COURSE OVERVIEW DE1073
Artificial Lift Technology

Course Title
Artificial Lift Technology

Course Date/Venue
October 13-17, 2025/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
DE1073

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

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 Artificial Lift Technology. It covers the purpose of artificial lift and its applications in oil and gas production; the early artificial lift methods and technological advancements in artificial lift; the fundamentals of reservoir performance, types of artificial lift systems and key performance indicators (KPIs) in artificial lift; the health, safety, and environmental (HSE) considerations, rod lift systems and designing and selecting rod lift systems; the rod lift systems, operational challenges with rod lift systems and performance optimization for rod lift; and the rod lift failures and troubleshooting and design and installation of gas lift systems.

During this interactive course, participants will learn the gas lift systems operation, troubleshooting and maintenance; the economic and environmental aspects of gas lift; the advanced gas lift techniques, electrical submersible pumps and ESP systems design, selection, installation and commissioning; the operational considerations for ESPs, future trends of ESP technology and hydraulic lift systems; the hydraulic lift systems and the emerging artificial lift technologies; the digital technologies in artificial lift systems; and the economic evaluation of artificial lift technologies covering cost-benefit analysis for artificial lift methods, life cycle cost analysis and optimization for minimal downtime.

Course Objectives

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

- Apply and gain a comprehensive knowledge on artificial lift technology
- Discuss the purpose of artificial lift and its applications in oil and gas production
- Explain early artificial lift methods and technological advancements in artificial lift
- Identify the fundamentals of reservoir performance, types of artificial lift systems and key performance indicators (KPIs) in artificial lift
- Recognize health, safety, and environmental (HSE) considerations, rod lift systems and designing and selecting rod lift systems
- Install and maintain rod lift systems, discuss operational challenges with rod lift systems and apply performance optimization for rod lift
- Identify rod lift failures and troubleshooting, gas lift systems and design and installation of gas lift systems
- Operate gas lift systems, troubleshoot and maintain gas lift and discuss economic and environmental aspects of gas lift
- Employ advanced gas lift techniques and discuss electrical submersible pumps and design and selection of ESP systems
- Install and commission ESP systems, discuss operational considerations for ESPs and maintain ESP systems
- Discuss the future trends of ESP technology and hydraulic lift systems
- Design and implement hydraulic lift systems and discuss the emerging artificial lift technologies and digital technologies in artificial lift systems
- Apply economic evaluation of artificial lift technologies covering cost-benefit analysis for artificial lift methods, life cycle cost analysis and optimization for minimal downtime

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 artificial lift technology methods for production engineers, reservoir engineers, field operators and technicians, well intervention and completion engineers, asset managers / field development managers, drilling engineers, maintenance and reliability engineers and other technical staff.

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.

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

Haward's certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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.

- 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.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

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. Chris Kapetan, PhD, MSc, is a **Senior Petroleum Engineer** with over **30 years** of international experience within the **onshore** and **offshore oil** & **gas** industry. His wide experience covers **Asset Management** Principles, Risks & Economics, **Petroleum Economics**, **Decision Analytic Modelling Methods** for **Economic Evaluation**, **Probabilistic Risk Analysis** (**Monte Carlo Simulator**) **Risk Analysis Foundations**, **Global Oil Demand**, Crude Oil Market, Global Oil Reserves, Oil Supply & Demand, Governmental Legislation, Contractual Agreements, **Financial** Modeling, **Oil Contracts**, **Project Risk Analysis**, **Feasibility Analysis** Techniques, **Capital Operational Costs**, Oil & Gas Exploration Methods, **Reservoir** Evaluation, **Extraction of Oil & Gas**, **Crude** Oil Types & Specifications, Sulphur, Sour Natural Gas, **Natural Gas Sweeting**, **Petroleum Production**, Field Layout, **Production** Techniques & Control, **Surface Production** Operations, **Oil Processing**, Oil Transportation-Methods, **Flowmetering & Custody Transfer** and **Oil Refinery**. Further, he is also well-versed in Enhanced Oil Recovery (**EOR**), Electrical Submersible Pumps (**ESP**), **Oil Industries Orientation**, **Geophysics**, Cased Hole **Formation Evaluation**, Cased Hole **Applications**, Cased Hole **Logs**, Production **Operations**, Production **Management**, Perforating **Methods & Design**, Perforating **Operations**, **Fishing** Operations, **Well & Reservoir** Testing, **Reservoir Stimulation**, **Hydraulic Fracturing**, **Carbonate** Acidizing, **Sandstone** Acidizing, **Drilling Fluids Technology**, Drilling **Operations**, **Directional** Drilling, **Artificial Lift**, **Gas Lift Design**, **Gas Lift Operations**, **Petroleum Business**, **Field Development Planning**, **Gas Lift Valve** Changing & Installation, **Well Completion** Design & Operation, Well **Surveillance**, Well **Testing**, Well **Stimulation** & **Control** and **Workover Planning**, **Completions** & **Workover**, **Rig Sizing**, **Hole Cleaning** & **Logging**, **Well Completion**, **Servicing** and **Work-Over Operations**, Practical **Reservoir Engineering**, **X-mas Tree & Wellhead** Operations, Maintenance & Testing, **Advanced Petrophysics/Interpretation** of **Well Composite**, **Construction Integrity** & **Completion**, **Coiled Tubing Technology**, **Corrosion Control**, **Slickline**, **Wireline & Coil Tubing**, **Pipeline Pigging**, **Corrosion Monitoring**, **Cathodic Protection** as well as Root Cause Analysis (**RCA**), Root Cause Failure Analysis (**RCFA**), **Gas Conditioning & Process Technology**, **Production Safety** and **Delusion of Asphalt**. Currently, he is the **Operations Consultant** & the **Technical Advisor** at **GEOTECH** and an independent **Drilling Operations Consultant** of various engineering services providers to the international clients as he offers his expertise in many areas of the **drilling & petroleum discipline** and is well **recognized & respected** for his process and procedural expertise as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.

