

GLOBAL EXPERTS INSTITUTE FOR TRAINING.  
ISO 9001-2008 TRAINING PROVISION CERTIFIED

# AIML Analyst Machine Learning in Oil & Gas Operations

## Schedule Dates:

Start Date	End Date	Place
16 Nov 2025	20 Nov 2025	Cairo – Fairmont Nile City, Cairo, Egypt

### **Program Introduction:**

The oil and gas industry is undergoing a transformative shift, leveraging artificial intelligence (AI) and machine learning (ML) to enhance operational efficiency, reduce costs, and optimize resource utilization. This training program is designed to provide participants with a comprehensive understanding of how AI and ML technologies can be practically applied to various stages of the oil and gas value chain — from exploration to production and distribution.

Participants will explore real-world use cases, tools, and models that are shaping the future of energy, with a specific focus on data-driven decision-making, predictive maintenance, and automation. This hands-on course empowers professionals to bridge the gap between data science and petroleum operations.

### **Program Objectives:**

- ✓ Understand the fundamentals of AI and machine learning.
- ✓ Identify ML opportunities across upstream, midstream, and downstream operations.
- ✓ Analyze oil & gas datasets using Python and ML libraries.
- ✓ Build and validate machine learning models for predictive analytics.
- ✓ Apply ML to solve real-world problems such as equipment failure, reservoir modeling, and demand forecasting.
- ✓ Interpret ML results to support operational and strategic decisions.
- ✓ Evaluate ethical, environmental, and data privacy considerations in deploying ML.
- ✓ Collaborate effectively between data teams and engineering departments.

### Who should attend?

- Petroleum engineers
- Data analysts and data scientists
- Reservoir engineers
- Drilling and production engineers
- Process and chemical engineers
- Oilfield service professionals
- Technical managers and project leads
- IT professionals working in the energy sector

### Program Outlines

#### *Day One*

- Introduction to AI and ML: Concepts & Terminology
- The Role of AI/ML in the Oil & Gas Industry
- Data Acquisition in Oil & Gas (Sensors, Logs, SCADA)
- Data Cleaning and Preprocessing Techniques
- Exploratory Data Analysis (EDA) for Energy Datasets

#### *Day Two*

- Data Fundamentals & Python Basics
- Data types, variables, control flow
- Functions, libraries (NumPy, Pandas)
- Data wrangling and preparation

### ***Day Three:***

- Supervised vs. Unsupervised Learning
- Regression Models for Production Forecasting
- Classification Models for Equipment Failure Detection
- Clustering Techniques for Reservoir Characterization
- Time Series Forecasting for Oil Prices and Demand

### ***Day Four:***

- Statistics in Oil & Gas Contexts
- Probability theory
- Hypothesis testing and distributions
- Real-time Monitoring and Anomaly Detection
- Regression models

### ***Day Five:***





- Data Visualization for Operational Insights
- Using Matplotlib, Seaborn, and Plotly
- Storytelling with data
- Dashboards (Power BI/Plotly Dash basics)

### **Training Methodology:**

- Slide presentations
- Interactive discussion
- Simulations and Gamification
- Online Video material

## **Cost Quotation in Kuwaiti Dinars**

### **The total cost includes:**

-  Instructor(s) expenses
-  Training materials
-  Certification
-  Lunch Included

**Total Cost: KD 1250 per Participant**

(One Thousand Two Hundred Fifty Kuwaiti Dinar )