COURSE OVERVIEW DE0426
Wellhead Equipment Design

Course Title
Wellhead Equipment Design

Course Date/Venue
Session 1: April 21-25, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: October 19-23, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
DE0426

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 an up-to-date overview of wellhead and completion equipment. It covers the well head and trees, simple to complex, seal points and control points; the basic use and intervention, surface wellhead, basics-of-wellhead-control-panel, flow nets, flowlines, piping fundamentals and flow through pipes; and the valves, fittings and flanges, wellheads and christmas trees in oil & gas industry, well monitoring systems, basics of wellhead control panel and typical wellhead and x-mass tree assemblies.

Further, the course will also discuss the wear bushing, back pressure valve, lubricator, valve removal plugs and surface safety valve with hydraulic actuator; combining wear bushing running tool and BOP test plug; the coiled tubing well heads and wellhead chokes; the well completion design, practices and strategies, artificial lift methods and vertical lift performance; and the well outflow and inflow systems including the typical vertical lift performance (VLP) for various tubing sizes.

During this interactive course, participants will learn the well completion design considerations, reservoir considerations, mechanical considerations and classification of completions; the lower and upper completion string components and selection consideration; the production packer functions, packers types and packers generic mechanisms; the permanent and retrievable packers; the locator seals and anchor seals; the perforation methods, perforation selection, conveying methods and well flow control; the plug selection, well killing operations technique and consideration; the sand control completion and mechanical sand control methods; the gravel pack design, gravel sizing and slot sizing; the placement methods, carrier fluid concept and the appropriate method of sand control; the perforating system for sand control; the standalone screen applications, rigless operations, coiled tubing surface and subsurface components; the coiled tubing applications, cleaning operations with CT, wireline application, formation damage and stimulation design considerations; the most important production logging (PLT); and the well barrier philosophy during well intervention.

Course Objectives

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

- Apply and gain an in-depth knowledge on wellhead and completion equipment
- Discuss the well head and trees, simple to complex, seal points and control points
- Explain the basic use and intervention, surface wellhead, basics-of-wellhead-control-panel, flow nets, flowlines, piping fundamentals and flow through pipes
- Recognize valves, fittings and flanges, wellheads and christmas trees in oil & gas industry, well monitoring systems, basics of wellhead control panel and typical wellhead and x-mass tree assemblies
- Determine wear bushing, back pressure valve, lubricator, valve removal plugs and surface safety valve with hydraulic actuator
- Combine wear bushing running tool and BOP test plug as well as discuss coiled tubing well heads and wellhead chokes
- Carryout well completion design, practices and strategies, artificial lift methods and vertical lift performance
- Identify well outflow and inflow systems including the typical vertical lift performance (VLP) for various tubing sizes
- Determine well completion design considerations, reservoir considerations, mechanical considerations and classification of completions
- Recognize lower and upper completion string components and selection consideration
- Identify production packer functions, packers types, packers generic mechanisms, permanent and retrievable packers, and locator seals and anchor seals

- Set packers, perform inflatable packer applications, run the completion and employ perforation methods, perforation selection, conveying methods and well flow control
- Set depth of subsurface safety valves consideration and apply plug selection, well killing operations technique and consideration, sand control completion and mechanical sand control methods
- Describe gravel pack design, gravel sizing and slot sizing including placement methods, carrier fluid concept and the appropriate method of sand control
- Recognize perforating system for sand control and determine standalone screen applications, rigless operations and coiled tubing surface and subsurface components
- Carryout coiled tubing applications, cleaning operations with CT, wireline application, formation damage and stimulation design considerations
- Discuss the most important production logging (PLT) and well barrier philosophy during well intervention

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 an overview of all significant aspects and considerations of wellhead and completion equipment for engineers, technologists, service personnel, and others involved directly or indirectly with the planning passing with wellhead and programming of completion in addition to related workover issues.

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.

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.

- 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 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. Konstantin Zorbalas, MSc, BSc, is a **Senior Petroleum Engineer & Well Completions Specialist** with over **25 years** of **offshore** and **onshore** experience in the **Oil** & **Gas**, **Refinery** & **Petrochemical** industries. His wide expertise includes **Workovers & Completions**, **Petroleum Risk & Decision Analysis**, **Acidizing Application** in **Sandstone** & **Carbonate**, **Well Testing Analysis**, **Stimulation Operations**, **Reserves Evaluation**, **Reservoir Fluid Properties**, **Reservoir Engineering & Simulation Studies**, **Reservoir Monitoring**, **Artificial Lift Design**, **Gas Operations**, **Workover/Remedial Operations** & **Heavy Oil Technology**, **Applied Water Technology**, **Oil & Gas Production**, **X-mas Tree** & **Wellhead Operations** & **Testing**, **Artificial Lift Systems** (**Gas Lift**, **ESP**, and **Rod Pumping**), **Well Cementing**, **Production Optimization**, **Well Completion Design**, **Sand Control**, **PLT Correlation**, **Slickline Operations**, **Acid Stimulation**, **Well testing**, **Production Logging**, **Project Evaluation** & **Economic Analysis**. Further, he is actively involved in **Project Management** with special emphasis in production technology and field optimization, performing conceptual studies, economic analysis with risk assessment and field development planning. He is currently the **Senior Petroleum Engineer & Consultant** of **National Oil Company** wherein he is involved in the mega-mature fields in the Arabian Gulf, predominantly carbonate reservoirs; designing the acid stimulation treatments with post-drilling rigless operations; utilizing CT with tractors and DTS systems; and he is responsible for gas production and preparing for reservoir engineering and simulation studies, well testing activities, field and reservoir monitoring, production logging and optimization and well completion design.

