

COURSE OVERVIEW DE0229
Petrophysics of Unconventional Reservoirs

Course Title

Petrophysics of Unconventional Reservoirs

Course Date/Venue

Session 1: July 14-18, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

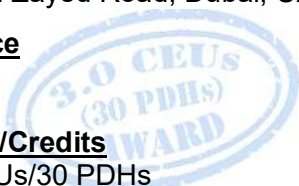
Session 2: December 21-25, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference

DE0229

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.



This course is designed to provide participants with a detailed and up-to-date overview of unconventional reservoirs completion and stimulation. It covers the introduction including directional and horizontal drilling, objectives, well geometry; the directional drilling equipment it covers the downhole motors, rotary steerable system, measuring equipment 'MWD'; the drilling consideration of deviated & horizontal wells including the torque and drag, bucking, hole cleaning; the introduction to well and hydraulic fracturing and completion design, operations, equipment; the actual completion trends, stimulation, plug and perf technique, ball and sleeve technique.



Further, this course will also discuss the rock mechanics for fracturing design, in situ stress, fracture orientation and fracture propagation; the fluid leak-off, slurry efficiency, dimensionless fracture conductivity and analyze fracture growth; the hydraulic fracturing models, fracturing fluids, proppants and fracture conductivity; the types of fracturing fluids, types of proppants, fluid and proppant selection; and the equipment and placement techniques, surface pumping equipment and placement techniques in horizontal wells.

During this interactive course, participants will learn the horizontal well objectives in unconventional reservoirs and horizontal well stimulation objectives; the completion planning for horizontal wells, horizontal well risks and risk mitigation strategies; the horizontal well case histories, unconventional resource play completion options and selection processes; and the critical data needs and collection techniques with minimal operational impact, post-job evaluation and environmental considerations of hydraulic fracturing.

Course Objectives

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

- Apply and gain an in-depth knowledge on unconventional reservoirs completion and stimulation
- Discuss the introduction including directional and horizontal drilling, objectives, well geometry
- Explain directional drilling equipment it covers the downhole motors, rotary steerable system, measuring equipment 'MWD'
- Discuss drilling consideration of deviated & horizontal wells including the torque and drag, bucking, hole cleaning
- Carryout introduction to well and hydraulic fracturing and completion design, operations, equipment
- Review actual completion trends, stimulation, plug and perf technique, ball and sleeve technique
- Recognize rock mechanics for fracturing design, in situ stress, fracture orientation and fracture propagation
- Discuss fluid leak-off, slurry efficiency, dimensionless fracture conductivity and analyze fracture growth
- Carryout hydraulic fracturing models, fracturing fluids, proppants and fracture conductivity
- Identify the types of fracturing fluids, types of proppants, fluid and proppant selection
- Discuss equipment and placement techniques, surface pumping equipment and placement techniques in horizontal wells
- Explain horizontal well objectives in unconventional reservoirs and horizontal well stimulation objectives
- Define completion planning for horizontal wells, horizontal well risks and risk mitigation strategies
- Explain horizontal well case histories, unconventional resource play completion options and selection processes
- Discuss critical data needs and collection techniques with minimal operational impact, post-job evaluation and environmental considerations of hydraulic fracturing

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 basic overview of all significant aspects and considerations of unconventional reservoirs completion and stimulation for drilling engineers and supervisors, reservoir engineers and supervisors, geologists, production and completion engineers & supervisors.

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\$ 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 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.