Throughout his long career life, Dr. Chris has worked for many international companies and has spent several years **managing** technically **complex wellbore interventions** in both **drilling** & **servicing**. He is a **well-regarded** for his **process** and **procedural expertise**. Further, he was the **Operations Manager** at **ETP Crude Oil Pipeline Services** where he was fully responsible for optimum operations of crude oil pipeline, **workover** and **directional drilling**, **drilling rigs** and equipment, drilling of various geothermal deep wells and **exploration wells**. Dr. Chris was the **Drilling** & **Workover Manager** & **Superintendent** for **Kavala Oil** wherein he was responsible for supervision of **drilling operations** and **offshore exploration**, quality control of performance of **rigs**, **coiled tubing**, crude oil transportation via pipeline and abandonment of **well** as per the API requirements. He had occupied various key positions as the **Drilling Operations Consultant**, **Site Manager**, **Branch Manager**, **Senior Drilling** & **Workover Manager** & **Engineer** and **Drilling** & **Workover Engineer**, **Operations Consultant**, **Technical Advisor** in several petroleum companies responsible mainly on an **offshore** sour oil field (under water flood and gas lift) and a gas field. Further, Dr. Chris has been a **Professor** of the **Oil Technology College**.

Dr. Chris has **PhD** in **Reservoir Engineering** and a **Master's** degree in **Drilling & Production Engineering** from the **Petrol-Gaze Din Ploiesti University**. Further, he is a **Certified Surfaced BOP Stack Supervisor** of **IWCF**, a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has conducted **numerous short courses**, **seminars** and **workshops** and has published several technical books on **Production Logging**, **Safety Drilling Rigs** and **Oil Reservoir**.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Sunday, 13th of October 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Artificial Lift*** *Definition and Purpose of Artificial Lift • Applications in Oil and Gas Production • Economic Impact of Artificial Lift on Production Rates • Types of Artificial Lift Systems*
0930 – 0945	*Break*
0945 – 1030	***History & Evolution of Artificial Lift*** *Early Artificial Lift Methods • Technological Advancements in Artificial Lift • Key Milestones in the Development of Lift Systems • Importance of Continuous Innovation in Artificial Lift*
1030 – 1130	***Fundamentals of Reservoir Performance*** *Reservoir Pressure and Its Impact on Production • Decline Curves and Production Forecasting • Fluid Properties and Their Effects on Lift Systems • Well Performance Monitoring*
1130 – 1215	***Types of Artificial Lift Systems*** *Rod Lift Systems • Gas Lift Systems • Electrical Submersible Pumps (ESPs) • Hydraulic Lift Systems*
1215 – 1230	*Break*
1230 – 1330	***Key Performance Indicators (KPIs) in Artificial Lift*** *Measuring Pump Efficiency and Performance • Calculating Production Rates and Lift Costs • Analyzing Wellhead Pressures • System Optimization for Maximum Output*
1330 – 1420	***Health, Safety & Environmental (HSE) Considerations*** *Safety Protocols for Installation and Operation • Environmental Impact of Artificial Lift Systems • Hazard Identification and Risk Assessment • Compliance with Industry Regulations*
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: ***Monday, 14th of October 2025***

