

**Training Title**

**LABORATORY MANAGEMENT SYSTEM**

**Training Duration**

5 days

**Training Date**

REF LM019	Laboratory Management System	5	3 – 7 November, 2019	\$4,250	Dubai, UAE
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In any of the 5 star hotels. The exact venue will be informed once finalized.

**Training Fees**

- 4,250 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

Language: English

**TRAINING DESCRIPTION**

The quality management of the laboratory according to an international standard is very important to enhance the laboratory system and laboratory environment. Laboratories use ISO 17025 to implement a quality system aimed at improving their ability to consistently produce valid results. A careful analysis of tasks and working with safety conditions will lead to redesign of the working environment that will enhance worker performance. The course provides advance knowledge and standard operation, calibration and troubleshooting of gas chromatography according to the ISO 17025 guideline.

**OBJECTIVES**

1. Understand the laboratory quality requirements and appreciate the need for a quality system according to the International Standards Organization ISO 17025.
2. Understand the significance of calibration methods and traceability.
3. Identify the factors which have to be considered when choosing a GC method.
4. Understand how to validate analytical methods of gas chromatography.
5. Recognize the characteristics of a laboratory environment which can affect the performance of gas chromatography and hence influence the validity of measurements.
6. Use the standard methods for the gas chromatography operation, calculation and analyses report.
7. Use a standard method for gas chromatography troubleshooting.
8. Use a standard safety work in the laboratory.

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### WHO SHOULD ATTEND

The course is designed for people who implement, maintain and review laboratory quality systems. It is suitable for all laboratory staff including managers, quality assurance officers, lab technicians, chemists, chemical engineers and instrument engineers.

### TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. The delegates will also be encouraged to raise their own questions and to share in the development of the right answers using their own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course. Booklet, Power-Point presentations, Handouts, Videos, User group discussions and practices on case study

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### DAILY OUTLINE

- DAY 1**
- **LABORATORY QUALITY MANAGEMENT MANUAL ISO 17025**  
Management Requirements  
Technical Requirements
  - **VALIDATION OF ANALYTICAL METHODS AND PROCEDURES**
  - **SAMPLING**  
Sampling Plan  
Quality of Sample  
Adequacy of Samples for Analysis Requested
- DAY 2**
- **QUALITY IN THE ANALYTICAL CHEMISTRY LABORATORY**  
Introduction to Quality Assurance  
Selecting of the Method  
Selecting Equipment and Consumables  
Making Measurements and Reporting  
Quality Systems in Chemical Laboratories
- DAY 3**
- **GAS CHROMATOGRAPHY TECHNIQUES AND OPERATION**  
Carrier Gas Selection  
Regulator Selection  
Sample Introduction Components  
Selection of the Column  
Selection of the Detectors
  - **GAS CHROMATOGRAPHY THEORY PARAMETERS**

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Theoretical Plate  
Retention Time  
Average Linear Rate  
Partition Ratio  
Capacity Factor  
Selectivity Factor  
Column Efficiency  
Column Resolution

**DAY 4**

- **GC STANDARD ANALYSIS PROCEDURE AND REPORT ISO/IEC 17025**
- **QUANTITATIVE METHOD**  
Calibration Using External and Internal Standards  
Instrumental Graph-Interpolated Method  
Product-Moment Correlation Coefficient  
Determination of Analyte Concentration  
Standard Addition-Extrapolated Method  
Detection Limit  
Confidence Limit  
Outliers Test  
Experimental Design and Optimization
- **STANDARD METHODS FOR TROUBLESHOOTING**  
Band Broadening  
Baseline Deviation  
Peak Shape Problems  
Split Peaks  
Negative Peaks  
Retention Changes  
Peak Size Problems

**DAY 5**

- **SAFE WORK PRACTICES AND PROCEDURES**
- **DISCUSSION AND EXERCISE**

**NOTE:**

Pre & Post Tests will be conducted

Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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