



**Q-India Consulting Services Pvt. Ltd., Kochi**

**Announces**

**Three Days' Training on**

**'Estimation of uncertainty in chemical, microbiological,  
mechanical, electrical & clinical measurements'**

**At Hotel Abad Plaza, Kochi**

**From 14<sup>th</sup> to 16<sup>th</sup> July 2017**

**The need :**

Measurement is a process and like any process, has inherent variations. The factors which give rise to these variations are Standards, Work piece, Instruments, Persons and Procedures, and Environment. The resultant variation of these factors is considered the uncertainty associated with that measurement. This uncertainty is also a measure of reliability of the measurement result, which means that smaller the uncertainty better is the reliability.

According to clause 5.4.6.2 of ISO/IEC 17025, testing laboratories shall have and shall apply procedures for estimating uncertainty of measurement. Further, as per cl 5.5.1.4 of ISO 15189:2012 Standard on accreditation of medical laboratories, the laboratory shall determine measurement uncertainty for each measurement procedure in the examination phase used to report measured quantity values on patients' samples.

It is, thus, essential not only to understand as to how to estimate this uncertainty, but also consider its implication in decision based on measurement.

ISO Guide to Uncertainty of Measurement, commonly known as GUM, explains the step-by-step approach of estimating this uncertainty associated with measurements involving all chemical parameters, clinical and engineering parameters. Similar approach has also been advocated in EURACHEM /CITAC Guide on Quantifying Uncertainty in Analytical Measurement. The method of estimation of uncertainty presented and discussed in the workshop is based on these two guides, except for microbiological measurements.

***Estimation of uncertainty in microbiological measurements, however, follows a different method since the growth of colonies does not follow a normal probability distribution. Consequently, a global approach for this estimation was evolved which culminated into ISO/TS 19036:2006 and subsequent Amendment in 2009. During this training-cum-workshop, the method detailed in ISO/TS 19036 would be explained and demonstrated.***

The objective of this workshop oriented training programme is threefold.

**First** is to understand the concept of measurement uncertainty and its implication in measurement.

**Second** is to learn how to estimate the uncertainty associated with measurement results of tests.

**Third** is to practice the estimation techniques through a number of workshops with live examples, preferably from the participants' laboratories, so that a participant can perform the calculation at his/her work station.

**Date & Time:**

14<sup>th</sup> (Friday), 15<sup>th</sup> (Saturday) & 16<sup>th</sup> (Sunday) of July 2017 from 0930 to 1730 hrs with Lunch & Tea breaks

## Workshop Fee:

Rs.10,000.00 (Rupees Ten thousand only) per participant, to be paid in favour of, "Q-India Consulting Services Pvt. Ltd.", payable at Kochi. A discount of 10% is available for 2 or more participants from the same organization.

## Who should attend:

All Analysts and Technicians involved in testing and analysis, in Test laboratories, including Technical Managers and Quality Managers of Accredited laboratories or laboratories preparing for accreditation including applicant laboratories.

## The Faculty:

Basudev Bhattacharya has been a quality practitioner and measurement management system initiator for the last four decades and is a known figure in the field of calibration and measurement uncertainty. He is a Graduate Electrical Engineer from IIT-Bombay, holds a Diploma in Materials Management from Punjabi University, is a Certified Lead Auditor for ISO 9001 QMS and also a Lead Assessor for the National Accreditation Board for Test and Calibration Laboratories (NABL). He was an external examiner for M.Tech in Reliability Engineering of IIT-Bombay, an External Faculty of BITS-Pilani for MS in Quality Management Programme, had represented India in International Illumination Commission (CIE), and was the Team Leader of the Western Region Assessment Panel for Rajiv Gandhi National Quality Award. He has been an International Consultant of the United Nation Organizations, International Trade Centre (ITC) of UNCTAD/WTO and UNIDO, and the BSI Group, UK on quality management and laboratory accreditation. He has been training industry & service personnel in the country and abroad (viz. Mauritius, Bangladesh, Dubai, Kuwait, Abu Dhabi, Bhutan, Rwanda, Maldives & Nepal) on measurement and quality related topics for the last 15 years. Till date he has conducted more than 245 training programmes on quality related topics, viz, "Laboratory Accreditation as per ISO/IEC 17025 & ISO 15189", "Internal quality auditing". "Estimation of Measurement Uncertainty in Test & Calibration", "Assuring quality of test results and examination procedures" and has trained more than 2700 persons. Out of these, 96 programmes comprising more than 900 persons have been on "Estimation of Measurement Uncertainty in Test & Calibration". Also, 40 4-day LMS courses as per IS/IEC 17025, have been conducted in which more than 440 persons have been trained.

