

**COURSE OVERVIEW DE0604**  
**Integrated Reservoir Management**

**Course Title**

Integrated Reservoir Management

**Course Reference**

DE0604

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**Course Date/Venue**



Session(s)	Date	Venue
1	February 18-22, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar
2	May 12-16, 2024	
3	September 08-12, 2024	
4	December 08-12, 2024	

**Course Description**



***This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.***



Reservoir life begins with exploration that leads to discovery, which is followed by delineation of the reservoir, development of the field, production by primary, secondary, and tertiary means, and finally to abandonment. Integrated, sound reservoir management is the key to a successful operation throughout a reservoir's life. Further, the need to enhance recovery from the vast amount of remaining oil and gas-in-place, plus the global competition, requires better reservoir management practices.



Modern day reservoir management process involves goal setting, planning, implementation, monitoring, evaluation and revising plans. It requires a clear understanding of the alternative mechanisms of oil recovery and the tools available to predict reservoir performance under alternative exploitation plans. Proper management requires the early diagnosis of anomalous performance and the evaluation of alternative remedial options. In order to select the best plan, the profitability of the alternative plan has to be established.

Reservoir engineering is the application of scientific principles to solve issues arising during the development and production of oil and gas reservoirs. This course covers the engineering operations involved in analysing the production behaviour of oil and gas wells, including well performance engineering, reservoir aspects of well performance, restricted flow into the wellbore, rate decline analysis, and fundamentals of artificial lift.

This course is designed to provide many tools and techniques to help address the challenges of providing a more reliable and sounder reservoir engineering & management. In addition to a wealth of classic information on the concepts and processes involved in reservoir engineering and management, the course presents insights about data acquisition, reservoir performance analysis & forecast, reservoir management economics and improved recovery processes. Further, the course is illustrated through a number of case studies which will be shown to the participants to help them appreciate the concepts presented in the course.

### **Course Objectives**

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

- Apply systematic techniques in integrated reservoir management
- Explain the integration of geoscience and engineering and know the reasons for integrating exploration and development technology
- Ensure the proper execution of the reservoir management process
- Illustrate the proper procedure for data acquisition, analysis and management which includes validation, storing, retrieval and application
- Explain the role of reservoir models as well as the importance of reservoir surveillance
- Apply the different methods of reservoir performance analysis and forecast & give emphasis on the integration of production/injection data, log data, pressure data and any subsurface data for analysis
- Provide details on the reservoir management economics which includes economic criteria, scenarios, economic evaluation, risk and uncertainties
- Acquire an up-to-date knowledge on the improved recovery processes related to waterflooding, thermal methods, chemical methods and EOR screening guidelines
- Implement reservoir management plans for newly discovered fields, secondary and EOR operated fields
- Plan the outlook and the next step & be ready with the current challenges and areas of further work for reservoir engineering and management

### 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 on the integrated reservoir management for those who are involved in analysis, characterization, simulation, integration, statistics and naturally fractured for reservoir. This includes engineers, geologists, geophysicists, managers, government officials, field operation staffs and other technical staff.

### 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\$ 8,500** 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: -

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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.

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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.



### 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:



**Dr. John Petrus**, PhD, MSc, BSc, is a **Senior Reservoir Engineer & Geologist** with over **30 years** of **onshore & offshore** experience within the **Oil & Gas, Refinery and Petroleum** industries. His wide experience covers in the areas of **Production Technology & Engineering, Well Completions, Well Logs, Well Stimulation & Production Logging, Well Completion Design & Operation, Well Surveillance, Well Testing, Well Stimulation & Control and Workover Planning, Completions & Workover, Hole Cleaning & Logging, Servicing and Work-Over Operations, Wellhead Operations, Maintenance & Testing, Petrophysics/Interpretation of Well Composite, Reservoir & Tubing Performance, Practical Reservoir Engineering, Clastic Exploration & Reservoir Sedimentology, Carbonate Reservoir Characterization & Modeling,**

