Measurement Uncertainty

ISO/IEC 17025 requires that all laboratories must make a reasonable estimate of their measurement uncertainties. Join this course to find out how to do this.

Accredited testing laboratories are required to be in full compliance with ISO/IEC 17025. Laboratories need to have and apply procedures for making reasonable estimates of uncertainty of all test results.

This two-day course will cover topics related to the calculation of measurement uncertainty, as required by ISO/IEC 17025. This will be an interactive course where attendees will carry out various exercises throughout the course to assist with their understanding relating to estimating measurement uncertainty.

Topics covered in this course will include:
- Meaning of uncertainty and an overview of uncertainty requirements
- Introduction to statistics
- Describing data
- The normal distribution
- Standard Error
- t-distribution
- Estimating Measurement Uncertainty
- Various approaches
- Identifying sources of uncertainty
- Precision
- Calculating uncertainty
- Confidence limits
- Comparing results to a standard

As this is an interactive course, attendees are strongly recommended to bring a computer with Microsoft Excel, or at least a scientific calculator. The class will separate into chemical and microbiological groups for some of the discipline specific exercises.

Suitability
This course is designed for analysts who will be required to estimate the uncertainties of their test results and for those responsible for technical management of testing laboratories. Participants will be guided through the decisions on which approach is best for their applications. Instructions and practical exercises will be given on how to prepare the models and do the calculations necessary to arrive at reasonable estimates of uncertainty.

Presenter
The lead presenter is Gerhard Wevers, a senior forensic scientist at the Institute of Environmental Science and Research (ESR) Ltd. Gerhard has presented internationally on topics such as statistics and evidence interpretation.