0730 – 0830	***Overview of Rod Lift Systems*** *Components of a Rod Lift System • Types of Pumps Used in Rod Lift Systems • Operating Principles of Rod Lift • Key Advantages and Challenges*
0830 – 0930	***Designing & Selecting Rod Lift Systems*** *Wellbore Design Considerations • Pump Size and Configuration • Matching Rod Lift to Well Conditions • Optimizing Rod Lift Performance*
0930 – 0945	*Break*

0945 – 1100	***Installation & Maintenance of Rod Lift Systems*** *Procedures for System Installation • Common Installation Challenges • Maintenance Best Practices • Troubleshooting Common Issues*
1100 – 1215	***Operational Challenges with Rod Lift Systems*** *Gas Interference and Its Effects • Equipment Wear and Tear • Handling High-Viscosity Fluids • Pressure and Temperature Limitations*
1215 – 1230	*Break*
1230 – 1330	***Performance Optimization for Rod Lift*** *Load Balancing and System Adjustments • Monitoring and Control of Stroke Lengths • Impact of Surface Equipment on Performance • Case Studies of Performance Optimization*
1330 – 1420	***Rod Lift Failures & Troubleshooting*** *Identifying Symptoms of Failure • Common Causes of Rod Lift Failure • Corrective Measures for System Failures • Downtime Reduction Strategies*
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: ***Tuesday, 15th of October 2025***

0730 – 0830	***Basics of Gas Lift Systems*** *Basic Principles of Gas Lift Technology • Gas Lift Components and Their Functions • Types of Gas Lift Systems • Comparison with Other Artificial Lift Methods*
0830 – 0930	***Design & Installation of Gas Lift Systems*** *Wellbore Design for Gas Lift • Selecting Gas Lift Valves and Equipment • Installation Procedures and Considerations • Design Optimization for Gas Lift Systems*
0930 – 0945	*Break*
0945 – 1100	***Operation of Gas Lift Systems*** *Gas Injection Rates and Optimization • Impact of Gas Supply on System Performance • Handling Varying Gas-Liquid Ratios • Monitoring and Controlling Gas Lift Operations*
1100 – 1215	***Gas Lift Troubleshooting & Maintenance*** *Identifying Under-Performance Issues • Gas Lift Valve Failure and Its Causes • Troubleshooting Gas Injection Problems • Corrective Actions for Gas Lift System Failures*
1215 – 1230	*Break*
1230 – 1330	***Economic & Environmental Aspects of Gas Lift*** *Cost-Effectiveness of Gas Lift Systems • Environmental Considerations in Gas Lift Operations • Emissions Control and Mitigation • Gas Lift System Life Cycle Analysis*
1330 – 1420	***Advanced Gas Lift Techniques*** *Dual and Multistage Gas Lift Systems • Inflow Control Devices (ICDs) • Hybrid Systems Combining Gas Lift with Other Methods • Future Trends in Gas Lift Technology*
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*

