

COURSE OVERVIEW DE0835
Well Stimulation

Course Title
 Well Stimulation

Course Date/Venue
 Session 1: April 14-18, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
 Session 2: October 05-09, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference
 DE0835



Course Duration/Credits
 Five days/3.0 CEUs/30 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.



Reservoir stimulation and artificial lift are the two main activities of the production engineer in the petroleum and related industries. The main purpose of stimulation is to enhance the property value by the faster delivery of the petroleum fluid and/or to increase ultimate economic recovery.



Matrix stimulation and hydraulic fracturing are intended to remedy, or even improve, the natural connection of the wellbore with the reservoir, which could delay the need for artificial lift.

Many wells that would otherwise be classified as dry holes have been made into profitable producers by fracture, acid or explosive stimulation treatments.

This training course discusses the various well stimulation treatments that are frequently used to stimulate old or poorly producing wells. It will cover the stimulation techniques as tools to help manage and optimize reservoir development.

This comprehensive course is essential for petroleum industry professionals involved in the important activities of reservoir evaluation, development and management, who require invaluable skills in the application of the techniques described for the successful exploitation of oil and gas reservoirs.

Course Objectives

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

- Apply and gain an advanced knowledge on well stimulation techniques and treatments
- Discuss the phases of formation characterization including well and reservoir testing, rock mechanics and well logs
- Explain the basics and mechanics of hydraulic fracturing
- Recognize the importance of fracturing fluid chemistry and proppants
- Perform fracture evaluation using pressure diagnostics
- Recognize the importance of fracture treatment design
- Define the various concepts of fracturing operations
- Explain thoroughly the post-treatment evaluation and evaluate fractured well performance
- Determine the basic concepts of matrix treatments
- Apply specific techniques of formation damage, including origin, diagnosis and treatment strategy
- Differentiate and discuss additives in acidizing fluids
- Analyze carbonate acidizing design
- Discuss sandstone acidizing
- Employ systematic techniques and tools in fluid placement and pumping strategy
- Evaluate Matrix Stimulation Treatment

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 well stimulation techniques and treatments for petroleum industry professionals who are involved in the important activities of reservoir evaluation, development and management and for those who require invaluable skills in the application of the techniques described for the successful exploitation of oil and gas reservoirs.

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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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.
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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 **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.

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 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:



Mr. Yasser Almasood is a **Senior Petroleum Engineer** with almost **20 years** of industrial experience within the, **Oil & Gas, Refinery** and **Petrochemical** industries. His wide expertise covers in the areas of **Gas Condensate Reservoir Management, Gas Condensate Fields Development, Hydrocarbon Reservoir, Production Operations, Process Reactor Operation & Troubleshooting, Catalytic Reactors, Heat Exchanger, Distillation Columns, Pumps, Distributed Control System (DCS), Catalytic Reformer Unit, Polymerization, Dehydrogenation, Gas Processing Plant Operations & Control, Gas Processing Monitoring & Troubleshooting, Process Plant Start-up Commissioning & Troubleshooting, Process Plant Optimization & Energy Conservation, Process Equipment Design & Troubleshooting, Advanced Operation Skills, Refinery Process Yield Optimization, Oil & Gas Processing, Troubleshooting Oil & Gas Processing Facilities, Polymers & Polymerization, Applied Process Engineering, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Performance & Efficiency, Flare Blowdown & Pressure Relief Systems, Polypropylene Manufacturing, Polyethylene & Process Troubleshooting, Ammonia, Ethylene, Solvents, Gas Feed, EDC, VCM, PP, PVC, Chlorine, Fluidized Bed Reactor, Oil Movement & Storage, Power Plant Chemistry, Catalyst Manufacturing Techniques, Fuel Systems Management, Process Design & Optimization, Desalination Processes, Reverse Osmosis and Molecular Sieves.** Further, he is also well-versed in **HAZOP, Advanced Process Hazard Analysis, Safety Management, Environmental Safety Management, LOPA & SIL, Process Safety Management (PSM), Incident investigation & Root Cause Analysis, Emergency & Crisis Management, Safety Audit & Site, Inspection, Inspection of Fire Equipment & Tools, Fire Protection & Prevention, Worker Protection from Radiation Work Permits, IGC International General Certificate in Occupational Safety & Health, Risk Assessment, Risk Associated with Low Level Radiation Exposure, Hydrogen Sulfide (H₂S) Safety, Personal Protective Equipment, Lock-Out & Tag-Out, OSHA Occupational Safety & Health, Radiation & Contamination, Scientific Notation, Exposure Rate & Shielding Calculations, Excavations & Trenching, Permit-to-Work, Aspentech, Aspen HYSYS, Pro II, exSILentia, OLGA, Flare System Analyzer, Aspen PIMS, DYN SIM, RiskWISE, MS Office and IBM Maximo.**

During his career life, Mr. Yasser has gained his practical and field experience through his various significant positions and dedication as the **Senior Process Engineer, Process Engineer, Oil & Gas Process & Safety Instructor, On-Job Instructor, Process Senior Operator, Acting DCS Operator** and **Shift Controller** for various multi-national companies such as the **ADNOC Gas Processing (GASCO), Conoco Phillips Gas Plant** and **Syrian Gas Company (SGC).**

Mr. Yasser has a **Bachelor's degree in Petroleum Engineering.** Further, he is a **Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)** and has further delivered numerous training, courses, workshops, seminars and conferences worldwide.

