

Geophysical field training G 327

تدريبات جيوفيزيائية حقلية ج 327

Grade: 3rd level-Geology

Topics of Research Subjects

- 1) **Basic principles and definition of Well Logging:** Well Log definition, Recording Format, Log Header, Open hole Log (Wireline Logs and Logging While Drilling, Cased hole log, Resolution and Depth of Investigation.
- 2) **Basic physical characteristic determined by well logging:** Lithology and mineralogy, Porosity, Permeability, Resistivity, Water Saturation and Archie Equation).
- 3) **Borehole Environment** (Hole diameter and Caliper Log, Drilling Mud Resistivity, Invaded zone, Transition zone, Uninvaded zone, Resistivity profiles
- 4) **Gamma Ray Logs:** Principle, Uses, Shale Volume Calculation, Spectral Gamma Ray Log.
- 5) **Spontaneous Potential Logs:** Principle, Uses, static spontaneous potential, Shale Volume Calculation using Spontaneous Potential.
- 6) **Sonic Logs:** Principle, Uses, Types of Sonic Logs, Wyllie time-average equation, Formula for calculating porosity of Unconsolidated Formations, Sonic Velocities and Interval Transit Times for Different Matrixes and Fluids, Using Sonic Log with Density Log to calculate Acoustic Impedance in Synthetic Seismogram.
- 7) **Neutron Logs and Density Logs:** Principle, Uses, Matrix densities for different rocks, densities for different fluids, and Photoelectric factor for different lithologies, Neutron-Density Combination, Neutron-Sonic Combination, Sonic - Density Combination.
- 8) **Resistivity Logs 1:** Basics about the Resistivity, ability to conduct electric current, Uses, classification of resistivity logs and their uses, Galvanic devices (electrode logs and laterologs) Short Normal, Long Normal and Lateral Logs, Laterologs (Laterolog 3 LL3, Laterolog 7 LL7, Laterolog 8 LL8).
- 9) **Resistivity Logs 2:** Basics about the Resistivity, ability to conduct electric current, Uses, classification of resistivity logs and their uses, Induction Logs, Microresistivity Logs (Microlog, Microlaterolog, Proximity Log and Microspherically Focused Log.
- 10) **Borehole image:** Classification, Acquisition, Processing, Interpretation.

رئيس مجلس القسم

القائم بالتدريس

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