

**COURSE OVERVIEW DE0171**  
**PTA/RTA Foundation**

**Course Title**

PTA/RTA Foundation

**Course Date/Venue**

Session 1: July 19-23, 2026/Meeting Plus 9, City Centre Rotana, Doha, Qatar

Session 2: December 13-17, 2026/Meeting Plus 9, City Centre Rotana, Doha, Qatar

**Course Reference**

DE0171

**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 basic and up-to-date overview of pressure transient analysis/rate transient analysis (PTA/RTA). It covers the basic theory of diffusion PTA/RTA; the basic principles and terminology governing both methods; the Darcy's law and the equation of state leading to the diffusivity equation; the principle of superposition, infinite-acting radial flow, wellbore storage and skin and pseudo-steady state; the PTA methodology from the simple straight line horner to the current model-on-the-fly bourdet derivative; the quality control process before making an analysis; and the basic Saphir features including the interpretation path of load, edit, synchronizing, model, classical methods, derivative and the application to field examples.



Further, the course will also discuss the well models comprising of vertical wells, skin, finite/infinite conductivity fractures, limited entry and horizontal wells; the reservoir models covering homogenous and heterogeneous models behavior including  $2\Phi$ ,  $2k$  and composite; the boundary models that include single limit, intersecting, parallel faults and closed system; and the typical errors encountered when diagnosing a boundary effect with an illustration of superposition effects and the influence of production duration on the analysis.



During this interactive course, participants will learn the use of pseudopressures and multiple period analysis for rate dependent skin; the IPR AOF options in Saphir and the connection to the amethyst WPA module; the test objectives and designing a test to achieve them; the methodology from the basic empirical methods including Arps and Fetkovich to the current modern Blasingame, material balance and loglog diagnostic plots; the basic Topaze features including the interpretation path of load, edit, model,  $p(q)$ ,  $q(p)$ , fast model and application to field examples; the principle of the linear (single phase) numerical model and how to build a model; and the well type, composite zones, faults and thickness.

### **Course Objectives/Outcomes & Benefits for the Participants**

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

- Apply and gain a basic knowledge on pressure/rate transient analysis
- Discuss the basic theory of diffusion PTA/RTA as well as the basic principles and terminology governing both methods
- Describe Darcy's law and the equation of state leading to the diffusivity equation
- Explain the principle of superposition, infinite-acting radial flow, wellbore storage and skin and pseudo-steady state
- Carryout PTA methodology from the simple straight line horner to the current model-on-the-fly bourdet derivative
- Apply quality control process before making an analysis as well as discuss the basic Saphir features including the interpretation path of load, edit, synchronizing, model, classical methods, the derivative and the application to field examples
- Identify well models comprising of vertical wells, skin, finite/infinite conductivity fractures, limited entry and horizontal wells
- Describe reservoir models covering homogenous and heterogeneous models' behavior including  $2\Phi$ ,  $2k$  and composite
- Recognize boundary models that include single limit, intersecting, parallel faults and closed system
- Determine the typical errors encountered when diagnosing a boundary effect with an illustration of superposition effects and the influence of production duration on the analysis
- Use pseudo pressures and multiple period analysis for rate dependent skin
- Explain the IPR AOF options in Saphir and the connection to the amethyst WPA module
- Discuss test objectives and design a test to achieve them
- Apply methodology from the basic empirical methods including Arps and Fetkovich to the current modern Blasingame, material balance and loglog diagnostic plots
- Recognize the basic Topaze features including the interpretation path of load, edit, model,  $p(q)$ ,  $q(p)$ , fast model and application to field examples
- Discuss the principle of the linear (single phase) numerical model and how to build a model
- Define the well type and identify composite zones, faults and thickness



### **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 a basic and up-to-date overview of pressure/rate transient analysis for production engineers, reservoir engineers, production, operations, petroleum and reservoir engineers, geologists, analysts field personnel, senior and field supervisors with an engineering background and analysts involved with the design, supervision and interpretation of well tests who need to obtain a better understanding of the advanced practices used in pressure transient tests and its advanced interpretation models.

