



COURSE OVERVIEW DE0844-4D

Advanced Cementing and Completion Design & Operations

Course Title

Advanced Cementing and Completion Design & Operations

Course Reference

DE0844-4D

Course Duration/Credits

Four days/2.4 CEUs/2.4 PDHs

Course Date/Venue



Session(s)	Date	Venue
1	September 23-26, 2024	Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	December 23-26, 2024	Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA

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 advanced cementing and completion design and operations. It covers the firm foundation in planning, designing, execution and evaluation for a successful cementation; the planning and design consideration covering the essential requirement for a successful primary and secondary cementation; the slurry design and rheology and well parameters to be considered for cementation; the preparation and execution of well successfully; the design and factors to be considered for cementing under loss situation and cementing of well with gas migration; the potential complication and remedies during cementation; and the critical cementation during planning and designing of linear, stage and horizontal well cementing.



Further, this course will also discuss the techniques of cement job and cement bond tool; the high performance light weight slurries, advancement and H.P.H.T cementing technology and equipment; the thermal cementing; the types and objective of completion operations according to reservoir and production data; the natural flow and artificial lift including single, dual gas lift and ESP well completion; the completion equipment, completion fluid and pressure test function; the main factors influencing completion design as well as well head valves types and applications; the overall approach to a well's flow capacity; and the major types of completion configurations.



During this interactive course, participants will learn the main phases in completion and considerations, completion equipment, completion fluid, pressure test function, drilling and casing the pay zone; the perforating, treating the pay zone, the special case of horizontal wells, production wellhead and production string or tubing; the tubing specification as well as thread, grade, weight and material; the packers, downhole equipment, subsurface safety valves, running procedure, artificial lift and gas lift; the artificial lift process, completion management and artificial lift operations in open and cased holes; the designing and material selection for sweet and sour gas; the equipment and tender document evaluation; the main types of well servicing and workover, light well servicing, heavy servicing and workover operations on live wells; the servicing and workover operations on killed wells; the deviated, multiple zone, subsea, horizontal, multilateral and HPHT completion; and the well stimulation, hydraulic fracturing and acid stimulation.

Course Objectives

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

- Apply and gain an advanced knowledge on cementing and completion design and operations
- Build a firm foundation in planning, designing, execution and evaluation for a successful cementation
- Determine planning and design consideration covering the essential requirement for a successful primary and secondary cementation
- Discuss slurry design and rheology and well parameters to be considered for cementation
- Prepare and execute well successfully
- Recognize the design and factors to be considered for cementing under loss situation and cementing of well with gas migration
- Identify the potential complication and remedies during cementation
- Explain critical cementation during planning and designing of linear, stage and horizontal well cementing
- Evaluate and interpret the techniques of cement job and cement bond tool
- Describe the high-performance light weight slurries, advancement and H.P.H.T cementing technology and equipment
- Employ thermal cementing in a professional manner
- Discuss the types and objective of completion operations according to reservoir and production data
- Interpret natural flow and artificial lift including single, dual gas lift and ESP well completion
- Identify completion equipment and completion fluid, pressure test function
- Identify main factors influencing completion design as well as well head valves types and application
- Apply overall approach to a well's flow capacity and recognize the major types of completion configurations



- Determine main phases in completion and considerations, completion equipment, completion fluid, pressure test function, drilling and casing the pay zone
- Discuss perforating, treating the pay zone, the special case of horizontal wells, production wellhead and production string or tubing
- Explain tubing specification as well as thread, grade, weight and material
- Discuss packers, downhole equipment, subsurface safety valves, running procedure, artificial lift and gas lift
- Choose an artificial lift process and apply completion management and artificial lift operations in open and cased holes
- Use API designing and material selection for sweet and sour gas
- Order the equipment and evaluate tender document as well as design, plan, execute open hole and cased hole completion and prepare well program
- Coordinate with logistic and service companies, run completion string on site according to sequence of well procedure and HSE and optimize operational steps in the completion program
- Identify the main types of well servicing and workover, light well servicing, heavy servicing and workover operations on live wells and servicing and workover operations on killed wells
- Discuss deviated, multiple zone, subsea, horizontal, multilateral and HPHT completion
- Illustrate well stimulation, hydraulic fracturing and acid stimulation

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, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of advanced cementing and completion design and operations for supervisors, senior engineers, mud engineers, cementing engineers, drilling engineers, drilling representatives, workover and completions personnel, drilling contractors, cement company personnel and for those who are responsible for the design, planning, implementation and evaluation of a well cementing program

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 **2.4 CEUs** (Continuing Education Units) or **24 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.

