



## COURSE OVERVIEW DE0344-10D Oilfield Development and Production Optimization

### Course Title

Oilfield Development and Production Optimization

### Course Date/Venue

March 10-21, 2024/Boardroom 2, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

### Course Reference

DE0344-10D

### Course Duration/Credits

Ten days/6.0 CEUs/60 PDHs



### Course Description



***This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.***

This course is designed to provide participants with a detailed and up-to-date overview of Oilfield Development and Production Optimization. It covers the basics of petroleum geology, reservoir rock and fluid properties; the types, characteristics and formation of oil and gas reservoirs and the fundamentals of reservoir engineering; the exploration techniques and regulatory and environmental considerations; the petrophysical properties, reservoir heterogeneity and geostatistics; and the core analysis and interpretation, log interpretation, 3D reservoir modeling and uncertainty and risk analysis.



Further, the course will also discuss the well drilling and completion, drilling technologies and modern drilling techniques; the drilling fluids, hydraulics and the importance of mud systems; the well completion design, wellbore stability, sand control, testing and pressure transient analysis; the reservoir management strategies, reservoir monitoring and tools and techniques for reservoir surveillance; and the waterflooding principles and secondary recovery methods, enhanced oil recovery (EOR) methods and tertiary recovery techniques.



During this interactive course, participants will learn the production decline analysis, artificial lift methods, production system analysis, choke performance and flow assurance; the scale, corrosion and erosion, well intervention, workover operations and techniques to enhance production; optimizing real-time production and using data for decision-making; the project evaluation of petroleum economics, asset management strategies, risk management in oilfield development and project planning and execution; the health, safety and environmental (HSE) management, stakeholder engagement and effective communication strategies; the advanced waterflooding, CO<sub>2</sub> EOR and sequestration; the thermal recovery methods, chemical EOR techniques, gas injection methods and unconventional oil recovery; the emerging technologies in oil and gas; the sustainability and green practices in oilfield operations; and the future of oil and gas in the energy transition.

### **Course Objectives**

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

- Apply and gain a comprehensive knowledge on oilfield development and production optimization
- Recognize the basics of petroleum geology, reservoir rock and fluid properties
- Identify the types, characteristics and formation of oil and gas reservoirs and the fundamentals of reservoir engineering
- Carryout exploration techniques covering seismic methods and drilling technologies as well as review regulatory and environmental considerations
- Identify petrophysical properties, reservoir heterogeneity and geostatistics
- Carryout core analysis and interpretation, log interpretation, 3D reservoir modeling and uncertainty and risk analysis
- Discuss well drilling and completion as well as implement drilling technologies and modern drilling techniques
- Recognize the drilling fluids and hydraulics and the importance of mud systems
- Illustrate well completion design, wellbore stability, sand control, testing and pressure transient analysis
- Employ reservoir management strategies, reservoir monitoring and the tools and techniques for reservoir surveillance
- Apply waterflooding principles and secondary recovery methods, enhanced oil recovery (EOR) methods and tertiary recovery techniques
- Carryout production decline analysis, artificial lift methods, production system analysis, choke performance and flow assurance
- Determine scale, corrosion and erosion as well as carryout well intervention, workover operations and techniques to enhance production
- Optimize real-time production and use data for decision-making
- Apply project evaluation of petroleum economics, asset management strategies, risk management in oilfield development and project planning and execution

- Carryout health, safety and environmental (HSE) management, stakeholder engagement and effective communication strategies
- Illustrate advanced waterflooding, CO<sub>2</sub> EOR and sequestration, thermal recovery methods, chemical EOR techniques, gas injection methods and unconventional oil recovery
- Explain the emerging technologies in oil and gas including the sustainability and green practices in oilfield operations and the future of oil and gas in the energy transition

### **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, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

### **Who Should Attend**

This course provides an overview of all significant aspects and considerations of oilfield development and production optimization for production engineers, reservoir engineers, completion engineers, drilling and facilities engineers and field operators.

### **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 Fee**

**US\$ 7,500** 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 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 **6.0 CEUs** (Continuing Education Units) or **60 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 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 **35 years** of integrated industrial and academic experience as a **University Professor**. His specialization widely covers in the areas of **Oilfield Development & Production Optimization**, Concept Selection and Specification of Production Facilities in **Field Development Projects, Field Development Planning, Drilling & Completion Technology, Directional Drilling, Horizontal & Sidetracking, Drilling Operation Management, Drilling & Production Equipment, Drilling Fluids & Hydraulics, ERD Drilling & Stuck Pipe Prevention, Natural & Artificial Flow Well Completion Design, Well Testing Procedures & Evaluation, Well Performance, Wellbore Stability, Coiled Tubing Technology, Oil Recovery Methods Enhancement, Reservoir Management, Reservoir Characterization, 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), Sand Control, 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's** degree in **Mechanical Power Engineering** and a **Bachelor's** 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.



**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: Introduction to Oilfield Development**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Overview of the Oil &amp; Gas Industry:</b> History, Current State and Future Trends
0930 – 0945	Break
0945 – 1030	<b>Basics of Petroleum Geology:</b> Understanding Reservoir Rock and Fluid Properties
1030 – 1130	<b>Oil &amp; Gas Reservoirs:</b> Types, Characteristics and Formation
1130 – 1230	<b>Fundamentals of Reservoir Engineering:</b> Reservoir Life Cycle, Volumetric Estimation
1230 – 1245	Break
1245 – 1330	<b>Exploration Techniques:</b> Seismic Methods, Drilling Technologies
1330 – 1420	<b>Regulatory &amp; Environmental Considerations:</b> Compliance, Safety and Sustainability
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2: Reservoir Characterization**