**Seismic Interpretation, Mapping & Reservoir Modelling, Reservoir Geology, Integrating Geoscience into Carbonate Reservoir Management, Faulted & Fractured Reservoirs, Fractured Hydrocarbon Reservoirs, Analyses, Characterisation & Modelling of Fractured Reservoirs & Prospects, Fracture Reservoir Modeling Using Petrel, Reservoir Engineering Applied Research, Artificial Lift, Artificial Lift System Selection & Design, Electrical Submersible Pumps (ESP), Enhance Oil Recovery (EOR), Hydraulic Fracturing, Sand Control Techniques, Perforating Methods & Design, Perforating Operations, Petroleum Exploration & Production, Hydrocarbon Exploration & Production, Exploration & Production, Play Assessment & Prospect Evaluation, Formation Evaluation, Petroleum Engineering Practices, Petroleum Hydrogeology & Hydrodynamics, Project Uncertainty, Decision Analysis & Risk Management, Decision Analysis & Uncertainty Management, Exploration & Development Geology, Sedimentology & Sequence Stratigraphy, Structural Interpretation in Exploration & Development, Petrel Geology, Geomodeling, Structural Geology, Applied Structural Geology in Hydrocarbon Exploration, Petrophysics, Geology of the Oil & Gas Field, Geophysics, Geothermal, Geochemical & Geo-Engineering and Drilling Applied Research, Field Geological Outcrop Mapping & Digital Cartography, Geological Modelling, Geoscience Management in E&P, Geoscience Modelling, Geological Mapping, Structural Geology-Tectonics, Structural Analysis, Tectonic Modelling and Numerical Simulation of Fractured Prospects & Reservoirs, Fracture Network Analysis & Modelling, Prospect Generation, Global Networking, Research and Technology Development Management for Fault & Fracture Analyses & Modelling, Fracture Modelling, Dynamic Modelling, Field Development Planning, Water Injection Planning, Stereophotogrammetry, Fault Mapping, GPS Survey, 2D & 3D Seismic Acquisition & Processing, 3D Seismic Surveys & Mapping, 3D GIS, GMAP, Sandbox Modelling, Sedimentological Logging, GR Logging, Surface & Subsurface 3D Modelling, Best Practices Management System (BPMS), Subsurface Work for Energy Projects, Digitalization Projects, Structural Model using Petrel, G&G Seismic & Well Data Modelling, GIS System Management, Database Management, Strategic Planning, Best Practices and Workflow, Quality Management, Project Management and Risk Assessment & Uncertainty Evaluation. Further, he is also well-versed in **seismic interpretation, mapping & reservoir modelling tools** like **Petrel** software, **LandMark, Seisworks, Geoframe, Zmap** and has extensive knowledge in **MSDos, Unix, AutoCAD, MAP, Overlay, Quicksurf, 3DStudio, Esri ArcGIS, Visual Lisp, Fortran-77** and **Clipper**. Moreover, he is a world **expert** in **analysis and modelling of fractured prospects and reservoirs** and a **specialist and developer** of **fracture modelling software tools** such as **FPDM, FMX and DMX** Protocols.**

During his career life, Dr. Petrus held significant positions and dedication as the **Executive Director, Senior Geoscience Advisor, Exploration Manager, Project Manager, Manager, Chief Geologist, Chief of Exploration, Chief of Geoscience, Senior Geosciences Engineer, Senior Explorationist, Senior Geologist, Geologist, Senior Geoscientist, Geomodeller, Geoscientist, CPR Editor, Resources Auditor, Project Leader, Technical Leader, Team Leader, Scientific Researcher and Senior Instructor/Trainer** from various international companies and universities such as the **Dragon Oil Holding Plc., ENOC, MENA, ENI Group of Companies, Ocre Geoscience Services (OGS), Burren RPL, Ministry of Oil-Iraq, Eni Corporate University, Stanford University, European Universities, European Research Institutes, NorskHydro Oil Company, Oil E&P Companies**, just to name a few.

Dr. Petrus has a **PhD in Geology and Tectonophysics** and **Master and Bachelor** degrees in **Earth Sciences** from the **Utrecht University, The Netherlands**. Further, he is a **Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)**, a **Secretary and Treasurer** of Board of Directors of **Multicultural Centre, Association Steunfonds SSH/SSR** and **Founding Member** of **Sfera Association**. He has further published several scientific publications, journals, research papers and books and delivered numerous trainings, workshops, courses, seminars and conferences internationally.