## Programme Contents:

- i) Fundamentals of Measurement
- ii) Concept of Measurement Uncertainty
- iii) Method of Estimation of Measurement Uncertainty as per ISO Guide of 1995 & EURACHEM/CITAC Guide-QUAM 2000, where applicable
- iv) *Syndicated Exercise on estimation of type-A & type-B evaluations*
- v) Case Studies involving Test situations
- vi) *Workshop on estimation of measurement uncertainty in Chemical measurements*
- vii) *Workshop on estimation of measurement uncertainty in Engineering measurements*
- viii) Understanding the method of estimation of uncertainty in clinical measurements
- ix) Case Studies involving Test situations in clinical measurement
- x) *Workshop on estimation of measurement uncertainty in Clinical measurement*
- xi) Understanding the method of estimation of uncertainty in microbiological measurements as per ISO/TS 19036:2006 and Amendment No. 1 of 2009
- xii) Case Studies involving microbiological measurements
- xiii) *Workshop on estimation of measurement uncertainty in Microbiological measurement*
- xiv) Application of Measurement Uncertainty in testing & calibration
- xv) Asia Pacific Laboratory Accreditation Cooperation (APLAC)'s interpretation of estimation of MU in calibration & testing
- xvi) Development of a Standard Operating Procedure (SOP) for the estimation of measurement uncertainty

## About Ourselves:

**Q-India Consultancy Services Private Limited** formerly known as MSL Knowledge Centre has been set up to provide professional help in installation, up-gradation and deployment of quality system in organizations for obtaining certification and accreditation and maintaining the same. It has a three-fold objective - imparting training, improving skill and providing consultation to organizations for consolidating the knowledge & skill by creating a sustainable model.

Following are some of the programmes successfully conducted by us at Kochi

1. Quality Management System and Internal Audit Training as per ISO 15189:2012 (September 2012)
2. Estimation of Uncertainty in Microbiology Measurements (December 2012)
3. Estimation of Uncertainty in Chemical / Clinical Measurements (January 2013)
4. Assuring Quality of Test Results and Examination Procedures (April 2013)
5. Laboratory Accreditation and Internal Quality Audit as per ISO/IEC 17025 (May 2013)
6. Estimation of Uncertainty in Chemical / Clinical Measurements (October 2013)
7. Laboratory Accreditation and Internal Quality Audit as per ISO/IEC 17025 (Sep 2014)
8. Estimation of Uncertainty in Chemical / Clinical / Microbiological Measurements (Oct 2014)
9. Assuring Quality of Examination Procedures (Dec 2014)
10. Laboratory Accreditation and Internal Quality Audit as per ISO 15189:2012 (Dec 2014)
11. Laboratory Accreditation and Internal Quality Audit as per ISO/IEC 17025 (Jul 2015)
12. Estimation of Uncertainty in Chemical / Clinical / Microbiological Measurements (August 2015)
13. Laboratory Accreditation and Internal Quality Audit as per ISO/IEC 17025 (Nov 2016)

### **Feedback from Participants of Earlier Programmes:**

Following are some of the feedback we received from participants of our courses.

- The course content and the manner in which it was presented certainly deserve high appreciation. It has gone beyond my expectation about the program.
- The friendly atmosphere and the ease of answering the queries by the trainer really impressed me.
- The Course material was very well disseminated and the ease with which I could learn was satisfying.
- I had wonderful experience of professional training which will bring new direction in my laboratory quality system management.
- Programme was very good. The faculty was having full knowledge and concept about the subject.
- The venue, timing and arrangements were excellent.
- The structured methodology and experience and expertise level of the faculty was commendable.
- Ample time being given to explaining each clause and specific requirement of the standard.
- Training material was very clear and sequential methodology was conducive to learning.
- The deliberations by the Lead Faculty were the best thing. His pace & pitch during the entire course was constant which led to good learning. His interactive communication was excellent.
- Lively presentation, healthy interaction and professional approach.
- Teaching method was excellent. Still can't believe that whole ISO Standards and internal audit was covered and understood so well in 4 days.
- I will attend other training programs conducted by Q-India in future; will certainly recommend similar programs to friends and colleagues.

### **Address for communication :**

**Dr. T A Varkey**  
**Q-India Consulting Services Pvt. Ltd.,**  
**Medilab Speciality Laboratories (India) Private Limited**  
**S A Road, Kadavanthra, Kochi, Kerala – 682020**  
**Tel. No. 0484 2320330, 4016565, 4011470**  
**Mobile: +91 9447031471, Email: [quality@q-india.com](mailto:quality@q-india.com), [tavarkey.medilab@gmail.com](mailto:tavarkey.medilab@gmail.com)**