COURSE OVERVIEW DE0338
Concept Selection and Specification of Production Facilities in Field Development Projects

Course Title
Concept Selection and Specification of Production Facilities in Field Development Projects

Course Reference
DE0338

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

Course Date/Venue

Session(s)	Date	Venue
1	July 07-11, 2024	Kizkulesi, Crown Plaza Istanbul Asia Hotels & Convention Center, Istanbul, Turkey
2	October 06-10, 2024	Oryx Meeting Room, Doubletree By Hilton Doha-Al Sadd, Doha, Qatar
3	December 15-19, 2024	The Kooh Al Noor Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

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.

This course is designed to provide participants with a detailed and up-to-date overview of Concept Selection and Specification of Production Facilities in Field Development Projects. It covers the phases of a field development project and key components of a field development plan; the decision tree analysis and risk and opportunity assessments; the factors influencing facility design including fluid properties and their impact on facilities; the importance of location and contractual obligations including the operating conditions from wellhead to separation; and the types of separators, separator sizing and design.

Further, the course will also discuss the reasons for stabilization and dehydration, equipment and methodologies; water handling, treatment methods and equipment; the specifications for produced water systems and gas compression systems; the initial gas treatment methods and gas dehydration techniques; the gas sweetening processes and adsorption methods as well as the types of artificial lift systems; and the impact of artificial lift on facilities design.

During this interactive course, participants will learn the secondary/tertiary production techniques and asset integrity and inherently safe design principles; the principles of asset integrity including the rate, composition, temperature and pressure of design impacts; the design aspects of midstream facilities, performance of production versus midstream facilities and delivering saleable products to the market; and exploring future trends in production facilities design covering technological advancements, sustainability and environmental considerations.

Course Objectives

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

- Apply and gain a comprehensive knowledge on concept selection and specification of production facilities in field development projects
- How to develop the project framework and decision making strategy
- How the specification of production, processing facilities is influenced by reservoir type, drive mechanism, fluid properties, location and contractual obligations
- Operating conditions that affect the specification of the production facilities from the wellhead through initial separation
- Parameters that affect the design and specification of oil stabilization and dehydration equipment
- The design and specification of produced water systems appropriate for the rate and composition of the produced water to meet the required environmental regulations and/or injection well capacity
- The design and specification of gas handling facilities including compression, dehydration and sweetening
- The impact of artificial lift systems and secondary/tertiary production projects on facilities selection and design
- The principles of asset integrity and inherently safe design given the rate, composition, temperature and pressure of the production stream
- About midstream facilities required downstream of the primary production facility to deliver saleable products to the market and how these facilities are affected by production rates, composition and production facility performance
- Discuss the phases of a field development project and key components of a field development plan
- Carryout decision tree analysis and risk and opportunity assessments
- Identify the factors influencing facility design including fluid properties and their impact on facilities
- Discuss the importance of location and contractual obligations including the operating conditions from wellhead to separation
- Recognize the types of separators, separator sizing and design as well as explain the reasons for stabilization and dehydration, equipment and methodologies

- Apply water handling, treatment methods and equipment and discuss specifications for produced water systems
- Recognize gas compression systems and apply initial gas treatment methods and gas dehydration techniques
- Illustrate gas sweetening processes and adsorption methods as well as identify the types of artificial lift systems and the impact of artificial lift on facilities design
- Employ secondary/tertiary production techniques and discuss asset integrity and inherently safe design principles
- Explain the principles of asset integrity including the design impacts of rate, composition, temperature and pressure
- Describe the design aspects of midstream facilities, performance of production versus midstream facilities and delivering saleable products to the market
- Explore future trends in production facilities design covering technological advancements, sustainability and environmental considerations

Who Should Attend

This course provides an overview of all significant aspects and considerations of concept selection and specification of production facilities in field development projects for those working on field development teams, as well as those who need to better understand how surface facilities are selected and how subsurface characteristics affect facility design and specification.

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 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 Fee

Istanbul	**US$ 8,500** per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	**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.
Dubai	**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.