During his career life, Mr. Zorbalas worked as a **Senior Production Engineer**, **Well Completion Specialist**, **Production Manager**, **Project Manager**, **Technical Manager**, **Technical Supervisor** & **Contracts Manager**, **Production Engineer**, **Production Supervisor**, **Production Technologist**, **Technical Specialist**, **Business Development Analyst**, **Field Production Engineer** and **Field Engineer**. He worked for many **world-class oil/gas companies** such as **ZADCO**, **ADMA-OPCO**, **Oilfield International Ltd**, **Burlington Resources** (later acquired by **Conoco Phillips**), **MOBIL E&P**, **Saudi Aramco**, **Pluspetrol E&P SA**, **Wintershall**, **Taylor Energy**, **Schlumberger**, **Rowan Drilling** and **Yukos EP** where he was in-charge of the **design and technical analysis** of a gas plant with capacity **1.8 billion m3/yr gas**. His achievements include **boosting oil production 17.2% per year** since 1999 using **ESP** and **Gas Lift systems**.

Mr. Zorbalas has **Master's** and **Bachelor's** degrees in **Petroleum Engineering** from the **Mississippi State University**, **USA**. Further, he is an **SPE Certified Petroleum Engineer**, **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), an active member of the Society of Petroleum Engineers (**SPE**) and has numerous scientific and technical publications and delivered innumerable training courses, seminars and workshops worldwide.

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 – 0900	***Well Head & Trees***
0900 – 0945	***Simple to Complex***
0945 – 1015	***Seal Points & Control Points***
1015 – 1030	*Break*
1030 – 1045	***Basic Use & Intervention***
1045 – 1055	***Surface Wellhead***
1055 – 1105	***Basics-of-Wellhead-Control-Panel***
1105 – 1115	***Flow Nets***
1115 – 1125	***Flowlines***
1125 – 1135	***Piping Fundamentals***
1135 – 1145	***Flow Through Pipes***
1145 – 1155	***Valves, Fittings & Flanges***
1155 – 1205	***Wellheads & Christmas Trees in Oil & Gas Industry***
1205 – 1215	***Well Monitoring Systems***
1215 – 1230	***Basics of Wellhead Control Panel***
1230 – 1245	*Break*
1245 – 1315	***Typical Wellhead & X-Mass Tree Assemblies***
1315 – 1345	***Wear Bushing***
1345 – 1400	***Back Pressure Valve***
1400 – 1420	***Lubricator***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0800	***Valve Removal Plugs***
0800 – 0900	***Surface Safety Valve with Hydraulic Actuator***
0900 – 1015	***Combination Wear Bushing Running Tool & BOP Test Plug***
1015 – 1030	*Break*
1030 – 1045	***BOP Test Plug***
1045 – 1055	***Coiled Tubing Well Heads***
1055 – 1105	***Wellhead Chokes***
1105 – 1115	***Well Completion Design, Practices & Strategies***
1115 – 1125	***Introduction of Reservoir Drive Mechanism***
1125 – 1135	***Introduction into Artificial Lift Methods & their Application***
1135 – 1145	***IPR & Productivity Index***
1145 – 1155	***Vertical Lift Performance***
1155 – 1205	***Well Outflow & Inflow Systems***
1205 – 1215	***Typical Vertical Lift Performance (VLP) for Various Tubing Sizes***
1215 – 1230	***Matching VLP Curves with an IPR Curve***

