COURSE OVERVIEW DE0844
Advanced Cementing and Completion Design & Operations

Course Title
Advanced Cementing and Completion Design & Operations

Course Date/Venue
Session 1: May 18-22, 2025/ Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar
Session 2: October 12-16, 2025/ Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar

H-STK© INCLUDED

3.0 CEUs (30 PDHs) AWARD

Course Reference
DE0844

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 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 applications
- 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 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.

Certificate Accreditations
Certificates are accredited by the following international accreditation organizations:-

- 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.

- 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 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. Gert Du Toit, PEng, MSc, is a **Senior Rock Engineer & Geotechnical Specialist** with over **25 years** of industrial experience in **Oil** & **Gas** industry. His wide expertise includes **Rock Properties & Rock Mechanics**, **Geomechanical Principles**, **Geomechanics & Borehole Stability**, **Rock Engineering**, **Wellbore & In-Situ Field Measurement**, **Stress Orientation Techniques**, **Rock Behavior Modelling**, **Fracture Mechanics**, **Reservoir Engineering Application**, Wireline Log & Data Integration, **Geotechnical & Mining Engineering**, **Rock Engineering in Mining**, **Mining Extraction** Sequences Optimization, Deep **Gold Mining**, Shaft Pillar Extraction, Pillar Design, Inclined & Vertical Shafts Excavation & Lining Design, Ground Deformation & Support Performance Monitoring, Life on **Mine Planning**, **Geological Structure & Rock Mass Parameters**, **Hydrogeological** Considerations, Pit or Block Cave Design & Controls, **Host Rock Support/Reinforcement**, Blasting Considerations, **Excavation Host Rock Response Monitoring**, **Mining Method Selection** and **Mining Risk Management Systems**. Further, he is also well-versed in **Geotechnical Data** Capturing & Classification, Excavation, Support & Lining Designs, Support Installation Audits, Support Testing, **Risk Management Systems**, **Strata Control**, **Geotechnical Soil Classification**, **Core Logging**, **Geotechnical Investigation Design**, **Geotechnical Mapping**, Photographic Capturing & Analyses, **Rock Mass** Rating Systems, **Structural Geological** Evaluation & Interpretation, **Geotechnical Models**, Underground Design & Mining, **Data Analyses & Geotechnical** Report Preparation, **Shaft Lining Design** and Advanced **Cementing Technology**. He is currently the **Founder & Rock Engineer** of **GeoSindile Pty**. **Ltd**. wherein he is working as an Independent Consultant in the geotechnical and mining engineering fields.

During his career life, Mr. Du Toit has gained his practical and field experience through his various significant positions and dedication as the **Rock Engineering Manager**, **Senior Rock/Geotechnical Engineer**, **Senior Rock Engineer**, **Rock Engineer**, **Senior Rock Engineering Officer**, **Junior Rock Engineering Officer** and **Strata Control Officer** for numerous international companies like Geostable SA CC, Anglo-American Ltd, Pt. Antam Tbk, Africal Nickel Ltd, Petra Diamons (Pty) Ltd, Knight Piesold (Pty) Ltd) DiamondCorp PLC, Mining & Engineering Technical Services (METS), Shaft Sinkers (Pty) Ltd, Compañia Minera Poderosa, **Sasol**, **EuroChem**, Kalagadi, KazChrome (Pty), **Anglo Coal**, Crocodile River Mine, CSIR Miningtek, **AngloGold**, African Rainbow Minerals, Evander Gold Mines and Stilfontein Gold Mining. He has been involved in the design of support systems and **mining extraction sequences** for deep gold mines to ameliorate falls of ground and rock burst accidents, specializing in **shaft pillar extraction** and **pillar designs** for shallower platinum mines. He has gained vast experience while working on the design and excavation of inclined and vertical shafts in South Africa, Peru, Russia, Kazakhstan and Indonesia, specializing in shaft lining design for shafts to be excavated in poor quality rock masses and high stress environments.

