

COURSE OVERVIEW DE0100
Well Completion Design & Operations, Well Stimulation and
Workover Planning

Course Title

Well Completion Design & Operations, Well Stimulation and Workover Planning

Course Reference

DE0100

Course Duration/Credits

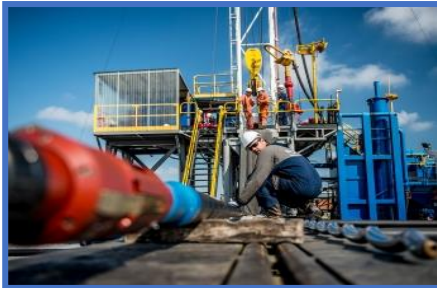
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	February 04-08, 2024	Oryx Meeting Room, Doubletree By Hilton Doha-Al Sadd, Doha, Qatar
2	March 03-07, 2024	The Mouna Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE



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 primarily designed for drilling, production and completion engineers and supervisors needing a practical understanding and an appreciation of well completion design and operations, well stimulation and work over planning. It explains how completion configurations are varied to meet well objectives and to maximize well productivity. Design concepts and methods are presented together with downhole tools and their selection criteria.



Completion types and design for vertical, horizontal and multilateral wells, design and optimization of tubing based on tubing performance analysis (Inflow performance analysis, liquid and gas hold up during fluid flow and forces on tubing), downhole equipment, tubing accessories, wellhead equipment including sub sea completion. Also, fluid flow through perforations and perforation techniques; communication tests; wireline operations; reservoir stimulation; and hydraulic fracture treatment design and optimization are extensively reviewed. Local case studies are also provided.

Course Objectives

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

- Apply systematic techniques in well testing, completion and operations, well stimulation and workover
- Optimize tubing dimensions for maximum production and estimate the pressure losses in tubing for different rock & fluid properties
- Use different subsurface completion equipments and accessories and select packers and packer settings
- Operate the well head equipments properly and calculate geometries and dimensions casing and tubing hangers
- Identify the different special consideration for horizontal and multilateral completions on wellbore, tubing and casing configuration
- Recognize the components of perforation of oil and gas wells such as completion fishing operations, well stimulation and fracturing, well testing, and well integrity
- Carryout the various procedures of communication tests
- Practice the process of wireline operations
- Discuss the elements of reservoir stimulation and increase the knowledge in understanding of stress and rock properties involved in the simulation techniques

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 testing, completion and operation, well stimulation and workover for well and senior petroleum engineers, drilling and senior drilling supervisors, reservoir and senior reservoir engineers, geologists, production and completion engineers and supervisors needing a practical understanding and an appreciation of well completion design and operation, well stimulation and work over planning.

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 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 **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.

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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.

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. John Petrus, PhD, MSc, BSc, is a **Senior Reservoir Engineer & Geologist** with over **30 years of onshore & offshore** experience within the **Oil & Gas, Refinery and Petroleum** industries. His wide experience covers in the areas of **Production Technology & Engineering, Well Completions, Well Logs, Well Stimulation & Production Logging, Well Completion Design & Operation, Well Surveillance, Well Testing, Well Stimulation & Control and Workover Planning, Completions & Workover, Hole Cleaning & Logging, Servicing and Work-Over Operations, Wellhead Operations, Maintenance & Testing, Petrophysics/Interpretation of Well Composite, Reservoir & Tubing Performance, Practical Reservoir Engineering, Clastic Exploration & Reservoir Sedimentology, Carbonate Reservoir Characterization & Modeling,**

