COURSE OVERVIEW DE0221
Gas Reservoir Management

Course Title
Gas Reservoir Management

Course Date/Venue
Session 1: May 18-22, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: October 20-24, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
DE0221

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This hands-on, 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.

This course is designed to provide participants with a detailed and up-to-date overview of gas condensate reservoirs management. It covers the reservoir-type classification criteria including the issues in gas condensate reservoir management for hydrocarbon asset valuation and production operation issues; the fluid phase behavior covering black oil model, EOS and PVT lab experiments for phase modeling; the formation characterization of general core analysis, special core analysis and determination of fluid-initially-in-place (FIIP); and the multiphase fluid flow consisting of Pc-curves, reservoir initialization, relatively permeability curves with the end-point scaling due trapping number changes and non-darcy flow effect.

Further, this course will also discuss the recovery mechanisms and production operations that include natural depletion, water drive supported by aquifer, gas recycling and oil production from oil rim; the well deliverability reduction due to condensate buildup, non-darcy flow, coning or high perm streaks, or production problems with thin oil leg, well type, well spacing and flow rate; and the simple methods for tank-model analysis and simple well deliverability calculation.

During this interactive course, participants will learn the effective total skin, non-darcy flow effect, general compositional reservoir simulation, single-well model, mechanistic model and general field scale model; the simulator-based class projects covering compositional reservoir simulation, input data preparation, simulation quality control and predictions runs; the production-related issues of sand production, hi-perm streaks and remediation of condensate build-up; the well testing and single-well simulation, field surveillance and fluid sampling; and the uncertainties in gas condensate fields management from exploration to abandonment.

Course Objectives

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

- Apply and gain a good working knowledge on gas condensate reservoirs management
- Identify the types of hydrocarbon reservoirs based on phase behavior of reservoir fluid and the based on reservoir structure
- Recognize the reservoir-type classification criteria including the issues in gas condensate reservoir management for hydrocarbon asset valuation and production operation issues
- Discuss fluid phase behavior covering; black oil model, EOS and PVT lab experiments for phase modeling
- Describe formation characterization of general core analysis, special core analysis and determination of fluid-initially-in-place (FIIP)
- Discuss multiphase fluid flow consisting of Pc-curves and the reservoir initialization, relatively permeability curves with the end-point scaling due trapping number changes and non-darcy flow effect
- Recognize recovery mechanisms and apply production operations that include natural depletion, water drive supported by aquifer, gas recycling and oil production from oil rim
- Identify well deliverability reduction due to condensate buildup, non-darcy flow, coning or high perm streaks, or production problems with thin oil leg and well type, well spacing, flow rate, etc.
- Employ simple methods for tank-model analysis and simple well deliverability calculation
- Determine effective total skin, non-darcy flow effect, general compositional reservoir simulation, single-well model, mechanistic model and general field scale model
- Prepare simulator-based class projects covering compositional reservoirs simulation, input data preparation, simulation quality control and predictions runs
- Identify production-related issues of sand production, hi-perm streaks, remediation of condensate build-up, etc
- Carryout well testing and single-well simulation, field surveillance and fluid sampling
- Uncertainties in gas condensate fields management from exploration to abandonment

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 management of gas condensate reservoirs for geologists, geophysicists, petro-physicists, engineers and other geoscientists personnel.

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 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.

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. Konstantin Zorbalas, MSc, BSc, is a **Senior Petroleum Engineer & Well Completions Specialist** with over **25 years** of **offshore** and **onshore** experience in the **Oil** & **Gas**, **Refinery** & **Petrochemical** industries. His wide expertise includes **Workovers & Completions**, **Petroleum Risk & Decision Analysis**, **Acidizing Application** in **Sandstone** & **Carbonate**, **Well Testing Analysis**, **Stimulation Operations**, **Reserves Evaluation**, **Reservoir Fluid Properties**, **Reservoir Engineering & Simulation Studies**, **Reservoir Monitoring**, **Artificial Lift Design**, **Gas Operations**, **Workover/Remedial Operations** & **Heavy Oil Technology**, **Applied Water Technology**, **Oil & Gas Production**, **X-mas Tree** & **Wellhead Operations** & **Testing**, **Artificial Lift Systems** (**Gas Lift**, **ESP**, and **Rod Pumping**), **Well Cementing**, **Production Optimization**, **Well Completion Design**, **Sand Control**, **PLT Correlation**, **Slickline Operations**, **Acid Stimulation**, **Well testing**, **Production Logging**, **Project Evaluation** & **Economic Analysis**. Further, he is actively involved in **Project Management** with special emphasis in production technology and field optimization, performing conceptual studies, economic analysis with risk assessment and field development planning. He is currently the **Senior Petroleum Engineer & Consultant** of **National Oil Company** wherein he is involved in the mega-mature fields in the Arabian Gulf, predominantly carbonate reservoirs; designing the acid stimulation treatments with post-drilling rigless operations; utilizing CT with tractors and DTS systems; and he is responsible for gas production and preparing for reservoir engineering and simulation studies, well testing activities, field and reservoir monitoring, production logging and optimization and well completion design.

