

COURSE OVERVIEW DE0052
QA/QC of a Reservoir Simulation Model

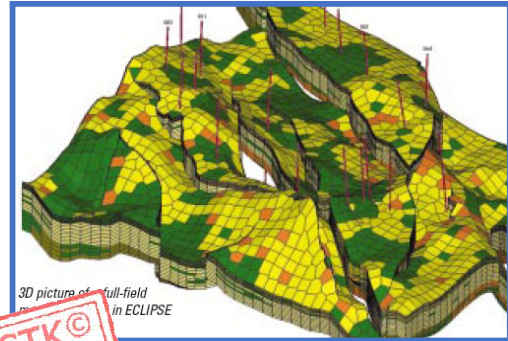
Course Title

QA/QC of a Reservoir Simulation Model

Course Date/Venue

Session 1: February 02-06, 2025/Boardroom 1,
 Elite Byblos Hotel Al Barsha, Sheikh
 Zayed Road, Dubai, UAE

Session 2: August 04-08, 2025/Fujairah Meeting
 Room, Grand Millennium Al Wahda
 Hotel, Abu Dhabi, UAE



Course Reference

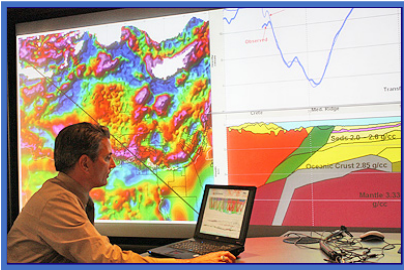
DE0052



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 ECLIPSE Black Oil Reservoir Simulation. It covers the reservoir flow dynamics and fluid behavior; the different types of reservoir simulation including black oil and compositional simulation; the features and capabilities of ECLIPSE simulator; the ECLIPSE simulator user interface and workflows; and the techniques for generating grids and defining rock properties in the ECLIPSE simulator.



During this interactive course, participants will learn the impact of grid generation and rock property modeling; the fluid property modeling and its techniques for defining fluid properties; the impact of well modeling on reservoir simulation results; the techniques for executing and analyzing simulation runs in the ECLIPSE simulator; the advanced reservoir simulation techniques; the techniques for simulating complex reservoirs; and the impact of advanced reservoir simulation techniques on reservoir management and production optimization.

Course Objectives

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

- Apply and gain an in-depth knowledge on ECLIPSE black oil reservoir simulation
- Discuss reservoir simulation and its role in exploration and production as well as the basic concepts in reservoir simulation, reservoir flow dynamics and fluid behavior
- Identify the different types of reservoir simulation including black oil and compositional simulation
- Explain the features and capabilities of ECLIPSE simulator including grid generation, fluid and rock property modeling and well modeling
- Describe ECLIPSE simulator user interface and workflows
- Carryout techniques for generating grids and defining rock properties in the ECLIPSE simulator including permeability modeling, porosity modeling and saturation modeling
- Recognize the impact of grid generation and rock property modeling on reservoir simulation results
- Illustrate fluid property modeling and its techniques for defining fluid properties in the ECLIPSE simulator including PVT analysis, oil-water-gas relative permeability and scaling
- Discuss the impact of fluid property modeling on reservoir simulation results
- Illustrate well modeling and the techniques for defining well operations and performance in the ECLIPSE simulator including well placement, well control and well production and injection rates
- Describe the impact of well modeling on reservoir simulation results
- Apply simulation runs and results analysis and the techniques for executing and analyzing simulation runs in the ECLIPSE simulator including well performance, pressure analysis and saturation analysis
- Discuss the impact of simulator runs and result analysis on reservoir management and production optimization
- Employ advanced reservoir simulation techniques and the techniques for simulating complex reservoirs including thermal and enhanced oil recovery (EOR) simulation, compositional simulation and unconventional reservoir simulation
- Explain the impact of advanced reservoir simulation techniques on reservoir management and production optimization

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard 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 reservoir-simulation by ECLIPSE software for experienced reservoir engineers. Participants should have a basic knowledge of reservoir simulation.

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.

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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.

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 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 & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	<i>Introduction to Reservoir Simulation</i>
0930 – 1045	<i>Reservoir Simulation & its Role in Exploration & Production</i>
1045 – 1100	<i>Break</i>
1100 – 1200	<i>Basic Concepts in Reservoir Simulation, including Reservoir Flow Dynamics & Fluid Behavior</i>
1200 – 1300	<i>Different Types of Reservoir Simulation, including Black Oil & Compositional Simulation</i>
1300 – 1315	<i>Break</i>
1315 – 1420	<i>ECLIPSE Simulator Overview</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2:

0730 – 0845	<i>Features & Capabilities of the ECLIPSE Simulator, including Grid Generation, Fluid & Rock Property Modeling & Well Modeling</i>
0845 – 1000	<i>ECLIPSE Simulator User Interface & Workflows</i>
1000 – 1015	<i>Break</i>
1015 – 1130	<i>Grid Generation & Rock Property Modeling</i>
1130 – 1245	<i>Techniques for Generating Grids & Defining Rock Properties in the ECLIPSE Simulator, including Permeability Modeling, Porosity Modeling & Saturation Modeling</i>



