COURSE OVERVIEW DE1069
Horizontal Drilling Geosteering & Reporting

Course Title
Horizontal Drilling Geosteering & Reporting

Course Date/Venue
Please see page 3

Course Reference
DE1069

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 Horizontal Drilling Geosteering & Reporting. It covers the fundamentals of horizontal drilling, directional drilling concepts and geosteering; the lithological and stratigraphic interpretation, real-time data acquisition systems and software tools for geosteering; the pre-drill modeling and planning and LWD logs for geosteering; the structural interpretation while drilling, geo-targeting and wellbore placement; communicating with rig and operations team; the geological uncertainty, geosteering in unconventional reservoirs and navigating faults, folds and complex stratigraphy; and the multi-well pad and geo-spacing strategies, performance optimization and ethical and regulatory aspects.

During this interactive course, participants will learn the daily geosteering report preparation, final well report and end-of-well summary and visualization and mapping for reporting; the data archiving, version control and collaborative workflows; the software-specific reporting tools for exporting maps, logs and plots; planning documentation, execution and real-time updates and review; troubleshooting common geosteering issues; and the emerging technologies and innovations comprising of AI and machine learning in geosteering, automated boundary detection, real-time 3D geosteering and future of remote geosteering operations.

Course Objectives

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

- Apply and gain an in-depth knowledge on horizontal drilling geosteering and reporting
- Discuss the fundamentals of horizontal drilling, directional drilling concepts and geosteering
- Carryout lithological and stratigraphic interpretation and recognize real-time data acquisition systems and software tools for geosteering
- Illustrate pre-drill modeling and planning and interpret LWD logs for geosteering
- Apply structural interpretation while drilling, geo-targeting and wellbore placement and communication with the rig and operations team
- Handle geological uncertainty, discuss geosteering in unconventional reservoirs and navigate faults, folds and complex stratigraphy
- Employ multi-well pad and geo-spacing strategies, performance optimization and ethical and regulatory aspects
- Apply daily geosteering report preparation, final well report and end-of-well summary and visualization and mapping for reporting
- Illustrate data archiving and version control as well as collaborative workflows
- Identify software-specific reporting tools for exporting maps, logs and plots
- Review planning documentation and apply execution and real-time updates and review
- Troubleshoot common geosteering issues covering sudden formation loss, LWD sensor failure, discrepancy between logs and cuttings and horizontal section instability
- Discuss the emerging technologies and innovations comprising of AI and machine learning in geosteering, automated boundary detection, real-time 3D geosteering and future of remote geosteering operations

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 horizontal drilling geosteering and reporting for drilling engineers, geosteering engineers, geologists, petrophysicists, reservoir engineers, mud logging engineers, operations and field supervisors 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 Date/Venue

Session(s)	Date	Venue
1	June 15-19, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
2	August 04-08, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	October 05-09, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
4	December 08-12, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

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: -

- 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.

- 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.

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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Fundamentals of Horizontal Drilling*** *Definition & Evolution of Horizontal Wells • Comparison with Vertical & Deviated Drilling • Key Benefits & Limitations • Horizontal Drilling Applications in Various Formations*
0930 – 0945	*Break*
0945 – 1030	***Directional Drilling Concepts*** *Terminology (Inclination, Azimuth, Dogleg Severity) • Well Trajectory Design Types • Surveying Techniques & Tools • Magnetic versus Gyroscopic Measurements*
1030 – 1130	***Basics of Geosteering*** *Purpose & Objectives of Geosteering • Basic Principles & Workflows • Role of Geosteering in Reservoir Exposure • Traditional versus Real-Time Geosteering*
1130 – 1215	***Lithological & Stratigraphic Interpretation*** *Rock Types & Depositional Environments • Stratigraphic Traps & Lateral Continuity • Gamma Ray Signature Correlation • Mud Log & Cuttings Correlation*
1215 – 1230	*Break*
1230 – 1330	***Real-Time Data Acquisition Systems*** *MWD/LWD Overview • Key Measurements Used in Geosteering • Real-Time Data Transmission (Telemetry) • Limitations & Quality Control*
1330 – 1420	***Software Tools for Geosteering*** *Overview of Industry-Standard Software (e.g., StarSteer, Rogii, Geographix) • Real-Time Data Visualization & Integration • Formation Top Mapping • Software versus Manual Interpretation*
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	***Pre-Drill Modeling & Planning*** *Geological Model Construction • Well Plan Design & Target Window Definition • Uncertainty Evaluation • Cross-Section & Map View Creation*
0830 – 0930	***Interpreting LWD Logs for Geosteering*** *Gamma Ray Log Interpretation • Resistivity Tools for Boundary Detection • Azimuthal Image Log Analysis • Density/Neutron Porosity Relevance*
0930 – 0945	*Break*
0945 – 1100	***Structural Interpretation While Drilling*** *Dip Picking Techniques • Fault Identification & Avoidance • Bed Boundary Identification • Structural Updates While Drilling*
1100 – 1215	***Geo-Targeting & Wellbore Placement*** *Defining Target Zones (Sweet Spots) • Wellbore Positioning versus Structural Model • Target Deviation Handling • Updates to Planned Trajectory*