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 director(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	Reservoir Stimulation in Petroleum Production Introduction • Inflow Performance • Alterations in the Near-Wellbore Zone • Tubing Performance & NODAL* Analysis • Decision Process for Well Stimulation • Reservoir Engineering Considerations for Optimal Production Enhancement Strategies • Stimulation Execution
0930 – 0945	Break
0945 – 1115	Formation Characterization: Well & Reservoir Testing Evolution of a Technology • Pressure Derivative in Well Test Diagnosis • Parameter Estimation from Pressure Transient Data • Test Interpretation Methodology • Analysis with Measurement of Layer Rate • Layered Reservoir Testing • Testing Multilateral & Multibranch Wells • Permeability Determination from a Fracture Injection Test
1115 – 1245	Formation Characterization: Rock Mechanics Basic Concepts • Rock Behavior • Rock Mechanical Property Measurement • State of Stress in the Earth • In-situ Stress Management
1245 – 1300	Break
1300 – 1420	Formation Characterization: Well Logs Depth • Temperature • Properties Related to the Diffusion of Fluids • Properties Related to the Deformation & Fracturing of Rock • Zoning
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0930	Basics of Hydraulic Fracturing Overview of Hydraulic Fracturing • In-Situ Stress • Reservoir Engineering • Rock & Fluid Mechanics • Treatment Pump Scheduling • Economics & Operational Considerations
0930 – 0945	Break

0945 – 1045	Mechanics of Hydraulic Fracturing History of Early Hydraulic Fracture Modeling • Three-Dimensional & Pseudo-Three-Dimensional Models • Leakoff • Proppant Placement • Heat Transfer Models • Fracture Tip Effects • Tortuosity & Other Near-Well Effects • Acid Fracturing • Multilayer Fracturing • Pump Schedule Generation • Pressure History Matching
1045 – 1245	Fracturing Fluid Chemistry & Proppants Water-Base Fluids • Oil-Base Fluids • Acid-Based Fluids • Multiphase Fluids • Additives • Proppants • Execution
1245 – 1300	Break
1300 – 1420	Performance of Fracturing Materials Fracturing Fluid Characterization • Characterization Basics • Translation of Field Conditions to a Laboratory Environment • Molecular Characterization of Gelling Agents • Rheology • Proppant Effects • Fluids Loss
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Fracture Evaluation Using Pressure Diagnostics Fundamental Principles of Hydraulic Fracturing • Pressure During Pumping • Analysis During Fracture Closure • Pressure Interpretation After Fracture Closure • Numerical Simulation of Pressure: Combined Analysis of Pumping & Closing • Comprehensive Calibration Test Sequence
0930 – 0945	Break
0945 – 1045	Fracture Treatment Design Design Considerations • Geometry Modeling • Treatment Schedule • Multilayer Fracturing • Acid Fracturing • Deviated Wellbore Fracturing
1045 – 1245	Fracturing Operations Completions • Perforating • Surface Equipment for Fracturing Operations • Bottomhole Pressure Measurement & Analysis • Proppant Flowback Control • Flowback Strategies • Quality Assurance & Quality Control • Health, Safety & Environment
1245 - 1300	Break
1300 – 1420	Post-Treatment Evaluation & Fractured Well Performance Post-Treatment Fracture Evaluation • Factors Affecting Fractured Well Performance • Well Test Analysis of Vertically Fractured Wells • Prediction of Fractured Well Performance
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0930	Introduction to Matrix Treatments Candidate Selection • Formation Damage Characterization • Stimulation Technique Determination • Treatment Design • Final Economic Evaluation • Execution • Treatment Evaluation
0930 – 0945	Break
0945 – 1045	Formation Damage: Origin, Diagnosis & Treatment Strategy Damage Characterization • Formation Damage Descriptions • Origins of Formation Damage • Laboratory Identification & Treatment Selection • Treatment Strategies & Concerns

1045 – 1245	Additives in Acidizing Fluids Corrosion Inhibitors • Surfactants • Clay Stabilizers • Mutual Solvents • Iron Control Additives • Alcohols • Acetic Acid • Organic Dispersants • Organic Solvents • Diversion • Additive Compatibility • Facility Upsets Following Acid Stimulation
1245 – 1300	Break
1300 – 1420	Fundamentals of Acid Stimulation Acid-Mineral Interactions • Sandstone Acidizing • Carbonate Acidizing
1420 - 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	Carbonate Acidizing Design Rock & Damage Characteristics in Carbonate Formations • Carbonate Acidizing with Hydrochloric Acid • Other Formulations • Treatment Design
0930 – 0945	Break
0945 – 1045	Sandstone Acidizing Treating Fluids • Solubility of By-Products • Kinetics: Factors Affecting Reacting Rates • Hydrofluoric Acid Reaction Modeling • Other Acidizing Formulations • Damage Removal Mechanisms • Methods of Controlling Precipitates • Acid Treatment Design Considerations • Matrix Acidizing Design Guidelines • Acid Treatment Evaluation
1045 – 1245	Fluid Placement & Pumping Strategy Choice of Pumping Strategy • Chemical Diverter Techniques • Laboratory Characterization • Foam Diversion • Ball Sealers • Mechanical Tools • Horizontal Wells
1245 – 1300	Break
1300 – 1345	Matrix Stimulation Treatment Evaluation Derivation of Bottomhole Parameters from Wellhead Measurements • Monitoring Skin Effect Evolution During Treatment • Prouvost and Economides Method • Behenna Method • Inverse Injectivity Diagnostic Plot • Limitations of Matrix Treatment Evaluation Techniques • Treatment Response Diagnosis • Post-Treatment Evaluation
1345 - 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of 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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