### **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.

### **Learning Design & Customization**

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

### **Course Fees**

**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.

### **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

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:



(1) **Mr. Stan Constantino**, MSc, BSc, is a **Senior Petroleum & Reservoir Engineer** with over **30 years** of **Offshore & Onshore** extensive experience within the **Oil, Gas & Petroleum** industries. His area of expertise include the **PTA / RTA & Permit to Work Systems, Permit Authorization & Approval Flow, Hazard Identification & Risk Awareness, Vertical Wells, Horizontal Wells, Permit Authorization & Approval Flow, Reserves & Resources, Reserves Estimation & Uncertainty, Reservoir Characterization, Unconventional Resource & Reserves Evaluation, Oil & Gas Reserves Estimation, Methods for Aggregation of Reserves & Resources, Fractured Reservoir Classification & Evaluation, Sequence Stratigraphy, Petrophysics & Rock Properties, Seismic Technology, Geological Modelling, Water**

**Saturation, Crude Oil & Natural Gas Demand, Exploration Agreements & Financial Modelling, Seismic Survey Evaluation, Exploration Well Identification, Field Production Operation, Field Development Evaluation, Crude Oil Marketing, Core & Log Data Integration, Core Logging, Advanced Core & Log Integration, Well Logs & Core Analysis, Advanced Petrophysics/Interpretation of Cased Hole Logs, Cased Hole Formation Evaluation, Cased Hole Formation Evaluation, Cased Hole Evaluation, Cased-Hole Logging, Applied Production Logging & Cased Hole & Production Log Evaluation, Cased Hole Logging & Formation Evaluation, Open & Cased Hole Logging, Screening of Oil Reservoirs for Enhanced Oil Recovery, Enhanced Oil Recovery, Enhanced Oil Recovery Techniques, Petroleum Economic Analysis, Oil Industry Orientation, Oil Production & Refining, Crude Oil Market, Global Oil Supply & Demand, Global Oil Reserves, Crude Oil Types & Specifications, Oil Processing, Oil Transportation-Methods, Oil & Gas Exploration and Methods, Oil & Gas Extraction, Technology Usage in Industrial Security; Upstream, Midstream & Downstream Operations; Oil Reservoir Evaluation & Estimation, Oil Supply & Demand, Oil Contracts, Government Legislation & Oil Contractual Agreements, Oil Projects & Their Feasibility (revenue and profitability), Water Flooding, Reservoir Souring & Water Breakthrough, Reservoir Performance Using Classical Methods, Fractured Reservoir Evaluation & Management, Reservoir Surveillance & Management, Reservoir Engineering & Simulation, Reservoir Monitoring, Pressure Transient Testing & Reservoir Performance Evaluation, Reservoir Characterization, Reservoir Engineering Applications with ESP and Heavy Oil, Reservoir Volumetrics, Water Drive Reservoir, Reserve Evaluation, Rock & Fluid Properties, Fluid Flow Mechanics, PVT Analysis, Material Balance, Darcy's Law & Applications, Radial Flow, Gas Well Testing, Natural Water Influx, EOR Methods, Directional Drilling, Drilling Production & Operations, Field Development & Production of Oil & Gas, Wireline Logging, Mud Logging, Cased Hole Logging, Production Logging, Slick Line, Coil Tubing, Exploration Wells Evaluation, Horizontal Wells, Well Surveillance, Well Testing, Design & Analysis, Well Testing & Oil Well Performance, Well Log Interpretation (WLI), Formation Evaluation, Well Workover Supervision, Pressure Transient Analysis and Petrophysical Log Analysis. Currently, he is the **CEO & Managing Director** of **Geo Resources Technology** wherein he is responsible in managing the services and providing technical supports to underground energy related projects concerning **field development, production, drilling, reservoir engineering and simulation.****

Throughout his long career life, Mr. Stan has worked for many international companies such as the **Kavala Oil, North Aegean Petroleum Company** and **Texaco Inc.**, as the **Managing Director, Operations Manager, Technical Trainer, Training Consultant, Petroleum Engineering & Exploration Department Head, Assistant Chief Petroleum Engineer, Reservoir Engineer, Resident Petroleum Engineer, Senior Petroleum Engineer** and **Petroleum Engineer** wherein he has been managing the evaluation of exploration wells, reservoir simulation, development training, production monitoring, wireline logging and well testing including selection and field application of well completion methods.

