laboratory Analysis*** *Techniques for Collecting Representative Oilfield Samples • Quality Control Measures in Oil and Gas Sampling • Common Laboratory Tests (API Gravity, Viscosity, Sulfur Content) • Standards for Oilfield Sampling and Testing*
1330 - 1420	***Safety Considerations in Oilfield Analysis*** *Handling Hazardous Materials During Sample Collection • PPE Requirements and Best Safety Practices • HSE Guidelines for Oilfield Analysis • Emergency Response Procedures in Oilfield Labs*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Core Analysis & Reservoir Characterization*** *Importance of Core Sampling in Reservoir Studies • Routine vs. Special Core Analysis • Core Permeability and Porosity Measurements • Case Study on Reservoir Rock Characterization*
0830 – 0930	***Pressure-Volume-Temperature (PVT) Analysis*** *Understanding PVT Properties of Reservoir Fluids • Sampling and Testing for PVT Analysis • Phase Behavior of Hydrocarbons Under Varying Conditions • Applications of PVT Data in Reservoir Management*
0930 - 0945	*Break*
0945 – 1130	***Crude Oil & Gas Composition Analysis*** *Hydrocarbon Fractions and Molecular Composition • API Gravity and its Effect on Refining Processes • Gas Chromatography for Hydrocarbon Analysis • Heavy Metal and Impurity Content Evaluation*
1130 - 1230	***Water Analysis in Oilfields*** *Formation Water vs. Injection Water Properties • Salinity and Scaling Tendencies • Bacteria Content and its Impact on Reservoir Health • Water Treatment Methods for Oilfield Operations*
1230 - 1245	*Break*
1245 - 1330	***Gas Analysis & Characterization*** *Natural Gas Composition and Calorific Value • Hydrogen Sulfide (H_2S) and CO_2 Content in Gas • Gas Chromatography Techniques for Detailed Analysis • Standards for Gas Quality Assessment*
1330 - 1420	***Fluid Flow & Multiphase Behavior in Reservoirs*** *Multiphase Flow Characteristics in Porous Media • Gas-Liquid Interactions and Flow Regimes • Impact of Emulsion Formation on Production Efficiency • Case study on Fluid Fow Optimization in Fields*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Oilfield Production Data Analysis*** *Understanding Production Decline Curves • Analyzing Well Performance Trends • Identifying Production Bottlenecks • Methods to Optimize Production Rates*
0830 – 0930	***Decline Curve Analysis & Production Forecasting*** *Types of Decline Curves (Exponential, Hyperbolic, Harmonic) • Estimating Remaining Reserves Using Decline Analysis • Forecasting Future Production Rates • Case Study on Production Forecasting in Fields*
0930 - 0945	*Break*
0945 – 1130	***Enhanced Oil Recovery (EOR) Methods*** *Thermal, Chemical, and Gas Injection Techniques • Screening Criteria for EOR Applications • Case Studies on Successful EOR Implementations • EOR Strategies for Mature Reservoirs*
1130 - 1230	***Wax, Asphaltene & Scale Deposition Analysis*** *Causes of Wax and Asphaltene Precipitation • Impact of Scale on Production Equipment • Prevention and Remediation Techniques • Laboratory Testing for Wax and Scale Tendencies*
1230 - 1245	*Break*

1245 - 1330	***Artificial Lift Optimization*** *Overview of Artificial Lift Methods (ESP, Gas Lift, Rod Pump) • Selection criteria for Different Reservoir Conditions • Performance Analysis of Artificial Lift Systems • Approach to Artificial Lift Optimization*
1330 - 1420	***Case Studies on Production Challenges & Solutions*** *Experience with Production Troubleshooting • Lessons Learned from Past Operational Challenges • Data-Driven Decision-Making in Production Analysis Implementing Best Practices for Optimal Field Performance*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4

