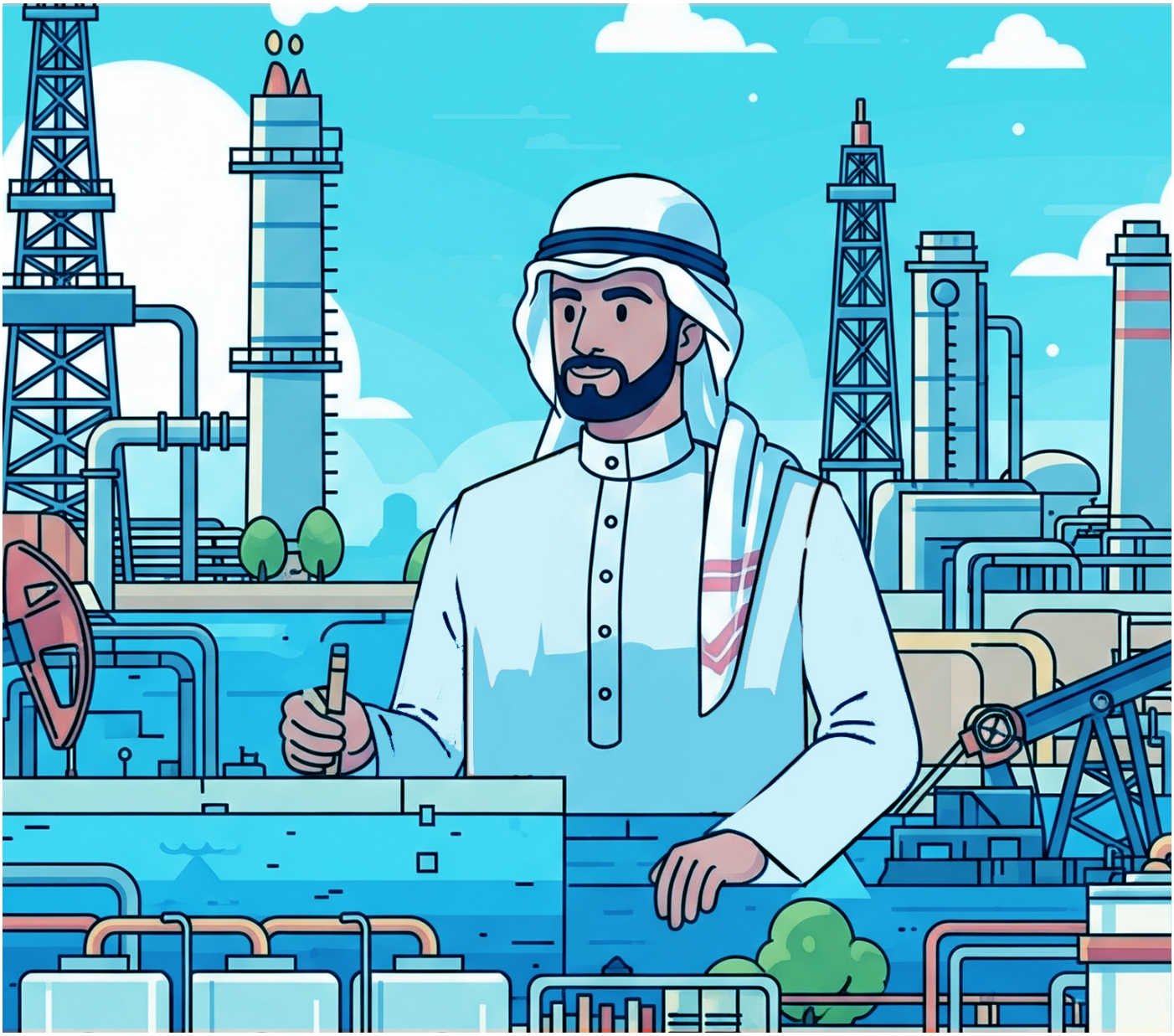
BOOST
THE LEADING TRAINING PROVIDER



Oil, Gas and Chemical

Applied Machine Learning and Data Science for Upstream Professionals

Course Introduction

Machine learning and data science

Machine learning and data science are transforming the upstream oil and gas industry by enabling better decision-making, optimizing operations, and improving exploration and production efficiency. Understanding how to apply these technologies helps upstream professionals solve complex problems, manage large data sets, and predict operational outcomes. These skills are essential for enhancing productivity, reducing risks, and driving innovation in the sector. Learning to leverage data-driven insights is key for future success in upstream operations.

This training program covers the fundamentals and advanced applications of machine learning and data science for upstream professionals. Each day focuses on a core topic, providing practical knowledge and hands-on exercises. The program includes interactive discussions, case studies, and real-world projects to help participants develop skills for applying data science and machine learning in upstream operations.

Training Course Methodology

This course is designed to be interactive and participatory, and includes various learning tools to enable the participants to function effectively and efficiently. The course will use sessions, exercises, and case applications, and presentation about proven-by-practice methods, new insights and ideas about the topic and its effects in a corporate world.

Target Audience

- Geoscientists
- Petroleum engineers
- Reservoir engineers
- Data analysts in the oil and gas industry

- Exploration and production professionals

Learning Objectives

- Understand the basics of machine learning and data science in upstream operations.
- Learn how to collect, clean, and analyze upstream data.
- Gain skills in building machine learning models for exploration and production.
- Apply data-driven methods to optimize upstream operations.
- Solve real-world problems using data science techniques.

Course Outline

- **01 Day One**

  Introduction to Data Science and Machine Learning in Upstream

  - Overview of data science and machine learning concepts.
  - Importance of data-driven decisions in upstream operations.