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.

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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Field Development Projects*** *Overview of the Upstream Sector • Phases of a Field Development Project*
0930 – 0945	*Break*
0945 – 1100	***How to Develop the Project Framework*** *Key Components of a Field Development Plan • Setting Objectives & Goals*
1100 – 1200	***Decision Making Strategy in Projects*** *Decision Tree Analysis • Risk & Opportunity Assessments*
1200 – 1245	***Factors Influencing Facility Design*** *Reservoir Type & Its Importance • Drive Mechanisms*
1245 – 1300	*Break*
1300 - 1345	***Fluid Properties & their Impact on Facilities*** *PVT Analysis • Phase Behavior*
1345 - 1415	***Importance of Location & Contractual Obligations*** *Accessibility & Logistical Challenges • Contractual Constraints & Flexibility*
1415 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Operating Conditions from Wellhead to Separation*** *Flow Assurance • Wellhead Controls & Chokes*
0930 – 0945	*Break*
0945 – 1100	***Primary Production Facilities: Initial Separation*** *Types of Separators • Separator Sizing & Design*
1100 – 1200	***Oil Stabilization & Dehydration Equipment*** *Reasons for Stabilization Dehydration • Equipment & Methodologies*
1200 - 1230	***Design of Produced Water Systems*** *Overview of Water Handling • Treatment Methods & Equipment*
1230 – 1245	*Break*
1245 – 1345	***Specifications for Produced Water Systems*** *Meeting Environmental Regulations • Injection Well Requirements*
1345 - 1415	***Gas Handling: Basics*** *Gas Compression Systems • Initial Gas Treatment Methods*
1415 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Gas Dehydration Techniques*** *Glycol Dehydration Units • Membrane Systems*
0930 – 0945	*Break*
0945 – 1100	***Gas Sweetening Processes*** *Amine Systems • Adsorption Methods*
1100 – 1200	***Introduction to Artificial Lift Systems*** *Reasons & Scenarios for Artificial Lift • Types of Artificial Lift Systems*
1200 - 1230	***Impact of Artificial Lift on Facilities Design*** *Surface Equipment Implications • Power Requirements*
1230 – 1245	*Break*
1245 – 1345	***Secondary/Tertiary Production Techniques*** *Water Flooding, Gas Injection • Impact on Facility Design*
1345 - 1415	***Asset Integrity & Inherently Safe Design Principles*** *Importance of Safety in Design • Recognizing & Mitigating Hazards*
1415 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Principles of Asset Integrity in Detail*** *Corrosion Management • Inspection & Maintenance Planning*
0930 – 0945	*Break*
0945 – 1100	***Rate, Composition, Temperature & Pressure: Design Impacts*** *Material Selection • Equipment Rating & Safety Factors*
1100 – 1200	***Introduction to Midstream Facilities*** *Overview of the Midstream Sector • Relationship with Upstream*
1200 - 1230	***Design Aspects of Midstream Facilities*** *Flow Stabilization • Storage & Transportation Considerations*
1230 – 1245	*Break*
1245 – 1345	***Performance of Production vs. Midstream Facilities*** *Efficiency & Optimization • Matching Upstream & Midstream Operations*
1345 - 1415	***Delivering Saleable Products to the Market*** *Quality Standards • Transportation Methods: Pipeline, Truck, Rail & Shipping*
1415 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Case Study: From Reservoir to Market:*** *Integrating Topics from Days 1-4 into a Holistic Field Development Plan*
0930 – 0945	*Break*
0945 – 1145	***Group Workshop: Designing a Facility Based on Provided Data:*** *Applying Concepts in a Practical Scenario*
1145 – 1230	***Group Workshop: Designing a Facility Based on Provided Data:*** *Applying Concepts in a Practical Scenario (cont'd)*
1230 – 1245	*Break*
1245 – 1345	***Exploring Future Trends in Production Facilities Design*** *Technological Advancements • Sustainability & Environmental Considerations*
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 following real-life case studies:-

Course Coordinator

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