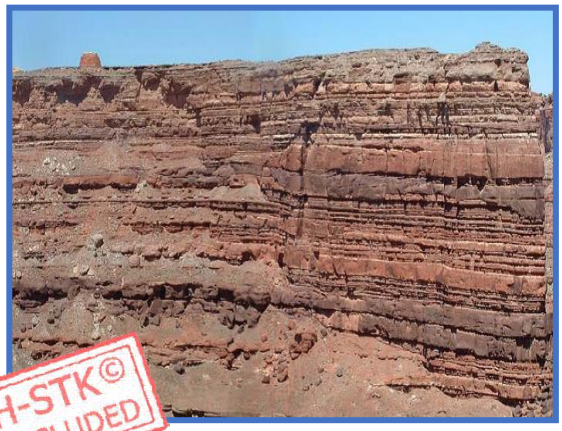
COURSE OVERVIEW DE0022

Sequence Stratigraphy: Principles & Applications

Course Title

Sequence Stratigraphy: Principles & Applications



Course Date/Venue

Session 1: January 05-09, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: July 07-11, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

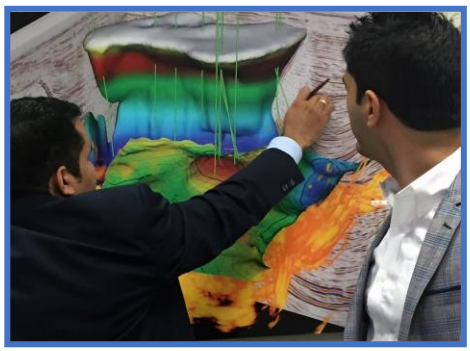
Course Reference

DE0022

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 an up-to-date overview of the principles and applications of sequence stratigraphy. It covers the lithostratigraphy versus sequence stratigraphy, transgression and regression, parasequence or cycle, parasequence development and parasequence profiles; the sedimentary analysis and sequence stratigraphy; establishing a framework of genetically related stratigraphic facies geometrics and their bounding surfaces; the depositional setting; the coastal elements and clastic depositional systems; the power of sequence stratigraphy, sedimentary fill hierarchy, building block and unconformities; the seismic sequence boundaries, cyclic sea level and system tracts as templates; and the geometry predictions.

During this interaction course, participants will learn the outcrop interpretation, core and well log and seismic data, outcrop and vertical seismic resolution, lithostratigraphic modeling and seismic facies analysis; the sequence stratigraphy; the geometric and stacking patterns; the system tracts and relative sea level; the system tracts and sequences; the maximum flooding surfaces (MFS), transgressive surfaces (TS) and sequence boundaries (SB); and the characteristics of sequence boundary (SB) from seismic.

Course Objectives

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

- Apply and gain an in-depth knowledge on the principles and applications of sequence stratigraphy
- Discuss seismic sequence stratigraphy, lithostratigraphy versus sequence stratigraphy, transgression and regression, parasequence or cycle, parasequence development and parasequence profiles, etc
- Carryout sedimentary analysis and sequence stratigraphy, establish a framework of genetically related stratigraphic facies geometrics and their bounding surfaces to determine depositional setting and discuss coastal elements and clastic depositional systems
- Explain the power of sequence stratigraphy, sedimentary fill hierarchy, building block, unconformities, seismic sequence boundaries, cyclic sea level and system tracts as templates and geometry predictions
- Discuss outcrop interpretation, core and well log and seismic data, outcrop and vertical seismic resolution, lithostratigraphic modeling and seismic facies analysis
- Analyze sequence stratigraphy and illustrate geometric and stacking patterns
- Recognize system tracts and relative sea level, system tracts and sequences, maximum flooding surfaces (MFS), transgressive surfaces (TS), sequence boundaries (SB) and the characteristics of sequence boundary (SB) from seismic
- Describe the boundary surfaces covering lithofacies and lithofacies codes, facies assemblage, clastic sequence stratigraphic hierarchies and seismic facies mapping exercise
- Identify sedimentary facies as well as surfaces, system tract, conceptual models, subaerial unconformity, correlative conformity, regressive surface, maximum regressive surface, maximum flooding surface and transgressive ravinement surfaces
- Discuss the seismic sequence stratigraphy including seismic reflection basics, interpretation difficulties and time sections versus depth sections
- Review unmigrated versus migrated profiles, lateral arrivals, multiples, diffractions, reflected refractions
- Identify static corrections, geological models and seismic responses (monoclines, faults, shale domes, reefs) as well as illustrate seismic stratigraphy, seismic sequence analysis and seismic facies analysis
- List the examples of seismic facies features and identify the termination types, reflection configurations and seismic facies types
- Illustrate eustatic cycle model covering the sea levels and deposition, deposition and the eustatic cycle and reservoir-scale seismic stratigraphy

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 the principles and applications of sequence stratigraphy for geoscientists and reservoir engineers especially those who are working on carbonate reservoirs.