  - Types of data in upstream oil and gas (seismic, drilling, production).
  - Basics of data collection, storage, and preprocessing.
  - Introduction to key machine learning algorithms.
  - Understanding the role of big data in upstream challenges.
  - Case studies on successful data science applications in upstream.
- **02 Day Two**

  Data Collection, Cleaning, and Analysis

  - Best practices for collecting upstream data.
  - Techniques for cleaning and preparing large data sets.
  - Identifying and handling missing or inaccurate data.
  - Exploratory data analysis techniques.
  - Using visualization tools to understand upstream data.
  - Statistical analysis methods for upstream insights.
  - Building and interpreting basic data models.

- **03 Day Three**

  Building and Applying Machine Learning Models

  - Introduction to supervised and unsupervised learning.
  - Building predictive models for reservoir analysis.
  - Applying classification models for drilling optimization.
  - Regression models for production forecasting.
  - Clustering techniques for geological data analysis.
  - Model evaluation and accuracy testing.
  - Best practices for deploying machine learning models.
- **04 Day Four**

  Optimizing Upstream Operations with Data Science

  - Using data science for drilling optimization.
  - Predictive maintenance strategies using machine learning.
  - Analyzing production data for operational efficiency.
  - Identifying operational risks through data analysis.
  - Optimizing resource allocation using predictive models.
  - Real-time data analysis for field operations.
  - Case studies on operational optimization.
- **05 Day Five**

  Advanced Techniques and Future Trends

  - Introduction to deep learning for seismic data interpretation.
  - Advanced analytics for exploration and production.
  - Integrating AI and machine learning in upstream workflows.
  - Managing big data challenges in upstream operations.
  - Emerging trends in machine learning for oil and gas.
  - Ethics and data privacy considerations.
  - Planning for the future of data-driven upstream operations.

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 19, 2025	May 23, 2025	5 days	4250.00 $	UAE - Abu Dhabi
Aug. 10, 2025	Aug. 14, 2025	5 days	4250.00 $	Qatar - El Doha
Nov. 24, 2025	Nov. 28, 2025	5 days	4250.00 $	UAE - Dubai