COURSE OVERVIEW DE0985-3D
Introduction to Drilling

Course Title
Introduction Drilling

Course Reference
DE0985-3D

Course Duration/Credits
Three days/1.8 CEUs/18 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	May 25-27, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	July 20-22, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
3	September 15-17, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
4	November 09-11, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

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 Introduction to Drilling. It covers the role of drilling in upstream operations including drilling rig components and classification; the drilling location selection, well trajectory planning and casing and cementing plan; the drill string components, drilling fluids (mud) and drilling process and operational sequence; the wellbore stability and pressure management including casing and cementing operations; the reasons for directional drilling, deflection tools, and wellbore positioning, dogleg severity and trajectory control; and the Recognize drill bit types and selection criteria, drilling problems and troubleshooting.

During this interactive course, participants will learn the blowout prevention and well control, well shut-in and pressure monitoring and rig safety and risk management; the drilling optimization and KPI monitoring covering rate of penetration (RoP) improvement, mechanical specific energy (MSE), drilling performance metrics and non-productive time (NPT) tracking; the measurement while drilling (MWD) and logging while drilling (LWD); the managed pressure drilling (MPD), surface backpressure and dual-gradient systems; the drilling automation and digital technologies; and the environmental and regulatory considerations.

Course Objectives

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

- Apply and gain a fundamental knowledge on drilling
- Identify the role of drilling in upstream operations including drilling rig components and classification
- Select drilling location and apply well trajectory planning and casing and cementing plan
- Identify drill string components, drilling fluids (mud) and drilling process and operational sequence
- Carryout wellbore stability and pressure management including casing and cementing operations
- Identify the reasons for directional drilling, deflection tools, surveying and wellbore positioning, dogleg severity and trajectory control
- Recognize drill bit types and selection criteria, drilling problems and troubleshooting
- Apply blowout prevention and well control, well shut-in and pressure monitoring and rig safety and risk management
- Employ drilling optimization and KPI monitoring covering rate of penetration (RoP) improvement, mechanical specific energy (MSE), drilling performance metrics and non-productive time (NPT) tracking
- Apply measurement while drilling (MWD) and logging while drilling (LWD)
- Discuss managed pressure drilling (MPD), surface backpressure and dual-gradient systems
- Identify drilling automation and digital technologies as well as environmental and regulatory considerations

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 is an ideal course for anyone who needs a working understanding of drilling techniques and their applications. It has been designed for those with no previous training in drilling, such as supervisors, technicians, non-technical support staff, engineers, geologists, production and completion engineers & supervisors.

Course Fee

US$ 5,250 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

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 **1.8 CEUs** (Continuing Education Units) or **18 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:

Mr. Konstantin Zorbalas, MSc, BSc, is a **Senior Petroleum Engineer & Well Completions Specialist** with over **25 years** of **offshore** and **onshore** experience in the **Drilling Techniques**, **Hole Cleaning**, **Sloughing**, **Nozzle Selection**, **BOP Equipment**, **Seepage Losses Control**, **Well Completion Design**, **Well testing**, **Well Testing Analysis**, **Well Cementing**, **Oil** & **Gas**, **Refinery** & **Petrochemical** industries. His wide expertise includes **Workovers & Completions**, **Petroleum Risk & Decision Analysis**, **Acidizing Application** in **Sandstone** & **Carbonate**, **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**), **Production Optimization**, **Sand Control**, **PLT Correlation**, **Slickline Operations**, **Acid Stimulation**, **Production Logging**, **Project Evaluation** & **Economic Analysis**. Further, he is actively involved in **Project Management** with special emphasis in production technology and field optimization, 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.

