Evaluating Measurement Uncertainty for Chemical Testing Laboratories

Day 1

Principles of Measurement Uncertainty

9:00 Registration and coffee

Morning session

9:20 Welcome and introduction to course

Introduction to measurement uncertainty: What and why
Statistics refresher
Workshop A1: Basic statistical calculations
ISO measurement uncertainty principles
Rules for uncertainty calculations 1: Converting to standard uncertainties
Workshop A2: Converting data and combining uncertainties

Afternoon session

Rules for uncertainty calculations 2: Combining uncertainties
Workshop A3: Calculating and combining uncertainties
Cause and effect analysis: A tool for uncertainty estimation
Workshop A4: Construct a simple cause and effect diagram
Quantifying uncertainty components
Workshop A5: Identifying sources of uncertainty in analytical methods
Approaches to uncertainty estimation: “bottom-up” vs “top-down”

17:15 Close
Day 2
Implementing Measurement Uncertainty

Morning session

9:00 Recap of Day 1

- Evaluation of an uncertainty budget using spreadsheets
- Workshop B1: Use of spreadsheets to calculate uncertainty
- Using data from validation studies
- Introduction to the analytical method used in Workshops B2 - B4
- Dealing with data from recovery estimations
- Workshop B2: Evaluating uncertainty for the analytical method from recovery estimations

Afternoon session

- Precision data from validation
- Workshop B3: Estimating uncertainty for the analytical method from precision data
- Other effects in validation studies
- Workshop B4: Completing the uncertainty budget for the method
- Handling uncertainty for large concentration ranges: Level dependence
- Workshop B5: Revision exercise
- Discussion: Using and conveying uncertainty estimates

16:45 Close