



AL010: Refinery Laboratory: *Analytical Methods, Procedures, Quality Control, Technology, Analysis & Best Practice*

Training Description:

This course is designed to provide delegates with a detailed and up-to-date overview of the analytical methods, procedures, quality control, technology, analysis and best practices of refinery laboratory. It covers laboratory quality management system in accordance with the international standard ISO 17025; and laboratory procedures that includes the general product specification, analytic items, sample handling and laboratory safety.

At the completion of the course, participants will be able to implement quality control of gasoline, naphtha, diesel, kerosene and aviation fuel; assess crude oil and apply quality control of fuel oil, base oil, asphalt and sulfur as well as quality control of gas; employ quality control of water and environmental test; recognize the general principle and scheme of NIR technology and its application; interpret troubleshooting analysis; and identify the miscellaneous issues in quality control.

Training Objective:

By the end of the training, participants will be able to:

- ✓ Apply and gain systematic techniques, analytical methods, procedures, quality control, technology, analysis and best practices of refinery laboratory
- ✓ Discuss laboratory quality management system in accordance with the international standard ISO 17025
- ✓ Carryout laboratory procedure including the general product specification and analytic items, sample handling and laboratory safety
- ✓ Implement quality control of gasoline, naphtha, diesel, kerosene and aviation fuel
- ✓ Assess crude oil and apply quality control of fuel oil, base oil, asphalt and sulfur as well as quality control of gas that includes propane, butane, etc
- ✓ Employ quality control of water and environmental test as well as recognize the general principle and scheme of NIR technology and its application
- ✓ Interpret troubleshooting analysis and identify the miscellaneous issues in quality control including the preparation of scale and oil samples to be tested for trace metal contents using AAS and/or ICP as well as the laboratory hand blends preparation and results evaluation

Training Designed for:

This course is intended for laboratory staff in refineries including laboratory chemists, analysts, scientists and other lab staff.

Training Program:

DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction of Laboratory Training
 - LQM System (Laboratory Quality Management ISO 17025)
- ❖ Overview of Laboratory Procedure
 - The General Product Specification and Analytic Items
 - Handling of Sample
 - Laboratory Safety



❖ **The Quality Control of Gasoline & Naphtha**

- Research Octane Number
- Copper Strip, Etc.
- Oxygenates Compounds and Gum Contents on Gasoline and Naphtha Samples

DAY TWO:

❖ **The Quality Control of Diesel, Kerosene & Aviation Fuel**

- CFPP
- Cloud
- Pour Point
- Cetane Number
- Cetane Index
- Lubricity, Etc.
- Total Aromatics (Mono-Di-Tri-poly) on Aviation Samples

❖ **Crude Oil Assessment**

- TBP
- Pot Still, Etc.

DAY THREE:

❖ **The Quality Control of Fuel Oil, Base Oil, Asphalt, Sulfur, Etc.**

- API
- Viscosity
- Color, Etc.
- HT. Simulated Distillation Test for Heavy Oil Samples (SimDis)
- Total Sediments on Fuel Oil Samples using IP Method

❖ **The Quality Control of Gas (Propane, Butane, Etc.)**

- Sulfur
- Composition, Etc.

DAY FOUR:

❖ **The Quality Control of Water & Environmental Test**

- Ion Chromatography
- Amine Concentration, Etc.
- TOC
- Oil in Water

❖ **NIR Technology & Application**

- General Principle & Scheme

❖ **Practical Sessions/Site Visit**

DAY FIVE:

❖ **Special Analysis for Troubleshooting**

- The Interpretation for Troubleshooting Analysis

❖ **Miscellaneous Issues in Quality Control**

- Preparation for Scale and Oil Samples to be Tested for Trace Metal Contents using AAS and/or ICP

❖ **Course Conclusion**

❖ **POST-TEST and EVALUATION**

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request”.

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

For training registrations or in-house enquiries, please contact:

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Training & Career Development Department