Mr. Stan has a **Master's** degree in **Petroleum Engineering** and a **Bachelor's** degree in **Geology** from the **New Mexico Institute of Mining & Technology (USA)** and from the **Aristotelian University (Greece)** respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership of Management (ILM)** and a member of the Society of Petroleum Engineers, USA (**SPE**), Society of Well Log Professional Analysts, USA (**SPWLA**) and European Association of Petroleum Geoscientists & Engineers (**EAGE**). Moreover, Mr. Stan published numerous scientific and technical papers and delivered various trainings, courses and workshops worldwide



OR,



(2) Ms. Diana Helmy, PgDip, MSc, BSc, is a **Senior Petroleum & Geologist** with extensive years of experience within the **Oil & Gas, Refinery and Petrochemical** industries. Her expertise widely covers in the areas of the **PTA / RTA, Permit to Work System, Control Measures & Safety Precautions, Compliance, Monitoring, & Incident Prevention, Risk Assessment, Tubular & Pipe Handling, Tubular Strength, Casing & Tubing Design, Production/Injection Loads** for Casing Strings & Tubing, **Drilling Loads, Drilling &**

**Production Thermal Loads, Well Architecture, Wellhead Integrity, Well Integrity & Artificial Lift, Well Integrity Management, Well Completion & Workover, Applied Drilling Practices, Horizontal Drilling, Petroleum Production, Resource & Reserve Evaluation, Reserves Estimation & Uncertainty, Methods for Aggregation of Reserves & Resources, Horizontal & Multilateral Wells, Well Completion & Stimulation, Artificial Lift System Selection & Design, Well Testing & Oil Well Performance, Well Test Design Analysis, Well Test Operations, Well Testing & Perforation, Directional Drilling, Formation Damage Evaluation & Preventive, Formation Damage Remediation, Drilling & Formation Damage, Simulation Program for The International Petroleum Business, Well Testing & Analysis, Horizontal & Multilateral Wells & Reservoir Concerns, Oil & Gas Analytics, Petrophysics & Reservoir Engineering, Subsurface Geology & Logging Interpretation, Petroleum Geology, Geophysics, Seismic Processing & Exploration, Seismic Interpretation, Sedimentology, Stratigraphy & Biostratigraphy, Petroleum Economy, Core Analysis, Well Logging Interpretation, Core Lab Analysis & SCAL, Sedimentary Rocks, Rock Types, Core & Ditch Cuttings Analysis, Clastic, Carbonate & Basement Rocks, Stratigraphic Sequences, Petrographically Analysis, Thin Section Analysis, Scanning Electron Microscope (SEM), X-ray Diffraction (XRD), Cross-Section Tomography (CT), Conventional & Unconventional Analysis, Porosity & Permeability, Geological & Geophysical Model, Sedimentary Facies, Formation Damage Studies & Analysis, Rig Awareness, 2D&3D Seismic Data Processing, Static & Dynamic Correction, Noise Attenuation & Multiple Elimination Techniques, Velocity Analysis & Modeling and various software such as Petrel, OMEGA, LINUX, Kingdom and Vista. She is currently a **Senior Consultant** wherein she is responsible in different facets of **Petroleum & Process Engineering** from managing **asset integrity, well integrity process, pre-commissioning/commissioning and start up** onshore & offshore process facilities.**

During her career life, Ms. Diana worked as a **Reservoir Geologist, Seismic Engineer, Geology Instructor, Geoscience Instructor & Consultant** and **Petroleum Geology Researcher** from various international companies like the **Schlumberger, Corex Services for Petroleum Services, Petrolia Energy Supplies** and **Alexandria University**.

