



## COURSE OVERVIEW DE0049 4D Reservoir Geomechanics

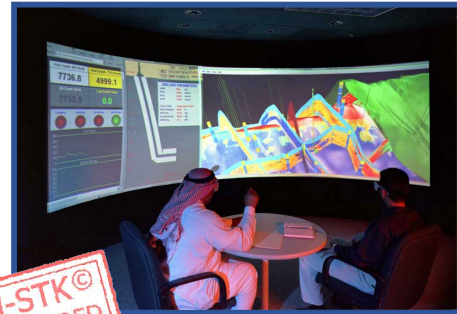
### Course Title

4D Reservoir Geomechanics

### Course Date/Venue

Session 1: May 19-23, 2025/Fujairah Meeting Room,  
Grand Millennium Al Wahda Hotel, Abu  
Dhabi, UAE

Session 2: November 09-13, 2025/Boardroom 1, Elite  
Byblos Hotel Al Barsha, Sheikh Zayed  
Road, Dubai, UAE



### Course Reference

DE0049



### Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

### Course Description



***This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.***



This course is designed to provide participants with a detailed and up-to-date overview of 4D Reservoir Geomechanics. It covers the basic concepts in reservoir geomechanics and geomechanical modeling; the importance of 4D monitoring in reservoir management; the geomechanical data acquisition, processing, types and sources; the techniques for acquiring and processing geomechanical data and integrating with other subsurface data; the reservoir stress and strain analysis; calculating and interpreting reservoir and strain; the impact of stress and strain on reservoir performance; the failure analysis and applications of rock mechanics; the techniques for modeling rock mechanical properties; and evaluating the likelihood of rock failure and its impact on reservoir performance.



During this interactive course, participants will learn the geomechanical modeling techniques; building and calibrating geomechanical models using commercial software; integrating geomechanical models with other subsurface models; the 4D geomechanical monitoring and techniques for monitoring and simulating geomechanical changes over time; evaluating the impact of geomechanical changes on reservoir performance; calculating and interpreting compaction and subsidence and evaluating its impact on reservoir performance; the reservoir stability analysis application and reservoir management; the techniques for assessing reservoir stability and preventing instability; and integrating geomechanical data and models into reservoir management strategies.



### Course Objectives

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

- Apply and gain an in-depth knowledge on 4D reservoir geomechanics
- Discuss the basic concepts in reservoir geomechanics and geomechanical modeling
- Explain the importance of 4D monitoring in reservoir management
- Identify geomechanical data acquisition, processing, types and sources
- Apply techniques for acquiring and processing geomechanical data and integrate with other subsurface data
- Carryout reservoir stress and strain analysis as well as calculate and interpret reservoir and strain
- Evaluate the impact of stress and strain on reservoir performance
- Recognize failure analysis and applications of rock mechanics and the techniques for modeling rock mechanical properties
- Evaluate the likelihood of rock failure and its impact on reservoir performance
- Illustrate geomechanical modeling techniques, build and calibrate geomechanical models using commercial software and integrate geomechanical models with other subsurface models
- Apply 4D geomechanical monitoring and techniques for monitoring and simulating geomechanical changes over time
- Evaluate the impact of geomechanical changes on reservoir performance
- Calculate and interpret compaction and subsidence and evaluate its impact on reservoir performance
- Carryout reservoir stability analysis application and reservoir management as well as the techniques for assessing reservoir stability and preventing instability
- Integrate geomechanical data and models into reservoir management strategies

### 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 4D reservoir geomechanics for geologists, geophysicists, reservoir engineers, production engineers, petrophysicists, drilling engineers, completion engineers and geomechanics engineers.

**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® (Howard 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: -

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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.

