

COURSE OVERVIEW DE0090-4D

Applied Reservoir Engineering & Management:

Analysis, Characterization, Simulation, Integration, Statistics & Naturally Fractured

Course Title

Applied Reservoir Engineering & Management:
*Analysis, Characterization, Simulation, Integration,
Statistics & Naturally Fractured*

Course Reference

DE0090-4D

Course Duration/Credits

Four days/2.4 CEUs/24 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	July 22-25, 2024	Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA
2	October 28-31, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Description

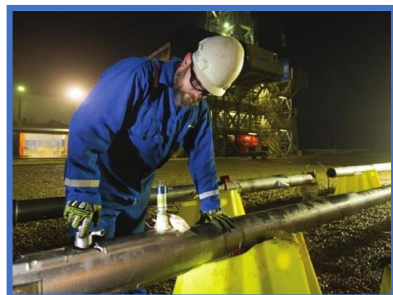


This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.

Oil Reservoirs have been created by complex sedimentary and diagenetic processes, and modified by a history of tectonic change. Reservoirs are complex systems on all scales. Decisions such as pumping and injection, new well placement, and drilling in an active oil field, are typical of the complex relationships between reservoir engineering and oil field/reservoir management.



A reservoir's 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. 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 sound 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 reservoir engineering and 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 “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 the applied reservoir engineering and 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.

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 **2.4 CEUs** (Continuing Education Units) or **24 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:



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, 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\$ 6,750 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 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	Reservoir Management Concepts <i>Definition of Reservoir Management • History of Reservoir Management • Fundamentals of Reservoir Management • Synergy and Team • Integration of Geoscience and Engineering • Integrating Exploration and Development Technology</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Reservoir Management Process <i>Setting Goals • Developing Plan and Economics • Implementation • Surveillance and Monitoring</i>
1100 – 1230	Reservoir Management Process (cont'd) <i>Evaluation • Revision of Plan & Strategies • Reasons for Failure of Reservoir Management Programs • Reservoir Management Case Studies</i>
1230 – 1245	<i>Break</i>
1245 – 1420	Data Acquisition, Analysis and Management <i>Data Types • Data Acquisition and Analysis • Data Validation • Data Storing and Retrieval • Data Application • Example Data</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0900	Reservoir Model Role of Reservoir Model • Geoscience • Seismic Data • Geostatistics • Engineering • Integration • Case Studies
0900 – 0915	Break
0915 – 1045	Reservoir Surveillance
1045 – 1230	Reservoir Performance Analysis & Forecast Natural Producing Mechanisms • Reserves • Volumetric Method
1230 – 1245	Break
1245 – 1420	Reservoir Performance Analysis & Forecast (cont'd) Decline Curve Method • Material Balance Method • Mathematical Simulation
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0900	Integration of Production/Injection Data, Log Data, Pressure Data & any Subsurface Data for Analysis
0900 – 0915	Break
0915 – 1045	Reservoir Management Economics Economic Criteria • Scenarios • Data
1045 – 1230	Reservoir Management Economics (cont'd) Economic Evaluation • Risk and Uncertainties • Economic Optimization Example
1230 – 1245	Break
1245 – 1420	Improved Recovery Processes Waterflooding • Enhanced Oil Recovery Processes • EOR Process Concepts • Thermal Methods • Chemical Methods • Miscible Methods • EOR Screening Guidelines
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0900	Reservoir Management Case Studies North Ward Estes Field and Columbus Gray Lease • McAllen Ranch Field • Brassey Oil Field
0900 – 0915	Break
0915 – 1045	Reservoir Management Case Studies (cont'd) Means San Andres Unit • Teak Field • Esso Malaysia Fields
1045 – 1230	Reservoir Management Plans Newly Discovered Field • Secondary and EOR Operated Field
1230 – 1245	Break
1245 – 1345	What's Next The State of the Art • Importance of Integrative Reservoir Management • Current Challenges and Areas of Further Work • Outlook and the Next Step
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

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



Course Coordinator

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