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: -

- 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:

Mr. Ron Guney, MSc, BSc, is a **Senior Geophysicist** with over **30 years** of **Offshore & Onshore** experience within the **Oil**, **Gas**, **Refinery** and **Petrochemical** industries. His expertise widely covers **Geophysics**, **Geophysical** Technology, **Borehole Geophysics**, **Seismology**, **Wave** Propagation & Velocities, **Seismic Acquisition** Techniques, **Seismic Data** Processing, **Vertical Seismic Profiling** (**VSP**), **Seismic Data** Interpretation, **Geomodelling**, Prospect Generation-Delineation & **Reservoir** Modelling, **Static** Modelling, Prospect Generation through **Seismic Structural & Stratigraphic** Interpretation, **Play Assessment & Prospect Evaluation**, **Prospect-Play Risk** Assessment & Ranking, **Resource & Reserve Estimations**, **Post Stack Seismic Attribute** Analysis, **Post Stack Seismic** Inversion, Traveltime Inversion, **Crossborehole Seismic Tomography**, **Seismic Sequence Stratigraphy**, Program Coding (**VSP & Cross-borehole** Travel Time Inversion ART and SIRT), **Post Drill Well Assessment**, **Field** Development, **Seismostratigraphy**, **Seismotectonics & Geodynamics** & Modelling, Cartographic Information Systems (**CIS**), Geographic Information Systems (**GIS**), **Geodesy & Topography**, **Geodesy**, **Map Projections** & Coordinate Systems, Geological Maps (**GM**), **Topographic & Geologic Maps**, Cartography Assisted by Computer (**CAC**), Global Positional System (**GPS**), **Petroleum Geology**, **Advanced Petrophysics**, **Petroleum Exploration**, **Petroleum Economics**, **Drilling**, **Core-to-Log Data Integration** (**SCAL**), **Basin Modelling** & **Total Petroleum System** (**TPS**), **Well Logging**, **Formation Evaluation**, **Well Testing & Data** Interpretation, **Pore Pressure Prediction** and **Oil & Gas Reserves** Estimations. He is also an expert in **2D & 3D Seismic Interpretation Oil Risk** Analysis, **Landmark**, **Zmap+ Mapping** Package, **Petrel** Schlumberger, **Promax** Processing System and 3D Seismic Data Acquisition. Currently, he is the **Senior Geophysicist Consultant** of Eastern Offshore Black Sea E&P Projects.

During his long career, Mr. Guney has gained his practical and field experience through his various significant positions and dedication as the **Senior Geophysicist Consultant**, **Senior Geophysicist**, **Senior Project Geophysicist**, **Teaching Assistant**, **Lecturer**, **Instructor/Trainer** from numerous international companies such as the Eastprime Service Co., Emirates National Oil Company (ENOC) - Dragon Oil, OMV Petrol and Turkish Petroleum Corp, just to name a few.

Mr. Guney has a **Master's** degree in **Geology** from the **University of New Orleans**, **USA** and a **Bachelor's** degree in **Geophysics** from the Istanbul Technical University. Further, he is a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) and has **published books** and **scientific papers** such as Iterative Wavefront Reconstruction Technique (**IWR**), **Mathematical Geophysics**, **Model Optimisation in Exploration Geophysics**, **Importance of Seismic Interpretation Systems** and delivered various trainings, seminars, workshops, courses and conferences worldwide.

