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 aspect of the business.

This intensive 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.

Training Objective:

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

✓ Begin the implementation process of ISO17025 requirements
✓ Prepare the quality policy manual, procedures, and instructional documents
✓ Describe the process of method validation
✓ Identify factors that are significant for valid analytical measurements (significance testing: test and the F-test)
✓ Define the requirements of analytical methods in accordance with international standards (e.g. ISO/IEC 17025)
✓ Describe key performance characteristics (precision, bias, ruggedness selectivity, instrument detection limit, method detection limit, limit of quantitation, linearity and working range) of analytical methods
✓ Design an analytical method validation study
✓ Use of precision and accuracy control charts
✓ Calculate and interpret quantitative method performance characteristics data

Training Designed for:

This course is intended for all staff who are responsible to establish and develop valid analytical methods in a laboratory. This course is recommended for those interested in and currently working in chemical testing laboratories, especially for Operations Manager, Professional and Technical Staff, Quality Manager, internal auditor, authorized representative and approved signatory as well as those who wish to explore career opportunities in testing and calibration laboratories.

Training Program:

**DAY ONE:**

❖ PRE-TEST
MODULE (01) RELATIONSHIP OF METROLOGY AND CALIBRATION TO QUALITY SYSTEM:
❖ Methodologies for a Calibration Program
❖ Metrology Glossaries
❖ International Definitions
❖ ISO 9000 Quality System
❖ Error, Accuracy, Precision
❖ Measurement Uncertainty
❖ Measurement Process
❖ Calibration Control System
❖ Measurement Assurance Process (MAP)
❖ Statistical Process Control (SPC)
❖ Check Standards in SPC
❖ Standard Reference Materials
❖ Quality / Reliability Goals
❖ Risk Management
❖ Calibration System-Purpose and Justification

DAY TWO:
MODULE (02) CALIBRATION SYSTEM:
❖ Government Agencies
❖ History of Calibration Requirements
❖ Conforming to International Definitions
❖ International Standards
❖ ISO Standard 17025 Requirements: Management System
❖ Laboratory Procedures
❖ Corrective and Preventive Action
❖ Management Review
❖ Technical
❖ Laboratory Personnel Job Description
❖ Test and Calibration Methods
❖ Estimation of Measurement Uncertainty
❖ Measurement Traceability
❖ Sampling
❖ Reporting of Results
❖ ISO 9000-Accreditation, Certification, Registration
❖ Proficiency Testing

DAY THREE:
MODULE (03) CALIBRATION PROGRAM AND METROLOGY MANAGEMENT:
❖ Program Manager
❖ Technical Management
❖ Quality Manager
❖ Quality Systems Considerations
❖ Documentation Requirements
❖ Calibration Control System
Quality / Calibration Manual

**MODULE (04) NEW CONCEPTS IN METROLOGY:**
- Measurement Uncertainty
- Measurement Uncertainty Evaluation
- Standard Uncertainty
- Expanded Uncertainty
- Glossary
- Error Sources
- Type A and Type B Error Evaluation
- Confidence Levels
- Measurement Uncertainty Summary
- Measurement Assurance
- Inter-Laboratory Testing, Calibration
- Inter-Laboratory Comparison (ILC)

**DAY FOUR:**

**MODULE (05) ADMINISTRATIVE CONSIDERATIONS IN METROLOGY**
- Metrology Personnel: Technicians, Engineers, Management and Support
- Metrology Document Types
- Test and Calibration-Procedures

**MODULE (06) TOOLS OF THE METROLOGY TRADE**
- Calibration Logistics
- Calibration Intervals
- Calibration Status
- Exclusions from Calibration System
- Tamper Proof Sealing
- Recall System
- Reverse Traceability

**DAY FIVE:**

**MODULE (07) REPORTS, RECORDS, SAFETY AND EQUIPMENT HANDLING**
- Calibration Reports: Requirements
- Calibration Records
- ESD Control in the Calibration Laboratory
- Safety Considerations
- Precision Equipment Handling/Storage
- Preventive Maintenance (PM)
- Ethical Considerations
- Course Conclusion
- POST-TEST and EVALUATION

**Training Requirements:**

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

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

- **30%** Lectures, Concepts, Role Play
- **30%** Workshops & Work Presentations, Techniques
- **20%** Based on Case Studies & Practical Exercises
- **20%** Videos, 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:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:45 - 08:00</td>
<td>Morning Coffee / Tea</td>
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<tr>
<td>08:00 - 10:00</td>
<td>First Session</td>
</tr>
<tr>
<td>10:00 - 10:20</td>
<td>Recess (Coffee/Tea/Snacks)</td>
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<tr>
<td>10:20 - 12:20</td>
<td>Second Session</td>
</tr>
<tr>
<td>12:20 - 13:30</td>
<td>Recess (Prayer Break &amp; Lunch)</td>
</tr>
<tr>
<td>13:30 - 15:00</td>
<td>Last Session</td>
</tr>
</tbody>
</table>

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

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Training & Career Development Department