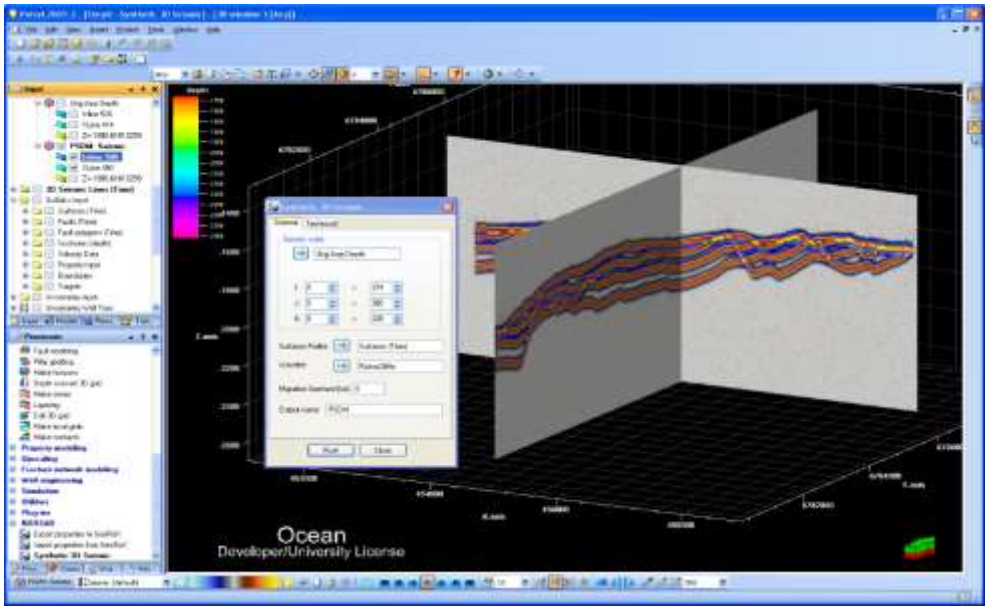
Day 4:	Wednesday, 16th of October 2025
0730 – 0830	***Overview of Electrical Submersible Pumps (ESPs)*** *Working Principles of ESPs • Key Components and Their Functions • Types of ESPs and Their Applications • Advantages and Limitations of ESP Systems*
0830 – 0930	***Design & Selection of ESP Systems*** *Well Characteristics for ESP Installation • ESP Sizing and Configuration • Submersible Motor Selection • Impact of Fluid Type and Flow Rates on Design*
0930 – 0945	*Break*
0945 – 1100	***Installation & Commissioning of ESP Systems*** *Procedures for ESP Installation • Challenges During Installation • Commissioning Steps and Performance Checks • Handling Well Conditions During Commissioning*
1100 – 1215	***Operational Considerations for ESPs*** *Monitoring and Controlling ESP Performance • System Efficiency and Energy Consumption • Impact of Gas and Solids on ESP Performance • Troubleshooting Common ESP Issues*
1215 – 1230	*Break*
1230 – 1330	***Maintenance of ESP Systems*** *Scheduled Maintenance Routines • Preventative Maintenance Strategies • Identifying Early Signs of Equipment Failure • Performance Monitoring and Optimization*
1330 – 1420	***Future of ESP Technology*** *Advancements in ESP Design and Materials • Integration with Real-Time Monitoring Systems • Trends Towards Higher Efficiency and Longevity • ESP Applications in Unconventional Reservoirs*
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:	Thursday, 17th of October 2025
0730 – 0830	***Hydraulic Lift Systems*** *Basic Principles of Hydraulic Lift • Key Components of Hydraulic Lift Systems • Applications and Limitations • Comparison with Other Lift Systems*
0830 – 0930	***Designing & Implementing Hydraulic Lift Systems*** *Well and Reservoir Considerations for Hydraulic Lift • Pump Selection and Configuration • Installation and Commissioning • Performance Monitoring*
0930 – 0945	*Break*
0945 – 1100	***Emerging Artificial Lift Technologies*** *Progress in Hybrid Lift Systems • New Technologies in Plunger and Hydraulic Lifts • Integration with Digital and IoT Technologies • Future Trends in Artificial Lift*
1100 – 1215	***Digital Technologies in Artificial Lift Systems*** *Real-Time Data Acquisition and Analysis • Automation and Control in Artificial Lift Operations • Digital Twins for Lift System Optimization • Predictive Maintenance Using AI and Machine Learning*
1215 – 1230	*Break*

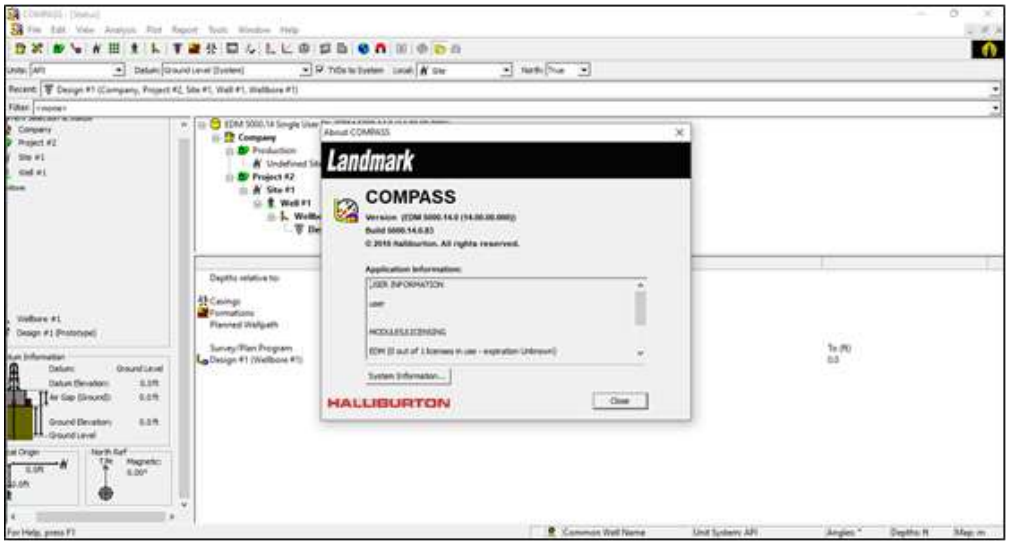
1230 – 1345	***Economic Evaluation of Artificial Lift Technologies*** *Cost-Benefit Analysis for Artificial Lift Methods • Life Cycle Cost Analysis • Impact of System Selection on Production Rates • Optimization for Minimal Downtime*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

