



# AL024: Modern Laboratory Management: *Effective Management of the Chemical Analysis Support*





## Training Description:

Analytical chemistry is experiencing dramatic, turbulent change beyond control of the laboratory and laboratory management. Technological innovations, staffing demographics, new business models, automation, industry consolidation, society and regulatory expectations, and other factors are transforming nearly every aspect of the business.

This intensive training course takes a strategic view of the laboratory system in the context of current quality management philosophies to determine options for achieving best practices. Experiences will be shared to provide insight into the obstacles and expected outcomes for the various approaches. Further, this course includes the mission and function of the analytical enterprise along with ways to improve the quality, performance and evaluation of the laboratory.

In this course, participants will learn how laboratories are applying current management philosophies to get closer to the business and to streamline operations. Practical details of laboratory management such as cost control, maintaining analysis quality, improving laboratory reputation, effective staffing, capital budget justification, and so forth will be discussed but the emphasis will be on systems rather than daily operational issues. Participants are expected to share experiences and best practices.

## Training Objectives:

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

- ✓ Apply modern management philosophies in your laboratory
- ✓ Get solutions to your management problems from a leading authority
- ✓ Define and focus on the lab mission
- ✓ Organize to meet the requirements of a mission
- ✓ Improve abilities to listen and communicate
- ✓ Motivate staff and build teams
- ✓ Recognize the manager's job

## Training Designed for:

This course is intended for laboratory managers, supervisors, chemists, chemical engineers, analysts and scientists.

## Training Program:

### DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
  - Lifestyle
  - Analytical Laboratories-Size and Types
  - Analytical Laboratories-Classification
  - Analytical Laboratory-Divisions
  - Large Analytical Laboratory-Instrumentation
  - Analytical Laboratory-Management
  - The Role of Needs in the Business Cycle
  - Prime Driving Force





- Reasons for Attending the Course
- Matured Adult Learners
- Brief Contents of the Course
- Current Position and Expectations
- ❖ **Analytical Chemistry as Central Science in Science & Technology**
  - Classical Domain
  - Modern Domain
  - Classification of Analytical Chemistry
  - Measurements
  - Definitions of Analytical Chemistry and Chemical Analysis
  - Nature of Analytical Tools
  - Wide Array of Tools Used in Analytical Chemistry
  - Classification of Analytical Measurement Tools
  - Complete Measurement System
  - The Analytical Process (Unit Operations)
- ❖ **Activities of Practicing Analytical Professionals**
  - The Practicing Analytical Professionals
  - General Daily Operations/Tasks
  - Type of Work (Role) Within an Analytical Laboratory
  - Role Player Between the Clients (Customers) and Analytical Laboratory
  - Source of New Developments in the Analytical Domain

#### DAY TWO:

- ❖ **The Analytical Laboratory as Business Activity & Business Enterprise**
  - The Business Environment in Perspective
  - The Analytical Laboratory in the Micro-Environment
  - Objectives and Strategy
- ❖ **Vision & Mission, Goals, Planning & Organization (or Re-organization) of the Analytical Laboratory**
  - Vision and Mission
  - Vision and Mission Document
  - Organization (or Reorganization)
  - Possible Ways to Organize (to Re-organize)
  - Tasks Descriptions
  - Advantages
  - Disadvantages
- ❖ **Human Resource Management for the Analytical Laboratory: Recruitment & Staffing**
  - Role of Analytical Staff Members
  - Position of Human Resources in Relation to the Analytical Laboratory
  - Job Creation or Re-creation
  - Job Analysis
  - Recruitment
  - Pre-selection Assessment
  - Factors to be Consider in the Curriculum Vitae



- Setting up the Final Interview
  - Factors to be Consider
- The Final Interview
- The Final Decision
- ❖ **Communication Management: Communications & Expectations**
  - What is Communication?
  - Communication Phases
  - Types of Communication that Analytical Laboratories Engage in
  - Internal Communication
  - Four Simple Rules of Communication
  - A Communication Model
  - Barriers to Effective Communication
  - How to Overcome Communication Barriers
  - Some Listening Pitfalls for Managers and Supervisors
  - Good Listening Habits
  - Ways to Terminate a Conversation
  - Staff Meetings
  - Example of a Well-constructed Standard Method
  - External Communication

### DAY THREE:

- ❖ **Purchasing & Inbound Logistics Management: Capital Investments, Buying Costly Instruments**
  - Purchasing Objectives
  - Purchasing Activities
  - The Purchasing Cycle
  - Reasons and Justification for Instrument Purchases
  - Some Further Justifications for Instrument Purchases
  - Total Cost of Instrument Ownership
  - Steps in Obtaining Information for Final Decision
  - Factors for Comparing the Different Suppliers
  - Important Dates for Instrument Purchase
  - Writing of Old Equipment and Leasing
- ❖ **Analytical Laboratory Space Management: Design & Management of Physical Laboratory Space**
  - Layout of the Laboratory. Work Dependence
  - Layout of the Laboratory. Old Laboratories
  - Example of Poorly Organized Laboratory Space
  - Example of a Better Organized Laboratory Space
  - Example of an Efficient Layout for an R&D or Process Development Laboratory
  - Design of an Efficient Large Analytical Laboratory
  - Partitions of an Efficient Large Analytical Laboratory
  - General Criteria for the Design of an Analytical Laboratory
  - Safety/Housekeeping Awareness in the Design of an Analytical Laboratory
- ❖ **Management & Leadership: Organization & Decision-Making What is Management?**
  - Management Skills and Roles





