



Applied Reservoir Petrophysics & Characterization

(IP Software) Training Program

Introduction:

This course will help the candidates determine the amount of hydrocarbons in their reservoir. It does this by calculating porosity and water saturation using well logging data. It will also provide a tool for Geologists and Reservoir Engineers who want to take control of their analysis and interpretation. The course will make it easy for the candidates to quickly learn about IP software. They will be able to focus on accurate calculations that get the most out of your reservoir. IP software intuitive interface runs on robust algorithms and provides many benefits such as diminished uncertainty in your interpretation, fast results due to the ease of learning IP software and flexibility so that you work the way you want to work.

The course will focus on the main Petrophysical concepts and techniques, along with their subsequent applications in IP and to get you familiar with the IP software and its main skills. It will be taught theoretically and practically on software along with hands-on exercises and tutorials. A variety of data will be used for analyses using the software through a workflow allowing the trainees to complete a deterministic Petrophysical analysis. The comprehensive course documentation has been designed as a useful guide for future reference.

Who Should Attend?

This course is designed for all Geologists, Operations Geologists, Geo-Modelers, Reservoir Engineers, Core Analysts, Geophysicists and Reservoir Engineers who wish to use IP software. While aimed at beginners, the course will also benefit those who have some experience of IP to broaden their practical knowledge of the software

Course Objectives:

By the end of this course, delegates will be able to:

- Be familiar with rock physical properties
- Understand the IP's user interface and data structure
- Be introduced to well logging
- Be familiar with shortcuts, alternative approaches and hidden features
- Be proficient with how to get data in/out of IP
- Be able to present data graphically as logs and as X-Y plots
- Understand log analysis formation evaluation
- Be able to edit tools work
- Be able to perform porosity, water saturation and shale volume calculations
- Be familiar with the deterministic interpretation modules and approaches work
- Learn about computer processed interpretation
- Be able to perform a deterministic Petrophysical interpretation
- Be able to report the parameters and results
- Be able to correlate and understand the multi-well sketches and batching tools

Course Outline:

Introduction to Petrophysics

- What is Petrophysics?
- What are the rock physical properties?
- Petrophysics as a key-discipline in integrated reservoir analysis
- Petrophysical properties of reservoir rock
- Reservoir rocks and types

Introduction to Well Logging

- What is well logging?
- Fundamentals of well logging
- Introduction to open-hole logging
- The borehole and its environment
- Open hole and cased hole logging
- Logging tools operation
- Log quality control
- Quick look well log interpretation
- Acoustic methods
- Nuclear methods
- Lithology tools
- Porosity tools
- Resistivity tools
- Cased-hole logging tools

Log Analysis Formation Evaluation

- Reservoir detection reservoir characterization
- Basic interpretation methods Vshale, porosity, water saturation permeable zones
- Advanced interpretation methods
- Combined determination of porosity and rock composition cross plot methods
- Shaly sand interpretation fractured reservoirs
- Thin bed evaluation and anisotropic reservoirs Integrating the information; the reservoir model
- Saturation determination, movable fluids
- Permeability estimation

Exercises

- Lithology interpretation
- Lithology model
- Porosity calculation
- R_w determination
- Petrophysical parameters (a , m , n)
- Archie's parameters
- V_{shale} estimation
- Fluid Saturation
- Permeability calculation
- Core analysis and core-log relationships

Computer Processed Interpretation

- Reservoir Petrophysical model evaluation
- Modern approaches and techniques in Petrophysics
- Fluid contacts (GOC-GWC-OWC-ODT-WUT-FWL)
- Reservoir summations