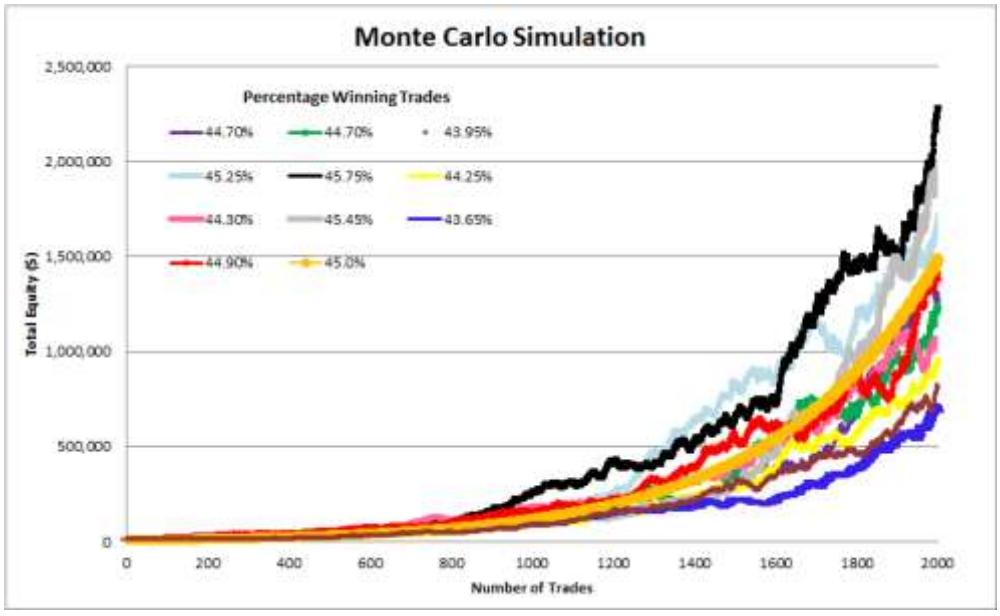
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the "Petrel Software", "COMPASS", "Monte Carlo", "KAPPA", "Interactive Petrophysics (IP)", "ECRIN", "PIPESIM", "PROSPER" software's and "Eclipse Software"



