# COURSE OVERVIEW DE0375
# Petrel Reservoir Engineering

**Course Title**
Petrel Reservoir Engineering

**Course Reference**
DE0375

**Course Duration/Credits**
Five days/3.0 CEUs/3.0 PDHs



**Course Date/Venue**

| Session(s) | Date | Venue |
|---|---|---|
| 1 | May 19-23, 2024 | Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar |
| 2 | October 13-17, 2024 | |
| 3 | November 17-21, 2024 | |

**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 petrel RE. It covers the reservoir engineering in petrel; the petrel user interface, rock physics and fluid models, simulation initialization and petrel volume calculation; dynamic modelling covering history and prediction strategies; well path design and completion design; results analysis and 3D results analysis; history matching workflow; and modifying a simulation model and discuss aquifers.

During this interactive course, participants will learn the workflows and describe simulation case editor; grids for well-based studies covering local grid refinement and simple and tartan grids; building a simulation grid from a fine geological grid and quality control of coarsened grids; completion items in wells using the automated and manuel well completion design tools; upscaling reservoir properties and simulation study challenge; screen alternative production extension strategies; and the chosen concept and quantify sensitivities to model uncertainty.

## Course Objectives

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

- Apply and gain in-depth knowledge in petrel reservoir
- Discuss the reservoir engineering in petrel
- Understand the petrel user interface, rock physics and fluid models, simulation initialization and petrel volume calculation
- Identify dynamic modelling covering history and prediction strategies
- Explain well path design and completion design
- Summarize results analysis and 3D results analysis
- Learn history matching workflow
- Modify a simulation model and discuss aquifers
- Introduce to workflows and describe simulation case editor
- Recognize grids for well-based studies covering local grid refinement and simple and tartan grids
- Understand building a simulation grid from a fine geological grid and quality control of coarsened grids
- Creating completion items in wells using the automated and manuel well completion design tools
- Define upscaling reservoir properties and simulation study challenge
- Understand screen alternative production extension strategies
- Optimize chosen concept and quantify sensitivities to model uncertainty

## 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 petrel RE for development and exploration petroleum engineers, reservoir engineers and geoscientists.

## Course Fees

**US$ 8,500** per Delegate. 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: -

- 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.

- 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**

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 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. Ahmed Abdelrazik**, is a **Senior Drilling & Petroleum Engineer** with extensive years of **onshore & offshore** experience within the **Oil & Gas**, **Refinery** and **Petroleum** industries. His experience widely covers in the areas of **Well Testing** Fundamentals & Software application, **Well** Performance & Analysis, **Petrel** for **Reservoir** Engineers, **Reservoir** Management & Monitoring, **Reservoir Simulation** (Black Oil), **Advanced Reservoir** Engineering, Basic **RE** for **Non PE** background, Introduction to **Flow Assurance**, **MBAL**, **PVT & Phase Behavior** of **Reservoir Fluids**, **PVT & EOS** Characterization, **Well Test Design & Analysis**, **Well Test** Analysis, **Well Test** Operations, **Well Testing** Completion & Workover, **Well Integrity & Artificial Lift**, **Well Integrity** Management, **Wellhead Integrity**, **Wellhead** Maintenance & Operations, **Well Completion** Design & Operations, **Well Head** Design, **Well Drilling & Completion**, **Horizontal Well** Control, **Drilling** Optimization & Well Planning, **Well Production** Optimisation, **Well Control & Blowout** Prevention, **Nodal Analysis**, Advanced Production **Data Analysis & Nodal Analysis**, ESP & Optimization using **Nodal Analysis**, Well Performance using **Nodal System Analysis**, Advanced **Reservoir & Production** Engineering, Advanced **Reservoir Fluid Properties & EOS**, Applier **Reservoir Formation** Well Deliverability Analysis, Depositional Environments & Geometry of **Sandstone & Carbonate Reservoirs**, **Geomechanics & Petroleum** Implications, Integrated **Carbonate Reservoir** Characterization, **Naturally Fractured Reservoirs**, **Pressure Transient** Testing & Reservoir Performance Evaluation, **Integrated Reservoir** Studies, **Reservoir** Production Operations, **Reservoir** Characterization, **Reservoir** Surveillance & Management, **Reservoir & Facility** Management, Advanced **Reservoir Geology & Sedimentology**, **Production Logging & Reservoir** Monitoring, **Eclipse Black Oil**, Hazard Identification & Risk Assessment, Lifesaving on Offshore Rig, **OFM** Monitoring & Surveillance Workflows, **Sand Production** Management, **Well** Completion Technology, Subsea Landing String Services, **Waterflood & EOR**, TCP & Casing Gun **Perforation**, Hydraulic Fracture, DST, RFT, **ESP & Sucker Rod Pump** Installation & Replacement, Open Hole Logs, **Coiled Tubing & Lifting** with Nitrogen, Detailed Analysis on Pressure, Volume & Temperature (**PVT**), Special Core Analysis (**SCAL**), **Waterflooding & EOR** and Applied **Reserved** Evaluation. He has also experience with some of the software's like the Eclipse, Petrel, OFM, Saphir, Topaze, Emeraude, RTA, GAP, Prosper, MBAL, PVTP, PVTSim and Pipesim. He is currently the **Senior Reservoir Engineer** of Rashid Petroleum Company wherein he is involved in leading and conducting subsurface related studies, routine reservoir engineering tasks, reservoir analytical studies, reserves reporting, well and reservoir performance review.

During Mr. Ahmed's life, he has gained his practical and field experience through his various significant positions as the **Reservoir Engineer Specialist**, **Reservoir & Development Specialist**, **Reservoir Engineer** for numerous international companies such as the **PetroChina**, Egyptian Natural Gas Holding Company, Khalda Petroleum Company, Wastani Petroleum Company and Rashid Petroleum Company.