Ms. Diana has a **Postgraduate Diploma in Geophysics, Master's degree in Petroleum Geology and Geophysics** and a **Bachelor's degree in Geology**. Further, she is a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)** and has delivered numerous trainings, courses, workshops, seminars and conferences internationally.



**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	<b>PRE-TEST</b>
0830 - 0930	<b>Introduction to PTA &amp; RTA</b> When do we Perform PTA or RTA?
0930 - 0945	Break
0945 - 1130	<b>Basic Theory of Diffusion PTA/RTA</b> The Basic Principles & Terminology Governing both Methods • Introduction to Darcy's Law & the Equation of State Leading to the Diffusivity Equation
1130 - 1230	<b>Basic Theory of Diffusion PTA/RTA (cont'd)</b> The Principle of Superposition, Infinite-Acting Radial Flow, Wellbore Storage & Skin & Pseudo-Steady State
1230 - 1245	Break
1245 - 1420	<b>PTA Methodology</b> Methodology from the Simple Straight-Line Horner to the Current Model-on-the-fly Bourdet Derivative
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2**

0730 - 0930	<b>QA/QC</b> The Quality Control Process before Making an Analysis
0930 - 0945	Break
0945 - 1130	<b>Saphir Practical</b> The Basic Saphir Features including the Interpretation Path of Load • Edit • Synchronizing • Model
1130 - 1230	<b>Saphir Practical</b> Classical Methods • The Derivative • The Application to Field Examples
1230 - 1245	Break
1245 - 1420	<b>Well Models</b> Vertical Wells • Skin • Finite/Infinite Conductivity Fractures • Limited Entry • Horizontal Wells
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 - 0930	<b>Reservoir Models</b> Homogenous & Heterogeneous Models Behavior Including $2\Phi$ , $2\kappa$ & Composite
0930 - 0945	Break
0945 - 1130	<b>Boundary Models</b> Single Limit, Intersecting, Parallel Faults & Closed System



1130 – 1230	<b>Boundary Models (cont'd)</b> <i>Typical Errors Encountered when Diagnosing a Boundary Effect with an Illustration of Superposition Effects • The Influence of Production Duration on the Analysis</i>
1230 – 1245	Break
1245 - 1420	<b>Basic Gas Tests</b> <i>The Use of Pseudopressures &amp; Multiple Period Analysis for Rate Dependant Skin Includes an Isochronal Test Example</i>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

0730 – 0930	<b>IPR AOF</b> <i>The IPR AOF Options in Saphir &amp; the Connection to the Amethyste WPA Module</i>
0930 – 0945	Break
0945 – 1130	<b>Test Design</b> <i>Test Objectives &amp; How to Design a Test to Achieve Them</i>
1130 – 1230	<b>RTA Methodology</b> <i>Methodology from the Basic Empirical Methods including Arps &amp; Fetkovich to the Current Modern Blasingame</i>
1230 – 1245	Break
1245 - 1420	<b>RTA Methodology (cont'd)</b> <i>Material Balance &amp; Loglog Diagnostic Plots</i>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