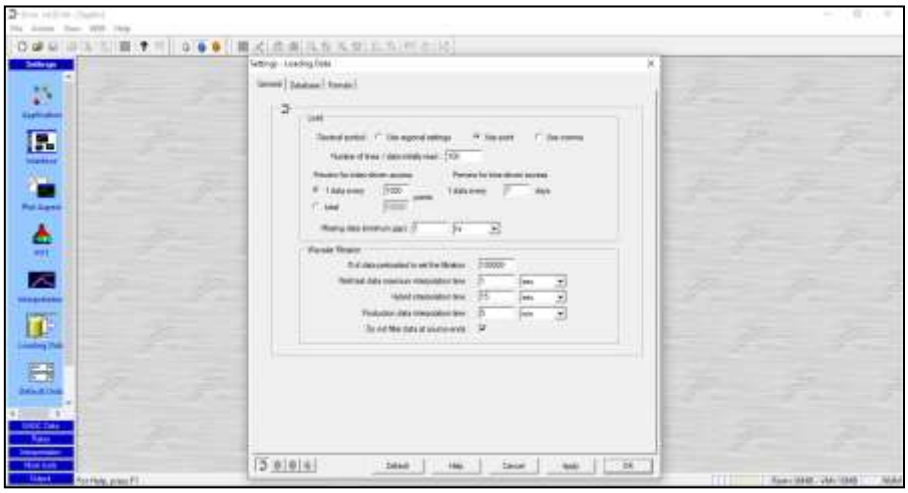
Petrel Software



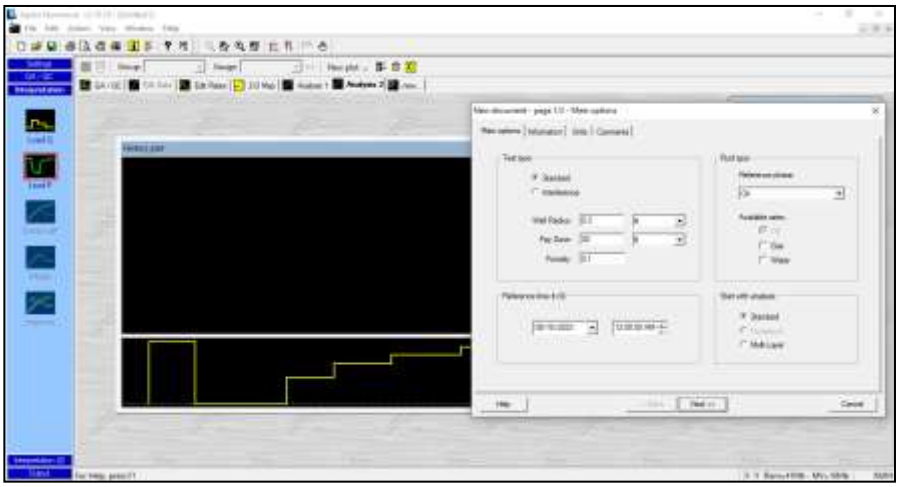
COMPASS



Monte Carlo Simulation



KAPPA Ecrin v4.02.04