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 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	***Overview of Drilling in Oil & Gas*** *Role of Drilling in Upstream Operations • Types of Drilling (Exploratory, Development, Appraisal) • Onshore versus Offshore Drilling • Life Cycle of a Well*
0930 – 0945	*Break*
0945 – 1030	***Drilling Rig Components & Classification*** *Land Rigs versus Offshore Rigs (Jack-Up, Semi-Sub, Drillship) • Rig Power System, Hoisting System, Rotary System • Circulating System & Blowout Preventers (BOPs) • Derrick & Substructure*
1030 – 1130	***Well Planning & Design Basics*** *Selection of Drilling Location • Well Trajectory Planning (Vertical, Directional, Horizontal) • Casing & Cementing Plan • Drilling Program & Operational Objectives*
1130 – 1215	***Drill String Components*** *Drill Pipe & Drill Collars • Heavy-Weight Drill Pipe (HWDP) • Bottom Hole Assembly (BHA) • Stabilizers, Jars & Reamers*
1215 – 1230	*Break*
1230 – 1330	***Drilling Fluids (Mud)*** *Functions of Drilling Fluids • Water-Based & Oil-Based Muds • Rheological Properties & Mud Weight • Solids Control Equipment Overview*
1330 – 1420	***Drilling Process & Operational Sequence*** *Spudding the Well • Drilling & Tripping Operations • Bit Selection & Performance • Connection & Round Trip Procedures*
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	***Wellbore Stability & Pressure Management*** *Formation Pressure & Fracture Gradients • Kick Tolerance & Casing Seat Selection • Equivalent Circulating Density (ECD) • Lost Circulation & Stuck Pipe Basics*
0830 – 0930	***Casing & Cementing Operations*** *Purpose of Casing in Well Integrity • Casing Running Procedure • Primary & Secondary Cementing • Cement Slurry Design & Testing*
0930 – 0945	*Break*
0945 – 1100	***Directional Drilling Basics*** *Reasons for Directional Drilling • Deflection Tools: Mud Motors & Rotary Steerable Systems • Surveying & Wellbore Positioning • Dogleg Severity & Trajectory Control*
1100 – 1215	***Drill Bit Types & Selection Criteria*** *Roller Cone Bits versus Fixed Cutter Bits • Bit Wear & Failure Modes • Bit Selection Based on Formation Type • IADC Bit Classification System*
1215 – 1230	*Break*
1230 – 1330	***Drilling Problems & Troubleshooting*** *Kick Detection & Shut-In Procedure • Lost Circulation Scenarios • Pipe Sticking (Differential, Mechanical) • Bit Balling & Torque Fluctuations*
1330 – 1420	***Blowout Prevention & Well Control*** *Kick Causes & Indicators • Primary versus Secondary Well Control • BOP Stack Components & Function • Well Shut-in & Pressure Monitoring*
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*