1215 – 1230	*Break*
1230 – 1330	***Communication with the Rig & Operations Team*** *Daily Reporting Format & Key Contents • Geosteering Recommendation Memos • Communication Protocols with Directional Drillers • Safety & HSE Communication*
1330 – 1420	***Case Studies: Successful Geosteering Campaigns*** *Overview of Diverse Geological Settings • Tools & Software Used • Decisions Made versus Actual Outcome • Lessons Learned*
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 – 0830	***Handling Geological Uncertainty*** *Sources of Uncertainty in Real-Time Operations • Uncertainty in Depth Conversion • Confidence Interval Mapping • Use of Probabilistic Models*
0830 – 0930	***Geosteering in Unconventional Reservoirs*** *Tight Gas & Shale Considerations • Horizontal Landing & Navigation • Importance of Brittleness & TOC Logs • Fracability Indicators*
0930 – 0945	*Break*
0945 – 1100	***Navigating Faults, Folds & Complex Stratigraphy*** *Pre-Identification from Seismic & Logs • Real-Time Updates in Faulted Terrains • Strategy for Crossing Faults • Structural Dip Corrections on the Fly*
1100 – 1215	***Multi-Well Pad & Geo-Spacing Strategies*** *Planning for Parallel Horizontal Wells • Well Spacing & Drainage Area Considerations • Interference & Communication • Geo-Model Adjustments Post-Drilling*
1215 – 1230	*Break*
1230 – 1330	***Performance Optimization*** *Drilling Efficiency Indicators • ROP versus Geosteering Precision Trade-Off • Bit & BHA Optimization • Measuring Success of a Geosteering Campaign*
1330 – 1420	***Ethical & Regulatory Aspects*** *Regulatory Reporting Requirements • Data Integrity & Transparency • Environmental Considerations • Anti-Collision & Permit Compliance*
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 – 0830	***Daily Geosteering Report Preparation*** *Key Components of a Geosteering Report • Mapping Updates & Interpretations • Recommendations & Justifications • Integration of Drilling Data*
0830 – 0930	***Final Well Report & End-of-Well Summary*** *Compilation of All Geosteering Decisions • Graphical Summaries & Cross-Sections • Geosteering Kpis & Metrics • Lessons Learned & Best Practices*
0930 – 0945	*Break*

