

Petrophysics and Log Analysis course

Presenter: Sherif Farag

<https://www.linkedin.com/in/sheriffarag/>



Course components can be combined as required based on attendees profile and time available

One "day" represents about 6 hours of training, 4-5 hours of instruction depending on the subject with 1-2 hours for practical work and Q&A

#	Title	Target audience	Description	Length
1	Introduction to Log Analysis	Non-specialists (Geologists, Reservoir Engineers, Managers, etc.) Young Professionals Students	1- Limitations and range of applications of different logs 2- Compute shale volume, porosity, fluid saturation and estimate permeability 3- Understand the accuracy of these results 4- Hands-on examples and exercises (public or customer-provided data)	1 or 2 days depending on level of detail
2	Introduction to Petrophysics	Non-specialists Young Professionals Students	1- Petrophysical rock types (flow units) - a lot of misunderstanding and bad practice to navigate through here 2- Saturation-height basics 3- Relative permeability basics 4- Permeability transforms from static measurements 5- Hands-on examples and exercises (public or customer-provided data)	1 or 2 days depending on level of detail
3	Nuclear Magnetic Resonance Logs - Principles and Applications	Petrophysicists / Geoscientists	1- Measurement principle and range of application 2- Irreducible water saturation, total porosity, NMR permeability (commonly misunderstood) 3- Capillary pressure 4- Rock typing 5- Fluid typing 6- Examples and exercises (public or customer-provided data)	1 or 2 days depending on level of detail
4	Formation evaluation in clastics (porous shaly sands)	Petrophysicists / Geoscientists	1- Mineralogy in clastics 2- Texture and rock quality from logs (rock typing) 3- Log-based solutions: NMR, Spectroscopy, Sigma etc. 4- Examples and exercises (public or customer-provided data)	1 day
5	Formation evaluation in carbonates (porous carbonates, not highly fractured)	Petrophysicists / Geoscientists	1- Carbonates present very different challenges in different areas 2- Texture and rock quality variation (rock typing) difficult to define on logs 3- Log-based solutions: NMR, Dielectric logs, Sigma etc. 4- Examples and exercises (public or customer-provided data)	1 day
6	Cased Hole Formation Evaluation	Petrophysicists / Geoscientists	1- Measurements which can be used through casing 2- Log analysis in high uncertainty environments 3- Examples and exercises (public or customer-provided data)	1 day
7	Formation Evaluation in Low Porosity and Fractured Reservoirs	Petrophysicists / Geoscientists	1- Uncertainty in log data 2- Uncertainty in log analysis 3- Fracture detection and evaluation 4- Examples and exercises (public or customer-provided data)	1 day
8	Formation evaluation in low resistivity contrast (laminated and fresh water formations)	Petrophysicists / Geoscientists	1- When resistivity fails to accurately determine fluid saturation 2- Log-based solutions: NMR, Triaxial Resistivity, Dielectric logs, Sigma, Neutron spectroscopy etc. 3- Techniques for re-evaluating existing data to get better results, 2D formation evaluation 4- Examples and exercises (public or customer-provided data)	1 day