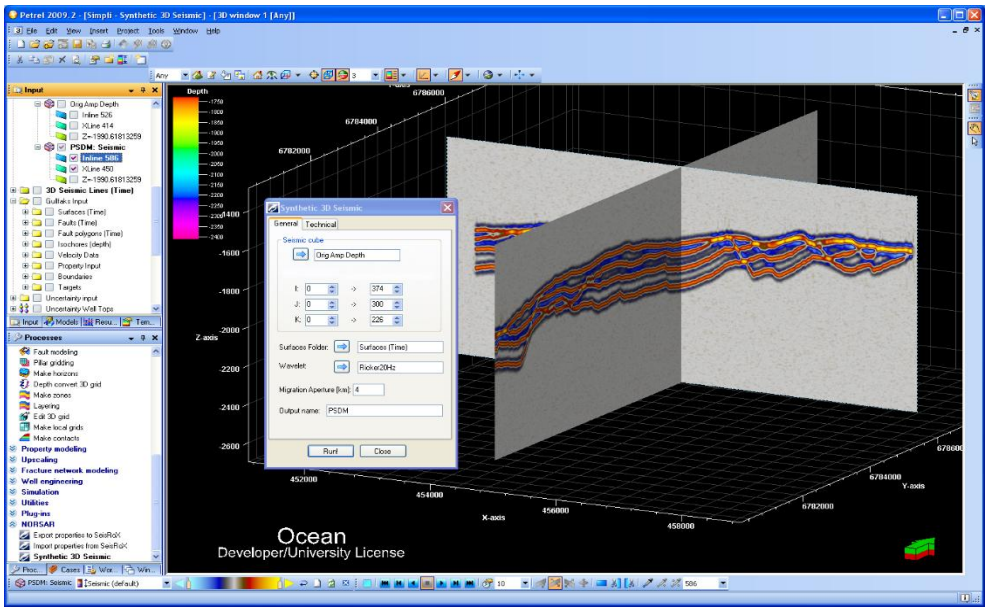
Day 3

0730 – 0830	***Rig Safety & Risk Management*** *Hazard Identification (HAZID) • Permit to Work System (PTW) • Safety Barriers & Critical Controls • Emergency Response on Rigs*
0830 – 0930	***Drilling Optimization & KPI Monitoring*** *Rate of Penetration (ROP) Improvement • Mechanical Specific Energy (MSE) • Drilling Performance Metrics • Non-Productive Time (NPT) Tracking*
0930 – 0945	*Break*
0945 – 1030	***Measurement While Drilling (MWD) & Logging While Drilling (LWD)*** *MWD Tools & Telemetry Systems • LWD for Formation Evaluation • Real-Time Data Interpretation • MWD/LWD Integration with Directional Drilling*
1030 – 1130	***Managed Pressure Drilling (MPD)*** *MPD Concept & Objectives • Surface Backpressure & Dual-Gradient Systems • MPD Equipment & Choke Manifolds • MPD versus Conventional Drilling*
1130 – 1230	***Drilling Automation & Digital Technologies*** *Automated Rig Systems • Real-Time Data Analytics & Remote Operations • Digital Twins & Predictive Maintenance • Role of AI in Drilling Optimization*
1230 – 1245	*Break*

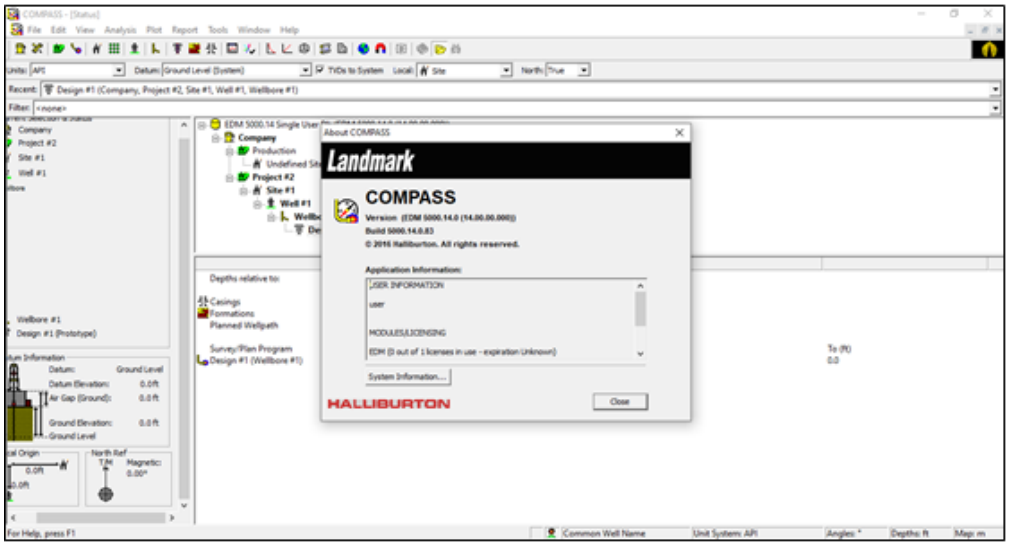
1245 – 1345	***Environmental & Regulatory Considerations*** *Environmental Impact of Drilling • Waste Management & Cuttings Disposal • Regulatory Compliance & Reporting • Sustainable Drilling Practices*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants 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)

