Scope

This workshop is intended to help attendees understand what the big deal is about measurement uncertainty and how to apply it; to the extent it is needed. It is a step by step walk through the evaluation and expression of measurement uncertainty with a worked example.

It will provide the basics of evaluating and expressing uncertainty with minimal stats jargon, algebraic notations, system modeling and calculus. The emphasis is to evaluate and express uncertainty only to the extent you need, to accept that you'll never be certain about the uncertainty and to focus mostly on the "biggies"; don't sweat the small stuff (much).

Intended audience

This is an introductory workshop, intended for measurement practitioner and managers practitioners who would like a basic understanding of how to evaluate and express measurement uncertainty.

Learning objectives

After this workshop participants will be able to:

- Identify the contributors to measurement uncertainty.
- Select consistent units for the uncertainty evaluation.
- Evaluate the magnitude of each uncertainty contributor.
- Express each uncertainty contributor as a standard uncertainty.
- Document the basis for your evaluations.
- Combine the standard uncertainties.
- Expand combined standard uncertainty to represent desired confidence level.
- Report the result in a manner consistent with industry practices such as the GUM and ISO/IEC 17025.

Workshop Facilitator:

Jeff Russell is the Leader, Assessment Services for NRC. In this role he has been assessing calibration labs since 2009 and has experience with almost every area of calibration. He is also the technical authority for the NRC gauge block calibration lab providing calibrations with measurement uncertainties of <100 nm. Before joining NRC Jeff worked in both the medical devices and telecommunications industries as a manufacturing engineer. He has been doing uncertainty analysis for calibration and testing since 1996.