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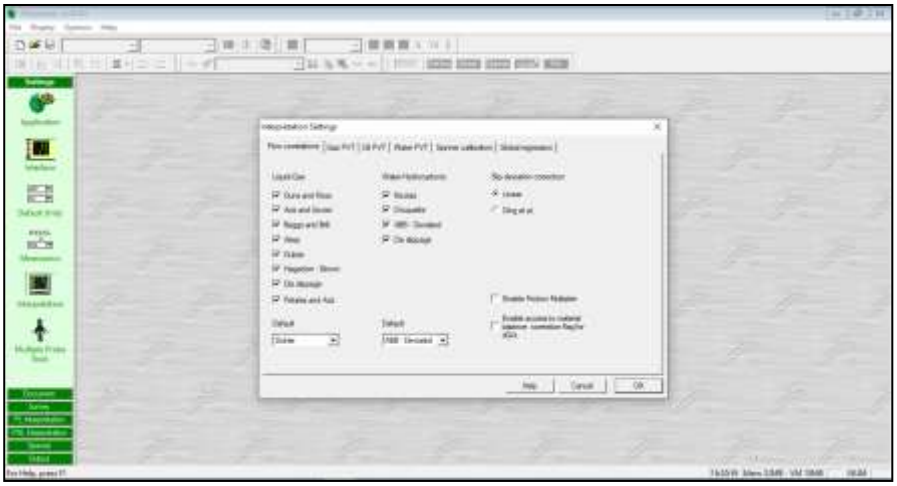
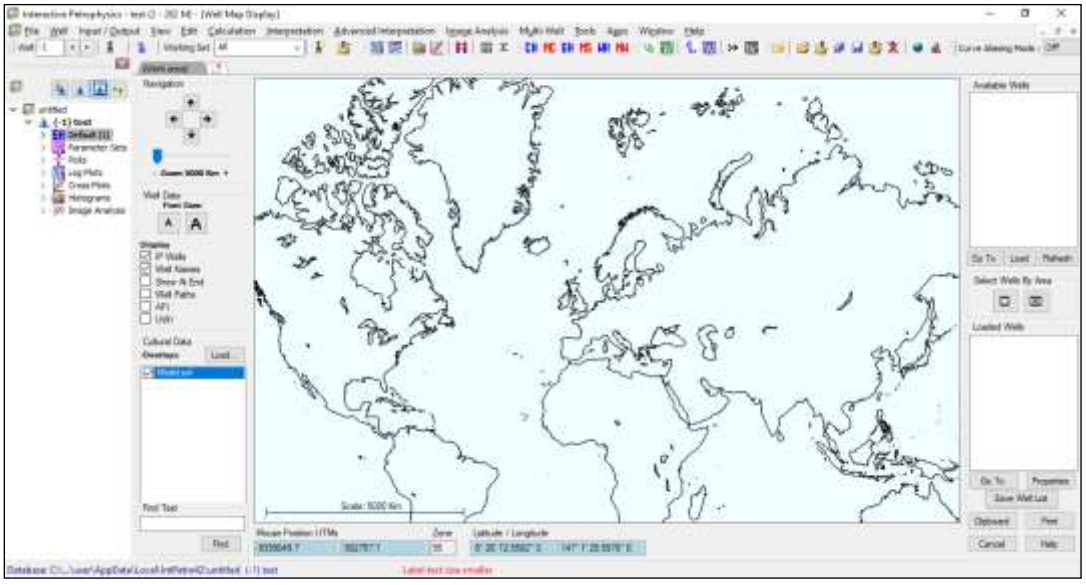
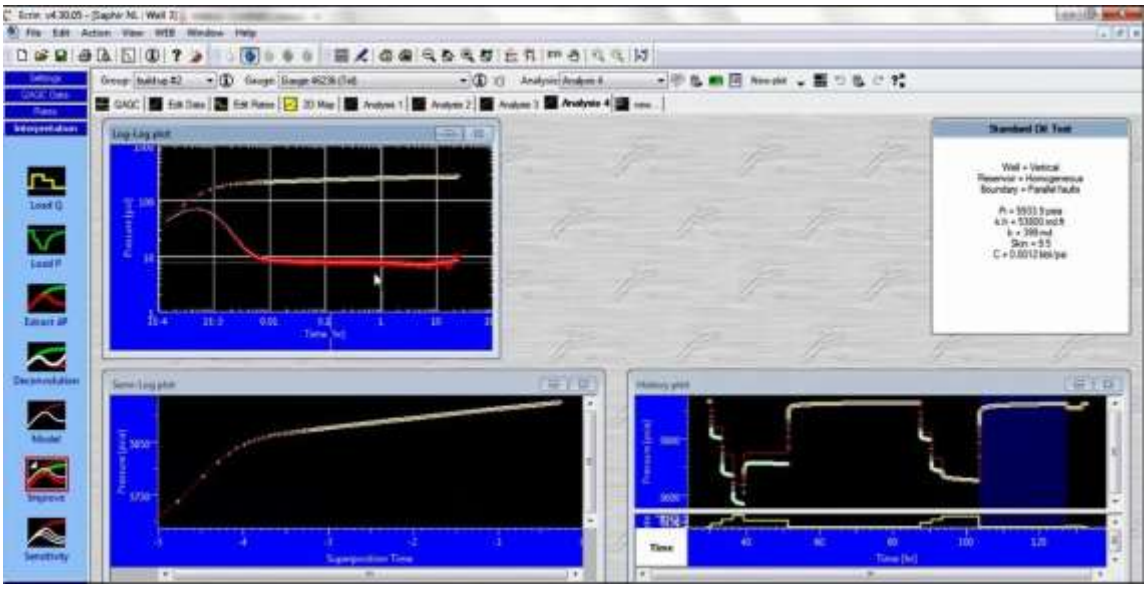