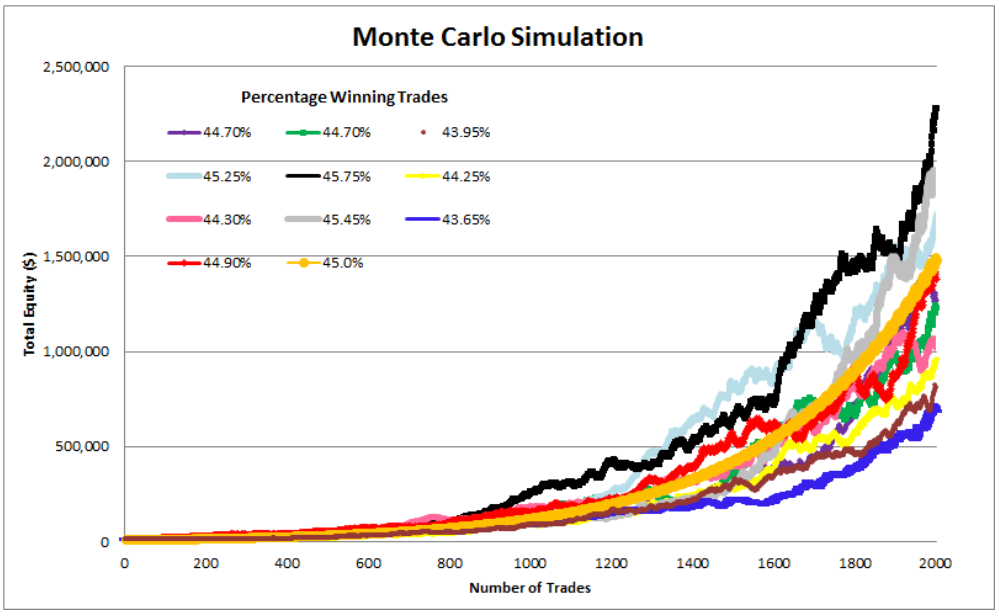
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the "Petrel Software", "COMPASS", "Monte Carlo", "KAPPA", "Interactive Petrophysics (IP)", "ECRIN", "PIPESIM", "Eclipse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



