

# **MACHINE LEARNING & DATA MANAGEMENT IN HEAVY OIL FIELDS**



**DRPT112**

## **COURSE TITLE**

Machine learning & Data Management in Heavy Oil Fields

## **COURSE DATE/VENUE**

12<sup>th</sup>-16<sup>th</sup> Feb 24'

London

## **COURSE REFERENCE**

DRPT112

## **COURSE DURATION**

05 Days

## **DISCIPLINE**

### **COURSE INTRODUCTION**

- Machine learning (ML) focuses on the use and development of computer systems that learn from data and past experiences while identifying patterns to make predictions with minimal human intervention.
- The Oil and Gas sector recognizes the profound shifts occurring in the energy and technological realms, shaped by interconnected drivers of growth: escalating energy demand, the transformation of energy systems, and ongoing technological evolution and revolution.
- As the Oil and Gas industry undergoes transformation, there is a heightened need to amalgamate leadership prowess, domain expertise, and knowledge, addressing the persisting data silos within organizations. This course is designed to provide a foundational understanding of the petroleum industry and machine learning, along with comprehensive data management. Its primary aim is to empower organizations within the industry to leverage their data effectively, mitigating the omnipresent risk and uncertainty prevalent in the oil and gas sector, and fostering a path to success.

### **COURSE OBJECTIVE**

**Upon completion of this course, you will gain an understanding of the following important aspects of Planning**

By the end of this training, participants will learn to:

- ✓ Apply Machine learning concepts in oil and gas industry
- ✓ Learn to identify the impact of data quality and data management on success of oil and gas enterprise
- ✓ Acquire the knowledge about data management framework
- ✓ Identify the machine learning algorithms applied within the oil and gas industry

- ✓ Apply Machine Learning Algorithm to predict problems in the oil and gas fields operations.

## **COURSE AUDIENCE**

This training course is suitable to a wide range of professionals but will greatly benefit:

- Petroleum Data Analysts
- Petroleum Engineers
- Systems Analysts
- Programmers
- Data Analysts
- Database Administrators
- Project Leaders
- Managers
- Software Engineers

## **COURSE CONTENT**

### **Day 1**

- What is artificial intelligence?
- Applications of artificial intelligence in oil and gas industry.
- Case studies and examples of the application of Artificial Intelligence in Oil and gas Industry.

### **Day 2**

- Introduction to Machine Learning
- History of machine learning in oil and gas industry
- Machine Learning Algorithms.
- Artificial neural network (ANN).
- Data Management from the DCS to the Historian

### **Day 3**

- Project Management for a Machine Learning Project
- Big Data in Oil and Gas Industry
- Detecting Electric Submersible Pump Failures

#### **Day 4**

- Predictive and Diagnostic Maintenance for Rod Pumps
- Forecasting Slugging in Gas Lift Wells
- Machine Learning application to optimize production in heavy oil reservoirs.

#### **Day 5**

- Rate of Penetration Prediction in Drilling Operation in Oil and Gas Wells by K-Nearest Neighbors and Multilayer Perceptron Algorithms.
- Prediction of fold-of-increase in productivity index post limited entry fracturing using artificial neural network

#### **COURSE CERTIFICATE**

**TRAINIT ACADEMY** will award an internationally recognized certificate(s) for each delegate on completion of training.

#### **COURSE FEES**

£5,750 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

#### **COURSE METHODOLOGY**

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation

- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

