Advanced Analytical Chemistry For Lab Technicians Oil & Gas

Course Description:

- What does it mean to be a scientist or technician in a laboratory? Why do laboratory staffs ask questions such as what is that substance and why does it react that way? Since the beginning of time, man has been seen as an inquirer. We are always trying to discover new things, classify everything and to understand the behavior of things. The ability to enquire is one of the most important assets a person in a laboratory can have. You need to be able to act in the role of an inquirer when working in a laboratory environment. The idea of this course is to introduce working in a laboratory. It is hoped that people become aware of their role and function in a laboratory environment. Whatever the function of the laboratory, its most important asset is the staff and how those staff perform. This course presents people with the basics to become an integral part of the laboratory and assist the facility to generate data that are of high quality and scientifically reliable.

Course Objective:

- **After completion of the course the participants will be able to:**
- Identify the dangerous chemicals and how to minimize the risk associated with team in case of fire, chemical spill, or sudden failure of equipment.
- To exercise total quality management in producing reliable, consistent, and independent results and on-time to their customers.
- To emphasize on equipment calibration and maintenance as part of the quality assurance and quality control procedures.
- To increase the awareness of the occupational health and safety in the laboratory environment and exercising total professionalism in scientific and management areas.
- To identify the most effective and efficient practice in planning, organizing, prioritizing, and executing the business requirements.
- To develop effective communication and interpersonal skills among lab personnel

WHO Should attend?

- Laboratory managers, Analytical chemists, medical scientists, laboratory supervisors, research and development scientists, microbiologists, food technologists and quality assurance/control managers.

Training Methods:

- 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

Daily agenda

- **Day 1**
- Introduction
- Basic Principle and theory of Chemistry
- Chemical Laboratory, Historical and review
- Laboratory Building
  - Laboratory Design Considerations
  - Building Design and Site Selection
  - Floor Planning
  - Laboratory Configuration
  - Building Services and Structure,
  - Laboratory Utility
  - Effective Budgeting in the Laboratory
- Planning to Work in the Laboratory
- Laboratory in Operation

Daily agenda

- **Day 2**
- Laboratory Management and Operation
- Principle of Leadership
- Management Functions
- Managerial problem Solving and Decision Making
- Human resource Management (HRM)
- Interactive Communication Skills
- Fundamentals of Financial Management
- Job Responsibilities
- Training
- Reports
- Dead Files and Old Samples
- Paperwork Reduction
- Laboratory Housekeeping
- Laboratory Records
- Sample Records
- Tests Records
- Results Records
- Personnel Records
- Maintenance Records

Daily agenda

- **Day 3**
- Chemicals and Glassware
- Equipment, Apparatus, and Reagents
- Safety in Laboratory
  - Safety Responsibilities and Requirement
  - Laboratory Safety Equipment
  - Personal Protective Equipment
  - Handling Chemicals in Laboratory
    - Understanding hazard warning information
    - Material Safety Data Sheets (MSDS)
    - Risk and Safety Statement R/S phrases
    - NFPA
  - Sample Management
    - Sampling
    - Sample Handling
    - Sample Preparations and treatment
- Sample Preservation and Store

Daily agenda

- **Day 4**
- Type of Chemical Analysis Methods
- Classical Methods
- Instrumental Analysis in Laboratory
  - Spectroscopic Analysis
  - Chromatography Analysis
  - Electrochemical Analysis
- Problem , troubleshot and Routine Maintenance
- Comparing Instrumental Techniques
- Choosing the Right Instrument
- Validation of Analytical Methods and Development
- Study Performance and Reporting

Daily agenda

- **Day 5**
  - Evaluation of analytical data
  - Correction of errors and improving accuracy
  - Laboratory Data Analysis
  - Quality Control and Quality Assurance
  - Laboratory Information Management System LIMS
  - Laboratory Report
  - Laboratory Certification
  - Laboratory Accreditation Requirement
  - Quality Audit (Internal and External)
  - Laboratory Audits (ISO 17025, GLP)