Course Fee

US\$ 6,750 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 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. Abdel Sattar Dahab, PhD, MSc, BSc, is an **International Expert in Petroleum & Drilling Engineering** with over **35 years** of extensive experience in the **Oil & Gas** industry. He has delivered sought-after lectures and seminars on **Well Completion, Well Workover, Well Stimulation, Oil Well Drilling Engineering, Drilling Optimization & Well Planning, Underbalanced Drilling, Casing and Tubing Design, Hydraulic Fracturing, Practical Well Control & Management, Well Completions & WorkOver, Prediction of Well Performance and Cementing Operations** in

Oil Wells. Currently, he is the **Drilling Consultant for Belayim Petroleum Company** and at the same time a **Professor of Petroleum Engineering** at the University of Cairo.

During his long career life, Dr. Dahab had been the **Consultant Engineer** in the **Drilling Department** for the **Gulf of Suez Petroleum Company (GUPCO)**, the **SPE Education Chairman** for **Cairo University**, a **Professor** in the **National Polytechnical Institute of Lorraine**. He also participated in the evaluation of many **petroleum engineering projects** and **technical papers** in the area of **drilling engineering, formation damage** and **engineering geology** for **national and international journals** and has been **invited** to talk or lecture on **Drilling Engineering issues** by **local and international petroleum companies** from all over the **Middle East**.

Dr. Dahab has **PhD, Master and Bachelor** degrees in **Petroleum Engineering** from the **National Polytechnical Institute of Lorraine (France)**. He has earned **notable awards, scholarships** and **membership** with numerous organizations such as his fellowship with the **NHS of Applied Geology & Minerals Prospection** and the **National Polytechnical Institute of Lorraine, Society of Petroleum Engineers of AIME, the Egyptian Society of Engineering Professions** and **SPE Continuing Education & Scholarship**. Further, he is a **Certified Instructor/Trainer**.

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	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0900	<i>Essential Requirement for a Successful Cementation - Primary & Secondary</i>
0900 – 0930	<i>Slurry Design & Rheology</i>
0930 – 1000	<i>Well Parameters to be Considered for Cementation</i>
1000 – 1030	<i>Preparation of Well & Successful Execution</i>
1030 – 1045	<i>Break</i>
1045 – 1115	<i>Well Parameters to be Considered for Cementing Under Loss Situation</i>
1115 – 1145	<i>Design & Factors to be Considered for Cementing of Well with Gas Migration</i>
1145 – 1215	<i>Planning & Design of Linear Cementation</i>
1215 – 1230	<i>Planning & Design of Stage Cementation</i>
1230 – 1245	<i>Planning & Design of Horizontal Well Cementing</i>
1245 – 1300	<i>Break</i>
1300 – 1315	<i>Cement Bond Tool & Techniques</i>
1315 – 1330	<i>Cement Bond Interpretation</i>
1330 – 1345	<i>High Performance Light Weight Slurries</i>
1345 – 1420	<i>H.P.H.T Cementing Technology</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0800	<i>Thermal Cementing</i>
0800 – 0830	<i>Types & Objective of Completion Operations According to Reservoir & Production Data</i>
0830 – 0900	<i>Natural Flow & Artificial Lift Including Single, Dual Gas Lift, ESP Well Completion</i>
0900 – 0930	<i>Main Factors Influencing Completion Design</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Well Head Valves Types & Applications</i>
1030 – 1100	<i>Overall Approach to a Well's Flow Capacity</i>
1100 – 1130	<i>Major Types of Completion Configurations</i>
1130 – 1200	<i>Main Phases in Completion & Considerations</i>
1200 – 1230	<i>Completion Equipment & Completion Fluid, Pressure Test Function</i>
1230 – 1245	<i>Break</i>
1245 – 1315	<i>Drilling & Casing the Pay Zone</i>
1315 – 1345	<i>Perforating</i>
1345 – 1400	<i>Treating the Pay Zone</i>
1400 – 1420	<i>The Special Case of Horizontal Wells</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Two</i>





Day 3

0730 – 0800	<i>The Production Wellhead</i>
0800 – 0830	<i>The Production String or Tubing</i>
0830 – 0900	<i>Tubing Specification as Thread, Grade, Weight & Material</i>
0900 – 0930	<i>Packers</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Downhole Equipment</i>
1030 – 1100	<i>Subsurface Safety Valves</i>
1100 – 1130	<i>Running Procedure</i>
1130 – 1200	<i>Artificial Lift: Pumping</i>
1200 – 1230	<i>Gas Lift</i>
1230 – 1245	<i>Break</i>
1245 – 1315	<i>Choosing an Artificial Lift Process</i>
1315 – 1345	<i>Completion Management Artificial Lift Operations in Open & Cased Holes</i>
1345 – 1400	<i>Use API in Designing & Material Selection for Sweet & Sour Gas</i>
1400 – 1420	<i>Order the Equipment & Evaluate Tender Document</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Three</i>

