COURSE OVERVIEW DE1093
Reservoir Engineer: Reservoir Characterization & Monitoring Strategies

Course Title
Reservoir Engineer: Reservoir Characterization & Monitoring Strategies

Course Date/Venue
Please see page 3

Course Reference
DE1093

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

Course Description

This practical and highly-interactive workshop 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 Reservoir Engineer: Reservoir Characterization & Monitoring Strategies. It covers the reservoir engineering and characterization, reservoir rock and fluid properties and static and dynamic reservoir data; the geological framework for reservoir characterization, reservoir classification and types; the types of logs, porosity, permeability and saturation from logs, resistivity interpretation techniques and cross-plot analysis for lithology identification; the core analysis and special core analysis (SCAL) and seismic data for reservoir characterization; and the reservoir modeling basics and uncertainty in reservoir characterization.

Further, the course will also discuss the multidisciplinary data and reservoir monitoring; the pressure and temperature monitoring, production data acquisition and tracer technology in reservoir monitoring; the 4D seismic for reservoir monitoring, data management and digitalization; the geomechanics in reservoir characterization and reservoir simulation for characterization; and the enhanced oil recovery (EOR) monitoring waterflood surveillance strategies.

During this interactive course, participants will learn the reservoir compartmentalization analysis, reservoir characterization workflows and monitoring plans; the reservoir performance analysis, material balance methods, decline curve analysis, rate-transient analysis (RTA) and performance deviations; translating data, updating reservoir models with new data and the economic implications of decisions; the environmental and safety standards and data reporting requirements; and the risk assessments for monitoring operations and emergency response planning in monitoring projects.

Course Objectives

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

- Get certified as a "*Certified Reservoir Engineer*"
- Discuss the reservoir engineering and characterization, reservoir rock and fluid properties and the difference between static and dynamic reservoir data
- Recognize geological framework for reservoir characterization including reservoir classification and types
- Identify the types of logs and determine porosity, permeability and saturation from logs as well as apply resistivity interpretation techniques and cross-plot analysis for lithology identification
- Illustrate core analysis and special core analysis (SCAL), seismic data for reservoir characterization, reservoir modeling basics and uncertainty in reservoir characterization
- Integrate multidisciplinary data and apply reservoir monitoring, pressure and temperature monitoring, production data acquisition and tracer technology in reservoir monitoring
- Apply 4D seismic for reservoir monitoring, data management and digitalization as well as discuss geomechanics in reservoir characterization
- Carryout reservoir simulation for characterization, enhanced oil recovery (EOR) monitoring and waterflood surveillance strategies
- Apply reservoir compartmentalization analysis, develop reservoir characterization workflows and design monitoring plans
- Carryout reservoir performance analysis covering material balance methods, decline curve analysis, rate-transient analysis (RTA) and identifying performance deviations
- Translate data, update reservoir models with new data and discuss economic implications of decisions
- Comply with environmental and safety standards and apply data reporting requirements, risk assessments for monitoring operations and emergency response planning in monitoring projects

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 reservoir characterization and monitoring strategies for reservoir engineers, petroleum engineers, geoscientists and geologists, petrophysicists, production engineers, field development planners, reservoir simulation specialists, asset managers and other technical staff.

Course Date/Venue

Session(s)	Date	Venue
1	April 19-23, 2026	Pierre Lotti Meeting Room, Movenpick Hotel Istanbul Golden Horn, Istanbul, Turkey
2	June 21-25, 2026	Meeting Plus 9, City Centre Rotana, Doha, Qatar
3	July 12-16, 2026	Meeting Room 4, Four Seasons Hotel Cairo at Nile Plaza, Corniche El Nil, Garden City, Cairo, Egypt
4	August 09-13, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
5	November 23-27, 2026	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
6	December 21-25, 2026	Salon Expo, NH Hotel Plaza de Armas, Seville, Spain
7	January 10-14, 2027	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
8	February 07-11, 2027	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
9	March 14-18, 2027	Meeting Plus 9, City Centre Rotana, Doha, Qatar

Course Fee

Istanbul	**US$ 8,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), 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.
Seville	**US$ 8,800** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
London	**US$ 8,800** per Delegate + **VAT**. 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.
Cairo	**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.

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**.

Accommodation

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

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	***Introduction to Reservoir Engineering & Characterization*** *Objectives & Scope of Reservoir Characterization • Role in Field Development & Production Optimization • Integration with Geology, Geophysics & Petrophysics • Key Challenges in Reservoir Evaluation*
0930 – 0945	*Break*
0945 – 1030	***Reservoir Rock Properties*** *Porosity: Types, Measurement Methods • Permeability: Types, Anisotropy & Flow Characteristics • Rock Compressibility & Its Impact on Reservoir Performance • Core Sample Analysis Techniques*
1030 – 1130	***Reservoir Fluid Properties*** *Classification of Reservoir Fluids (Oil, Gas, Condensate) • PVT Analysis & Laboratory Measurements • Phase Behavior & Fluid Sampling Considerations • Impact of Fluid Properties on Recovery Strategies*
1130 – 1230	***Static versus Dynamic Reservoir Data*** *Definition & Role of Static (Geological) Data • Dynamic (Production & Pressure) Data Analysis • Linking Static & Dynamic Models • Examples of Integrated Datasets*
1230 - 1245	*Break*
1245 - 1330	***Geological Framework for Reservoir Characterization*** *Sedimentary Environments & Facies Analysis • Stratigraphic Correlation & Sequence Stratigraphy • Structural Interpretation (Faults, Folds, Traps) • Lithological Classification & Mapping*