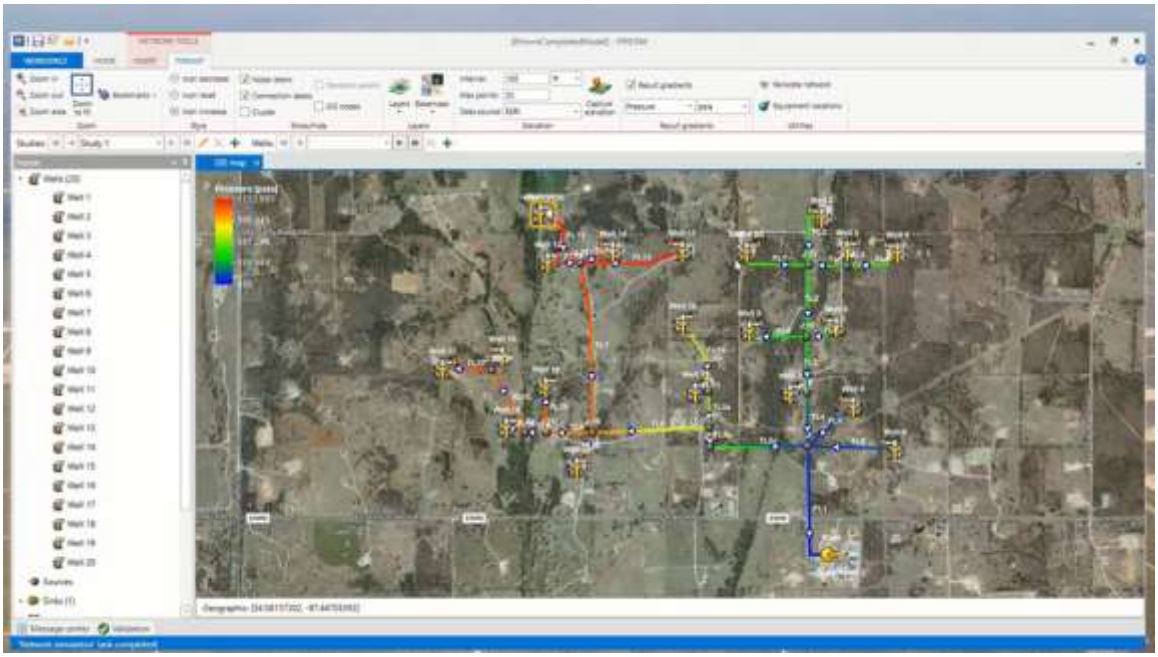
KAPPA Emeraude v2.40.05



Interactive Petrophysics (IP) Software



ECRIN Software



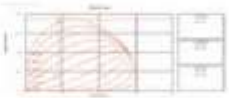
PIPESIM

PROSPER

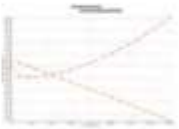
MULTIPHASE WELL AND PIPELINE NODAL ANALYSIS

WELL AND PIPELINE MODELS

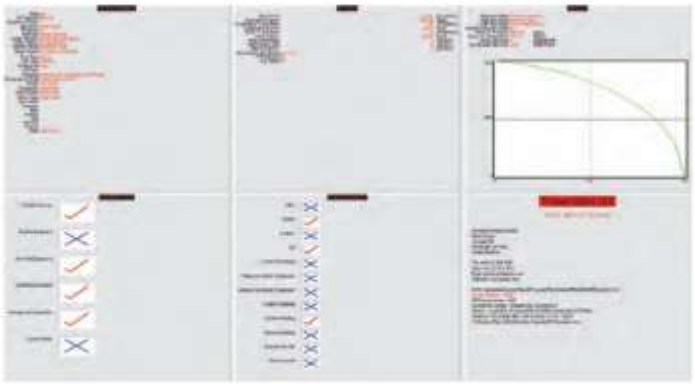
FULLY COMPOSITIONAL



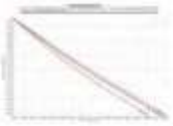
INFLOW/OUTFLOW RESPONSE



STEAM WELLS



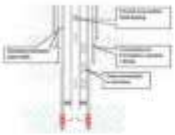
OUTFLOW (VLPs) MODELS



FLOW ASSURANCE

ARTIFICAL LIFT SYSTEMS

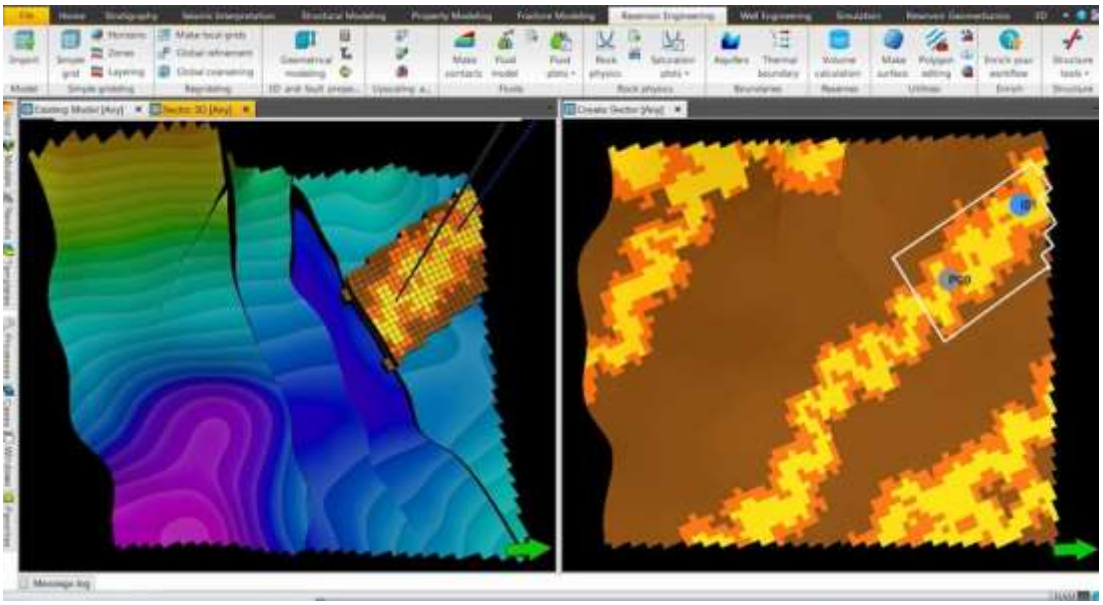
THERMAL MODELLING



PERFORATION DESIGN AND PERFORMANCE

MULTILATERAL COMPLETIONS

INFLOW (IPRs) MODELS



Eclipse Software

Course Coordinator

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