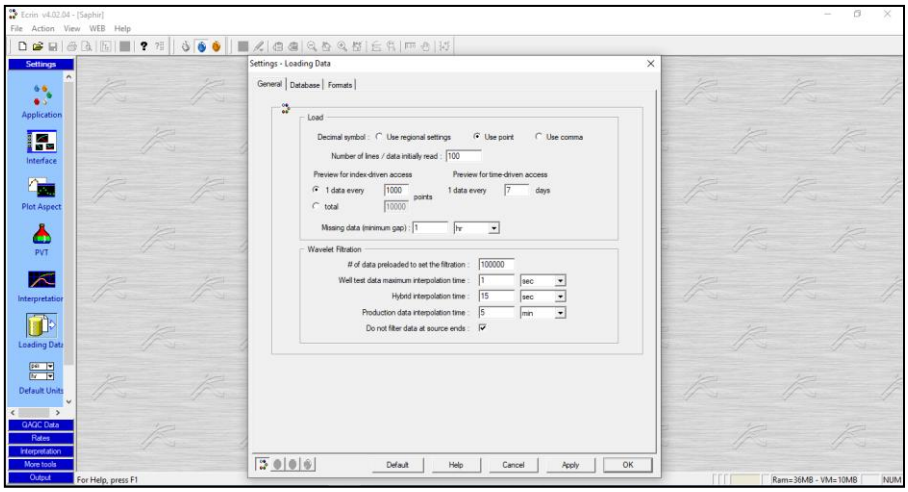
Petrel Software



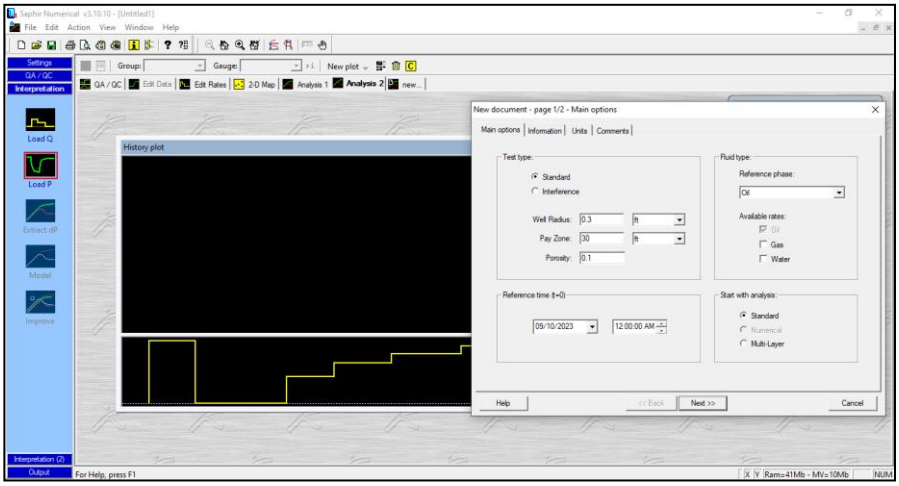
COMPASS



Monte Carlo Simulation



KAPPA Ecrin v4.02.04