- Planning and Strategy
  - Traits (Characteristics, Quality) of a Person that Should be Promoted to Manager
  - Some Common Pitfalls of Managers
  - Management Organization
  - What is Leadership?
  - Leadership Principles
  - Leadership Approaches
  - Leadership Factors
  - Management Control
  - Managerial Decision-making
  - The Rational Decision-making Process
- ❖ **Human Resource Management for the Analytical Laboratory: Placement, Incorporation, Training, Development, Performance Appraisal, Motivation & Staff Retention**
- Placement of Staff Members
  - Incorporation of a New Employee
  - Training and Development
  - The Training and Development Process
  - Training and Development Methods and Techniques
  - Principles of Learning
  - Performance Appraisal
  - Contributors to PERFORMANCE APPRAISAL
  - Categories and Techniques of Performance Appraisal
  - Criticism by Employees on PERFORMANCE APPRAISAL
  - Usefulness of PERFORMANCE APPRAISAL

**DAY FOUR:**

- ❖ **Laboratory Operation Management**
- Managing the Functional Activities of the Analytical Laboratory
  - The Workforce
    - Supervision
  - Standard Operation Procedures
  - Sampling and Sample Handling
  - Safety Management
  - Waste Management
- ❖ **Laboratory Performance Management: Quality Management, Good Laboratory Practice Compliance & Names Accreditation**
- Responsibility of the Laboratory Manager
  - Licensing
  - Certification and Accreditation
  - Why Consistent, Reliable and Accurate Data?
  - Why Validation and Qualification?
  - What is Good Laboratory Practice? (GLP)
  - Involvement on Validation Issues
  - Problems with Validation and Qualification





- Sample and Data Flow with Validation and Qualification
- What is Validation?
- Outline of Validation
- What is Testing?
- What is Calibration?
- What is Verification?
- Differentiation between Verification and Validation
- What is Qualification?
- The Qualification Timeline
- Equipment Qualification
- Differences between Testing, Calibration, Qualification, Verification and Validation
- Strategy for Development and Implementation of a Qualification and Validation System in a Laboratory
- Validation and Qualification in the Analytical Laboratory
- What do We Mean by Quality?
- Quality Control and Quality Assurance
- A Quality System
- Total Quality Management (TQM)
- Proficiency Testing Schemes
- Organizations with Standards for Quality Systems
- Quality Audit (QA) and Quality System Review (QSR)
- Planning of Internal Quality Audits
- Example of an Audit Report
- Quality System Review
- Checklist for Quality Audit
- Organization and Coverage of Quality System Reviews
- Agenda for a Quality System Review Meeting
- Principals of GLP Compliance and NAMAS Accreditation
- ❖ **Financial Management: Expense & Capital Budget, Cost Control**
  - Purpose of Financial Management
  - Laboratory's Involvement
  - The Expense Budget
  - Cost Estimating
  - Charging Costs
  - Relating Costs to Budget
  - Cost Control of Supplies and Materials
  - Evaluating Standard Test Productivity
  - The Capital Budget
- ❖ **Information Management**
  - Laboratory Information Management Systems (LIMS)
  - What is a LIMS?





### DAY FIVE:

#### ❖ Benchmarking

- What is Benchmarking?
- What are Benchmarks used for?
- Phases of Benchmarking
- How to do Benchmarking?
- Why Benchmark?
- Summary of a Benchmark Questionnaire
- An Analytical Benchmark Survey
- Results of Laboratory Survey

#### ❖ Future Developments

- Forces Driving the Global Change
- Forces Driving Change in the Analytical Laboratory
- Technical Issues
- Human Resources/ People Issues
- Documentation
- Financial/Laboratory Funding
- Managing Rapid Change

#### ❖ Approach to Improving the Analytical Laboratory

- Approach for Improvement
- Development of Vision and Mission Statements
- What is Wrong with the Laboratory? (with Respect to Meeting the Mission)
- Set Goals and Priorities (Short-term and Long-term)
- Some Long-term Goals
- Some Measures of Success
- Partnering
- Ways to Increase Speed and Reduce Cost

#### ❖ Some Forms

- Telephone Reference
- Interview Material
- ASTM Standard Method
- Customer Complaint/Comment
- Customer Survey
- Project Request
- Laboratory Housekeeping Rating

#### ❖ Literature Cited

#### ❖ 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 01<sup>st</sup> 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