1330 - 1420	***Reservoir Classification & Types*** *Clastic versus Carbonate Reservoirs • Conventional versus Unconventional Reservoirs • Naturally Fractured Reservoirs • Heterogeneous versus Homogeneous Systems*
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 – 0845	***Well Logging & Petrophysical Analysis*** *Types of Logs: Open-Hole, Cased-Hole, LWD • Determining Porosity, Permeability & Saturation from Logs • Resistivity Interpretation Techniques • Cross-Plot Analysis for Lithology Identification*
0845 – 0930	***Core Analysis & Special Core Analysis (SCAL)*** *Core Acquisition & Handling Procedures • Routine Core Analysis (RCA) Parameters • Special Core Analysis (SCAL) Applications • Integration with Log Interpretation*
0930 – 0945	*Break*
0945 – 1100	***Seismic Data for Reservoir Characterization*** *Seismic Acquisition & Processing Basics • Seismic Attributes for Reservoir Mapping • Time-to-Depth Conversion • Seismic Inversion & AVO Analysis*
1100 - 1230	***Reservoir Modeling Basics*** *Concept of Static Reservoir Models • Gridding & Cell Size Selection • Property Distribution Techniques (Kriging, Simulation) • Model Validation & Calibration*
1230 – 1245	*Break*
1245 – 1330	***Uncertainty in Reservoir Characterization*** *Sources of Uncertainty (Data Quality, Model Assumptions) • Probabilistic versus Deterministic Approaches • Sensitivity Analysis Techniques • Decision-Making Under Uncertainty*
1330 - 1420	***Integration of Multidisciplinary Data*** *Combining Geological, Petrophysical & Seismic Inputs • Role of Reservoir Simulation in Data Integration • Cross-Discipline Collaboration for Accuracy • Examples from Real Field Case Studies*
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 – 0845	***Basics of Reservoir Monitoring*** *Objectives & Benefits of Reservoir Surveillance • Time-Lapse Monitoring Philosophy • Surveillance Planning & KPIs • Monitoring Technologies Overview*
0845 – 0930	***Pressure & Temperature Monitoring*** *Bottom-Hole Pressure Measurement Methods • Permanent Downhole Gauges (PDG) • Temperature Anomalies & Interpretation • Surface Pressure Analysis*
0930 – 0945	*Break*

0945 – 1100	***Production Data Acquisition*** *Well Testing (Flow Tests, Build-Up Tests) • Production Logging Tools (PLT) • Multi-Phase Flow Measurement • Data Validation & Error Handling*
1100 - 1230	***Tracer Technology in Reservoir Monitoring*** *Chemical & Radioactive Tracers • Tracer Injection & Recovery Techniques • Interpretation for Flow Path Mapping • Case Studies on Tracer Applications*
1230 – 1245	*Break*
1245 – 1330	***4D Seismic for Reservoir Monitoring*** *Principles of Time-Lapse Seismic • Detecting Fluid Movement & Saturation Changes • Acquisition & Processing Challenges • Integration with Reservoir Simulation*
1330 - 1420	***Data Management & Digitalization*** *Real-Time Data Acquisition Systems • Data Storage & Retrieval Best Practices • Digital Oilfield Concepts • AI/ML Applications in Reservoir 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 Three*

