



## TRAINING PROGRAM



# Chemical Laboratory In Petroleum Industry

## Introduction:

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This course overview the basic principle of petroleum industry with a brief explanation of crude oil chemistry, the impact on the refinery, and a fundamental discussion of the nature and purpose of the major refining processes. In addition, the chemical characteristics of refinery products and laboratory analysis will be explored.

## Who Should Attend?

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The course is designed for engineers, chemists, technical operating and supervisory staff, who have working in oil field

## Methodology:

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This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures

- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

## Certificate:

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**BTS** attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration

## Course Objectives:

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Upon the successful completion of this course, the participants will be familiar with principles of chemical and physical analysis of petroleum and petroleum products including basic chemistry of crude oil and products.

## Course Outline:

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- Introduction
- History and Terminology
- **Chemical Laboratory**
  - ❖ Laboratory Building
  - ❖ Planning to Work in the Laboratory
  - ❖ Laboratory in Operation
  - ❖ Job Responsibilities
  - ❖ Laboratory Housekeeping
  - ❖ Laboratory Records
  - ❖ Methods and operation of analysis
  - ❖ Basic laboratory technique
- Petroleum Origin
- Petroleum Composition and its Properties
- Classification of crude oil types
- Physical Properties of crude oil
- Chemical Composition of crude oil

- Evaluation of crude Oil
- Sampling Of Petroleum and Petroleum Products
- **Crude oil analysis**
  - ❖ Carbon Residue, Asphaltene Content
  - ❖ Density (Specific Gravity)
  - ❖ Distillation
  - ❖ Light Hydrocarbons
  - ❖ Metallic Constituents
  - ❖ Salt Content
  - ❖ Sulfur Content
  - ❖ Viscosity and Pour Point
  - ❖ Water and Sediment
  - ❖ Wax Content
  - ❖ Other Tests
- **Major Refinery Products analysis**
  - ❖ Gases
  - ❖ Naphtha
  - ❖ Gasoline
  - ❖ Aviation Fuel
  - ❖ Kerosene
  - ❖ Diesel Fuel
  - ❖ Fuel Oil
  - ❖ Lubricating Oil
  - ❖ Grease
  - ❖ Wax
  - ❖ Asphalt
- Validation of Analytical Methods and Procedures
- Quality control and proficiency testing
- Laboratory Data Analysis