Seismic Interpretation, Mapping & Reservoir Modelling, Reservoir Geology, Integrating Geoscience into Carbonate Reservoir Management, Faulted & Fractured Reservoirs, Fractured Hydrocarbon Reservoirs, Analyses, Characterisation & Modelling of Fractured Reservoirs & Prospects, Fracture Reservoir Modeling Using Petrel, Reservoir Engineering Applied Research, Artificial Lift, Artificial Lift System Selection & Design, Electrical Submersible Pumps (ESP), Enhance Oil Recovery (EOR), Hydraulic Fracturing, Sand Control Techniques, Perforating Methods & Design, Perforating Operations, Petroleum Exploration & Production, Hydrocarbon Exploration & Production, Exploration & Production, Play Assessment & Prospect Evaluation, Formation Evaluation, Petroleum Engineering Practices, Petroleum Hydrogeology & Hydrodynamics, Project Uncertainty, Decision Analysis & Risk Management, Decision Analysis & Uncertainty Management, Exploration & Development Geology, Sedimentology & Sequence Stratigraphy, Structural Interpretation in Exploration & Development, Petrel Geology, Geomodeling, Structural Geology, Applied Structural Geology in Hydrocarbon Exploration, Petrophysics, Geology of the Oil & Gas Field, Geophysics, Geothermal, Geochemical & Geo-Engineering and Drilling Applied Research, Field Geological Outcrop Mapping & Digital Cartography, Geological Modelling, Geoscience Management in E&P, Geoscience Modelling, Geological Mapping, Structural Geology-Tectonics, Structural Analysis, Tectonic Modelling and Numerical Simulation of Fractured Prospects & Reservoirs, Fracture Network Analysis & Modelling, Prospect Generation, Global Networking, Research and Technology Development Management for Fault & Fracture Analyses & Modelling, Fracture Modelling, Dynamic Modelling, Field Development Planning, Water Injection Planning, Stereophotogrammetry, Fault Mapping, GPS Survey, 2D & 3D Seismic Acquisition & Processing, 3D Seismic Surveys & Mapping, 3D GIS, GMAP, Sandbox Modelling, Sedimentological Logging, GR Logging, Surface & Subsurface 3D Modelling, Best Practices Management System (BPMS), Subsurface Work for Energy Projects, Digitalization Projects, Structural Model using Petrel, G&G Seismic & Well Data Modelling, GIS System Management, Database Management, Strategic Planning, Best Practices and Workflow, Quality Management, Project Management and Risk Assessment & Uncertainty Evaluation. Further, he is also well-versed in seismic interpretation, mapping & reservoir modelling tools like Petrel software, LandMark, Seisworks, Geoframe, Zmap and has extensive knowledge in MSDos, Unix, AutoCAD, MAP, Overlay, Quicksurf, 3DStudio, Esri ArcGIS, Visual Lisp, Fortran-77 and Clipper. Moreover, he is a world expert in analysis and modelling of fractured prospects and reservoirs and a specialist and developer of fracture modelling software tools such as FPDM, FMX and DMX Protocols.

During his career life, Dr. Petrus held significant positions and dedication as the **Executive Director, Senior Geoscience Advisor, Exploration Manager, Project Manager, Manager, Chief Geologist, Chief of Exploration, Chief of Geoscience, Senior Geosciences Engineer, Senior Explorationist, Senior Geologist, Geologist, Senior Geoscientist, Geomodeller, Geoscientist, CPR Editor, Resources Auditor, Project Leader, Technical Leader, Team Leader, Scientific Researcher and Senior Instructor/Trainer** from various international companies and universities such as the Dragon Oil Holding Plc., ENOC, MENA, ENI Group of Companies, Ocre Geoscience Services (OGS), Burren RPL, Ministry of Oil-Iraq, Eni Corporate University, Stanford University, European Universities, European Research Institutes, NorskHydro Oil Company, Oil E&P Companies, just to name a few.

Dr. Petrus has a **PhD in Geology and Tectonophysics** and **Master's and Bachelor's degree in Earth Sciences** from the **Utrecht University, The Netherlands**. Further, he is a **Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)**, a Secretary and Treasurer of Board of Directors of Multicultural Centre, Association Steunfonds SSH/SSR and Founding Member of Sfera Association. He has further published several scientific publications, journals, research papers and books and delivered numerous trainings, workshops, courses, seminars and conferences internationally.

