

COURSE OVERVIEW DE0108
Corrosion in Downhole Tubing

Course Title

Corrosion in Downhole Tubing

Course Date/Venue

Session 1: April 28-May 02, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: October 26-30, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

DE0108



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 tubing design and selection. It covers the preliminary casing and tubing design including design approaches like deterministic (WSD) and probabilistic; the basis of design, initial conditions, installation loads, drilling loads and production/injection loads for casing strings and tubing; the design factors, tubular strength, buckling and temperature considerations; and the design optimization techniques, material selection, metallurgy fundamentals, corrosion mechanisms and sour service grade selection.



Further, the course will also discuss the tubing design, casing and tubing design criteria and completion equipment selection; the types, applications, limitations, testing and qualification of connections; the well architecture, well integrity, basis of design, initial conditions and worst-case discharge loads; and the installation loads, drilling load, production/injection loads, drilling and production thermal loads.

During this interactive course, participants will learn the temperature considerations, load cases, pipe strength, material selection, movement, buckling and APB; the fracture failure (brittle burst analysis), quality assurance and quality control; the connection assessment levels (CAL), testing and qualification and the use of qualifies envelopes in casing and tubing design; and the casing wear proposed workflow, wear prediction workflow, wear factors and key factors impacting casing wear; the survival design considerations, WCD, WCD loads multi-string analysis, special problems and expandable tubular; and the steam cycling issues like plastic strain, bauschinger effect, low cycle fatigue and subsidence/compaction.

Course Objectives

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

- Apply and gain a good working knowledge on tubing design and selection
- Discuss preliminary casing and tubing design including design approaches like deterministic (WSD) and probabilistic
- Identify the basis of design, initial conditions, installation loads, drilling loads and production/injection loads for casing strings and tubing
- Recognize the design factors, tubular strength, buckling and temperature considerations
- Carryout design optimization techniques, material selection, metallurgy fundamentals, corrosion mechanisms and sour service grade selection
- Describe tubing design, casing and tubing design criteria and completion equipment selection
- Identify the types, applications, limitations, testing and qualification of connections
- Illustrate well architecture, well integrity, basis of design, initial conditions and worst-case discharge loads
- Recognize installation loads, drilling load, production/injection loads, drilling and production thermal loads
- Discuss temperature considerations, load cases, pipe strength, material selection, movement, buckling and APB
- Apply fracture failure (brittle burst analysis), quality assurance and quality control
- Carryout connection assessment levels (CAL), Testing & qualification and the use of qualifies envelopes in casing and tubing design
- Identify casing wear proposed workflow, wear prediction workflow, wear factors and key factors impacting casing wear
- Explain survival design considerations, WCD, WCD loads, multi-string analysis, special problems, expandable tubular, steam cycling issues like plastic strain, bauschinger effect, low cycle fatigue and subsidence/compaction

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 tubing design and selection for well services engineers, drilling operations section leaders, drilling engineering supervisors, well engineers, petroleum engineers, well servicing/workover/completion staff and field production staff.

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.

Accommodation


Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

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.

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:

	<p>Dr. Chris Kapetan, PhD, MSc, is a Senior Drilling & Petroleum Engineer with over 40 years of international experience within the onshore and offshore oil & gas industry. His wide experience covers Horizontal & Multilateral Wells, Well Completion & Stimulation, Artificial Lift System Selection & Design, Drilling Practices, Drilling Fluids Technology, Drilling Operations, Directional Drilling, Formation Damage Evaluation & Preventive, Formation Damage Remediation, Drilling & Formation Damage, Simulation Program for The International Petroleum Business, Well Testing & Analysis, Well Design, Well Testing & Oil Well Performance, Well Test Design Analysis, Well Test Operations, Well Testing & Perforation, Root Cause Analysis (RCA), RCA Method for Process Plant, RCA Techniques, Control Well-Flow Lines Parameters, Decision Analytic Modelling Methods for Economic Evaluation, Probabilistic Risk Analysis (Monte Carlo Simulator) Risk Analysis Foundations, Sulphur, Sour Natural Gas, Natural Gas Sweetening, Petroleum Production, Field Layout, Production Techniques & Control, Surface Production Operations, Project Risk Analysis, Feasibility Analysis Techniques, Capital Operational Costs, Flowmetering & Custody Transfer and Oil Refinery. Further, he is also well-versed in Enhanced Oil Recovery (EOR), Electrical Submersible Pumps (ESP), Oil Industries Orientation, Geophysics, Cased Hole Formation Evaluation, Cased Hole Applications, Cased Hole Logs, Production Wells Operations, Production Facilities Management, Perforating Methods & Design, Perforating Operations, Fishing Operations, Well & Reservoir Testing, Reservoir Stimulation, Hydraulic Fracturing, Carbonate Acidizing, Sandstone Acidizing, Drilling Fluids Technology, Drilling Operations, Directional Drilling, Artificial Lift, Gas Lift Design, Gas Lift Operations, Petroleum Business, Petroleum Economics, Field Development Planning, Gas Lift Valve Changing & Installation, Well Completion Design & Operation, Well Surveillance, Well Testing, Well Stimulation & Control and Workover Planning, Completions & Workover, Rig Sizing, Hole Cleaning & Logging, Well Completion, Servicing & Work-Over Operations, Practical Reservoir Engineering, X-mas Tree & Wellhead Operations, Maintenance & Testing, Advanced Petrophysics/Interpretation of Well Composite, Construction Integrity & Completion, Coiled Tubing Technology, Corrosion Control, Slickline, Wireline & Coil Tubing, Pipeline Pigging, Corrosion Monitoring, Cathodic Protection as well as Root Cause Analysis (RCA), Root Cause Failure Analysis (RCFA), Gas Conditioning & Process Technology, Production Safety and Delusion of Asphalt. Currently, he is the Operations Consultant & the Technical Advisor at GEOTECH and an independent Drilling Operations Consultant of various engineering services providers to the international clients as he offers his expertise in many areas of the drilling & petroleum discipline and is well recognized & respected for his process and procedural expertise as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.</p> <p>Throughout his long career life, Dr. Chris has worked for many international companies and has spent several years managing technically complex wellbore interventions in both drilling & servicing. He is a well-regarded for his process and procedural expertise. Further, he was the Operations Manager at ETP Crude Oil Pipeline Services where he was fully responsible for optimum operations of crude oil pipeline, workover and directional drilling, drilling rigs and equipment, drilling of various geothermal deep wells and exploration wells. Dr. Chris was the Drilling & Workover Manager & Superintendent for Kavala Oil wherein he was responsible for supervision of drilling operations and offshore exploration, quality control of performance of rigs, coiled tubing, crude oil transportation via pipeline and abandonment of well as per the API requirements. He had occupied various key positions as the Drilling Operations Consultant, Site Manager, Branch Manager, Senior Drilling & Workover Manager & Engineer, Drilling & Workover Engineer, Process Engineer, Operations Consultant and Technical Advisor in several petroleum companies responsible mainly on an offshore sour oil field (under water flood and gas lift) and a gas field. Further, Dr. Chris has been a Professor of the Oil Technology College.</p> <p>Dr. Chris has PhD in Reservoir Engineering and a Master's degree in Drilling & Production Engineering from the Petrol-Gaze Din Ploiesti University. Further, he is a Certified Surfaced BOP Stack Supervisor of IWCF, a Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier by the Institute of Leadership & Management (ILM) and has conducted numerous short courses, seminars and workshops and has published several technical books on Production Logging, Safety Drilling Rigs and Oil Reservoir.</p>
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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 – 0745	<i>Registration & Coffee</i>
0745 – 0800	<i>Welcome & Introduction</i>
0800 – 0815	PRE-TEST
0815 – 0900	<i>Preliminary Casing & Tubing Design, Design Approaches like Deterministic (WSD) & Probabilistic</i>
0900 – 0930	<i>Basis of Design, Initial Conditions</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>StressCheck Exercises-Well File Build-Up with all Inventory Entries</i>
1030 – 1100	<i>Load-Cases- Casing & Tubing</i>
1100 – 1230	<i>Installation Loads, Drilling Loads, Production/Injection Loads for Casing Strings & Tubing</i>
1230 – 1245	<i>Break</i>
1245 – 1330	<i>Design Factors: Rationale & Assumptions, Design Factors for Tubing, Casing & Connections</i>
1330 – 1420	<i>Tubular Strength: Axial, Burst, Collapse, De-rating due to Corrosion & Temperature</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 - 0830	<i>StressCheck Exercises – Tubing Design</i>
0830 – 0930	<i>Buckling & Temperature Considerations, Design Optimization Techniques</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Material Selection, Metallurgy Fundamentals, Corrosion Mechanisms, Sour Service Grade Selection</i>
1030 – 1230	<i>Tubing Design, Difference between Casing & Tubing Design Criteria, Completion Equipment Selection</i>
1230 - 1245	<i>Break</i>
1245 – 1330	<i>Connections: Types, Applications, Limitations, Testing & Qualification</i>
1330 – 1420	<i>StressCheck Exercises – Casing Design</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 - 0830	<i>Well Architecture, Well Integrity, Basis of Design, Initial Conditions (Procedures & Injectors), Worst-Case Discharge Loads</i>
0830 – 0930	<i>Installation Loads, Drilling Loads, Production/Injection Loads, Drilling & Production Thermal Loads</i>
0930 – 0945	<i>Break</i>