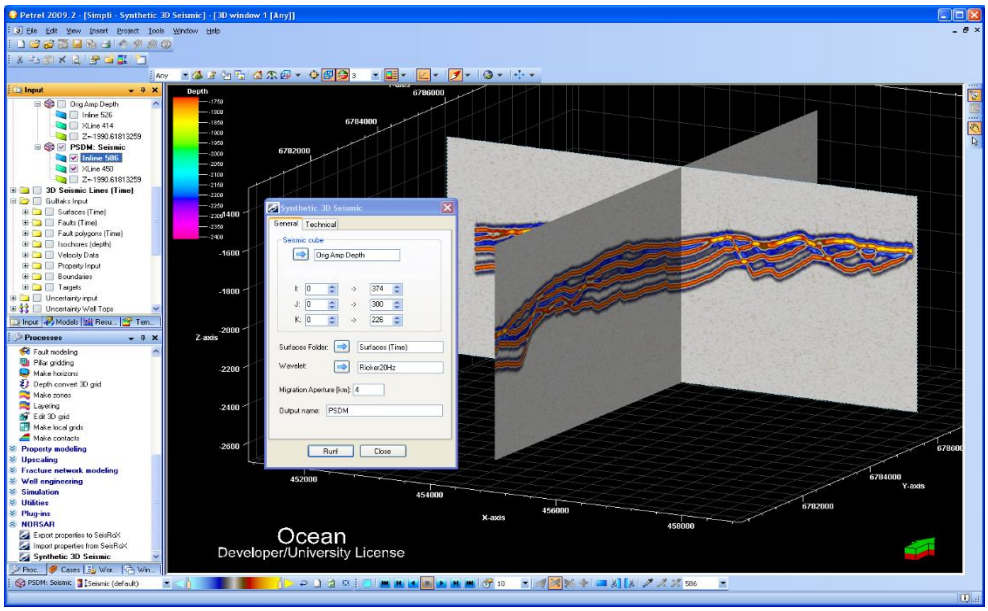
0945 – 1100	***Visualization & Mapping for Reporting*** *Structural Cross-Sections • Stratigraphic Column Updates • TVD versus MD Plots • 3D Visualization Tools*
1100 – 1215	***Data Archiving & Version Control*** *Standardized Data Formats (e.g., LAS, DLIS) • Version Tracking in Software Platforms • Cloud-Based Geosteering Repositories • Interfacing with Corporate Databases*
1215 – 1230	*Break*
1230 – 1330	***Collaborative Workflows*** *Shared Platforms Between Asset Teams • Role of Remote Operations Centers • Multidisciplinary Interpretation & Reviews • Live Interpretation Collaboration*
1330 – 1420	***Software-Specific Reporting Tools*** *Exporting Maps, Logs & Plots • Generating Automated Reports • Customizing Templates • Report Validation & Peer Review*
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

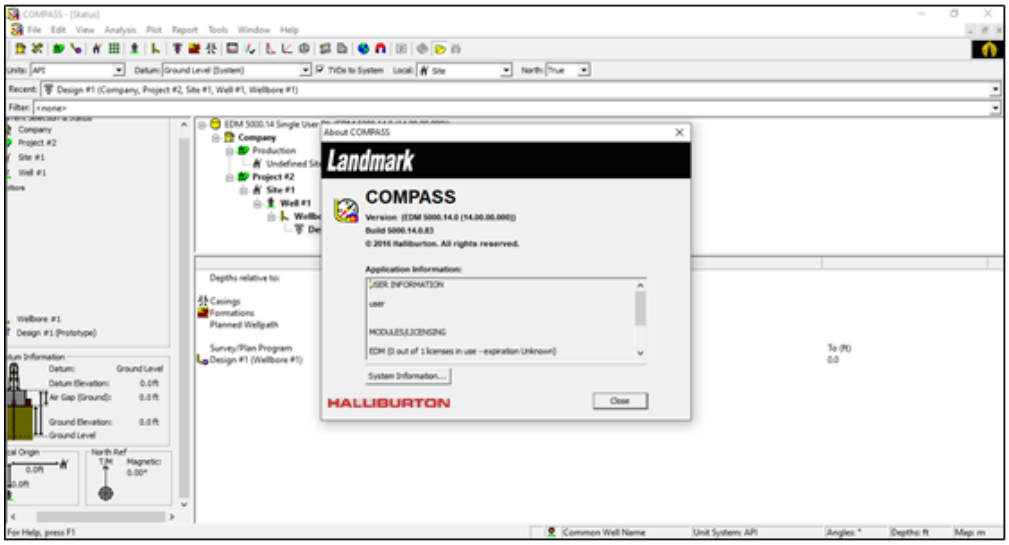
0730 – 0830	***Live Geosteering Simulation (Part 1)*** *Introducing Real-World Datasets • Interpreting Initial Logs & Models • Making Landing Decisions • Adjusting Targets in Real Time*
0830 – 0930	***Live Geosteering Simulation (Part 2)*** *Adjusting to Formation Changes • Logging Interpretation versus Model Prediction • Making Sidetrack Decisions • Communicating with the Rig Team*
0930 – 0945	*Break*
0945 – 1100	***Full Workflow: from Planning to Reporting*** *Review of Planning Documentation • Execution & Real-Time Updates • End-Of-Well Reporting Walkthrough • Peer Feedback & Instructor Review*
1100 – 1230	***Troubleshooting Common Geosteering Issues*** *Sudden Formation Loss • LWD Sensor Failure • Discrepancy Between Logs & Cuttings • Horizontal Section Instability*
1230 – 1245	*Break*
1245 – 1345	***Emerging Technologies & Innovations*** *AI & Machine Learning in Geosteering • Automated Boundary Detection • Real-Time 3D Geosteering • Future of Remote Geosteering Operations*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course 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" and "PROSPER" software's.