• USA International Association for Continuing Education and Training (IACET)

Haward Technology is an Authorized Training Provider by the International Association 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 1-2013 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 1-2013 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 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:



Dr. Steve Ehrenberg, PhD, MSc, BSc, is a **Senior Geologist & Reservoir Engineer** with **30 years** of extensive experience within the **Oil & Gas, Petrochemical and Refinery** industries. His wide experience covers in the areas of **Core & Log Integration, Water Saturation, Coring & Core Analysis, Special Core Analysis, Log Interpretation, Cased-Hole Logging, Core Calibration, Core Analysis, Core-to-Log Data Integration (SCAL), Wireline Logging, Mud Logging, Cased Hole Logging, Production Logging, Well Logging, Reservoir Management, Reservoir Appraisal & Development, Carbonate Reservoir Management, Fractured Reservoirs Evaluation & Management, Naturally Fractured Reservoir, Integrated Carbonate Reservoir Characterization, Geological Modelling, Reservoir Characterization, Geomodelling, Development Geology, Petroleum Geology, Exploration Production, Structural Geology, Wellsite Geology, Analytic Modelling Methods, Sedimentary Geology, Geophysics, Geophysical Exploration, Reservoir Engineering, Reservoir Engineering Applications, Reservoir Engineering & Stimulation, Reservoir Characterization, Clastic Reservoir, Carbonate Reservoir Petrology, Subsurface Facies Analysis, Borehole Images, Geophysical Methods, Oil & Gas Exploration, Marine & Petroleum Geology, Reservoir Performance Using Classical Methods, Fractured Reservoir Evaluation & Management, Reservoir Surveillance & Management, Reservoir Monitoring, , Reservoir Volumetrics, Water Drive Reservoir, Reservoir Evaluation, Well Surveillance, Well Testing, Well Testing & Oil Well Performance, Well Log Interpretation (WLI), Rock Physics & Seismic Data, Formation Evaluation, Well Testing & Data Interpretation, Pore Pressure Prediction and Oil & Gas Reserves Estimations, Well Workover Supervision, Description and Prediction of Reservoir Quality, Sequence Stratigraphy of Carbonate Systems and Introductory Geology.**

During his career life, Dr. Ehrenberg held significant positions and dedication as **Consultant, Professor, Senior Reservoir Geologist, Senior Geologist, Research Geologist, Associate Professor, Assistant Professor and Senior Instructor/Trainer** from various international companies and universities such as the **Badley Ashton & Associates Ltd., Khalifa University of Science and Technology, Sultan Qaboos University, PanTerra Geoconsultants B.V, UAE University, Statoil, Stavanger, Shell Development Company and Northern Illinois University.**

Dr. Ehrenberg has a **PhD, Master's and Bachelor's** degree in **Geology** from the **University of California, USA and Occidental College, USA**, respectively. Further, he is a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)**, a **Certified Instructor/Trainer** 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

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	Introduction <i>Directional & Horizontal Drilling, Objectives, Well Geometry</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Directional Drilling Equipment <i>Downhole Motors, Rotary Steerable System, Measuring Equipment 'MWD'</i>
1100 – 1215	Drilling Consideration of Deviated & Horizontal Wells <i>Torque & Drag, Bucking, Hole Cleaning)</i>
1215 – 1230	<i>Break</i>
1230 – 1420	Introduction to Well Completion & Hydraulic Fracturing
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0930	Completion Design, Operations, Equipment
0930 – 0945	<i>Break</i>
0945 – 1100	Actual Completion Trends <i>Examples • Technological Challenges (New Techniques)</i>
1100 – 1215	Stimulation <i>Fracturing Techniques & Design (Horizontal Multistaged Hydraulic Fracking Techniques & Operations)</i>
1215 – 1230	<i>Break</i>
1230 – 1320	Plug & Perf Technique
1320 – 1420	Ball & Sleeve Technique
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 0830	Rock Mechanics for Fracturing Design.
0830 – 0930	In Situ Stress, Fracture Orientation & Fracture Propagation
0930 – 0945	<i>Break</i>
0945 – 1100	Fluid Leak-Off, Slurry Efficiency, Dimensionless Fracture Conductivity
1100 – 1130	Fracture Growth Analysis
1100 – 1130	Hydraulic Fracturing Models
1215 – 1230	<i>Break</i>
1230 – 1300	Fracturing Fluids, Proppants & Fracture Conductivity
1300 – 1330	Types of Fracturing Fluids
1330 – 1400	Types of Proppants
1400 – 1420	Fluid & Proppant Selection
1420 – 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 4

