COURSE OVERVIEW DE0629
Geological Modeling Workshop for Integrated Reservoir Studies (E-Learning Module)

Course Title
Geological Modeling Workshop for Integrated Reservoir Studies
(E-Learning Module)

Course Reference
DE0629

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

This E-Learning is designed to provide participants with a detailed and up-to-date overview of geological modeling workshop for integrated reservoir studies. It covers the reservoir modelling challenges, exploration to production uncertainty, content and structure; the reservoir model, modelling workflow and integrated team structure for modelling; the geostatistics, data sources and scales and structural and stratigraphic modelling; the facies modelling, property modelling, model analysis and uncertainty and upscaling; the data collection and management; and the seismic data, well data, dynamic data, important specialist data and conceptual models.

During this interactive course, participants will learn the structural model, seismic interpretation, fault and horizon modelling and quality control; the structural uncertainty, stratigraphic model, well-to-well correlation, geocellular model and geological grid design; layering, grid building workflow, quality control, facies model, flow zones and uncertainty; the property model, rock and fluid properties, property modelling methods, rock typing and carbonate reservoir evaluation; the uncertainty, volumetrics, work flow specification, volumetric model work flow, resource and reserves estimation; and the uncertainty modelling, simulation, upscaling, grid design, upscaling property models and work flow specification.

Course Objectives

After completing the course, the employee will:-

- Apply and gain an in-depth knowledge on geological modeling workshop for integrated reservoir studies
- To be able to translate results of reservoir characterization phase as a model
- To use a geomodeling software as a tool to model the concept using data themselves
- To cross-check modeling results
- Recognize reservoir modelling challenges, exploration to production uncertainty, content and structure
- Illustrate reservoir model, the modelling workflow and an integrated team structure for modelling
- Discuss the geostatistics, data sources and scales and structural and stratigraphic modelling
- Apply facies modelling, property modelling, model analysis and uncertainty and upscaling
- Carryout data collection and management and review seismic data, well data, dynamic data, important specialist data and conceptual models
- Illustrate structural model, seismic interpretation, fault modelling, horizon modelling and quality control
- Recognize structural uncertainty, stratigraphic model, well-to-well correlation, geocellular model and geological grid design
- Describe layering, grid building workflow, quality control, facies model, flow zones and uncertainty
- Apply property model, rock and fluid properties, property modelling methods, rock typing and carbonate reservoir evaluation
- Recognize uncertainty, volumetrics, work flow specification, volumetric model work flow, resource and reserves estimation
- Illustrate uncertainty modelling, simulation and upscaling, simulation grid design, upscaling property models and work flow specification
- Describe uncertainty modelling, basic descriptive statistics, conditional distributions, spatial continuity, transforms, lag definition and variogram interpretation

Who Should Attend

This course provides an overview of all significant aspects and considerations of geological modelling for integrated reservoir studies for engineering, geophysical and technical personnel who are in need of basic geological training including support and administrative personnel. The course is also beneficial for well-site geologists, drilling and operation engineers and other staff involved in the acquisition and use of well-site (geological) data.

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: -

- 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.

- 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
- Reservoir Modelling Challenges
- Exploration to Production Uncertainty
- Content and Structure
- What is a Reservoir Model?
- The Modelling Workflow
- An Integrated Team Structure for Modelling
- Geostatistics
- Data Sources and Scales
- Structural and Stratigraphic Modelling
- Facies Modelling
- Property Modelling
- Model Analysis and Uncertainty
- Upscaling
- Summary
- Data Collection and Management
- Seismic Data
- Well Data
- Dynamic Data
- Important Specialist Data
- Conceptual Models
- Summary

- Structural Model
- Seismic Interpretation
- Fault Modelling
- Horizon Modelling
- Quality Control
- Structural Uncertainty
- Summary
- Stratigraphic Model
- How Many Zones?
- Multi-Zone Grid or Single-Zone Grids?
- Well-to-Well Correlation
- Geocellular Model
- Geological Grid Design
- Layering
- Grid Building Workflow
- Quality Control
- Uncertainty
- Summary
- Facies Model
- Facies Modelling Basics
- Facies Modelling Methods
- Facies Modelling Workflows
- Flow Zones
- Uncertainty
- Summary
- Property Model
- Rock and Fluid Properties
- Property Modelling
- Property Modelling Methods
- Rock Typing
- Carbonate Reservoir Evaluation
- Uncertainty
- Summary
- Volumetrics and Uncertainty
- Work Flow Specification
- Volumetric Model Work Flow
- Resource and Reserves Estimation
- Uncertainty Modelling
- Summary
- Simulation and Upscaling
- Simulation Grid Design

- Upscaling Property Models
- Work Flow Specification
- Summary
- Case Studies and Examples
- Aeolian Environments (Figure 9.1)
- Alluvial Environments (Figure 9.3)
- Deltaic Environments (Figure 9.4)
- Shallow Marine Environment (Figure 9.6)
- Deepwater Environments (Figure 9.8)
- Carbonate Reservoirs (Figure 9.10)
- Fractured Reservoirs (Figure 9.12)
- Uncertainty Modelling
- Summary
- Afterword
- References
- Appendix A: Introduction to Reservoir Geostatistics
- Basic Descriptive Statistics
- Conditional Distributions
- Spatial Continuity
- Transforms
- Lag Definition
- Variogram Interpretation
- Kriging
- Simulation
- A.9 Object Modelling
- A.10 Summary