0730 – 0830	<b>Petrophysical Properties:</b> Porosity, Permeability and Saturation
0830 – 0930	<b>Reservoir Heterogeneity &amp; Geostatistics:</b> Understanding Variability in Reservoirs
0930 – 0945	Break
0945 – 1030	<b>Core Analysis &amp; Interpretation:</b> Laboratory Analysis of Rock Samples
1030 – 1130	<b>Log Interpretation:</b> Understanding Well Logs for Reservoir Evaluation
1130 – 1230	<b>3D Reservoir Modeling:</b> Techniques and Tools
1230 – 1245	Break
1245 – 1420	<b>Uncertainty &amp; Risk Analysis:</b> Managing Uncertainties in Reservoir Characterization
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3: Well Drilling and Completion**

0730 – 0830	<b>Drilling Technologies:</b> Overview of Modern Drilling Techniques
0830 – 0930	<b>Drilling Fluids &amp; Hydraulics:</b> Understanding the Importance of Mud Systems
0930 – 0945	Break
0945 – 1030	<b>Well Completion Design:</b> Types of Completions, Design Criteria
1030 – 1130	<b>Wellbore Stability:</b> Understanding and Managing Wellbore Pressures
1130 – 1230	<b>Sand Control:</b> Techniques and Strategies
1230 – 1245	Break
1245 – 1420	<b>Well Testing &amp; Pressure Transient Analysis:</b> Interpretation and Application
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three





**Day 4: Reservoir Management**

0730 – 0830	<b>Reservoir Management Strategies: Maximizing Recovery and Value</b>
0830 – 0930	<b>Reservoir Monitoring: Tools and Techniques for Reservoir Surveillance</b>
0930 - 0945	Break
0945 – 1030	<b>Waterflooding Principles: Secondary Recovery Methods</b>
1030 – 1115	<b>Enhanced Oil Recovery (EOR) Methods: Tertiary Recovery Techniques</b>
1115 – 1230	<b>Production Decline Analysis: Understanding and Predicting Production Decline</b>
1230 – 1245	Break
1245 – 1420	<b>Reservoir Simulation: Applying Simulation in Reservoir Management</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5: Production Optimization**

0730 – 0830	<b>Artificial Lift Methods: Types and Applications</b>
0830 – 0930	<b>Production System Analysis: Nodal Analysis, System Optimization</b>
0930 - 0945	Break
0945 – 1030	<b>Choke Performance &amp; Flow Assurance: Managing Flow from Reservoir to Surface</b>
1030 – 1115	<b>Scale, Corrosion &amp; Erosion: Challenges and Mitigation Strategies</b>
1115 – 1230	<b>Well Intervention &amp; Workover Operations: Techniques to Enhance Production</b>
1230 – 1245	Break
1245 – 1420	<b>Real-time Production Optimization: Using Data for Decision-Making</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Five

**Day 6: Asset Management and Economics**

0730 – 0830	<b>Petroleum Economics: Fundamentals and Project Evaluation</b>
0830 – 0930	<b>Asset Management Strategies: Maximizing Asset Value</b>
0930 - 0945	Break
0945 – 1030	<b>Risk Management in Oilfield Development: Identifying and Managing Risks</b>
1030 – 1115	<b>Project Planning &amp; Execution: Best Practices in Project Management</b>
1115 – 1230	<b>Health, Safety &amp; Environmental (HSE) Management: Key Considerations</b>
1230 – 1245	Break
1245 – 1420	<b>Stakeholder Engagement &amp; Communication: Effective Communication Strategies</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Six

**Day 7: Advanced Recovery Techniques**

0730 – 0930	<b>Advanced Waterflooding: New Approaches and Technologies</b>
0930 – 0945	Break
0945 – 1130	<b>CO2 EOR &amp; Sequestration: Utilization and Environmental Aspects</b>
1130 – 1230	<b>Thermal Recovery Methods: Steam Flooding, SAGD</b>
1230 – 1245	Break
1245 – 1420	<b>Thermal Recovery Methods: Steam Flooding, SAGD (cont'd)</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Seven





**Day 8: Advanced Recovery Techniques (cont'd)**

0730 – 0930	<b>Chemical EOR Techniques: Polymer, Surfactant Flooding</b>
0930 – 0945	Break
0945 – 1130	<b>Gas Injection Methods: Miscible and Immiscible Gas Injection</b>
1130 – 1230	<b>Unconventional Oil Recovery: Techniques for Shale and Tight Oil</b>
1230 – 1245	Break
1245 – 1420	<b>Unconventional Oil Recovery: Techniques for Shale and Tight Oil (cont'd)</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Eight

**Day 9: Case Studies and Practical Applications**

0730 – 0830	<b>Case Study: Reservoir Characterization &amp; Development Plan</b>
0830 – 0930	<b>Case Study: Successful EOR Implementation</b>
0930 - 0945	Break
0945 – 1030	<b>Case Study: Drilling Optimization in a Challenging Environment</b>
1030 – 1115	<b>Case Study: Digital Transformation in an Oilfield</b>
1115 – 1230	<b>Practical Workshop: Simulation &amp; Modeling Exercises</b>
1230 – 1245	Break
1245 – 1420	<b>Group Discussion: Problem-Solving in Production Optimization</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Nine

**Day 10: Future Trends and Course Wrap-Up**

0730 – 0930	<b>Emerging Technologies in Oil &amp; Gas: Innovations Shaping the Future</b>
0930 – 0945	Break
0945 – 1130	<b>Sustainability &amp; Green Practices in Oilfield Operations: Environmental Stewardship</b>
1130 – 1230	<b>The Future of Oil &amp; Gas in the Energy Transition: Renewable Energy and its Impact</b>
1230 – 1245	Break
1245 – 1345	<b>Career Paths &amp; Opportunities in Oilfield Development &amp; Production Optimization</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
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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