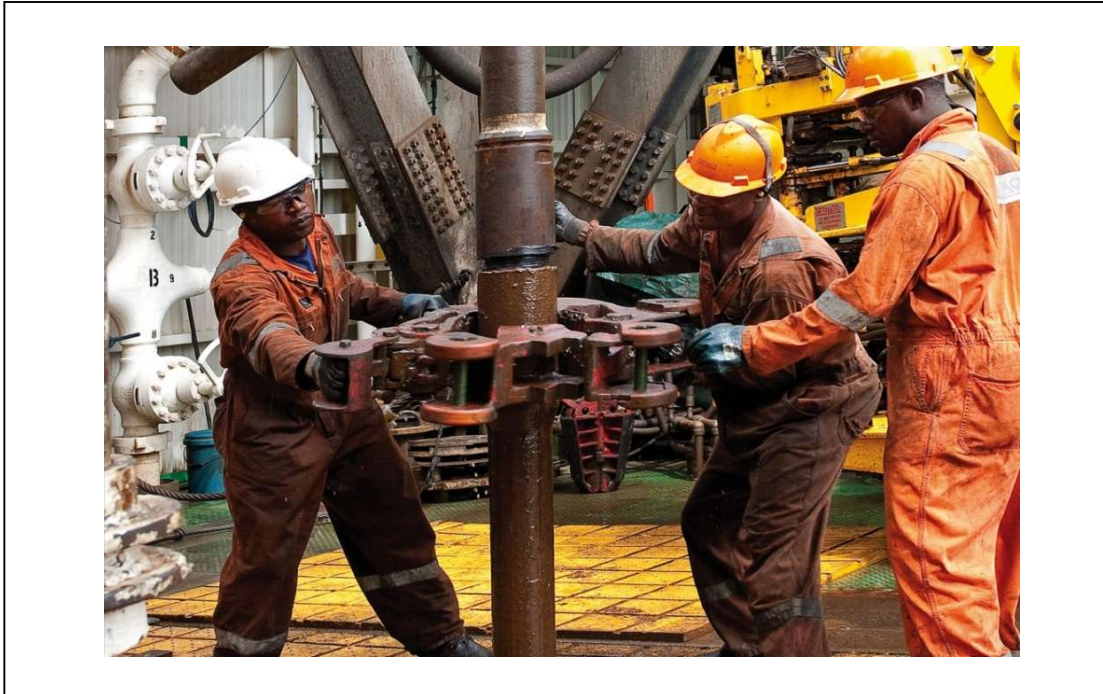
0730 – 0930	<i>Equipment & Placement Techniques</i>
0930 – 0945	<i>Break</i>
0945 – 1015	<i>Surface Pumping Equipment</i>
1015 – 1100	<i>Placement Techniques in Horizontal Wells</i>
1100 – 1215	<i>Horizontal Well Objectives in Unconventional Reservoirs</i>
1215 – 1230	<i>Break</i>
1230 – 1320	<i>Horizontal Well Stimulation Objectives</i>
1320 – 1420	<i>Completion Planning for Horizontal Wells</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 – 0830	<i>Horizontal Well Risks & Risk Mitigation Strategies</i>
0830 – 0930	<i>Horizontal Well Case Histories</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Unconventional Resource Play Completion Options & Selection Processes</i>
1100 – 1130	<i>Critical Data Needs & Collection Techniques with Minimal Operational Impact</i>
1130 – 1215	<i>Post-Job Evaluation</i>
1215 – 1230	<i>Break</i>
1230 – 1345	<i>Environmental Considerations of Hydraulic Fracturing.</i>
1345 – 1400	<i>Course Conclusion</i> <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course</i>
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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