GTC Transforming Emerging Economies

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Machine Learning Applications in Reservoir Characterization

COURSE OVERVIEW

Machine Learning Applications in Reservoir Characterization provides participants with a combined understanding of how modern machine learning techniques can be applied to subsurface data for improved reservoir analysis and decision-making. It covers the integration of geological, geophysical, petrophysical, and engineering data with advanced algorithms to extract hidden patterns, reduce uncertainties, and enhance predictive modeling. Through a mix of theoretical foundations and practical case studies, the course demonstrates how machine learning transforms traditional workflows in reservoir characterization, enabling faster, more reliable, and data-driven insights.

WHO SHOULD ATTEND?

The course is designed for geoscientists, petroleum engineers, data scientists, and energy professionals who are involved in reservoir studies and asset development. It is also suitable for researchers interested in applying artificial intelligence and data-driven methods to geoscience and petroleum engineering challenges. A basic understanding of reservoir characterization concepts and fundamental programming or data analysis skills will be beneficial.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Understand the key principles and workflows of machine learning tailored to reservoir characterization.
- Gain skills in data preprocessing, feature engineering, and model development specific to reservoir data.
- Apply machine learning algorithms to analyse complex geological and production datasets.
- Improve accuracy in predicting reservoir properties such as porosity, permeability, and fluid behaviour.
- Enhance decision-making in reservoir modelling and production forecasting using AI-driven insights.
- Use case studies to connect theory with practical reservoir characterization challenges.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- Fundamental machine learning concepts and their application to reservoir characterization.
- Data preprocessing techniques including cleaning, quality control, and feature engineering.
- Developing and validating machine learning models for predicting reservoir properties.
- Integrating physics-inspired workflows to improve model interpretability and accuracy.
- Methods for uncertainty analysis and optimization in reservoir surveillance and modelling.
- Practical case studies demonstrating the application of AI and machine learning in complex reservoir challenges.

All our courses are dual-certificate courses. At the end of the training, the delegates will receive two certificates.
1. A GTC end-of-course certificate
2. Continuing Professional Development (CPD) Certificate of completion with earned credits awarded