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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. Stan Constantino, MSc, BSc, is a Senior Petroleum & Reservoir Engineer with over 35 years of Offshore & Onshore extensive experience within the Oil, Gas & Petroleum industries. His area of expertise include Reserves & Resources, Reserves Estimation & Uncertainty, Reservoir Characterization, Unconventional Resource & Reserves Evaluation, Oil & Gas Reserves Estimation, Methods for Aggregation of Reserves & Resources, Fractured Reservoir Classification & Evaluation, Sequence Stratigraphy, Petrophysics & Rock Properties, Seismic Technology, Geological Modelling, Water Saturation, Crude Oil & Natural Gas Demand, Exploration Agreements & Financial Modelling, Seismic Survey Evaluation, Exploration Well Identification, Field Production Operation, Field Development Evaluation, Crude Oil Marketing, Core & Log Data Integration, Core Logging, Advanced Core & Log Integration, Well Logs & Core Analysis, Advanced Petrophysics/Interpretation of Cased Hole Logs, Cased Hole Formation Evaluation, Cased Hole Formation Evaluation, Cased Hole Evaluation, Cased-Hole Logging, Applied Production Logging & Cased Hole & Production Log Evaluation, Cased Hole Logging & Formation Evaluation, Open & Cased Hole Logging, Screening of Oil Reservoirs for Enhanced Oil Recovery, Enhanced Oil Recovery, Enhanced Oil Recovery Techniques, Petroleum Economic Analysis, Oil Industry Orientation, Oil Production & Refining, Crude Oil Market, Global Oil Supply & Demand, Global Oil Reserves, Crude Oil Types & Specifications, Oil Processing, Oil Transportation-Methods, Oil & Gas Exploration and Methods, Oil & Gas Extraction, Technology Usage in Industrial Security; Upstream, Midstream & Downstream Operations; Oil Reservoir Evaluation & Estimation, Oil Supply & Demand, Oil Contracts, Government Legislation & Oil Contractual Agreements, Oil Projects & Their Feasibility (revenue and profitability), Water Flooding, Reservoir Souring & Water Breakthrough, Reservoir Performance Using Classical Methods, Fractured Reservoir Evaluation & Management, Reservoir Surveillance & Management, Reservoir Engineering & Simulation, Reservoir Monitoring, Pressure Transient Testing & Reservoir Performance Evaluation, Reservoir Characterization, Reservoir Engineering Applications with ESP and Heavy Oil, Reservoir Volumetrics, Water Drive Reservoir, Reserve Evaluation, Rock & Fluid Properties, Fluid Flow Mechanics, PVT Analysis, Material Balance, Darcy's Law & Applications, Radial Flow, Gas Well Testing, Natural Water Influx, EOR Methods, Directional Drilling, Drilling Production & Operations, Field Development & Production of Oil & Gas, Wireline Logging, Mud Logging, Cased Hole Logging, Production Logging, Slick Line, Coil Tubing, Exploration Wells Evaluation, Horizontal Wells, Well Surveillance, Well Testing, Design & Analysis, Well Testing & Oil Well Performance, Well Log Interpretation (WLI), Formation Evaluation, Well Workover Supervision, Pressure Transient Analysis and Petrophysical Log Analysis. Currently, he is the CEO & Managing Director of Geo Resources Technology wherein he is responsible in managing the services and providing technical supports to underground energy related projects concerning field development, production, drilling, reservoir engineering and simulation.**

Throughout his long career life, Mr. Stan has worked for many international companies such as the **Kavala Oil, North Aegean Petroleum Company and Texaco Inc.**, as the **Managing Director, Operations Manager, Technical Trainer, Training Consultant, Petroleum Engineering & Exploration Department Head, Assistant Chief Petroleum Engineer, Reservoir Engineer, Resident Petroleum Engineer, Senior Petroleum Engineer and Petroleum Engineer** wherein he has been managing the evaluation of exploration wells, reservoir simulation, development training, production monitoring, wireline logging and well testing including selection and field application of well completion methods.

Mr. Stan has a **Master's degree in Petroleum Engineering** and a **Bachelor's degree in Geology** from the **New Mexico Institute of Mining & Technology (USA)** and from the **Aristotelian University (Greece)** respectively. Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership of Management (ILM)** and a member of the **Society of Petroleum Engineers, USA (SPE), Society of Well Log Professional Analysts, USA (SPWLA)** and **European Association of Petroleum Geoscientists & Engineers (EAGE)**. Moreover, Mr. Stan published numerous scientific and technical papers and delivered various trainings, courses and workshops 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	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0900	<i>Introduction to Reservoir Geomechanics</i>
0900 – 0930	<i>Oil &amp; Gas Industry &amp; Its Applications</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Basic Concepts in Reservoir Geomechanics &amp; Geomechanical Modeling</b>
1100 – 1215	<i>The Importance of 4D Monitoring in Reservoir Management</i>
1215 – 1230	<i>Break</i>
1230 – 1420	<b>Geomechanical Data Acquisition, Processing, Types &amp; Sources</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0830	<b>Techniques for Acquiring &amp; Processing Geomechanical Data</b>
0830 – 0900	<b>Integrating Geomechanical Data with Other Subsurface Data</b>
0900 – 0930	<b>Reservoir Stress &amp; Strain Analysis</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Techniques for Calculating &amp; Interpreting Reservoir Stress &amp; Strain</b>
1100 – 1215	<b>Evaluating the Impact of Stress &amp; Strain on Reservoir Performance</b>
1215 – 1230	<i>Break</i>
1230 – 1420	<b>Rock Mechanics, Failure Analysis &amp; Its Applications</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>