Mr. Ahmed has a **Bachelor's** degree in **Petroleum Engineering**. Further, he is a **Certified Instructor/Trainer** and a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management** (**ILM**). He has further published scientific papers and delivered numerous trainings, workshops 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 | ***Reservoir Engineering in Petrel*** |
| 0930 – 0945 | *Break* |
| 0945 – 1030 | ***Petrel User Interface*** |
| 1030 – 1130 | ***Rock Physics & Fluid Models*** |
| 1130 - 1215 | ***Simulation Initialization*** |
| 1215 – 1230 | *Break* |
| 1230 – 1420 | ***Petrel Volume Calculation*** |
| 1420 – 1430 | ***Recap*** |
| 1430 | *Lunch & End of Day One* |

### Day 2

| | |
|---|---|
| 0730 – 0830 | ***Dynamic Modelling***<br>*History Strategies ● Prediction Strategies* |
| 0830 - 0930 | ***Well Path Design*** |
| 0930 – 0945 | *Break* |
| 0945 – 1100 | ***Completion Design*** |
| 1100 – 1215 | ***Summary Results Analysis*** |
| 1215 – 1230 | *Break* |
| 1230 – 1420 | ***3D Results Analysis*** |
| 1420 – 1430 | ***Recap*** |
| 1430 | *Lunch & End of Day Two* |

### Day 3

| | |
|---|---|
| 0730 – 0830 | ***History Matching Workflow*** |
| 0830 - 0930 | ***Modify a Simulation Model*** |
| 0930 – 0945 | *Break* |
| 0945 – 1100 | ***Aquifers*** |
| 1100 – 1215 | ***Introduction to Workflows*** |
| 1215 – 1230 | *Break* |
| 1230 – 1420 | ***Simulation Case Editor*** |
| 1420 – 1430 | ***Recap*** |
| 1430 | *Lunch & End of Day Three* |

### Day 4

| | |
|---|---|
| 0730 – 0830 | ***Grids for Well-Based Studies:***<br>*Local Grid Refinement ● Simple & Tartan Grids* |
| 0830 - 0930 | ***Build a Simulation Grid from a Fine Geological Grid*** |
| 0930 – 0945 | *Break* |
| 0945 – 1100 | ***Quality Control of Coarsened Grids*** |
| 1100 – 1215 | ***Creating Completion Items in Wells Using the Automated & Manuel Well Completion Design Tools*** |

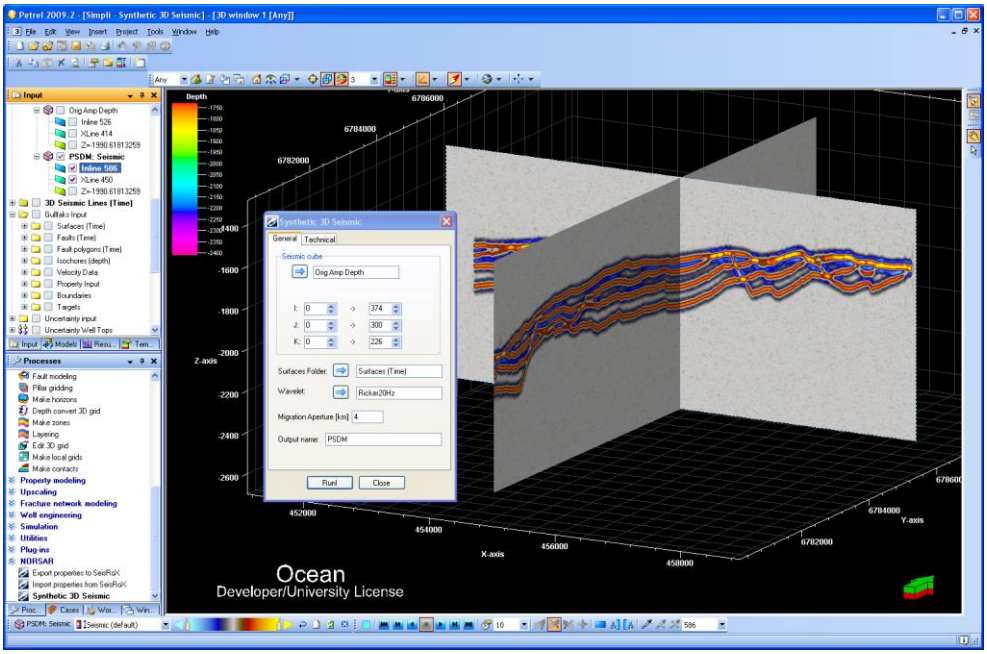
| | |
|---|---|
| 1215 – 1230 | *Break* |
| 1230 – 1420 | ***Upscaling Reservoir Properties*** |
| 1420 – 1430 | ***Recap*** |
| 1430 | *Lunch & End of Day Four* |

***Day 5***

| | |
|---|---|
| 0730 – 0930 | ***Simulation Study Challenge*** |
| 0930 – 0945 | *Break* |
| 0945 – 1100 | ***Screen Alternative Production Extension Strategies*** |
| 1100 – 1200 | ***Optimize Chosen Concept*** |
| 1215 – 1230 | *Break* |
| 1230 – 1345 | ***Quantify Sensitivities to Model Uncertainty*** |
| 1345 - 1400 | ***Course Conclusion*** |
| 1400 – 1415 | ***POST-TEST*** |
| 1415 – 1430 | *Presentation of Course Certificates* |
| 1430 | *Lunch & End of Course* |

## 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.




**Petrel Software**

## Course Coordinator

Jaryl Castillo, Tel: +974 4423 1327, Email: jaryl@haward.org