MERCURY

Integrated Formation Evaluation in Clastic & Carbonate Reservoirs

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Introduction

This training course gives learners extensive knowledge of well log analysis applications and integrated formation evaluation procedures. The physical underpinnings of the logging tools and the entire advanced interpretation procedure for reservoir characterization will be covered in the course.

Targeted Competencies

- Recognizing the significance of enhanced reservoir characterisation in field evaluation
- Learn about the sophisticated formation evaluation methods and processes.
- Before integrating the results of the log analysis into the static and dynamic modeling, do quality control and assurance
- Using the NMR data to characterize the reservoir fluid and integrating the well test findings
- Full petrophysical assessment for new blocks and border regions exploration petrophysics

Targeted Groups

- Petrophysicists/Log analysts
- Geologists
- Reservoir engineers
- Geophysicists
- Geomodellers

Course Objectives

- Theoretical frameworks and petrophysical uses of tools
- Completely interpreting petrophysical data for clastic reservoirs
- Incorporating the core analysis into procedures for traditional or advanced logs
- Producing a reservoir Modeling of electrofacies and permeability
- Characterization of reservoir fluid and pore volume

Unit 1: Formation Evaluation and Introduction to Logging Tools

- Lithology equipment
- Tools for measuring porosity
- Tools for resistivity
- Invasion history
- Clastic and carbonate reservoir differences

Unit 2: Petrophysical EvaluationGeosteering and development

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of reservoirs

- Log normalization, depth matching, splicing, and QC/QA for logs
- Detecting lithology, porosity, and mineralogy using crossplots
- Calculating the amount of shale
- Evaluation of porosity in clean and shaly formations
- Calculating the resistivity of water
- Calculating saturation in reservoirs with clean and shale water
- Calculating the saturation exponent and cementation factor from the core analysis
- Carrying out petrophysical studies on clastics and carbonates
- Petrophysical examination of horizontal and significantly deviated wells

Unit 3: Core analysis

- Underlying data analysis
- Statistics for the core data; identifying reservoir heterogeneity
- Flow Zone Indicator and Rock Quality Index
- Various facies models
- Modeling of reservoir permeability and electrofacies
- Examples and a practical exercise for advanced reservoir appraisal utilizing real core data
- Integrating wireline and LWD logs at the core
- Development and exploration of petrophysics

Unit 4: Nuclear Magnetic Resonance

- Tool theory for NMR
- Recognizing the NMR log
- Uses of advanced NMR
- Workflow for NMR interpretation
- NMR testing with integration
- Core integration of NMR
- Integration of traditional logs and NMR interpretation
- From NMR logs, faces

Unit 5: Modeling of Saturation Height

- Concept of capillary pressure
- Facets of the capillary pressure curves' variations
- Analysis of reservoir pressure
- Understanding the free water level and the oil water contact
- Modeling of saturation height
- Modeling simulations of saturation height in clastic and carbonate reservoirs