#### **Day 3**

0730 – 0830	<b>Techniques for Modeling Rock Mechanical Properties</b>
0830 – 0900	<b>Evaluating the Likelihood of Rock Failure &amp; its Impact on Reservoir Performance</b>
0900 – 0930	<b>Geomechanical Modeling Techniques</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Building &amp; Calibrating Geomechanical Models using Commercial Software</b>
1100 – 1215	<b>Integrating Geomechanical Models with other Subsurface Models</b>
1215 – 1230	<i>Break</i>
1230 – 1420	<b>4D Geomechanical Monitoring, Simulation &amp; Its Applications</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Three</i>



**Day 4**

0730 – 0830	<i>Techniques for Monitoring &amp; Simulating Geomechanical Changes Over Time</i>
0830 – 0930	<i>Evaluating the Impact of Geomechanical Changes on Reservoir Performance</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Reservoir Compaction &amp; Subsidence Analysis</i>
1100 – 1215	<i>Techniques for Calculating &amp; Interpreting Compaction &amp; Subsidence</i>
1215 – 1230	<i>Break</i>
1230 – 1420	<i>Evaluating the Impact of Compaction &amp; Subsidence on Reservoir Performance</i>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Four</i>

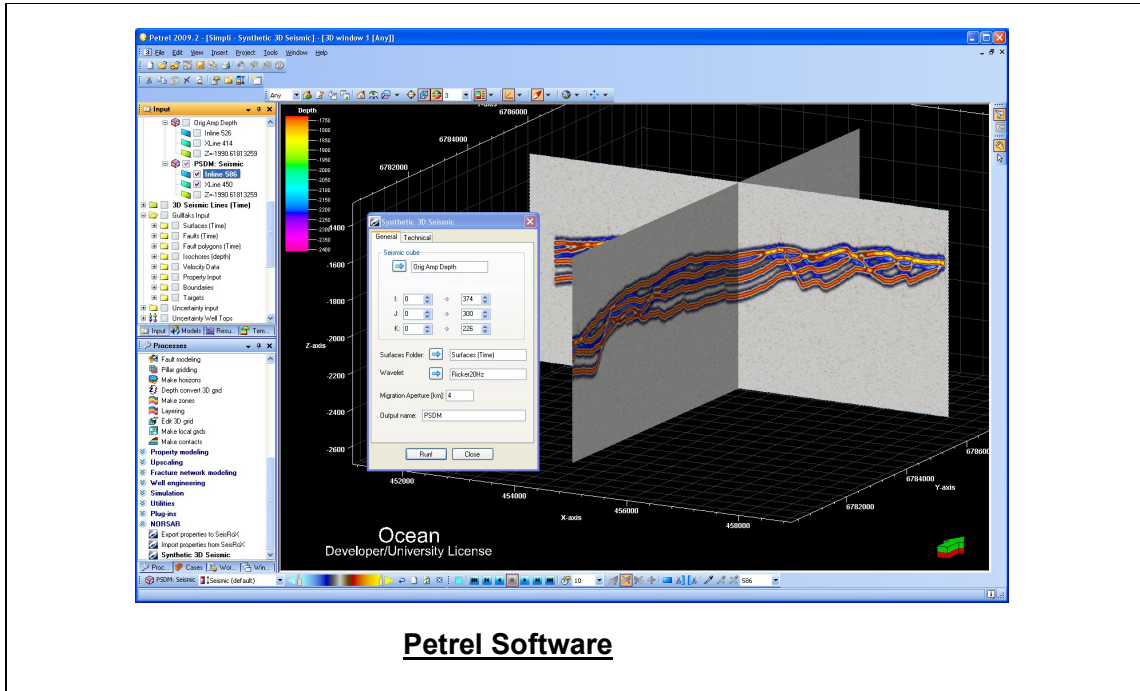
**Day 5**

0730 – 0830	<i>Reservoir Stability Analysis Applications &amp; Reservoir Management</i>
0830 – 0900	<i>Techniques for Assessing Reservoir Stability &amp; Preventing Instability</i>
0900 – 0930	<i>Integrating Geomechanical Data &amp; Models into Reservoir Management Strategies</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Integrating Geomechanical Data &amp; Models into Reservoir Management Strategies (cont'd)</i>
1100 – 1215	<b>Case Studies &amp; Group Project</b> <i>Analyzing Real-World 4D Geomechanical Case Studies • Group Project on 4D Geomechanical Modeling &amp; Simulation • Presentation &amp; Discussion of Group Project Results</i>
1215 – 1230	<i>Break</i>
1230 – 1345	<b>Case Studies &amp; Group Project</b> <i>Analyzing Real-World 4D Geomechanical Case Studies • Group Project on 4D Geomechanical Modeling &amp; Simulation • Presentation &amp; Discussion of Group Project Results (cont'd)</i>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>



### Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the “Petrel” software.



### Course Coordinator

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