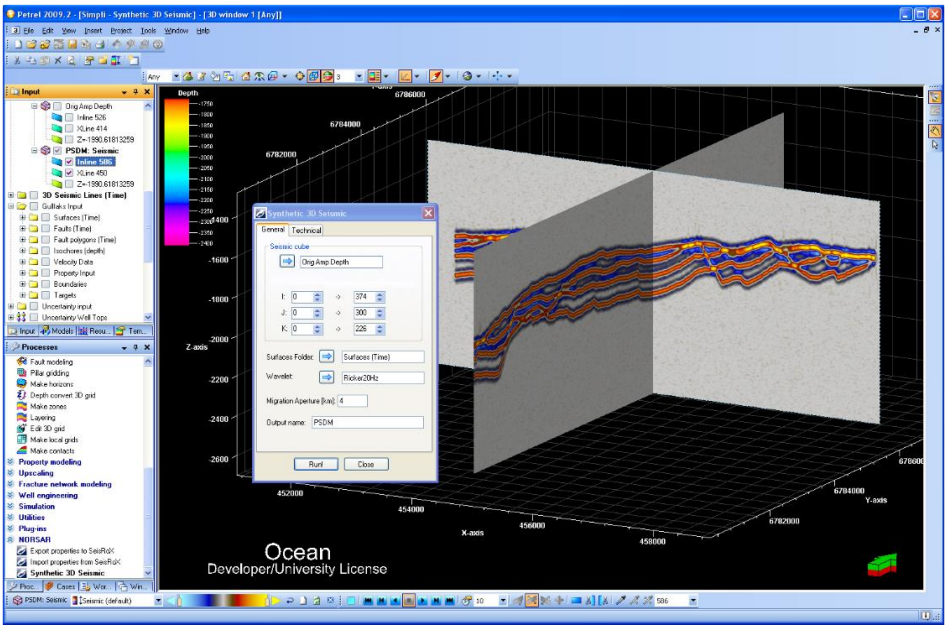
0730 – 0830	***Corrosion Monitoring & Control*** *Types of Corrosion in Oilfield Operations • Corrosion Inhibitors and Material Selection • Inspection Techniques for Pipeline Integrity • Corrosion Management Strategies*
0830 – 0930	***Pipeline Flow Assurance & Integrity Analysis*** *Challenges in Pipeline Flow Management • Hydrate Formation and Mitigation Strategies • Pigging and Pipeline Cleaning Procedures • Approach to Pipeline Integrity Management*
0930 - 0945	*Break*
0945 – 1130	***Oil Spill Detection & Environmental Impact Assessment*** *Methods for Detecting and Responding to Oil Spills • Environmental Monitoring Techniques • Environmental Compliance Requirements • Case Studies on Oil Spill Prevention and Response*
1130 - 1230	***Produced Water Treatment & Disposal*** *Composition of Produced Water • Treatment Technologies (Filtration, Chemical Treatment, Reinjection) • Regulatory Requirements for Water Disposal • Best Practices for Water Management*
1230 - 1245	*Break*
1245 - 1330	***HSE Compliance & Regulatory Standards in Oilfield Analysis*** *HSE Policies and Guidelines • International Oilfield Regulations (API, ASTM, ISO) • Environmental Impact Assessment (EIA) Procedures • Ensuring Compliance with Sustainability Goals*
1330 - 1420	***Case Studies on Oilfield Asset Integrity Management*** *Failures and Lessons Learned in Asset Integrity Monitoring • Strategies for Proactive Maintenance • Advances in Digital Monitoring and Predictive Maintenance •Future trends in Oilfield Integrity Management*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5

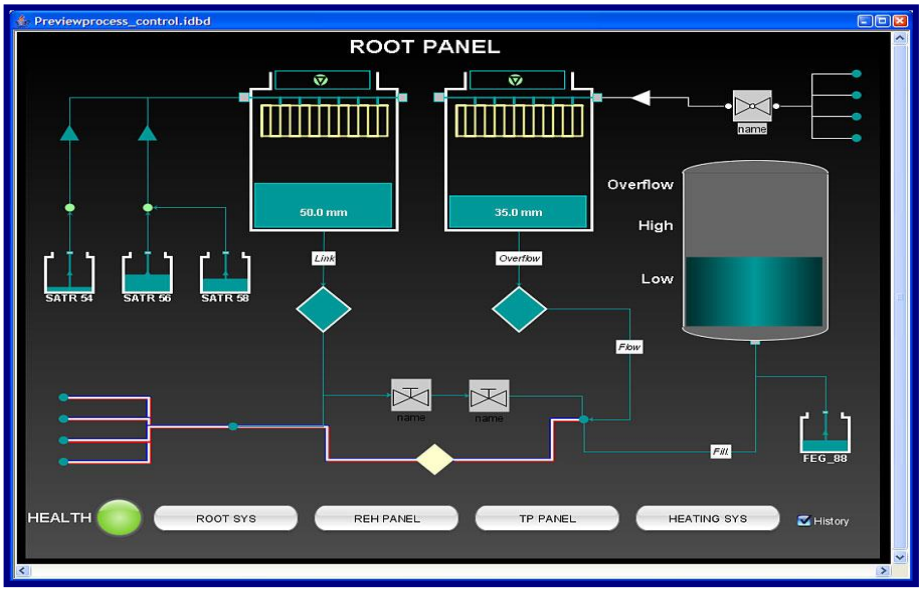
0730 – 0930	***Digital Transformation in Oilfield Analysis*** *Role of Big Data and AI in Oilfield Analytics • IoT-Based Monitoring for Real-Time Decision-Making • Predictive Analytics for Production Optimization • Digital Transformation Initiatives*
0930 - 0945	*Break*
0945 – 1100	***Advanced Reservoir Simulation & Modeling*** *Basics of Reservoir Simulation Software • History Matching and Model Calibration • Using Simulation for EOR Strategy Development • Case Study on Reservoir Modeling Projects*
1100 - 1230	***Real-Time Data Acquisition & Remote Monitoring*** *Use of SCADA and Automated Systems in Oilfield Analysis • Integrating Sensor Data with Production Models • Remote Troubleshooting and Predictive Maintenance • Use of Digital Tools in Field Operations*
1230 - 1245	*Break*
1245 – 1345	***Risk Assessment & Decision-Making in Oilfield Analysis*** *Identifying High-Risk Wells and Assets • Decision-Making Frameworks for Production Optimization • Case studies on Risk Mitigation in Operations • Best Practices for Proactive Field Management*
13345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1400 – 1415	***POST TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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 one of our state-of-the-art simulators “Petrel Software” and “HMI SCADA”.



Petrel Software



HMI SCADA

Course Coordinator

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