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ENERGY EVOLUTION
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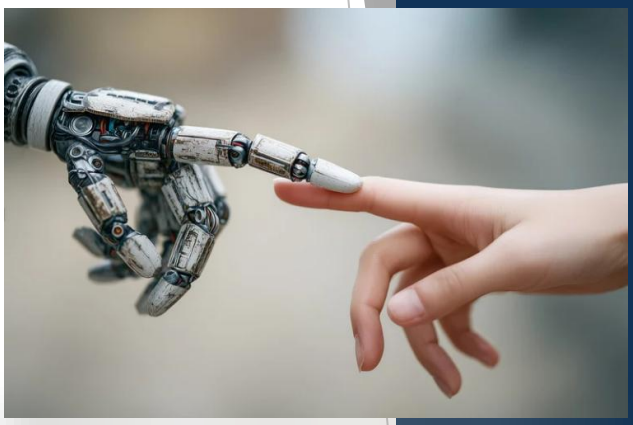
Pecten Development Learning Solutions

Data Science and Machine Learning for Geoscientists and Petroleum Engineers

Course Overview



This course introduces Python programming fundamentals tailored specifically for geoscientists and petroleum engineers. Python has become the industry standard for data analysis, automation, and machine learning in the petroleum sector. By the end of this course, participants will be able to manipulate well log data, process seismic information, perform petrophysical calculations, and create professional visualizations for reservoir characterization and field development.
Here is the intensive 5-day course structure:

Day 1: Python Programming Fundamentals
Focus: Master the core concepts of Python from the ground up.
Topics: Environment setup, variables, data types, data structures (lists, dictionaries), control flow (if/else, loops), functions, and basic error handling.
Deliverable: Solid understanding of Python syntax and the ability to write simple scripts and functions.

Day 2: Data Handling & Well Log QC with Pandas & Welly
2.1 Working with LAS Files (lasio)
Hands-on Exercise: Load well log LAS files, perform QC, create data summaries

2.2 Well Data Management (welly)
Hands-on Exercise: Combine well logs with formation tops data

Day 3: Seismic, Petrophysics & Volumetrics

3.1 Seismic Data Handling
Hands-on Exercise: Load and plot seismic sections

3.2 Monte Carlo Simulation Volumetrics
Hands-on Exercise: Monte Carlo simulation

3.3 Petrophysical Calculations
Hands-on Exercise: Complete petrophysical workflow on real well data

3.4 Geospatial Data Mapping
Hands-on Exercise: Complete mapping workflow on real data

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Day 4: Reservoir Engineering & Production Analysis

4.1 Production Data Analysis
Hands-on Exercise: Perform DCA on production data, create forecasts

4.2 Material Balance

4.3 Inflow Performance Relationships (IPR)

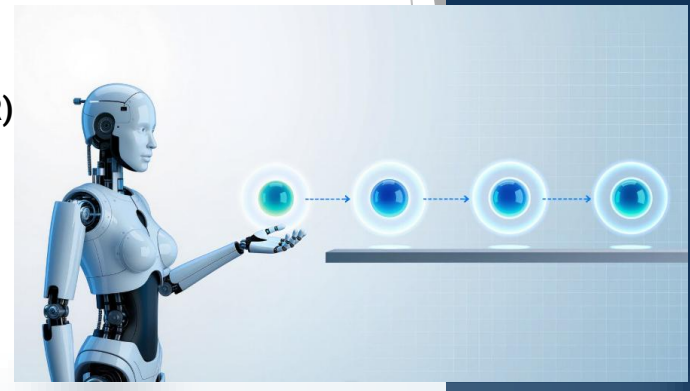
4.4 PVT Calculations

4.5 Skin Effect

4.6 Well Test Analysis for a Gas Well

4.7 Reservoir Pressure Profile

4.8 Analyze and Visualize ECLIPSE Data using Python



Day 5: Machine Learning

7.1 Machine Learning Fundamentals

7.2 Scikit-learn Basics

7.3 Clustering and Classification
Hands-on Exercise: Classify facies from well log data

Progress Tracking
Full course administration and participant tracking are included. Weekly progress updates provide clear visibility into participation, engagement, and overall progress.

Queries
Connect with enquiries@apes-energyevolution.com