1230 – 1245	*Break*
1245 – 1315	***Well Completion Design Considerations***
1315 – 1345	***Reservoir Considerations***
1345 – 1400	***Mechanical Considerations***
1400 – 1420	***Classification of Completions***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0800	***Lower & Upper Completion String Components & Selection Consideration***
0800 – 0900	***Production Packer Functions***
0900 – 1015	***Packers Types***
1015 – 1030	*Break*
1030 – 1045	***Packers Generic Mechanisms***
1045 – 1055	***Permanent & Retrievable Packers***
1055 – 1105	***Locator Seals & Anchor Seals***
1105 – 1115	***Applications for Permanent & for Retrievable Packers***
1115 – 1125	***Setting Packers***
1125 – 1135	***Inflatable Packer Applications***
1135 – 1145	***Sliding Side Door Function***
1145 – 1155	***Gas Lift Mandrel***
1155 – 1205	***Running the Completion***
1205 – 1215	***Perforation Methods & Perforating Equipment***
1215 – 1230	***Perforation Selection & Conveying Methods***
1230 – 1245	*Break*
1245 – 1315	***Well Flow Control***
1315 – 1345	***Setting Depth of Subsurface Safety Valves Consideration***
1345 – 1400	***Surface Control Subsurface Safety Valves***
1400 – 1420	***Unloading the Well***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0800	***Facilities to Separate Fluids***
0800 – 0845	***Transportation & Disposal of Fluids***
0845 – 0930	***Flow Control Devices***
0930 – 1015	***Nipple Profiles Types & Plug Selection***
1015 – 1030	*Break*
1030 – 1045	***Workover Reasons***
1045 – 1055	***Well Killing Operations Technique & Consideration***
1055 – 1105	***Example for Workover Operations (Gas Lift Wells, Natural Gas Well, ESP Well)***
1105 – 1115	***Overview of Sand Control Completion***
1115 – 1125	***Sandstone Formation Properties & Geology***
1125 – 1135	***What Causes Sand Production?***
1135 – 1145	***Consequences of Sand Production Downhole & on Surface***
1145 – 1155	***What is the Mean of Sand Control?***
1155 – 1205	***Perforation System for Non-Sand Control Completion***

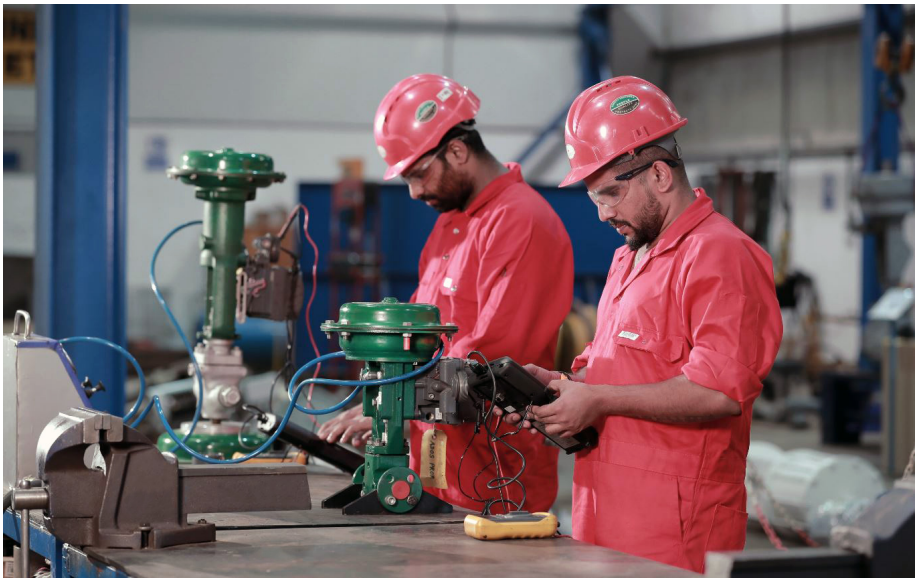
1205 – 1215	***Sand Control Options***
1215 – 1230	***Chemical Consolidation***
1230 – 1245	*Break*
1245 – 1315	***Mechanical Sand Control Methods***
1315 – 1345	***Cased Hole Gravel Pack***
1345 – 1400	***Open Hole Gravel Packing***
1400 – 1420	***Expandable Screens***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0800	***Gravel Pack Design, Gravel Sizing & Slot Sizing***
0800 – 0900	***Placement Methods***
0900 – 1015	***Carrier Fluid Concept***
1015 – 1030	*Break*
1030 – 1045	***Choosing the Appropriate Method of Sand Control***
1045 – 1055	***Losses Controlling During Sand Control Operations***
1055 – 1105	***Perforating System for Sand Control***
1105 – 1115	***Standalone Screen Applications***
1115 – 1125	***Fundamentals of Rigless Operations Theory & Stimulation***
1125 – 1135	***Coiled Tubing Surface & Subsurface Components***
1135 – 1145	***Coiled Tubing Applications***
1145 – 1155	***Cleaning Operations with CT***
1155 – 1205	***Well Back Flow (Nitrogen Lift)***
1205 – 1215	***Wireline Types & Application***
1215 – 1220	***Surface & Subsurface Components of Wireline***
1220 – 1230	***Formation Damage Mechanisms & their Remediation***
1230 – 1245	*Break*
1245 – 1300	***Stimulation Design Considerations***
1300 – 1315	***The Most Important Production Logging (PLT)***
1315 – 1345	***Well Barrier Philosophy During Well Interventions***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
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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