Petrel Software



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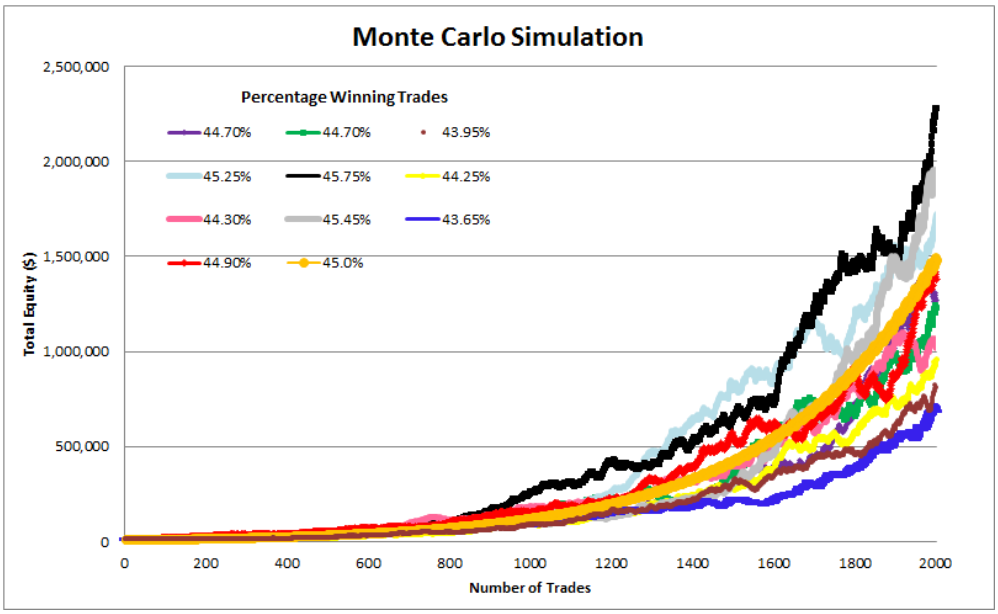
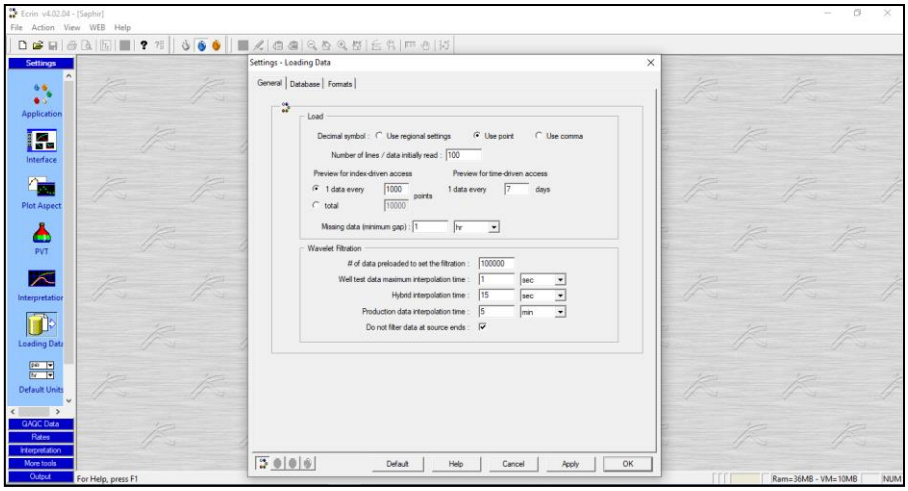


