Haward Technology Middle East

COURSE OVERVIEW DE0700

Enhanced Oil Recovery (EOR) Pilot Design & Implementation

Course Title

Enhanced Oil Recovery (EOR) Pilot Design & Implementation

Course Date/Venue

Session 1: May 12-16, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: November 02-06, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

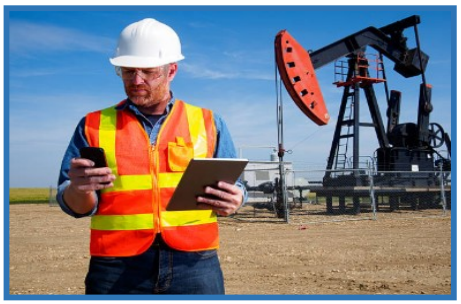
Course Reference

DE0700

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This hands-on, 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.

This course contains a very detailed overview of the various processes used to improve recovery from oil reservoirs. The criteria for screening reservoirs for the use of each process will be covered. Topics in the course include the reasons oil is left behind; displacement fundamentals; phase behavior; miscible recovery processes; polymer flooding; chemical/micellar/surfactant flooding; thermal processes; carbon dioxide flooding and in-situ combustion.

The course is designed to provide a good understanding of the various processes used for improved oil recovery. Participants will learn why oil is left in the reservoir after various recovery processes no longer produce economic quantities and what additional processes are available to recover this oil. Participants will learn how to do a preliminary evaluation to determine which processes might be suitable for a specific reservoir.

The course has been designed for engineers who will be evaluating reservoirs that are nearing primary depletion and for managers and supervisors who will make the final decisions on the recommendations of enhanced oil recovery projects to upper-level management.

Course Objectives

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

- Apply an in-depth knowledge in the various process used for improving oil recovery and creating new opportunities in old oil fields
- Identify the oil reservoir drive mechanisms including the types of reservoir energy, fluid properties, material balance, compaction drives, etc
- Describe the process of waterflooding by identifying its design, operation and monitoring
- Determine immiscible gas injection in oil reservoirs by discussing the techniques and calculation methods used in immiscible gas/oil displacement and identifying the compositional effects during immiscible gas displacement
- Develop an in-depth knowledge on polymers, gels, foams and resins including their conformance problems and improvements
- Discuss the miscible processes which includes designing a miscible flood, identifying its compositional numerical simulation and prediction of compositionally enhanced solvent flood behavior
- Employ the process of thermal recovery by steam injection and discuss their design calculation, steam delivery systems and heat management
- Describe the process description of in-situ combustion using the laboratory studies and explain in detail its screening guidelines and operation practices

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 covers systematic techniques and methodologies on enhanced oil recovery (EOR) for engineers, geoscientists, field operation staff, management personnel and other technical staff who are involved in the various aspects of oil recovery and petroleum reservoir management.

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 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 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 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	***Oil Reservoir Primary Drive Mechanisms*** *Volatile-and-Black-Oil Fluid Characteristics ● Types of Reservoir Energy ● Producing Mechanisms ● Fluid Properties ● Material Balance ● Solution-Gas Drives ● Gas-Cap Drives ● Waterdrives ● Compaction Drives ● Water and Gas Coning*
0930 – 0945	*Break*
0945 – 1100	***Waterflooding*** *Microscopic Efficiency of Immiscible Displacement ● Macroscopic Displacement Efficiency of a Linear Waterflood ● Reservoir-Geology Considerations in the Design and Operation of Waterfloods ● Immiscible Displacement in Two Dimensions-Areal ● Vertical Displacement in Linear and Areal Models ● Waterflood Design ● Waterflood Monitoring ● Waterflood Field-Case-Studies Examples*
1100 – 1230	***Immiscible Gas Injection in Oil Reservoirs*** *Microscopic and Macroscopic Displacement Efficiency of Immiscible Gas Displacement ● Gas/Oil Compositional Effects During Immiscible Gas Displacement ● Reservoir Geology Considerations Regarding Immiscible Gas Displacement ● General Immiscible Gas/Oil Displacement Techniques*
1230 – 1245	*Break*
1245 – 1420	***Immiscible Gas Injection in Oil Reservoirs (cont'd)*** *Vertical or Gravity Drainage Gas Displacement ● Calculation Methods for Immiscible Gas Displacement ● Immiscible Gasflood Monitoring ● Field Case Studies: Immiscible Gas Injection Examples ● Miscellaneous*
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 – 0930	***Polymers, Gels, Foams and Resins*** *Conformance Improvement ● Conformance Problems*
0930 – 0945	*Break*
0945 – 1100	***Polymers, Gels, Foams and Resins (cont'd)*** *Disproportionate Permeability Reduction ● Polymers*
1100 – 1230	***Polymers, Gels, Foams and Resins (cont'd)*** *Gels ● Foams*
1230 – 1245	*Break*
1245 – 1420	***Polymers, Gels, Foams and Resins (cont'd)*** *Resins*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Miscible Processes*** *Introductory Concepts ● Designing a Miscible Flood*
0930 – 0945	*Break*
0945 – 1100	***Miscible Processes (cont'd)*** *Compositional Numerical Simulation*
1100 – 1230	***Miscible Processes (cont'd)*** *Prediction of Compositionally Enhanced Solvent Flood Behavior*
1230 – 1245	*Break*
1245 – 1420	***Miscible Processes (cont'd)*** *Field Examples*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Thermal Recovery by Steam Injection*** *Steam ● Reservoir Heating ● Steam Zone Growth ● Steamflood Design*
0930 – 0945	*Break*
0945 – 1100	***Thermal Recovery by Steam Injection (cont'd)*** *Design Calculations: Viscous Displacement Models ● Design Calculations: Gravity Drainage Models ● Design Calculations: Other Models*
1100 – 1230	***Thermal Recovery by Steam Injection (cont'd)*** *Cyclic Steam Stimulation Design ● Design Calculations ● Process Optimization*
1230 – 1245	*Break*
1245 – 1420	***Thermal Recovery by Steam Injection (cont'd)*** *Steam Delivery Systems ● Heat Management ● Horizontal Well Applications in Steam Injection*
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	***In-Situ Combustion*** *Process Description ● Laboratory Studies*
0930 – 0945	*Break*
0945 – 1100	***In-Situ Combustion (cont'd)*** *Combining Material-and-Heat-Balance Calculations ● Design Considerations*
1100 – 1230	***In-Situ Combustion (cont'd)*** *Performance Prediction ● Operations Practices*
1230 – 1245	*Break*
1245 – 1345	***In-Situ Combustion (cont'd)*** *Field Experience ● Screening Guidelines*
1345 – 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*

Practical Sessions

This hands-on, highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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