Mr. Du Toit is a **Registered Professional Engineer** and has a **Master** degree in **Mining Rock Engineering** and a **National Higher Diploma** in **Metalliferous Mining**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and an active member of the South African National Institute of Rock Engineering (**SANIRE**) and the South African Institute of Mining & Metallurgy (**SAIMM**). Moreover, he has published various **research papers** and delivered numerous trainings, courses, seminars, workshops and conferences internationally.

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$ 8,500 per Delegate. 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 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 – 0930	***Essential Requirement for a Successful Cementation – Primary & Secondary***
0930 – 0945	*Break*
0945 – 1100	***Slurry Design & Rheology***
1100 – 1200	***Well Parameters to be Considered for Cementation***
1200 – 1230	***Preparation of Well & Successful Execution***
1230 – 1245	*Break*
1245 – 1330	***Well Parameters to be Considered for Cementing Under Loss Situation***
1330 – 1420	***Design & Factors to be Considered for Cementing of Well With Gas Migration***
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Planning & Design of Linear Cementation***
0830 – 0930	***Planning & Design of Stage Cementation***
0930 – 0945	*Break*
0945 – 1100	***Planning& Design of Horizontal Well Cementing***
1100 – 1230	***Cement Bond Tool & Techniques***
1230 – 1245	*Break*

1245 – 1330	***Cement Bond Interpretation***
1330 – 1420	***High Performance Light Weight Slurries***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0800	***H.P.H.T Cementing Technology***
0800 – 0830	***Thermal Cementing***
0830 – 0900	***Types & Objective of Completion Operations According to Reservoir & Production Data***
0900 – 0930	***Natural Flow & Artificial Lift Including Single, Dual Gas Lift, ESP Well Completion***
0930 – 0945	*Break*
0945 – 1030	***Main Factors Influencing Completion Design***
1030 – 1100	***Well Head Valves Types & Applications***
1100 – 1130	***Overall Approach to a Well's Flow Capacity***
1130 – 1230	***Major Types of Completion Configurations***
1230 – 1245	*Break*
1245 – 1330	***Main Phases in Completion & Considerations***
1330 – 1420	***Completion Equipment & Completion Fluid, Pressure Test Function***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0800	***Drilling & Casing the Pay Zone***
0800 – 0815	***Perforating***
0815 – 0830	***Treating the Pay Zone***
0830 – 0900	***The Special Case of Horizontal Wells***
0900 – 0915	***The Production Wellhead***
0915 – 0930	***The Production String or Tubing***
0930 – 0945	*Break*
0945 – 1000	***Tubing Specification as Thread, Grade, Weight & Material***
1000 – 1015	***Packers***
1015 – 1030	***Downhole Equipment***
1030 – 1045	***Subsurface Safety Valves***
1045 – 1100	***Running Procedure***
1100 – 1130	***Artificial Lift: Pumping***
1130 – 1200	***Gas Lift***
1200 – 1230	***Choosing an Artificial Lift Process***
1230 – 1245	*Break*
1245 – 1330	***Completion Management Artificial Lift Operations in Open & Cased Holes***
1330 – 1420	***Use API in Designing & Material Selection for Sweet & Sour Gas***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0800	***Order the Equipment & Evaluate Tender Document***
0800 – 0900	***Design, Plan, Execute Open Hole & Cased Hole Completion***
0900 – 0930	***Prepare Well Program***
0930 – 0945	*Break*

0945 – 1000	***Coordinate with Logistic & Service Companies***
1000 – 1015	***Run Completion String on Site According to Sequence of Well Procedure & HSE***
1015 – 1030	***Optimize Operational Steps in the Completion Program***
1030 – 1045	***Main Types of Well Servicing & Workover***
1045 – 1100	***Light Well Servicing & Workover Operations on Live Wells***
1100 – 1115	***Heavy Servicing & Workover Operations on Live Wells***
1115 – 1130	***Servicing & Workover Operations on Killed Wells***
1130 – 1145	***Servicing & Workover Special Cases***
1145 – 1200	***Deviated, Multiple Zone, Subsea, Horizontal, Multilateral & HPHT Completion***
1200 – 1230	***Well Stimulation***
1230 – 1245	*Break*
1245 – 1300	***Hydraulic Fracturing***
1300 – 1345	***Acid Stimulation***
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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