Course Fee

Doha	US\$ 8,500 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	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 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 & Introductions</i>
0815 – 0830	PRE-TEST
0830 – 0930	Well Completion Design <i>Single & Dual Completion Design (Packers, Nipples, Tubing, DHSV's, Blast Joints Flow Couplings, Seal Assemblies, Expansion Joints, WLEG, Sliding Sleeves, Ported Nipples) • Planning Essentials Prior to Drilling (Safety, Economics)</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Well Completion Design (cont'd) <i>Wellbore Tubing-Casing Configuration • Completion Procedures (Well Completion Fluids, Well Control & Damage Prevention)</i>
1100 – 1230	Well Completion Design (cont'd) <i>Work Over Considerations • Artificial Lift Requirements on Completion Design</i>
1230 – 1245	<i>Break</i>
1245 – 1420	Well Completion Design (cont'd) <i>Inflow Performance • Completion Variations (Primary Completion - Oil & Gas Wells, Multiple Completion, Secondary Recovery Production Well Completion & Injection Well Completion)</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0930	Interval Selection Consideration & Optimization of Tubing Dimensions for Maximum Production <i>Production Mechanism for Different Reservoir Types • Completion Efficiency Consideration • Inflow Performance Relationship (IPR) & Effect of Partial Penetration on IPR</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Interval Selection Consideration & Optimization of Tubing Dimensions for Maximum Production (cont'd) <i>Typical IPR Case Studies for Both Oil & Gas Reservoirs • Bottom Hole Flowing Pressure Requirements</i>



1100 – 1230	Interval Selection Consideration & Optimization of Tubing Dimensions for Maximum Production (cont'd) Estimation of Pressure Losses in Tubing for Different Rock & Fluid Properties • Development of Tubing Performance Curve & Optimization of Tubing Dimensions for Maximum Production
1230 – 1245	Break
1245 – 1420	Interval Selection Consideration & Optimization of Tubing Dimensions for Maximum Production (cont'd) Prediction Rate & Selection of Material Properties Based on Analysis of Forces on Tubing of Tubing • Specialized Software's are Used for Case Studies & Analysis
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Subsurface Completion Equipment & Accessories Forces on Packers & Tubing Movements • Completion Material Selection • Completion of Running & Retrieving • Selection Consideration of Packers & Packer Settings
0930 – 0945	Break
0945 – 1100	Subsurface Completion Equipment & Accessories (cont'd) Tubing Accessories & Subsurface Safety and Flow Control Valves • Typical Case Studies
1100 – 1230	Well Head Equipment Geometries & Dimensions Casing & Tubing Hanger • Well Heads for Topside & Subsea Completions • Christmas & Subsea Trees
1230 – 1245	Break
1245 – 1420	Well Head Equipment (cont'd) Flow Line, Cokes & Other Control • Valves & Flow Regulating Valves
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0930	Special Consideration for Horizontal & Multilateral Completions Wellbore, Tubing & Casing Configuration • Well Killing • Tubing Size Selection • Special Equipment for Horizontal & Multilateral Completions • Running & Operational Procedure of Subsurface Equipment
0930 – 0945	Break
0945 – 1100	Perforation of Oil & Gas Wells Completion Fishing Operations • Perforation Methods & Equipment • Well Perforating & Cased Hole Logs • Well Stimulation & Fracturing • Well Testing • Well Integrity
1100 – 1230	Perforation of Oil & Gas Wells (cont'd) Basics of Shape Charge & its Penetration Mechanism • Selection & Evaluation of Shape Charge • API Testing Procedure of Shape Charge Penetration • Shape Charge Gun Categories & Their Application
1230 – 1245	Break
1245 – 1420	Perforation of Oil & Gas Wells (cont'd) Special Tools & Operations • Calculation of Flow Through Perforation Tunnels & Estimation Production from the Perforation Interval • Nitrogen Lifting • Coiled Tubing Operations
1420 – 1430	Recap
1430	Lunch & End of Day Four