Monte Carlo Simulation



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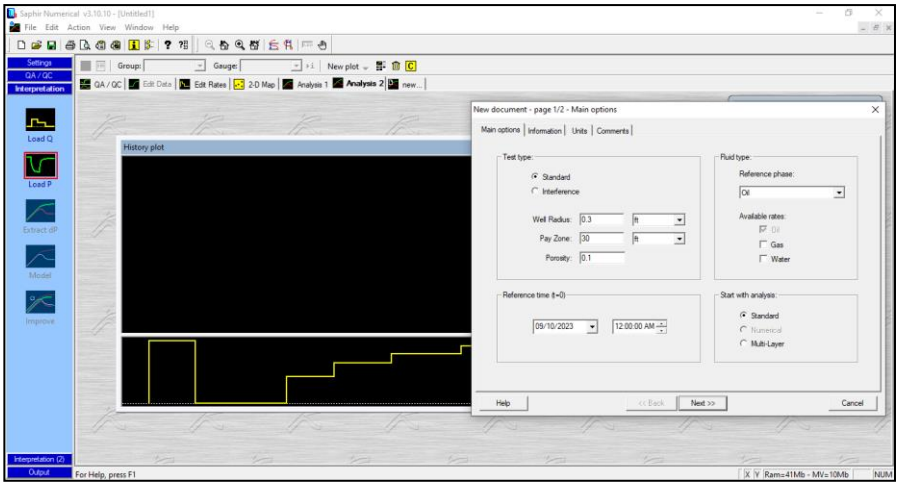

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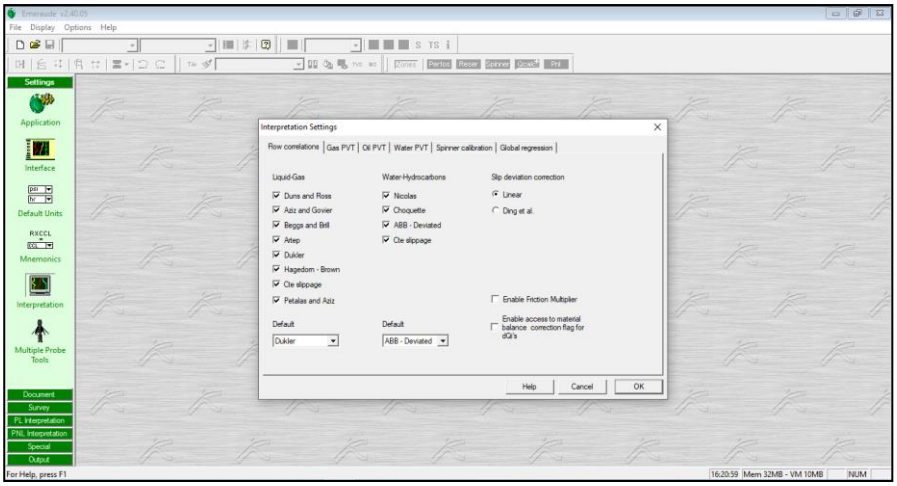

