



AL168: Applied Successful Laboratory Techniques

Training Description:

It is very important to lab staff, technicians, supervisors and managers to learn how to create the success in their lab. The training course provides basic laboratory analysis methods for crude oil, hydrocarbon gas, and water. It is designed to provide an introduction and **practical application of safety and quality** in the laboratory. It is designed also to understand basics of lab analysis, how to apply quality standards, how to do health and safety risk assessments, how to develop the technical, and methods in the lab and how to evaluate the lab results.

This intensive training course is designed to benefit both new lab personnel and those seeking to refine their existing skills, ultimately allowing you to generate reliable and accurate results while ensuring a safe and efficient work environment. Participants will gain a strong foundation in essential laboratory techniques, troubleshoot common problems, and develop best practices for safe and efficient laboratory procedures.

Training Objectives:

By the end of the training, participants will be able to gain an in-depth understanding of:

- ✓ The knowledge and skills for understanding laboratory technical
- ✓ Requirements of quality laboratory and procedure of safety methods
- ✓ Understanding of the roles of the quality and technical performance in the laboratory
- ✓ Understanding of the roles of quality standards
- ✓ Develop the technical, and methods in the analytical lab and how to evaluate the lab results

Training Designed for:

This course is intended for Lab Managers, Supervisors, Team Leaders, Chemists and Technicians, Health & Safety and Environmental Professionals, Laboratory Seniors, Technologists, Analytical Laboratory Professionals, Laboratory Staff, Superintendents, Supervisors, Engineers, Chemists and Analysts, Auditors, Research Directors, Chemical Engineers, Health & Safety Professionals Instrument Engineers, Research and Development Scientists, and Quality Assurance/Control Managers, anyone responsible for implementing, maintaining and reviewing laboratory quality systems.

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.”

This training course is available upon request in English or Arabic, virtual online live or face to face public/inhouse. Content can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

FIVE DAYS:

- ❖ Introduction
 - Laboratory, terminology and roles
 - Laboratory and personnel responsibility



- Prepare to work on laboratory
- Equipment
- Chemicals
- Instruments
- Laboratory housekeeping
- ❖ **Laboratory Safety Guideline**
 - Laboratory safety equipment
 - Safe lab environment
 - Personal protection equipment (PPE)
 - Identification of hazardous chemicals
 - Safe work practices and procedures
 - Handling gases, chemicals and flammable liquids
 - Laboratory waste disposal
 - Spill and hazard waste management
- ❖ **Oilfield Sampling**
 - Handling
 - Labelling
 - Preparations
 - Reservation and stores
- ❖ **Type of Laboratory Analysis**
 - Physical analysis
 - Chemical analysis
 - Qualitative analysis
 - Quantitative analysis
- ❖ **Methods of Laboratory Analysis**
 - Classical methods
 - Instrumental methods
 - Spectroscopy technique
 - Chromatography technique
 - Electrochemical technique
- ❖ **Choosing the Right Instrument & Chemical Measurement**
 - Types of methods
 - Selection of methods
 - Calibration
 - Reference material, blank correction
 - Maintenance and troubleshooting
 - Routine maintenance
 - Equipment maintenance
- ❖ **Crude Oil Analysis**
 - Evaluation of crude oil
 - 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
- ❖ **Water Analysis**
 - pH acidity and alkalinity
 - Temperature
 - Density
 - Turbidity
 - Total Hardness
 - P, M & OH alkalinity
 - Specific conductance
 - Total solids (TS)
 - Total dissolved solids (TDS)
 - Total suspended solids (TSS)
 - Dissolved oxygen (DO)
 - Oxygen demand (COD, BOD)
 - Organic contaminants
 - Toxic organic compounds
 - Radioactive contaminants
 - Nutrients
 - Chloride
 - Cyanide
 - Pathogenic microorganisms
 - Sulphite
 - Phosphate
 - Oil and grease in water
 - Inorganic chemicals
- ❖ **Hydrocarbon Gas Analysis**
 - Gas-handling facilities and treatment
 - Physical and chemical properties of hydrocarbon gases
 - Composition of hydrocarbon gases
 - Testing and analysis of hydrocarbon gases
 - Composition of hydrocarbon gases by gas chromatography
- ❖ **Mathematical Evaluation of Data**
 - Reporting results
 - Significant figure rules
 - Laboratory certification
 - The evaluation of results and methods
- ❖ **Quality Control**
 - Laboratory Information Management Systems (LIMS)
 - Quality control and assurance
 - Quality Audit (internal and external)
 - Lab quality requirements (ISO 17025)

- ❖ **Hands-on Practice & Course Wrap-Up**
 - Practical application of learned techniques in a simulated laboratory environment / Case studies and group discussions for problem-solving and knowledge application
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

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, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

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

Training Fees:

USD\$ To be advised 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:

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|---------------|-------------------------------|
| 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 - 13:00 | Recess (Prayer Break & Lunch) |
| 13:00 - 14:00 | Last Session |

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

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