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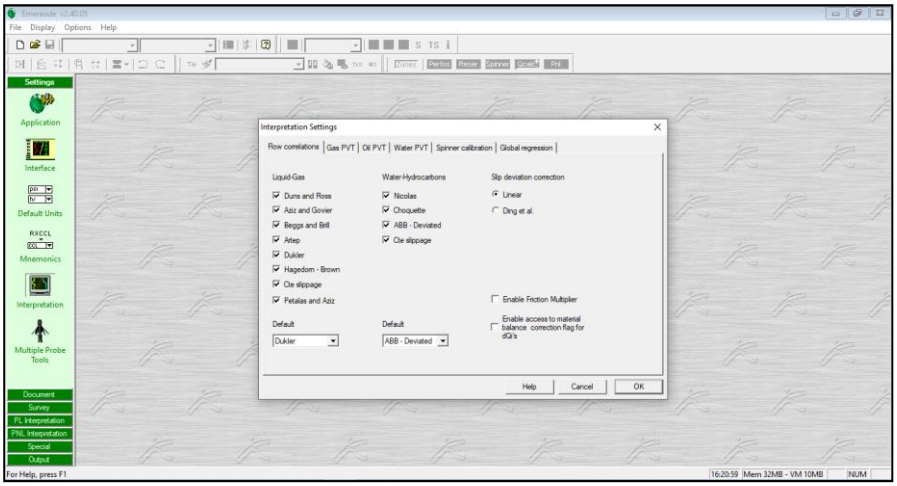
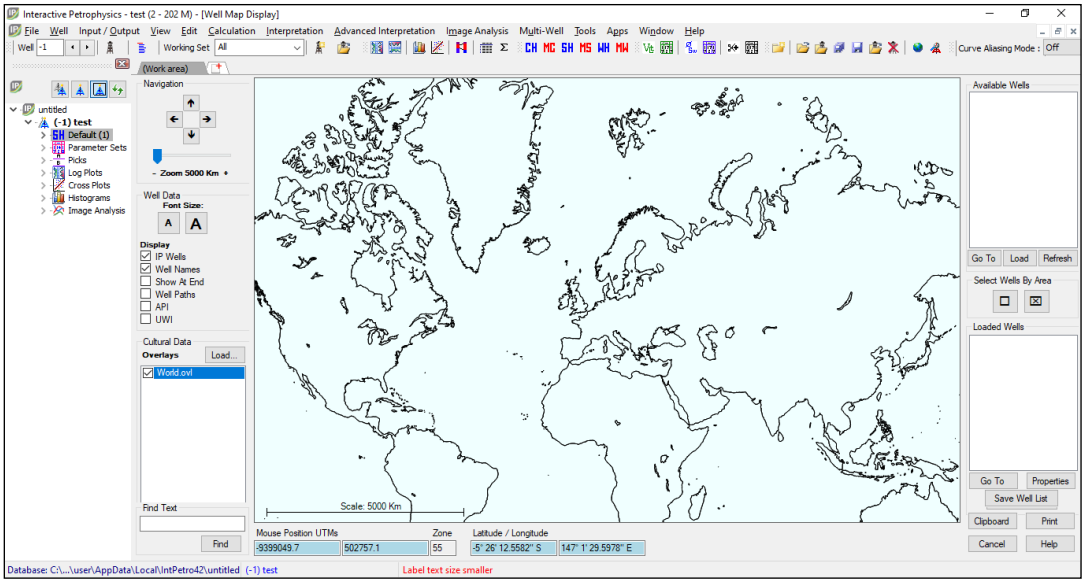
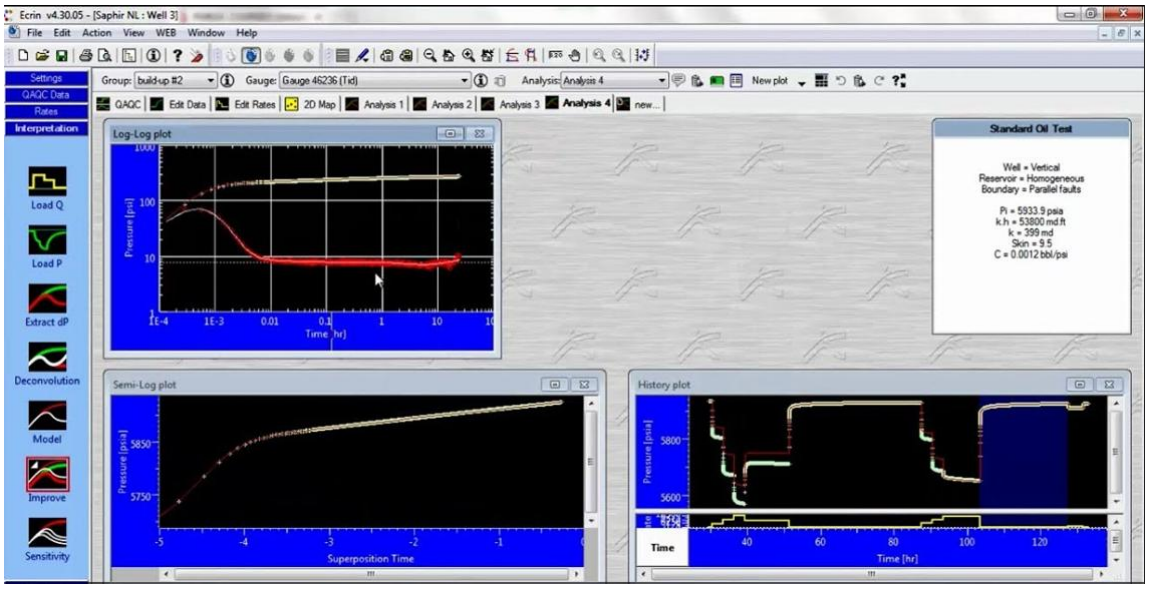