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	***Introduction to Sequence Stratigraphy***
0930 – 0945	*Break*
0945 – 1100	***What is Sequence Stratigraphy, Seismic Sequence Stratigraphy?*** *Definition, Terminology • Lithostratigraphy vs Sequence Stratigraphy • Transgression & Regression • Parasequence or Cycle*
1100 – 1230	***What is Sequence Stratigraphy, Seismic Sequence Stratigraphy? (cont'd)*** *Parasequence Development • Parasequence Profiles • Concept of Shoreline Trajectory*
1230 – 1245	*Break*
1230 – 1420	***What is Sequence Stratigraphy, Seismic Sequence Stratigraphy? (cont'd)*** *Stratal Terminations • Sequence Boundaries • Maximum Flooding Surface (MFS) • Sequences • Clastic Tracts • Clastic Simulation • Sequence Models*
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Sedimentary Analysis & Sequence Stratigraphy*** *Sequence Stratigraphy – The Process, 'Depositional' Sequence • Establish a Framework of Genetically Related Stratigraphic Facies Geometrics & Their Boundaries Surfaces to Determine Depositional Setting*
0930 – 0945	*Break*
0945 – 1100	***Sedimentary Analysis & Sequence Stratigraphy (cont'd)*** *Coastal Elements, Clastic Depositional Systems*
1100 – 1230	*Break*
1230 – 1245	***Sedimentary Analysis*** *Power of Sequence Stratigraphy, Sedimentary Fill Hierarchy, Building Block • Unconformities, Seismic Sequence Boundaries, Cyclic Sea Level • System Tracts as Templates & Geometry Predictions*
1245 – 1420	***History of Sequence Stratigraphy*** *Outcrop Interpretation, Core & Well Log, Seismic Data • Outcrop & Vertical Seismic Resolution, Lithostratigraphic Modeling • Seismic Facies Analysis*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Sequence Stratigraphy Analysis Defined***
0930 – 0945	*Break*
0945 – 1100	***Sequence Stratigraphy Analysis***
1100 – 1230	*Break*
1230 – 1245	***Geometric & Stacking Patterns*** *System Tracts & Relative Sea Level*

1245 – 1420	***Geometric & Stacking Patterns (cont'd)*** *Stacking, Surfaces & System Tracts-Low Stand, Transgression, High Stand*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

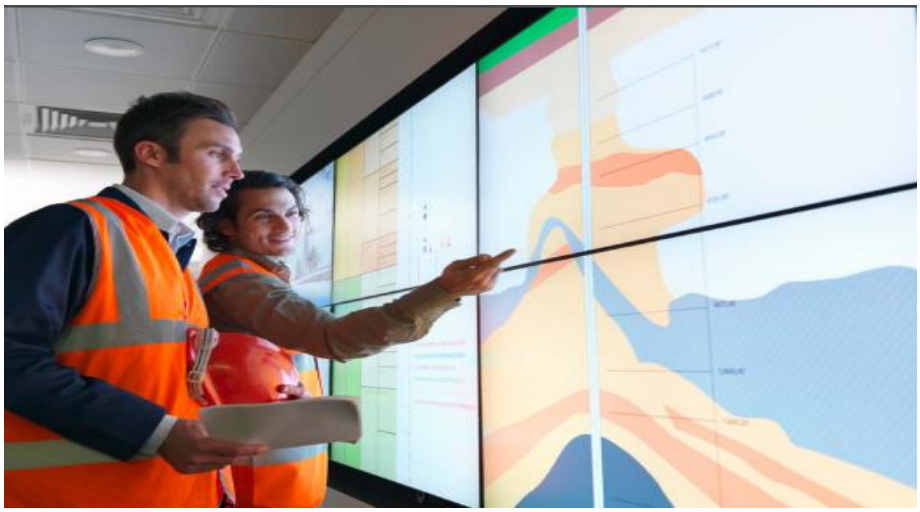
0730 – 0930	***System Tracts & Relative Sea Level*** *Surfaces, System Tracts & Sequences • Maximum Flooding Surfaces (MFS) • Transgressive Surfaces (TS)*
0930 – 0945	*Break*
0945 – 1100	***System Tracts & Relative Sea Level (cont'd)*** *Sequence Boundaries (SB) • Characteristics of Sequence Boundary (SB) From Seismic*
1100 – 1230	***Boundary Surfaces*** *Lithofacies & Lithofacies Codes • Facies Assemblage • Clastic Sequence Stratigraphic Hierarchies • Seismic Facies Mapping Exercise*
1230 – 1245	*Break*
1245 – 1420	***Sedimentary Facies*** *Surfaces, System Tract, Conceptual Models, Subaerial Unconformity, Correlative Conformity, Regressive Surface, Maximum Regressive Surface, Maximum Flooding Surface, Transgressive Ravinement Surfaces*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Introduction to Seismic Sequence Stratigraphy*** *Seismic Reflection Basics, Interpretation Difficulties, Time Sections Versus Depth Sections • Unmigrated Versus Migrated Profiles, Lateral Arrivals, Multiples, Diffractions, Reflected Refractions • Static Corrections, Geological Models & Seismic Responses (Monoclines, Faults, Shale Domes, Reefs) • Seismic Stratigraphy • Seismic Sequence Analysis • Seismic Facies Analysis*
0930 – 0945	***Examples of Seismic Facies Features*** *Termination Types • Reflection Configurations • Seismic Facies Types*
0945 – 1100	***Eustatic Cycle Model*** *Sea Levels & Deposition • Deposition & the Eustatic Cycle*
1100 – 1230	*Break*
1230 – 1345	***Reservoir-Scale Seismic Stratigraphy***
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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