1030 - 1130	WellCAT Exercises - Well File Build up with all Inventory Entries
1130 - 1230	Design Factors: Rationale & Assumptions, Uni-Axial & Tri-Axial Design Factors, Design Factors for Connections
1230 - 1245	<i>Break</i>
1245 - 1330	Tubular Strength: Axial, Burst, Collapse, De-Ration due to Corrosion & Temperature, Material Anisotropy, High Collapse (Non API), Limit State Collapse
1330 - 1420	WellCAT Exercises - Drill & Prod Module
1420 - 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 4

0730 - 0830	Temperature Considerations
0830 - 0930	Load Cases, Pipe Strength, Material Selection, Movement, Buckling, APB
0930 - 0945	<i>Break</i>
1030 - 1130	Fracture Failure (Brittle Burst Analysis), Quality Assurance & Quality Control
1130 - 1230	WellCAT Exercises - Casing & Tube Module
1230 - 1245	<i>Break</i>
1245 - 1330	Connections: Types, Applications, Limitations
1330 - 1420	Connection Assessment Levels (CAL), Testing & Qualification, Use of Qualifies Envelopes in Casing & Tubing Design (Connection Tri-Axial Design)
1420 - 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 5

0730 - 0830	Casing Wear Proposed Workflow, Wear Prediction Workflow, Wear Factors, Key Factors Impacting Casing Wear
0830 - 0930	WellCat Exercises - Design with Connection Envelope, Casing Wear Analysis
0930 - 0945	<i>Break</i>
0945 - 1045	Kick Tolerance
1045 - 1230	Survival Design Considerations, WCD, WCD Loads (Cap & Contain, Hot Collapse)
1230 - 1245	<i>Break</i>
1245 - 1315	Multi-String Analysis incl. WHG, APB, System Fixity Considerations
1315 - 1345	Special Problems, Expandable Tubular, Steam Cycling Issues like Plastic Strain, Bauschinger Effect, Low Cycle Fatigue, Subsidence/Compaction Loads
1345 - 1400	Course Conclusion
1400 - 1415	POST-TEST
1415 - 1430	<i>Presentation of 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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