

COURSE OVERVIEW DE0637
Sedimentology & Sequence Stratigraphy
(E-Learning Module)

Course Title

Sedimentology & Sequence Stratigraphy
 (E-Learning Module)

Course Reference

DE0637

Course Format & Compatibility

SCORM 1.2. Compatible with IE11, MS-Edge, Google Chrome, Windows, Linux, Unix, Android, IOS, iPadOS, macOS, iPhone, iPad & HarmonyOS (Huawei)

Course Duration

30 online contact hours
 (3.0 CEUs/30 PDHs)



Course Description



Sequence Stratigraphy analyzes the sedimentary response to changes in base level and the depositional trends that emerge from the interplay of accommodation and sedimentation. Sequence Stratigraphy has tremendous potential to decipher the Earth's geological record of local to global changes and to improve the predictive aspect of economic exploration and production. For these reasons, sequence stratigraphy is currently one of the most active areas of research in both academic and industrial environments.

This E-Learning is designed to provide participants with a detailed and up-to-date overview of sedimentology and sequence stratigraphy. It covers the sequence stratigraphy and methods of sequence stratigraphic analysis; the well logs, seismic data, age determination techniques and workflow of sequence stratigraphic analysis; the accommodation & shoreline shifts, allogenic controls on sedimentation, sediment supply & energy flux, sediment accommodation, shoreline trajectories and stratigraphic surfaces; and the various types of stratal terminations, sequence stratigraphic surfaces, within-trend facies contacts and systems tracts.

During this course, participants will learn the sequence stratigraphic surfaces, within-trend facies contacts, systems tracts, highstand systems tract, falling-stage system tract, lowstand systems tract, transgressive systems tract, regressive systems tract and low and high accommodation systems tracts; the sequence models, types of stratigraphic sequences, sequences in fluvial systems, sequences in coastal to shallow-water clastic systems, sequence in deep-water clastic systems and sequences in carbonate systems; the time attributes of stratigraphic surfaces, reference curve for the definition of stratigraphic surfaces, shoreline shifts, grading & bathymetry and methods of definition of stratigraphic surface; and the hierarchy of sequence boundaries, fundamental principles and precambrian vs. phanerozoic sequence stratigraphy.

Course Objectives

After completing the course, the employee will:-

- Apply and gain an in-depth knowledge on sedimentology and sequence stratigraphy
- To present concepts and methods of sedimentology and sequence stratigraphy analysis
- Log analysis and identification of sequence boundaries, MFS and System tracts; integration with seismic
- Analyse seismic sequences, identify sequence boundaries and system tracts
- Predict reservoir distribution and geometry
- Identify main depositional environments
- Discuss sequence stratigraphy and apply methods of sequence stratigraphic analysis
- Describe well logs and carryout seismic data, age determination techniques and workflow of sequence stratigraphic analysis
- Determine accommodation & shoreline shifts, allogenic controls on sedimentation, sediment supply & energy flux, sediment accommodation, shoreline trajectories and stratigraphic surfaces
- Recognize the various types of stratal terminations, sequence stratigraphic surfaces, within-trend facies contacts, systems tracts, highstand systems tract, falling-stage system tract, lowstand systems tract, transgressive systems tract, regressive systems tract and low and high accommodation systems tracts
- Identify sequence models, types of stratigraphic sequences, sequences in fluvial systems, sequences in coastal to shallow-water clastic systems, sequence in deep-water clastic systems and sequences in carbonate systems
- Discuss time attributes of stratigraphic surfaces, reference curve for the definition of stratigraphic surfaces, shoreline shifts, grading & bathymetry and methods of definition of stratigraphic surfaces
- Explain hierarchy of sequence boundaries, fundamental principles and precambrian vs. phanerozoic sequence stratigraphy

Who Should Attend


This course provides an overview of all significant aspects and considerations of sedimentology and sequence stratigraphy for reservoir engineers, managers, oil geologists who want. This course is geared toward geologists and managers who wish to understand the kinds of sedimentologic processes, and their control. A good knowledge of the processes generating sediments and rocks is a necessary step toward reconstitution of depositional environment, if intended. No significant experience is needed to attend the course.

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: -


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USA International Association for Continuing Education and Training (IACET)

Haward Technology is an Authorized Training Provider by the International Association 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 1-2013 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 1-2013 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 Association 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.

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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.

Training Methodology

This Trainee-centered course includes the following training methodologies:-

- Talking presentation Slides (ppt with audio)
- Simulation & Animation
- Exercises
- Videos
- Case Studies
- Gamification (learning through games)
- Quizzes, Pre-test & Post-test

Every section/module of the course ends up with a Quiz which must be passed by the trainee in order to move to the next section/module. A Post-test at the end of the course must be passed in order to get the online accredited certificate.

Course Fee

As per proposal

Course Contents

- Introduction
- Sequence Stratigraphy – An Overview
- Historical development of Sequence Stratigraphy
- Sequence Stratigraphic Approach
- Methods of Sequence Stratigraphic Analysis
- Facies Analysis: Outcrops, Core & Modern Analogues
- Well Logs
- Seismic Data
- Age Determination Techniques
- Workflow of Sequence Stratigraphic Analysis
- Accommodation & Shoreline Shifts
- Allogenic Controls on Sedimentation
- Sediment Supply & Energy Flux
- Sediment Accommodation
- Shoreline Trajectories
- Stratigraphic Surfaces
- Types of Stratal Terminations

- Sequence Stratigraphic Surfaces
- Within-trend Facies Contacts
- Systems Tracts
- Highstand Systems Tract
- Falling-stage System Tract
- Lowstand Systems Tract
- Transgressive Systems Tract
- Regressive Systems Tract
- Low and High Accommodation Systems Tracts
- Sequence Models
- Types of Stratigraphic Sequences
- Sequences in Fluvial Systems
- Sequences in Coastal to Shallow-water Clastic Systems
- Sequence in Deep-water Clastic Systems
- Sequences in Carbonate Systems
- Time Attributes of Stratigraphic Surfaces
- Reference Curve for the Definition of Stratigraphic Surfaces
- Shoreline Shifts, Grading & Bathymetry
- Methods of Definition of Stratigraphic Surfaces
- Summary: Time Attributes of Stratigraphic Surfaces
- Hierarchy of Sequence Boundaries
- Hierarchy System Based on Cycle Duration (Boundary Frequency)
- Hierarchy System Based on the Magnitude of Base Level Changes
- Discussion & Conclusions
- Fundamental Principles
- Precambrian vs. Phanerozoic Sequence Stratigraphy
- Moving Forward Toward Standardizing Sequence Stratigraphy