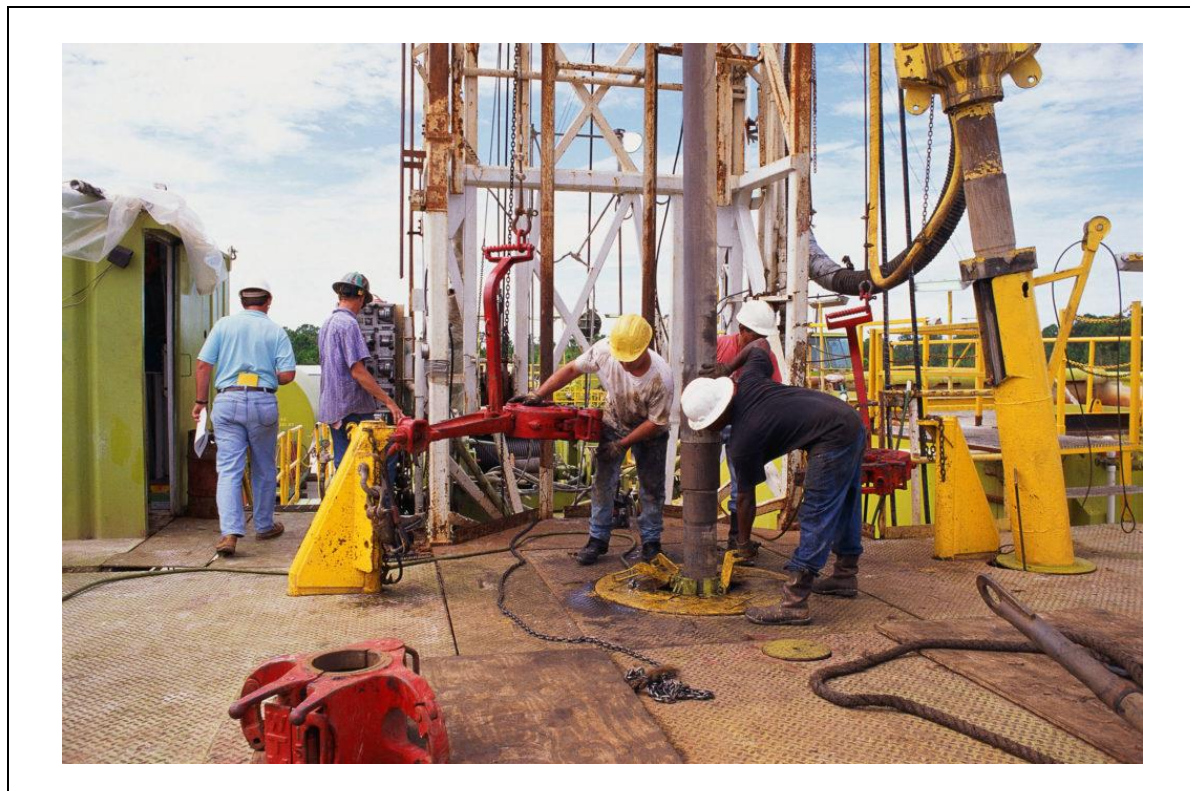


Day 5

0730 – 0930	Communication Tests
0930 – 0945	Break
0945 – 1100	Wireline Operations
1100 – 1230	Reservoir Stimulation <i>Introduction to Different Stimulation Techniques • Understanding of Stress & Rock Properties Involved in the Selection of Stimulation Techniques • Design Procedure of Hydraulic Fracture Treatment</i>
1230 – 1245	Break
1245 – 1345	Reservoir Stimulation (cont'd) <i>Economic Evaluation of Stimulation Treatment Coupled with a Production • Model Based on NPV • Specialized Softwares Used for Local Case Studies and Analysis</i>
1345 – 1400	Course Conclusion <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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