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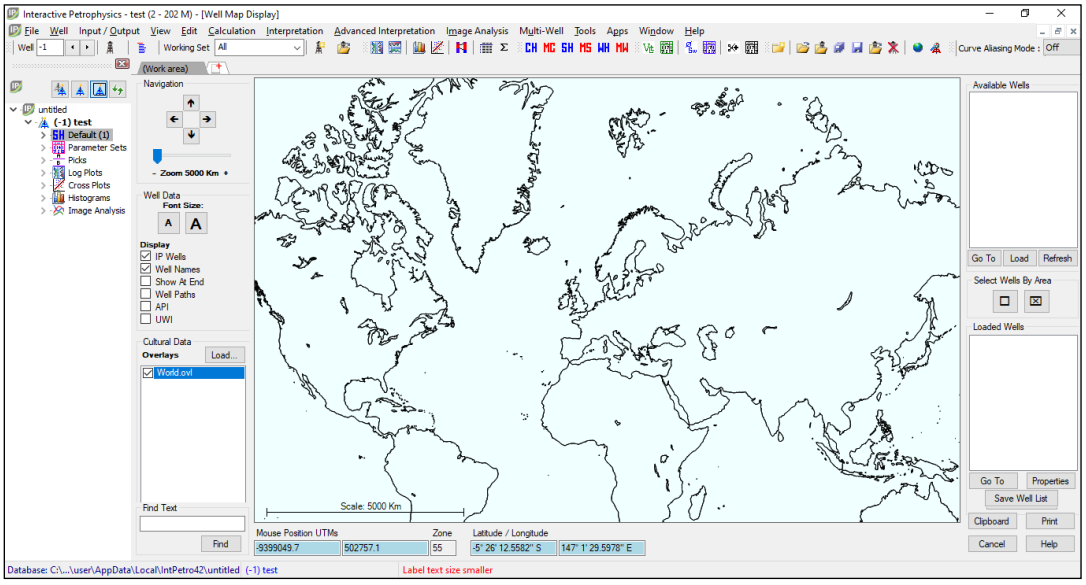
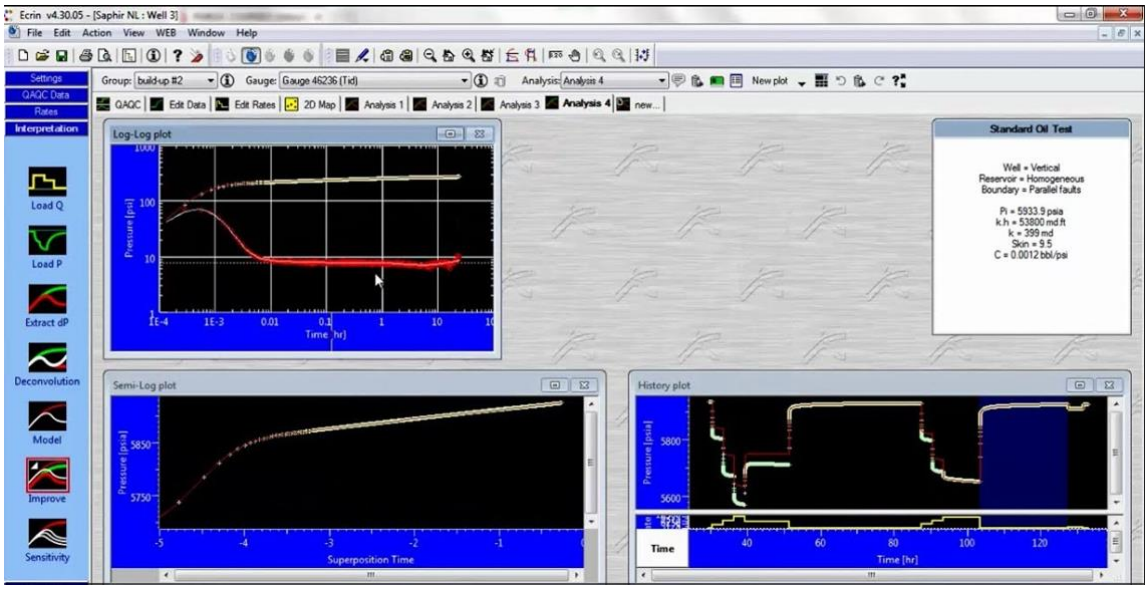
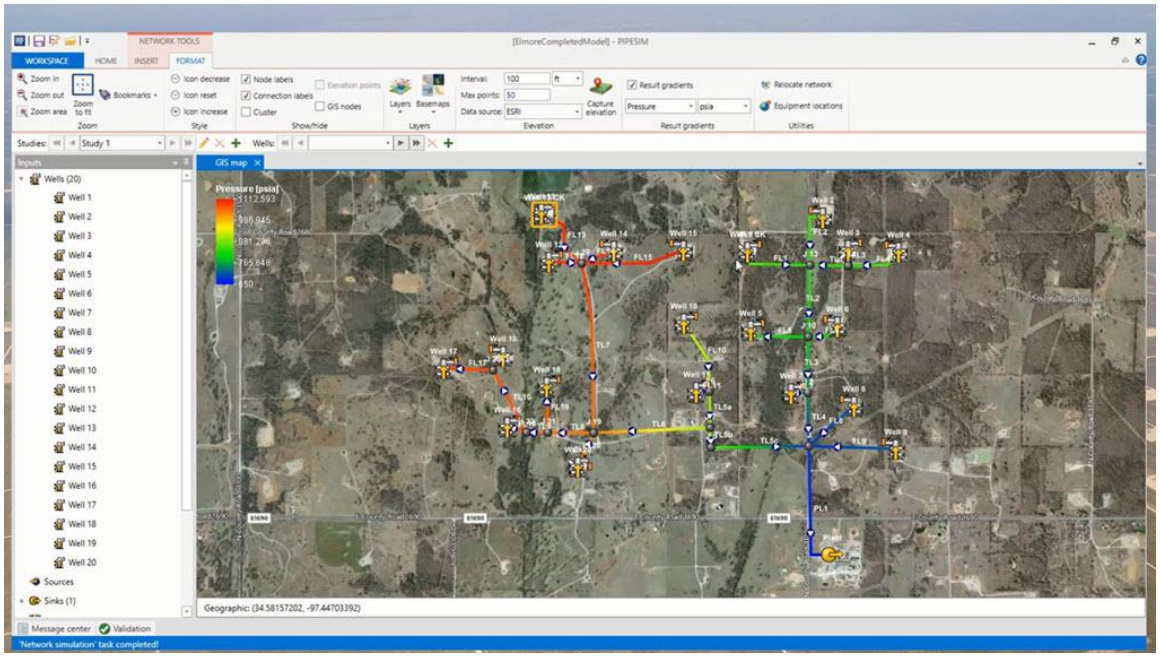


