Advanced Petrophysics and Schlumberger Techlog[1]

Course Synopsis

Upon the completion of this course, the participants will be able to operate Schlumberger *Techlog,* creating advanced petrophysical models for subsequent import into Petrel or other 3D modeling software. Special attention is dedicated to the operations' efficiency and capability to automate and document the computational models.

The course presumes practical knowledge of Schlumberger Techlog and Python scripting.

During practical exercises, participants will be required to perform an end-to-end petrophysical evaluation over *PETRONODE* sample/training dataset (including basic electric logs, pressure point data, routine core analysis and special core analysis). Client-provided datasets may be also considered if available (prior confirmation is required).

DAY 1
- Introductions & Safety
- Techlog scripting refresher: accessing data and performing computations
- Petrophysics theory refresher: Gamma-Ray and Resistivity.
- Advanced Techlog plotting: automating layouts, cross-plots and histograms.

DAY 2
- Petrophysics theory refresher: Density and Neutron.
- Petrophysics theory refresher: Basic Acoustics and NMR.
- Practical exercise: setting up collaborative Techlog collaborative environment.
- Practical exercise: automating multiple well dataset load and harmonization.
- Group exercise: set up for end-to-end field evaluation.

DAY 3
- Petrophysics theory refresher: Routine Core Analysis.
- Petrophysics theory review: Capillarity and Special Core Analysis.
- Practical exercise: creating field-wide Capillarity model.
- Practical exercise: setting field-wide Petrophysical model.
- Group exercise: continue end-to-end field evaluation provided training dataset.

DAY 4
- Petrophysics theory review: Formation Testing and Sampling

---

1 Client must provide Techlog with either educational or commercial license. As minimum, *Python*, *Quanti, SHM, K.mod* are required; *TBA*, *FPres* – optional.

- Practical exercise: build and calibrate field-wide pore pressure and formation temperature model.
- Practical exercise: handling mud log data.
- Practical exercise: automating data export for use in *Petrel*.
- Group exercise: complete deterministic algorithm for field evaluation, present results.

DAY 5
- Petrophysics theory review: Neural Network fundamentals[2].
- Practical exercise: computing electrofacies.
- Group exercise: present and discuss end-to-end field evaluation results.
- Q&A.

---

2 At Client request, Neural Network and electrofacies chapter may be substituted with other Techlog modules, such as Thin Bed Analysis.