**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**

0800 – 0830	Registration & Coffee
0830 – 0845	Welcome & Introduction
0845 – 0900	<b>PRE-TEST</b>
0900 – 1000	<b>Reservoir Management Concepts</b> Definition of Reservoir Management • History of Reservoir Management • Fundamentals of Reservoir Management
1000 – 1015	Break
1015 – 1115	<b>Reservoir Management Concepts (cont'd)</b> Synergy and Team • Integration of Geoscience and Engineering • Integrating Exploration and Development Technology
1115 – 1215	<b>Reservoir Management Process</b> Setting Goals • Developing Plan and Economics • Implementation • Surveillance and Monitoring
1215 – 1230	Break
1230 – 1350	<b>Reservoir Management Process (cont'd)</b> Evaluation • Revision of Plan & Strategies • Reasons for Failure of Reservoir Management Programs • Reservoir Management Case Studies
1350 – 1400	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1400	End of Day One

**Day 2**

0800 – 0930	<b>Data Acquisition, Analysis and Management</b> Data Types • Data Acquisition and Analysis • Data Validation
09030 – 0945	Break
0945 – 1115	<b>Data Acquisition, Analysis and Management (cont'd)</b> Data Storing and Retrieval • Data Application • Example Data
1115 – 1245	<b>Reservoir Model</b> Role of Reservoir Model • Geoscience • Seismic Data • Geo-statistics
1245 – 1300	Break
1300 – 1350	<b>Reservoir Model (cont'd)</b> Engineering • Integration • Case Studies
1350 – 1400	<b>Recap</b>
1400	End of Day Two

**Day 3**

0800 – 0930	<b>Reservoir Surveillance</b>
09030 – 0945	Break
0945 – 1115	<b>Reservoir Performance Analysis and Forecast</b> Natural Producing Mechanisms • Reserves • Volumetric Method
1115 – 1245	<b>Reservoir Performance Analysis and Forecast (cont'd)</b> Decline Curve Method • Material Balance Method • Mathematical Simulation





1245 – 1300	Break
1300 – 1350	<b>Integration of Production/Injection Data, Log Data, Pressure Data and any Subsurface Data for Analysis</b>
1350 – 1400	<b>Recap</b>
1400	End of Day Three

**Day 4**

0800 – 0930	<b>Reservoir Management Economics</b> Economic Criteria • Scenarios • Data
0930 – 0945	Break
0945 – 1115	<b>Reservoir Management Economics (cont'd)</b> Economic Evaluation • Risk and Uncertainties • Economic Optimization Example
1115 – 1245	<b>Improved Recovery Processes</b> Waterflooding • Enhanced Oil Recovery Processes • EOR Process Concepts • Thermal Methods
1245 – 1300	Break
1300 – 1350	<b>Improved Recovery Processes (cont'd)</b> Chemical Methods • Miscible Methods • EOR Screening Guidelines
1350 – 1400	<b>Recap</b>
1400	End of Day Four

**Day 5**

0800 – 0850	<b>Reservoir Management Case Studies</b> North Ward Estes Field and Columbus Gray Lease • McAllen Ranch Field • Brassey Oil Field
0850 – 0905	Break
0905 – 0945	<b>Reservoir Management Case Studies (cont'd)</b> Means San Andres Unit • Teak Field • Esso Malaysia Fields
0945 – 1035	<b>Reservoir Management Plans</b> Newly Discovered Field • Secondary and EOR Operated Field
1035 – 1050	Break
1050 - 1130	<b>What's Next</b> The State of the Art • Importance of Integrative Reservoir Management • Current Challenges and Areas of Further Work • Outlook and the Next Step
1130 – 1145	<b>Course Conclusion</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
091145 – 1200	<b>POST-TEST</b>
1200	End of Course



**Practical Sessions**

This practical and highly-interactive course includes real-life case studies and exercises.



**Course Coordinator**

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