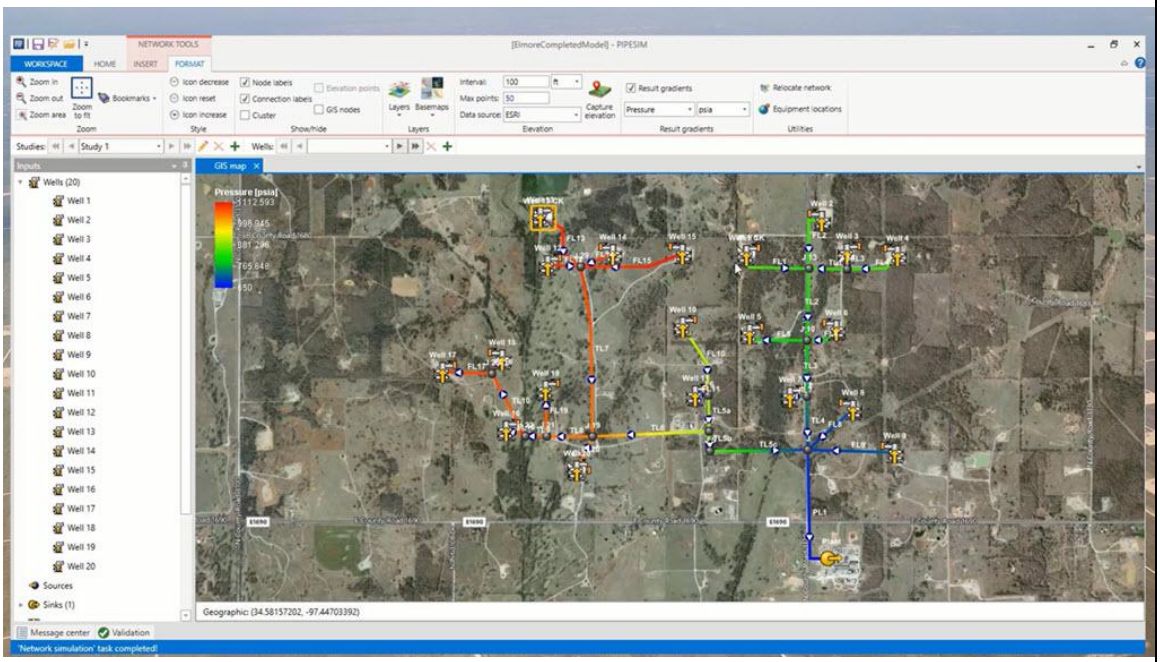
KAPPA Emeraude v2.40.05



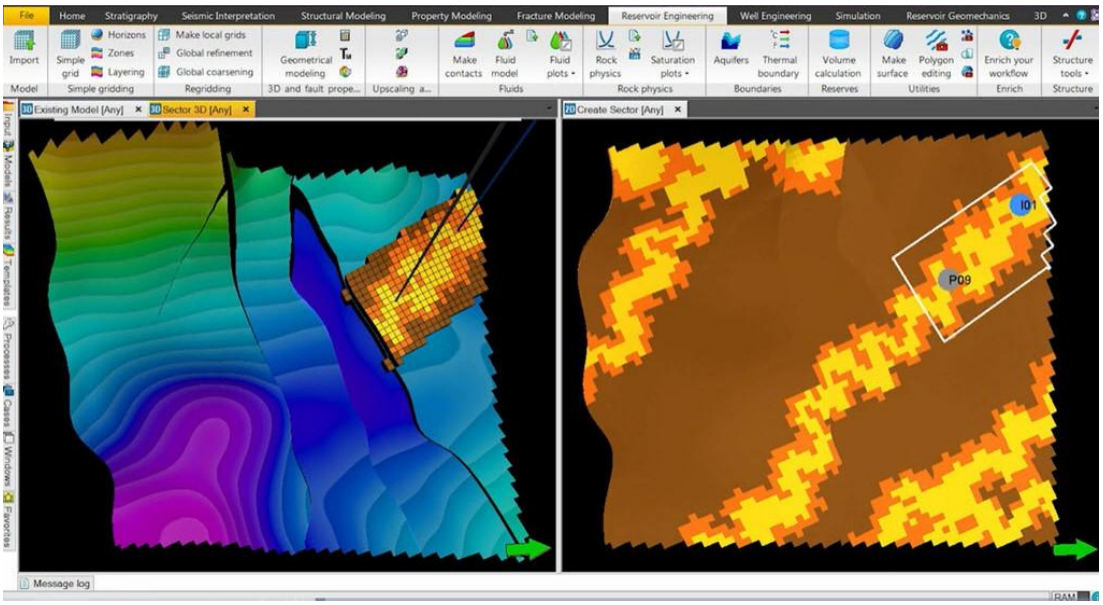
Interactive Petrophysics (IP) Software