Day 4

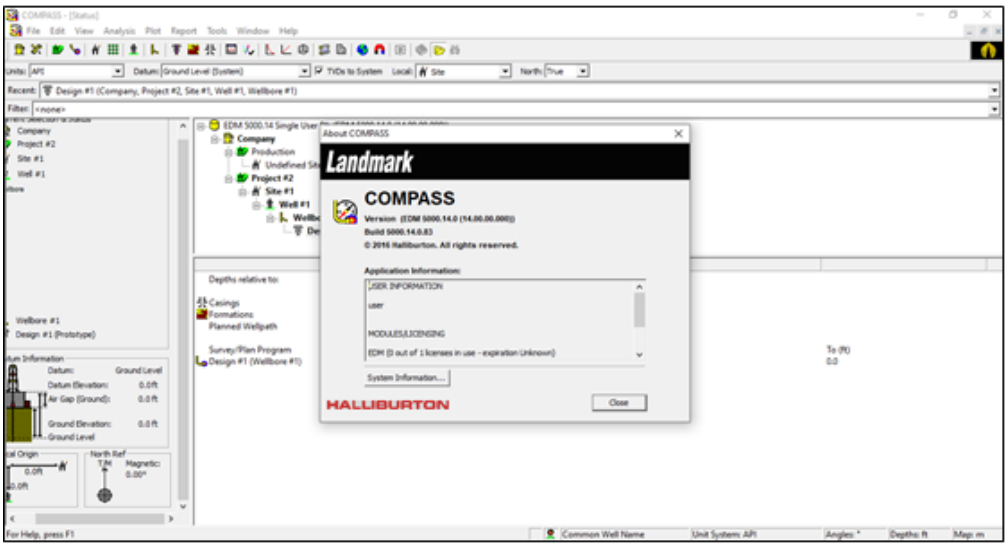
0730 – 0845	***Geomechanics in Reservoir Characterization*** *Rock Mechanical Properties & Stress Analysis • Impact on Wellbore Stability & Fractures • Integration with Reservoir Simulation • Geomechanical Modeling Tools*
0845 – 0930	***Reservoir Simulation for Characterization*** *History Matching Fundamentals • Static-to-Dynamic Model Linkage • Sensitivity Analysis in Simulations • Forecasting Production Performance*
0930 – 0945	*Break*
0945 – 1100	***Enhanced Oil Recovery (EOR) Monitoring*** *EOR Methods Overview (Waterflood, Gas Injection, Chemical) • Surveillance Needs for Each EOR Type • Monitoring Sweep Efficiency & Breakthrough • Adjusting Injection Strategies*
1100 - 1230	***Waterflood Surveillance Strategies*** *Pattern Balancing & Injection Control • Infill Well Placement Using Surveillance Data • Water Cut Monitoring & Control • Case Studies on Waterflood Optimization*
1230 – 1245	*Break*
1245 – 1330	***Reservoir Compartmentalization Analysis*** *Causes of Compartmentalization (Faults, Barriers) • Detection Using PLT, Interference Testing • Impacts on Recovery Factor • Mitigation & Management Strategies*
1330 - 1420	***Case Studies in Integrated Reservoir Monitoring*** *Lessons Learned from Producing Fields • Monitoring in Deepwater Environments • Unconventional Reservoir Surveillance • Best Practices from Global Examples*
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 – 0845	***Developing Reservoir Characterization Workflows*** *Defining Project Objectives & Scope • Selecting Appropriate Data Acquisition Methods • Prioritizing Data Based on Uncertainties • Scheduling & Budgeting Considerations*
0845 – 0930	***Designing Monitoring Plans*** *Surveillance Plan Structure & Frequency • Technology Selection Criteria • Integration with Production Optimization Plans • Risk-Based Monitoring Approaches*
0930 – 0945	*Break*
0945 – 1100	***Reservoir Performance Analysis*** *Material Balance Methods • Decline Curve Analysis • Rate-Transient Analysis (RTA) • Identifying Performance Deviations*
1100 - 1230	***Decision-Making from Monitoring Data*** *Translating Data into Actionable Insights • Updating Reservoir Models with New Data • Economic Implications of Decisions • Using Dashboards for Decision Support*
1230 – 1245	*Break*
1245 – 1345	***Regulatory & HSE Considerations*** *Compliance with Environmental & Safety Standards • Data Reporting Requirements • Risk Assessments for Monitoring Operations • Emergency Response Planning in Monitoring Projects*
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 “COMPASS” and “Prosper” software.



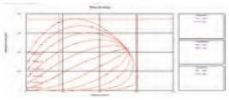
COMPASS

PROSPER

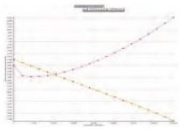
MULTIPHASE WELL AND PIPELINE NODAL ANALYSIS

WELL AND PIPELINE MODELS

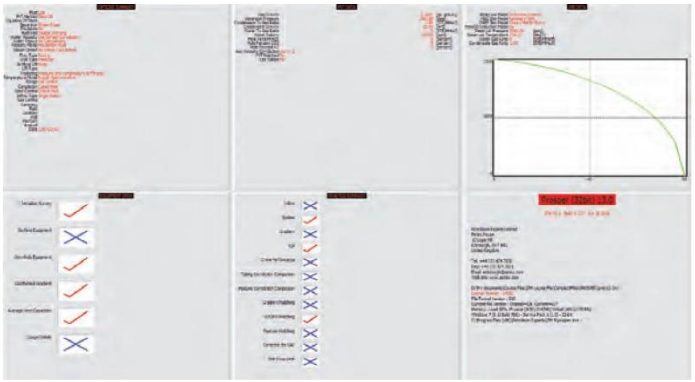
FULLY COMPOSITIONAL



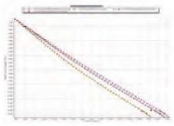
INFLOW/OUTFLOW RESPONSE



STEAM WELLS



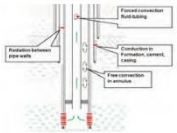
OUTFLOW (VLPs) MODELS



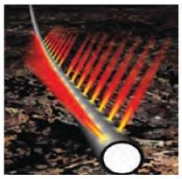
FLOW ASSURANCE

ARTIFICAL LIFT SYSTEMS

THERMAL MODELLING

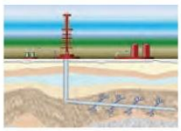


PERFORATION DESIGN AND PERFORMANCE



MULTILATERAL COMPLETIONS

INFLOW (IPRs) MODELS



Course Coordinator

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