Integrated Petrophysics for Reservoir

Online

17 - 21 May 2026

Integrated Petrophysics for Reservoir

Code: OG32 From: 17 - 21 May 2026 City: Online Fees: 2700 Pound

Introduction

Integrated petrophysics is a core discipline in understanding oil and gas reservoir characteristics. It connects well data, core analysis, log interpretation, geological information, and engineering inputs to build a reliable view of reservoir quality and production potential. Effective reservoir evaluation depends on interpreting data as a connected system rather than treating each data source separately.

This course focuses on integrated petrophysics for reservoir evaluation through a practical and structured approach. It explains how to analyze rock and fluid properties, interpret well logs, estimate porosity, saturation, permeability, and shale volume, and evaluate hydrocarbon-bearing intervals. The course also highlights the importance of integration between petrophysics, geology, reservoir engineering, and production in supporting technical decisions related to reservoir development and optimization.

The course is structured over five days in a strong and logical sequence. It begins with the technical foundations of petrophysics and reservoir evaluation, then moves into log interpretation, rock property analysis, saturation and fluid evaluation, integrated petrophysical modeling, and a final integrated application based on a practical reservoir case.

Course Objectives

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

- Understand the role of integrated petrophysics in oil and gas reservoir evaluation.
- Analyze the relationship between petrophysical, geological, and engineering data in reservoir characterization.
- Interpret basic and advanced well logs and connect them with rock and fluid quality.
- Estimate porosity, saturation, permeability, and shale volume using practical methods.
- Evaluate reservoir intervals and distinguish productive zones from non-productive zones.
- Use core data to calibrate log interpretation results.
- Analyze the effect of rock properties on reservoir production behavior.
- Understand the relationship between rock type, pore distribution, saturation, and permeability.
- Build a petrophysical model that supports reservoir characterization and decision-making.
- Identify sources of uncertainty in petrophysical interpretation and methods to reduce them.
- Connect petrophysical analysis results with development and production decisions.
- Prepare an integrated technical assessment of a reservoir using multiple data sources.

Course Outlines

Day 1: Foundations of Integrated Petrophysics and Reservoir Evaluation

- The concept of integrated petrophysics and its role in reservoir characterization.
- The relationship between petrophysics, geology, reservoir engineering, and production.

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- Types of data used in reservoir evaluation and the importance of integrating them.
- Key properties of reservoir rocks, including porosity, permeability, and saturation.
- Classification of reservoir intervals and factors affecting reservoir quality.
- Applied discussion on how data quality affects the accuracy of reservoir evaluation.

Day 2: Well Log Interpretation and Reservoir Interval Quality Analysis

- Overview of well logs used in petrophysical interpretation.
- Analysis of gamma ray, resistivity, density, neutron, and sonic logs.
- Identification of lithology and shale volume and their impact on interval evaluation.
- Estimation of porosity from logs and connection with rock properties.
- Identification of potential hydrocarbon-bearing intervals.
- Practical application on interpreting a set of well logs and identifying promising zones.

Day 3: Saturation, Fluid Evaluation, and Data Calibration

- The concept of water and hydrocarbon saturation and its importance in reservoir evaluation.
- Use of saturation calculation models and their connection with rock and fluid type.
- Analysis of resistivity and the effects of salinity and shale on saturation results.
- Use of core data to calibrate porosity, permeability, and saturation interpretation.
- Comparison of log interpretation results with tests and laboratory data.
- Practical application on saturation estimation and reliability review of results.

Day 4: Building the Integrated Petrophysical Model

- Integration of log, core, and test data for reservoir characterization.
- Development of relationships between porosity, permeability, and rock quality.
- Identification of flow units and connection with production behavior.
- Evaluation of uncertainty in petrophysical inputs and results.
- Connecting the petrophysical model with geological and reservoir models.
- Practical application of building an integrated interpretation framework for an oil or gas reservoir.

Day 5: Integrated Application and Reservoir Development Decision Support

- Using petrophysical results to identify development and completion zones.
- Linking reservoir evaluation with drilling, testing, production, and reservoir management decisions.
- Analyzing key indicators of reservoir quality and production potential.
- Reviewing common mistakes in petrophysical interpretation and how to avoid them.
- Preparing a technical reservoir evaluation summary based on multiple data sources.
- Integrated application on a reservoir case covering interpretation, evaluation, and technical conclusions.

Why Attend this Course: Wins & Losses!

- Gain a strong understanding of the role of integrated petrophysics in reservoir evaluation.
- Improve the ability to interpret well logs and connect them with rock and fluid quality.
- Develop skills in estimating porosity, saturation, permeability, and shale volume.
- Use core data to improve the reliability of petrophysical interpretation.
- Build a clearer understanding of the relationship between rock properties and production behavior.
- Improve the ability to identify productive intervals and assess reservoir potential.

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- Reduce uncertainty through the integration of petrophysical, geological, and engineering data.
- Support drilling, completion, development, and reservoir management decisions with more reliable results.
- Understand common interpretation errors and how to manage them.
- Prepare an integrated petrophysical analysis that can support technical evaluation reports.

Conclusion

The Integrated Petrophysics for Reservoir Evaluation course provides a practical training framework that helps participants understand how petrophysical data can be used to characterize reservoirs and support more accurate technical decisions. The course covers the key areas that connect well logs, core data, rock properties, fluids, saturation, permeability, flow units, and reservoir models.

The program follows a clear sequence. It starts with the core concepts of integrated petrophysics, then moves into log interpretation and reservoir interval quality analysis. It then focuses on saturation and fluid evaluation and calibration before addressing the development of an integrated petrophysical model connected with geology and reservoir engineering. The final day focuses on integrated application and decision support for reservoir development.

Through practical application, participants will analyze realistic reservoir data, interpret logs, estimate key properties, evaluate productive intervals, identify uncertainty sources, and prepare technical conclusions that support drilling, completion, and production decisions. The course provides applicable knowledge across exploration, field development, reservoir engineering, geology, production, and oil and gas asset evaluation.

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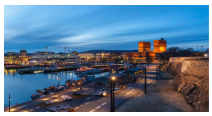
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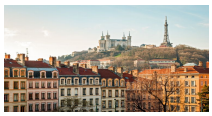
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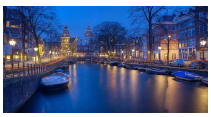
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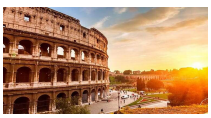
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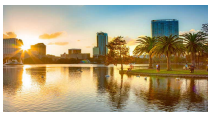
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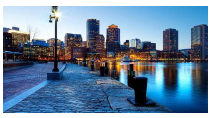
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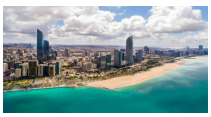
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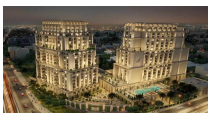

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