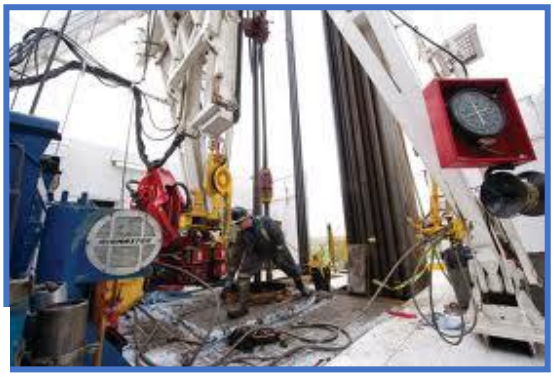
COURSE OVERVIEW DE0979
Pore Pressure & Well Control

Course Title
Pore Pressure & Well Control



Course Date/Venue
Session 1: February 16-20, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar
Session 2: August 17-21, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar

Course Reference
DE0979

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.

A predrill estimate of formation pore pressure is a key requirement for successful exploration and drilling. During the exploration phase, knowledge of the spatial distribution of formation pressures can be used to develop fluid migration models, to study the effectiveness of seals, and to rank prospects. During the drilling phase, a pre-drill pore pressure estimate allows the appropriate mud weight to be selected and the casing program to be optimized, thus enabling safe and economic drilling.

Accurate pore pressure prediction is vital for several aspects of well planning, such as casing and cementing design, as well as the prevention of potentially disastrous kicks, losses and blowouts. Furthermore, wellbore instability and associated events, such as pack–offs and stuck pipe, are regarded as the largest cause of non-productive time in expensive drilling operations. Thus, wellbore stability, pore pressure and fracture gradient analysis represents a key part in reducing drilling costs and optimizing drilling, both in the planning and operational stages of drilling a well.

This course will teach the participants the basics of formation pore pressure including techniques for predicting formation pressure, analyzing pore pressure data, detecting and collecting pressure data and understanding normal, over and underpressured environments. Participants will perform practical analysis during the course.
The course will cover the fundamental principles of pore pressure modeling and application to oil field problems. The basic concepts used in pore pressure prediction will be presented, and methods for estimating pore pressure using log and seismic data will be explained and discussed. The discussion will focus on deriving a calibrated pore pressure model from seismic velocities. This implies calibration with offset well data in order to derive a calibrated velocity-to-pore pressure transform.

The different data types used for optimal model calibration will be presented in the course. The rock physics basis underlying such transforms is discussed, and their application to pore pressure modelling is illustrated using several examples.

By understanding how the pre-drill pore pressure model is built, and what kind of calibration data is necessary, the course participant will get a sense of how to update and re-calibrate the model in real time while drilling. The following topics will be addressed: processes responsible for abnormal pressure, methods of pore pressure prediction and detection, data requirements and how to deal with data gaps, model calibration, advantages and disadvantages of seismic and resistivity based pore pressure prediction, real time updating and uncertainty analysis.

Course Objectives

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

- Apply and gain an in-depth knowledge on pore pressure and well control
- Discuss the basic geology including source rocks and traps
- Define pore pressure and identify its importance in drilling and mechanisms
- Recognize the fracture gradients of drilling window and the concept of effective stress
- Carryout pore pressure prediction, detection and methods
- Employ seismic based methods, drilling data methods, resistivity methods, density and sonic methods
- Explain the impact of pore pressure prediction on exploration and drilling success
- Illustrate pore pressure data, data gathering and real-time updating
- Identify sub-salt and other difficult areas for pore pressure prediction
- Determine wellbore instability, the effect on bore orientation and the effects on pore pressure in loading and unloading
- Describe pore pressure/stress considerations for unconventional resources including the leak-offs and fits
- Apply well control as well as identify the effects of pore pressure on reservoir geomechanics and the compaction and subsidence

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 pore pressure and well control for petrophysicists, senior engineers, geologists, geophysicists, drilling engineers, reservoir engineers, well log analysts, basin-model specialists, managers, and support staff who are involved in exploration, development and drilling.

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 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: -

- 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:

Ms. Diana Helmy, PgDip, MSc, BSc, is a **Senior Petroleum & Geologist** with extensive years of experience within the **Oil & Gas**, **Refinery** and **Petrochemical** industries. Her expertise widely covers in the areas of **Tubular & Pipe** Handling, **Tubular Strength**, **Casing & Tubing** Design, **Production/Injection Loads** for Casing Strings & Tubing, **Drilling** Loads, **Drilling & Production Thermal** Loads, **Well** Architecture, **Wellhead Integrity**, **Well Integrity & Artificial Lift**, **Well Integrity** Management, **Well** Completion & Workover, Applied **Drilling** Practices, Horizontal **Drilling**, **Petroleum** Production, **Resource & Reserve Evaluation**, **Reserves Estimation & Uncertainty**, Methods for **Aggregation of Reserves & Resources**, **Horizontal & Multilateral Wells**, **Well Completion & Stimulation**, **Artificial Lift System Selection & Design**, **Well** Testing & Oil Well Performance, **Well** Test Design Analysis, **Well Test** Operations, **Well Testing & Perforation**, **Directional** Drilling, **Formation Damage** Evaluation & Preventive, **Formation Damage** Remediation, **Drilling & Formation Damage**, Simulation Program for The **International Petroleum Business**, **Well** Testing & Analysis, **Horizontal & Multilateral Wells & Reservoir** Concerns, **Oil & Gas Analytics**, **Petrophysics & Reservoir Engineering**, **Subsurface Geology & Logging** Interpretation, **Petroleum Geology**, **Geophysics**, **Seismic** Processing & Exploration, **Seismic** Interpretation, **Sedimentology**, **Stratigraphy & Biostratigraphy**, **Petroleum Economy**, **Core** Analysis, Well Logging Interpretation, **Core Lab Analysis** & **SCAL**, **Sedimentary Rocks**, **Rock** Types, Core & Ditch Cuttings Analysis, Clastic, Carbonate & Basement Rocks, **Stratigraphic Sequences**, **Petrographically** Analysis, Thin Section Analysis, Scanning Electron Microscope (**SEM**), X-ray Diffraction (**XRD**), Cross-Section Tomography (**CT**), **Conventional & Unconventional** Analysis, **Porosity & Permeability**, **Geological & Geophysical** Model, **Sedimentary** Facies, **Formation Damage** Studies & Analysis, **Rig** Awareness, 2D&3D **Seismic** Data Processing, Static & Dynamic Correction, Noise Attenuation & Multiple Elimination Techniques, Velocity Analysis & Modeling and various software such as Petrel, OMEGA, LINUX, Kingdom and Vista. She is currently a **Senior Consultant** wherein she is responsible in different facets of **Petroleum & Process Engineering** from managing **asset integrity**, **well integrity process**, **pre-commissioning/commissioning** and **start up** onshore & offshore process facilities.

During her career life, Ms. Diana worked as a **Reservoir Geologist**, **Seismic Engineer**, **Geology Instructor**, **Geoscience Instructor & Consultant** and **Petroleum Geology Researcher** from various international companies like the **Schlumberger**, Corex Services for Petroleum Services, Petrolia Energy Supplies and Alexandria University.

Ms. Diana has a **Postgraduate Diploma** in **Geophysics**, **Master's** degree in **Petroleum Geology** and **Geophysics** and a **Bachelor's** degree in **Geology**. Further, she is a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has delivered numerous trainings, courses, workshops, seminars and conferences internationally.

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	***Basic Geology*** *Source Rocks • Traps*
0930 – 0945	*Break*
0945 – 1100	***Pore Pressure*** *Definitions • Importance in Drilling • Mechanisms*
1100 – 1230	***The Drilling Window–Fracture Gradients***
1230 – 1245	*Break*
1245 - 1315	***Concept of Effective Stress***
1315 – 1420	***Pore Pressure Prediction & Detection, Outline of Methods***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Seismic Based Methods***
0830 – 0930	***Drilling Data Methods*** *Dxc • Gas • Cuttings*
0930 – 0945	*Break*
0945 – 1100	***Resistivity Methods*** *Logged & MWD*
1100 – 1230	***Density & Sonic Methods***
1230 – 1245	*Break*
1245 - 1315	***Exercises to Illustrate Methods Discussed***
1315 – 1420	***Impact of Pore Pressure Prediction on Exploration & Drilling Success*** *Issues & Problems*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Pore Pressure Data*** *Requirements • Audit & Reliability*
0830 – 0930	***Data Gathering*** *Responsibilitiess*
0930 – 0945	*Break*
0945 – 1100	***Real-time Updating*** *Models & Predictions*
1100 – 1230	***Exercise*** *Building Overburden & Fracture Gradient Models*
1230 – 1245	*Break*
1245 - 1420	***Sub-Salt & Other Difficult Areas for Pore Pressure Prediction***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Wellbore Instability***
0830 – 0930	***Further Look at Stress*** *Effect on Bore Orientation*
0930 – 0945	*Break*
0945 – 1100	***Loading & Unloading*** *Effects on Pore Pressure*
1100 – 1230	***Pore Pressure/Stress Considerations for Unconventional Resources***
1230 – 1245	*Break*
1245 - 1420	***Leak-offs & FITs*** *Theory & Exercise*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Well Control***
0830 – 0930	***Advanced Well Control – Horizontal Wells, Non-Standard Methods***
0930 – 0945	*Break*
0945 – 1100	***Effects of Pore Pressure on Reservoir Geomechanics***
1100 – 1230	***Compaction & Subsidence***
1230 – 1245	*Break*
1245 - 1345	***Round Table Discussion on Pore Pressure & Related Subjects***
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

Reem Dergham, Tel: +974 4423 1327, Email: reem@haward.org