During his career life, Mr. Zorbalas worked as a **Senior Production Engineer**, **Well Completion Specialist**, **Production Manager**, **Project Manager**, **Technical Manager**, **Technical Supervisor** & **Contracts Manager**, **Production Engineer**, **Production Supervisor**, **Production Technologist**, **Technical Specialist**, **Business Development Analyst**, **Field Production Engineer** and **Field Engineer**. He worked for many **world-class oil/gas companies** such as **ZADCO**, **ADMA-OPCO**, **Oilfield International Ltd**, **Burlington Resources** (later acquired by **Conoco Phillips**), **MOBIL E&P**, **Saudi Aramco**, **Pluspetrol E&P SA**, **Wintershall**, **Taylor Energy**, **Schlumberger**, **Rowan Drilling** and **Yukos EP** where he was in-charge of the **design and technical analysis** of a gas plant with capacity **1.8 billion m3/yr gas**. His achievements include **boosting oil production 17.2% per year** since 1999 using **ESP** and **Gas Lift systems**.

Mr. Zorbalas has **Master** and **Bachelor** degrees in **Petroleum Engineering** from the **Mississippi State University**, **USA**. Further, he is an **SPE Certified Petroleum Engineer**, **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), an active member of the Society of Petroleum Engineers (**SPE**) and has numerous scientific and technical publications and delivered innumerable training courses, seminars 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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Types of Hydrocarbon Reservoirs*** *Based on Phase Behavior of Reservoir Fluid ● Based on Reservoir Structure*
0930 – 0945	*Break*
0945 – 1045	***Reservoir-Type Classification Criteria***
1045-1200	***Issues in Gas Condensate Reservoir Management*** *Hydrocarbon Asset Valuation ● Production Operation Issues*
1200 –1215	*Break*
1245 – 1420	***Fluid Phase Behavoirs*** *Black Oil Model ● EOS Model ● PVT Lab Experiments for Phase Modeling*
1420 – 1430	***Recap*** *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*
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Formation Characterization*** *General Core Analysis ● Special Core Analysis ● Determination of Fluid-Initially-In-Place (FIIP)*
0930 - 0945	*Break*
1945 – 1100	***Multiphase Fluid Flow*** *Pc-Curves and the Reservoir Initialization ● Relatively Permeability Curves with the End-Point Scaling due to Trapping Number Changes ● Non-Darcy Flow Effect*
1110 - 1230	***Recovery Mechanisms***
1230 - 1245	*Break*
1245 - 1420	***Production Operations*** *Natural Depletion ● Water Drive Supported by Aquifer ● Gas Recycling ● Oil Production from Oil Rim*
1420 - 1430	***Recap*** *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*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Well Deliverability Reduction due to Condensate Buildup, Non-Darcy Flow, etc.*** *Coning, or High Perm Streaks, or Production Problems with thin Oil Leg, etc ● Well Type (Horizontal vs. Vertical), Well Spacing, Flow Rate, etc.*
0930 - 0945	*Break*

0945 - 1045	***Simple Methods*** *Tank-Model Analysis (Black-Oil-Based Material Balance with Rvo) ● Simple Well Deliverability Calculation*
1045 – 1130	***Effective Total skin, Non-Darcy Flow Effect, etc.***
1130 - 1230	***General Compositional Reservoir Simulation***
1230 - 1245	*Break*
1245 - 1420	***Single-Well Model***
1420 - 1430	***Recap*** *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*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Mechanistic Model***
0930 - 0945	*Break*
0945 - 1045	***General Field Scale Model***
1045 – 1130	***Preparation for Simulator-based Class Projects*** *Overview on Compositional Reservoir Simulation ● Input Data Preparation ● Simulation Quality Control ● Prediction Runs*
1130 - 1230	***Class Project 1: Single-Well Model Example (Grid-size Effect, etc.)***
1230 - 1245	*Break*
1245 - 1420	***Class Project 2: Gas Recycling Case Example***
1420 - 1430	***Recap*** *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*
1430	*Lunch & End of Day Four*

Day 5

0730 - 0930	***Production-Related Issues (Sand Production, Hi-Perm Streaks, Remediation of Condensate Build-up etc.)***
0930 - 0945	*Break*
0945 - 1100	***Well Testing & Single-Well Simulation***
1100 - 1200	***Field Surveillance, Fluid Sampling, etc.***
1200 - 1215	*Break*
1215 - 1345	***Uncertainties in Gas Condensate Fiels Management (from Exploration to Abandonment)***
1345 - 1400	***Course Conclusion***
1400 – 1415	***POST TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This hands-on, highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org