

**COURSE OVERVIEW DE0742(PP3)**

**Applied Structural Geology in Hydrocarbon Systems Analysis**

**Course Title**

Applied Structural Geology in Hydrocarbon Systems Analysis

**Course Date/Venue**

Session 1: July 14-18, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE  
 Session 2: December 21-25, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



**Course Reference**

DE0742(PP3)



**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**Course Description**



***This hands-on, highly-interactive course includes real-life case studies 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 applied structural geology in hydrocarbon exploration. It covers the rock mechanics, structural geology and their relevance; the texture of deformed rocks and environments of deformation; the basin formation and geodynamics; the common structural elements; the compressional, extensional and strike slip structures; the growth structures; and the role of basement and its relationship to the sedimentary cover as well as the roles of deformation in the hydrocarbon systems.



During this interactive course, participants will learn the structural features on seismic; the mapping and interpretation for hydrocarbon traps; the preparation of structural cross sections from geological surface and subsurface maps; solving the problem of structural cross sections; the seismic interpretation and balancing of structural cross sections and seismic interpretation; the identification of geo-mechanical/structural issues in selected examples; the prospect scale interpretation; and the fractured reservoirs interpretation and fault-seal predictions.



### Course Objectives

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

- Apply and gain a good working knowledge on applied structural geology in hydrocarbon exploration
- Identify the trap geometries and possible mechanism of formation
- Discuss the rock mechanics and structural geology and their relevance
- Illustrate the texture of deformed rocks and environments of deformation including the basin formation and geodynamics
- Recognize the common structural elements covering faults, folds, fractures, etc.
- Carryout balancing and interpretation of compressional, extensional and strike slip structures
- Explain the growth structures and the roles of basement and its relationship to the sedimentary cover as well as the roles of deformation in the hydrocarbon systems
- Identify the structural features on seismic, interpretation pitfalls, rules, mapping and interpretation for hydrocarbon traps
- Prepare structural cross sections from geological surface and subsurface maps and solve the problem of structural cross sections
- Apply seismic interpretation and balancing structural cross sections and seismic interpretation
- Identify geo-mechanical/structural issues in selected examples including prospect scale interpretation
- Carryout fractured reservoirs interpretation and fault-seal predictions

### 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 structural geology in hydrocarbon exploration for those who are requiring training in modern methods of structural geology, economic geologists employed in exploration or mining, exploration/production geologists in oil/gas/drilling companies, mine geologists, geotechnical-mine engineers, hydrologists, engineering, and geologists dealing with rock stress-strain at operating or planned project sites.

### 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.

**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.



**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.

**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	<b>PRE-TEST</b>
0830 – 0930	<b>Rock Mechanics &amp; Structural Geology &amp; their Relevance</b>
0930 – 0945	Break
0945 – 1100	<b>Deformation Mechanism &amp; Stress States</b>
1100 – 1230	<b>Texture of Deformed Rocks &amp; Environments of Deformation</b>
1230 – 1245	Break
1245 – 1420	<b>Basin Formation &amp; Geodynamics</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2**

0730 – 0930	<b>Common Structural Elements: Faults, Folds, Fractures Etc</b>
0930 – 0945	Break
0945 – 1100	<b>Compressional, Extensional &amp; Strike Slip Structures: Balancing &amp; Interpretation</b>
1100 – 1230	<b>Growth Structures</b>
1230 – 1245	Break
1245 – 1420	<b>Role of Basement &amp; its Relationship to the Sedimentary Cover</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0930	<b>Roles of Deformation in the Hydrocarbon System</b>
0930 – 0945	Break
0945 – 1100	<b>Structural Features on Seismic: Interpretation Pitfalls, Rules</b>
1100 – 1230	<b>Mapping/Interpretation for Hydrocarbon Traps</b>
1230 – 1245	Break



1245 - 1420	<i>Preparation of Structural Cross Sections from Geological Surface &amp; Subsurface Maps</i>
1420 - 1430	<i>Recap</i>
1430	<i>Lunch &amp; End of Day Three</i>

**Day 4**

0730 - 0930	<i>Problem Solving Structural Cross Sections</i>
0930 - 0945	<i>Break</i>
0945 - 1230	<i>Seismic Interpretation Exercises</i>
1230 - 1245	<i>Break</i>
1245 - 1420	<i>Balancing of Structural Cross Sections &amp; Seismic Interpretation</i>
1420 - 1430	<i>Recap</i>
1430	<i>Lunch &amp; End of Day Four</i>

**Day 5**

0730 - 0930	<i>Identification of Geo-Mechanical/Structural Issues in Selected Examples</i>
0930 - 0945	<i>Break</i>
0945 - 1230	<i>Prospect Scale interpretation Exercises</i>
1230 - 1245	<i>Break</i>
1245 - 1400	<i>Practical: Fractured Reservoirs Interpretation, Fault-Seal Predictions</i>
1400 - 1415	<i>POST-TEST</i>
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Practical Sessions**

This practical and highly-interactive course includes real-life case studies and exercises:-



**Course Coordinator**

Mari Nakintu, Tel: +971 2 30 91 714, Email: [mari1@haward.org](mailto:mari1@haward.org)