Interactive Petrophysics (IP) Software



ECRIN Software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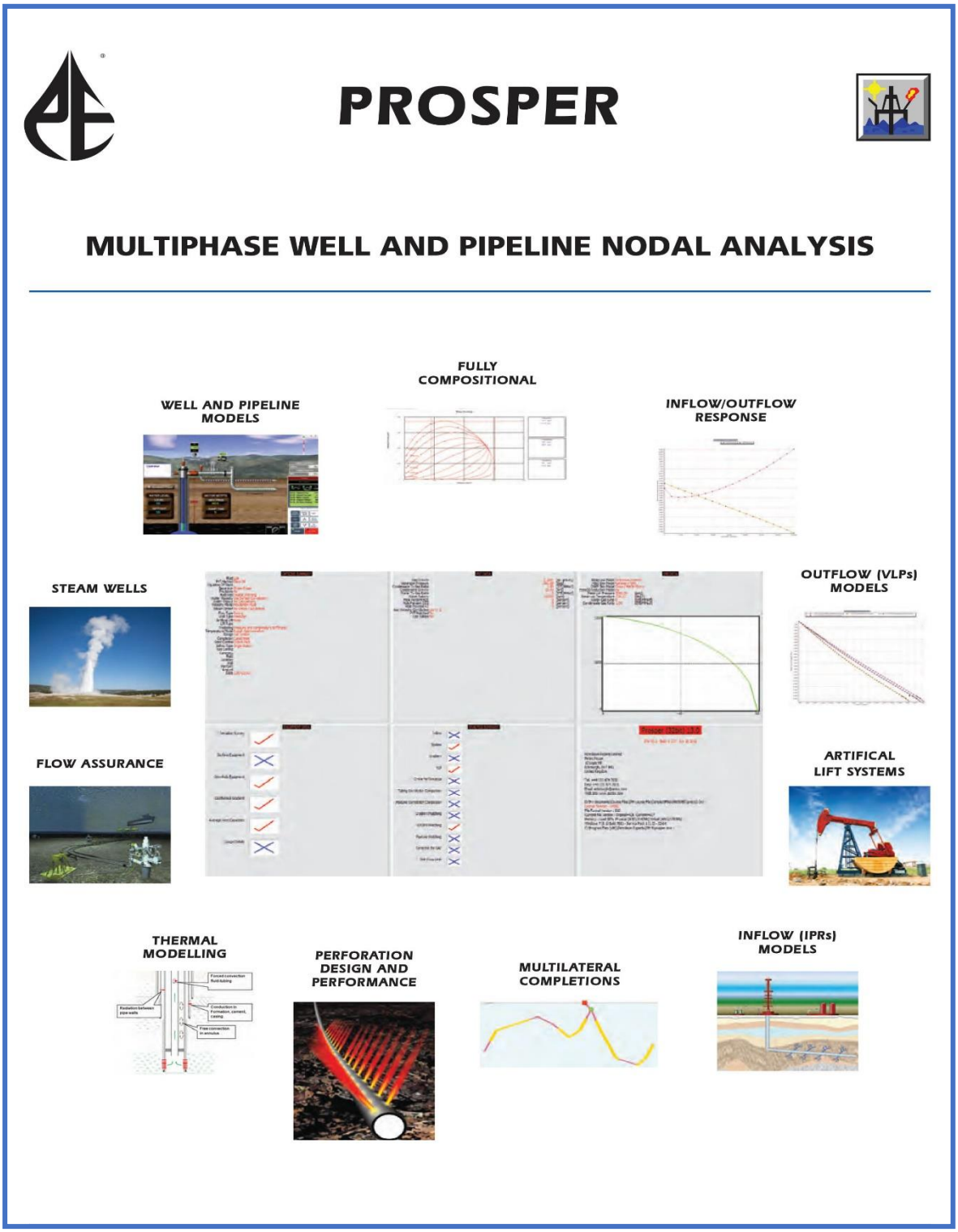

Course Coordinator
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