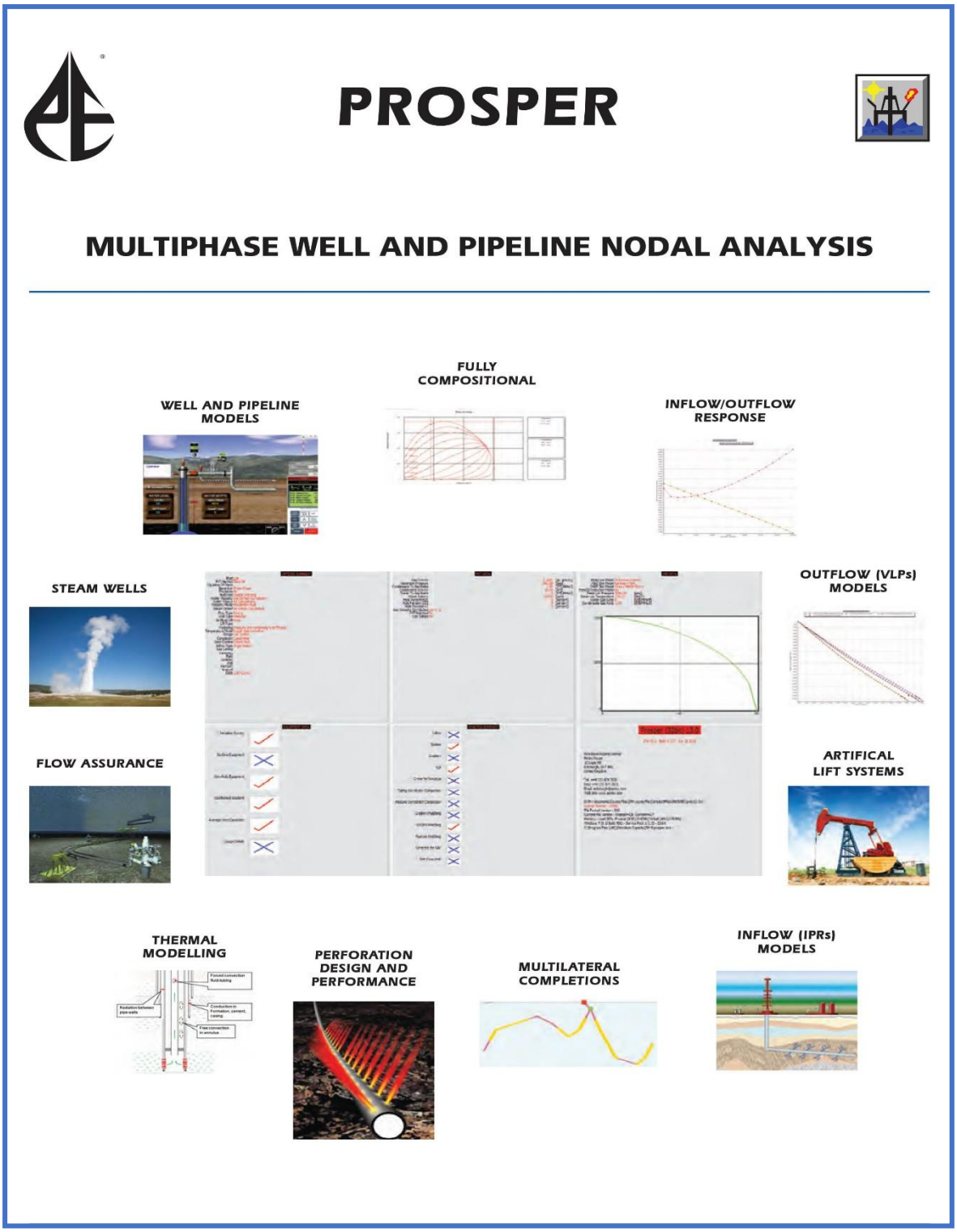
ECRIN Software



PIPESIM



Eclipse Software



Course Coordinator
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