



Oil, Gas and Chemical

ADVANCED PETROPHYSICS Integration of Core, Log Data and Machine Learning for Defining and Predicting

Course Introduction

This course is essential for reservoir engineers, reservoir geologists, and Petrophysicists dealing with reservoir modeling. The course will provide the different techniques to establish hydraulic flow units from core data. Also it will discuss the different methods to predict the defined HFU for uncored wells and intervals. Then define the saturation height function (SHF) for different HFU either on capillary based or on log based.

Target Audience

Reservoir Engineers, Reservoir Geologist, and Petrophysicists.

Learning Objectives

- Provide the different techniques to establish hydraulic flow units from core data; RQI, Winland R35, Pittman.
- Discuss and practice the different methods to propagate the defined HFU for uncored wells and intervals. NN, Fuzzy Logic, MRL, SOM, Cluster Analysis, PCA, Contingency Tables.
- Establish the saturation height function (SHF) for different HFU either on capillary or log based with reconciliation with logs.

Course Outline

- **01 Day One**

- Data Preparation and QC**

- Data Available Loading
 - Log Data Editing and Create Flags
 - Pc Data QC and Corrections
 - Data Visualization

- **02 Day Two**

- Generate HFU**

- RQI
 - Winland R35
 - Pittman

- **03 Day Three**

- Predicate HFU & Permeability**

- Principle Component Analysis
 - Multiple Linear Regression
 - Fuzzy Logic
 - Cluster Analysis
 - Self-Organizing Maps
 - Neural Network
 - Contingency Table

- **04 Day Four**

- Generate Saturation Height Modeling**

- Fitting and Smoothing
 - Averaging
 - Reconciliation with Log Data

- **05 Day Five**

- Group discussion and Exercises using Software**

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 25, 2025	May 29, 2025	5 days	4250.00 \$	KSA - Al Khobar
Sept. 15, 2025	Sept. 19, 2025	5 days	4950.00 \$	England - London
Dec. 22, 2025	Dec. 26, 2025	5 days	4250.00 \$	UAE - Dubai
Feb. 3, 2025	Feb. 7, 2025	5 days	4250.00 \$	UAE - Dubai