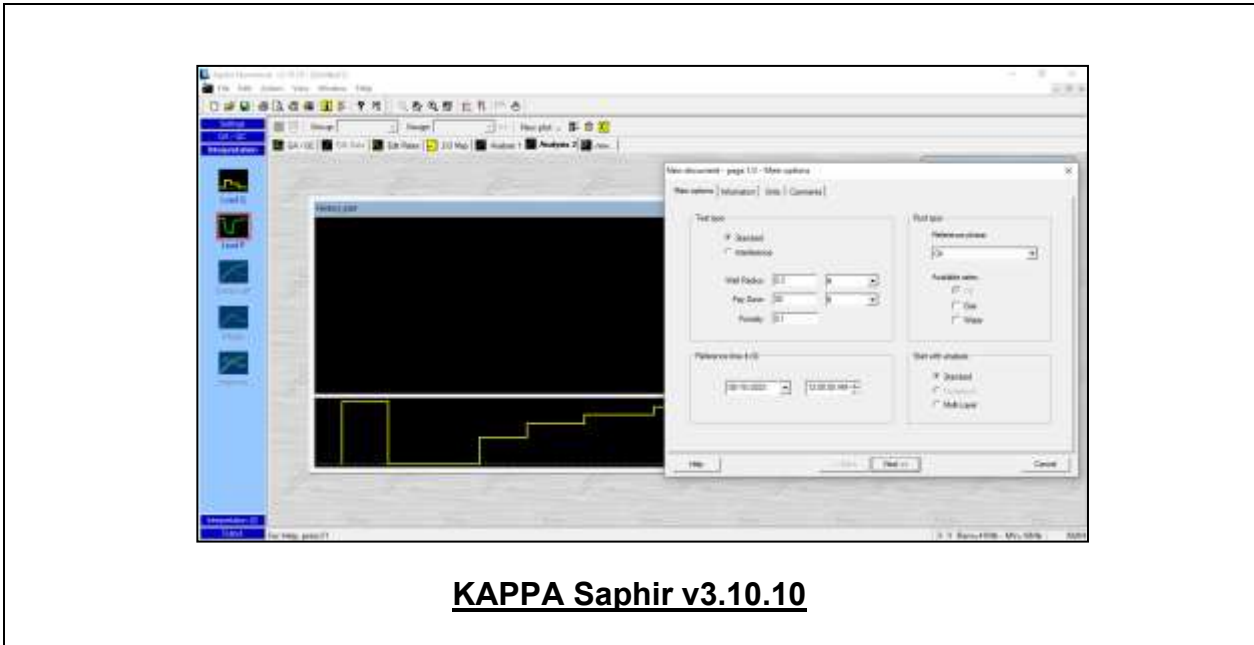
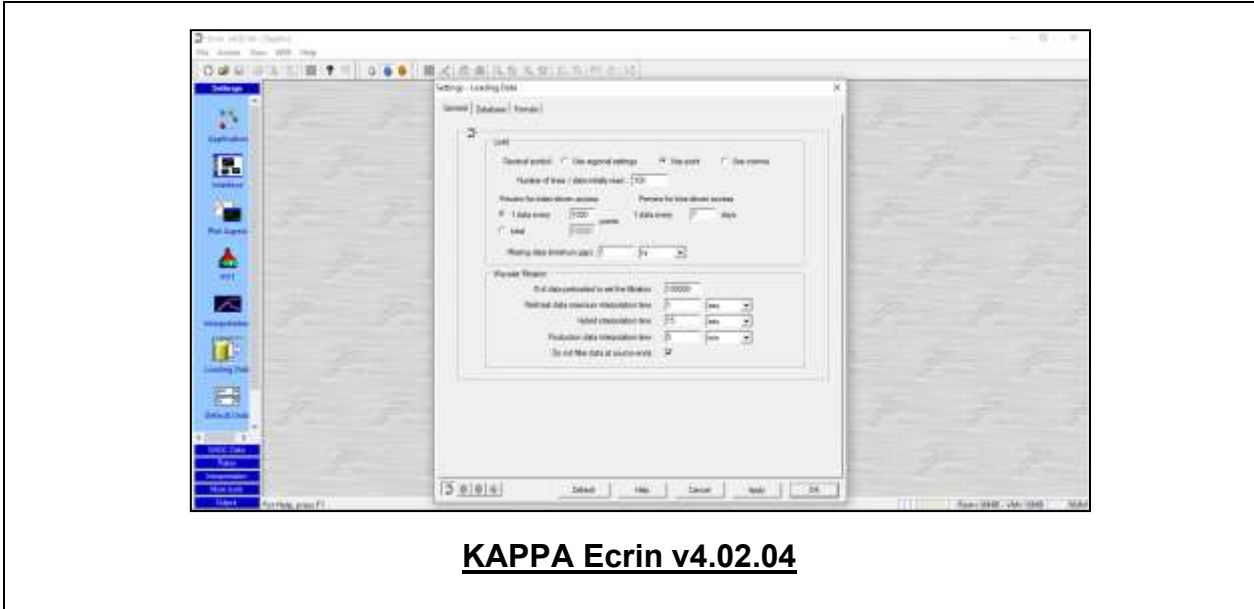
**Day 5**