1245 - 1300	Break
1300 - 1420	The Impact of Grid Generation & Rock Property Modeling on Reservoir Simulation Results
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3:

0730 - 0845	Fluid Property Modeling
0845 - 1000	Techniques for Defining Fluid Properties in the ECLIPSE Simulator, including PVT Analysis, Oil-Water-Gas Relative Permeability & Scaling
1000 - 1015	Break
1015 - 1130	The Impact of Fluid Property Modeling on Reservoir Simulation Results
1130 - 1245	Well Modeling
1245 - 1300	Break
1300 - 1420	Techniques for Defining Well Operations & Performance in the ECLIPSE Simulator, including Well Placement, Well Control & Well Production & Injection Rates
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4:

0730 - 0845	The Impact of Well Modeling on Reservoir Simulation Results
0845 - 1000	Simulation Runs & Results Analysis
1000 - 1015	Break
1015 - 1130	Techniques for Executing & Analyzing Simulation Runs in The ECLIPSE Simulator, including Well Performance, Pressure Analysis & Saturation Analysis
1130 - 1245	The Impact of Simulation Runs & Results Analysis on Reservoir Management & Production Optimization
1245 - 1300	Break
1300 - 1420	Advanced Reservoir Simulation Techniques
1420 - 1430	Recap
1430	Lunch & End of Day Four

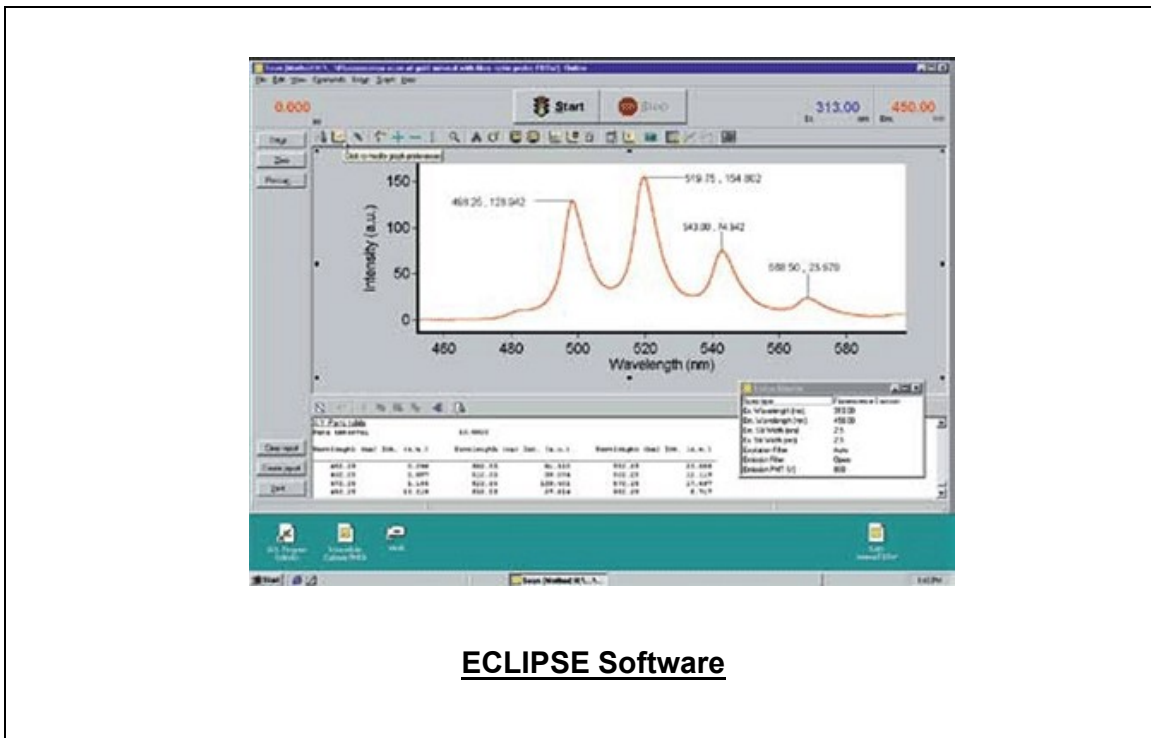
Day 5:

0730 - 0900	Techniques for Simulating Complex Reservoirs, including Thermal & Enhanced Oil Recovery (EOR) Simulation, Compositional Simulation & Unconventional Reservoir Simulation
0900 - 0915	Break
0915 - 1030	The Impact of Advanced Reservoir Simulation Techniques on Reservoir Management & Production Optimization
1030 - 1200	Group Project & Presentations Group Project on Reservoir Simulation using the ECLIPSE Simulator • Presentation & Discussion of Group Project Results • Best Practices & Tips for Successful Reservoir Simulation, including Grid Generation, Fluid & Rock Property Modeling & Well Modeling

1200 – 1215	Break
1215 - 1345	Conclusion & Future Directions <i>Future Directions in Reservoir Simulation • Discussion of Emerging Technologies & Methodologies, including Cloud Computing, High-Performance Computing & Workflows for Data-Driven Reservoir Simulation</i>
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & 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 “ECLIPSE Software”.



ECLIPSE Software

Course Coordinator

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