Reserve Estimation and Risk Analysis

Course Duration : 5 days

Date : 16-Dec-2024 to 20-Dec-2024

Location : London

Type of Participant : Geoscientists, reservoir engineers, asset managers, economists, government representatives interested or involved in resources and reserves estimation and reporting, as well as related risks & uncertainties assessment.

Summary:

This course provides a comprehensive and practical understanding of methods of evaluation and classification of hydrocarbons resources and reserves (PRMS, SEC) and related issues, especially risks and uncertainties and how to assess/mitigate these risks and uncertainties.

Objective:

Attendees will be able to implement the following skills:

- Describe E&P field development projects workflow and related decision making process,
- Define concepts of resources and reserves and describe the Petroleum Resources Management System (PRMS) and Securities and Exchange Commission (SEC) system,
- Identify main sources of risks and uncertainties and discuss methods about integrating risks and uncertainties into resources and reserves evaluation: structural uncertainties, geological uncertainties, dynamic uncertainties, geostochastic modeling, etc.

Contents:

INTRODUCTION TO FIELD DEVELOPMENT PROJECTS -

- Oil and Gas Fields Life Cycle Activity
- History of Petroleum Reserves and Resources Definitions
- Worldwide Hydrocarbon Reserves: Overview & Forecasts
- Petroleum Resources Classification Framework
- United Nations Framework Classification (UNFC)

RESERVOIR CHARACTERIZATION & ACCUMULATIONS EVALUATION

- Overview of rock and fluid properties.
- Basics of reservoir characterization and geomodeling.
- Evaluation of Oil & Gas accumulations.

RESERVES EVALUATION

- Review of Oil & Gas reservoirs production mechanisms and related expected recovery factors.
- Review of methods for estimating recovery:
- Analogs.
- Material balance.
- Decline curves analysis.
- Dynamic reservoir simulation.

RISKS & UNCERTAINTIES

- Concepts of risks and uncertainties.
- Notions of probability and probability distribution functions.
- Decision trees.

- Uncertainties:
- Statistical description of data and common statistical distributions.
- Monte-Carlo method.
- Uncertainties within E&P development projects:
- Structural, geological and dynamic uncertainties.
- Uncertainties assessment - Experimental design and response surface methodology.