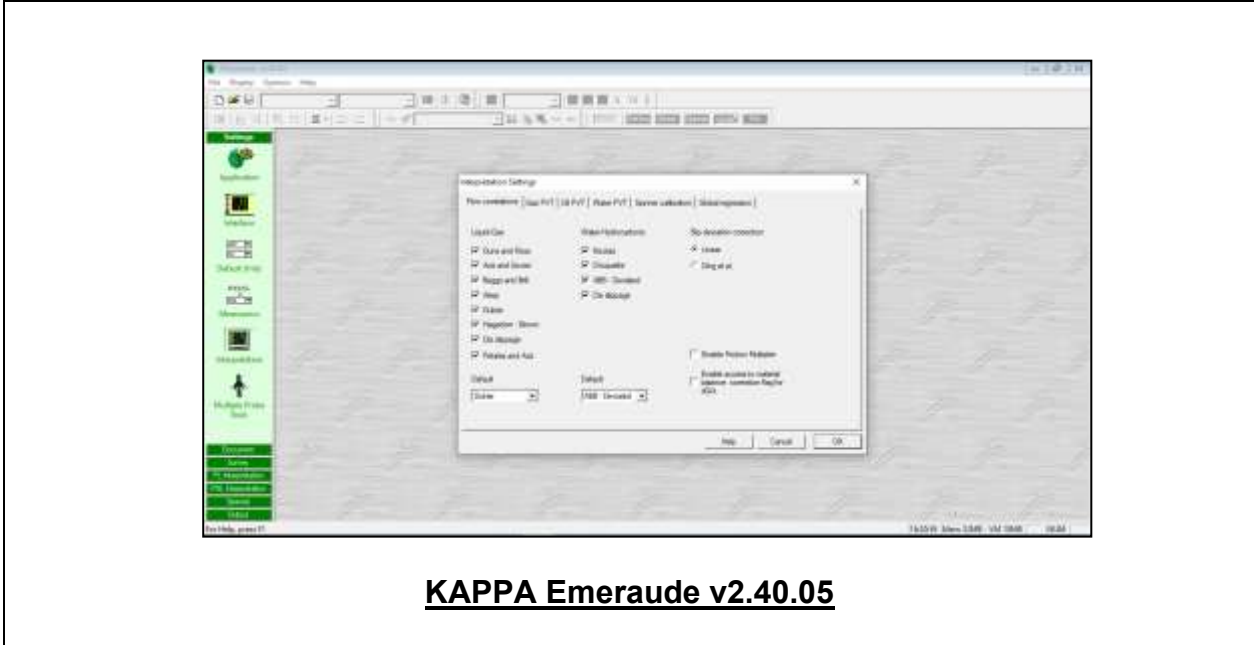
0730 – 0930	<b>Topaze Practical</b> <i>The Basic Topaze Features including the Interpretation Path of Load • Edit • Model • <math>p(q)</math></i>
0930 – 0945	Break
0945 – 1130	<b>Topaze Practical (cont'd)</b> <i><math>q(p)</math> • Fast Model • Application to Field Examples</i>
1130 – 1230	<b>Basic Numerical PTA/RTA</b> <i>The Principle of the Linear (Single Phase) Numerical Model • How to Build a Model • Defining the Well Type • Composite Zones • Faults &amp; Thickness</i>
1230 – 1245	Break
1245 - 1345	<b>An Introduction to Advanced Features</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
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 “KAPPA” software”.





**KAPPA Emerald v2.40.05**

**Course Coordinator**

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