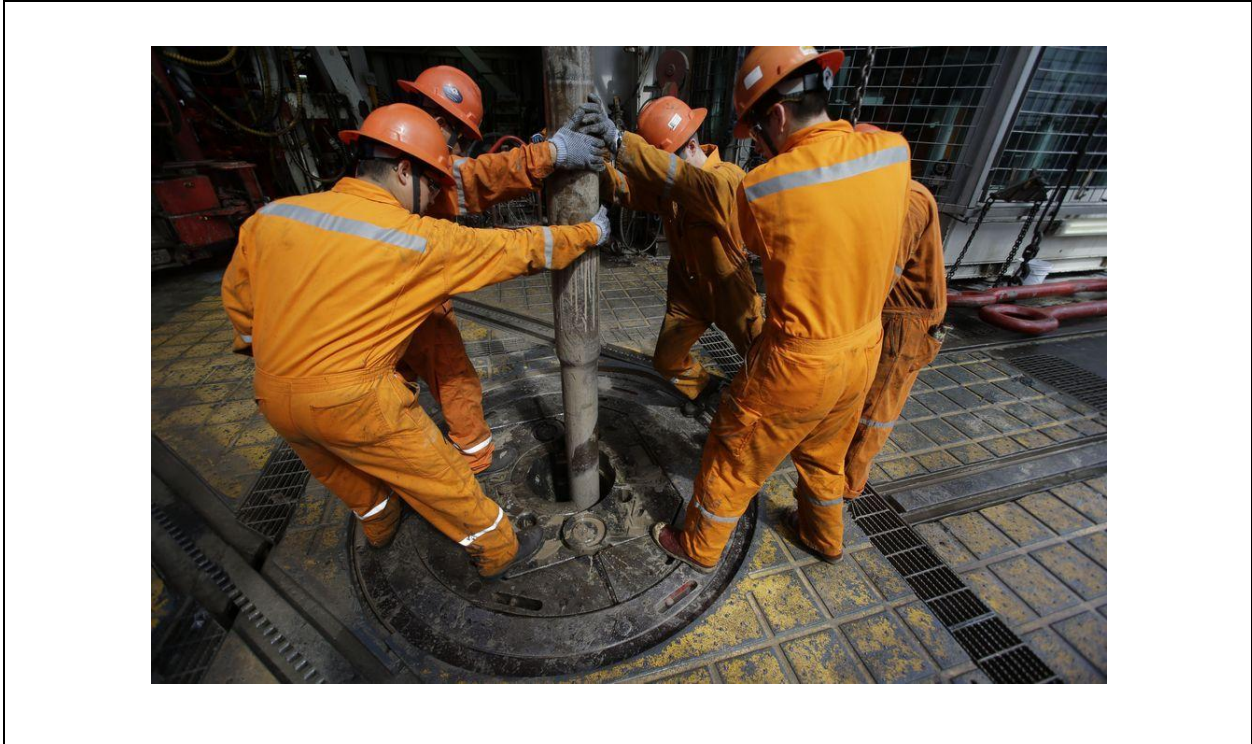
Day 4:

0730 – 0800	<i>Design, Plan, Execute Open Hole & Cased Hole Completion</i>
0800 – 0830	<i>Prepare Well Program</i>
0830 – 0900	<i>Coordinate with Logistic & Service Companies</i>
0900 – 0930	<i>Run Completion String on Site According to Sequence of Well Procedure & HSE</i>
0930 – 0945	<i>Break</i>
0945 – 1015	<i>Optimize Operational Steps in the Completion Program</i>
1015 – 1045	<i>Main Types of Well Servicing & Workover</i>
1045 – 1115	<i>Light Well Servicing & Workover Operations on Live Wells</i>
1115 – 1145	<i>Heavy Servicing & Workover Operations on Live Wells</i>
1145 – 1200	<i>Break</i>
1200 – 1215	<i>Servicing & Workover Operations on Killed Wells</i>
1215 – 1230	<i>Servicing & Workover Special Cases</i>
1230 – 1245	<i>Deviated, Multiple Zone, Subsea, Horizontal, Multilateral & HPHT Completion</i>
1245 – 1300	<i>Well Stimulation</i>
1300 – 1315	<i>Hydraulic Fracturing</i>
1315 – 1345	<i>Acid Stimulation</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<i>POST TEST</i>
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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