



UNCERTAINTY OF MEASUREMENT – GUM (PHYSICAL MEASUREMENTS)

Aim of Course

Whilst most do not argue that uncertainty in making measurements is an unavoidable fact, there are many who do not have the necessary skills to estimate and calculate the actual value of the uncertainty. This short course has been designed to provide a solid basis for those who looking for an introduction to the concepts of estimating the uncertainty of measurement.

The ability to estimate measurement uncertainty is now a requirement of testing laboratories accredited to ISO 17025. This course is in line with the principles of the ISO Guide to Uncertainties in Measurement (GUM). The course will cover inter alia an introduction to the concept of measurement uncertainty, statistics for measurement uncertainty estimation, the basic principles of evaluating uncertainty, converting to standard uncertainties and combining uncertainties, quantifying uncertainty concepts, evaluation of an uncertainty budget, how to handle precision and using and conveying uncertainty.

Approximately 100 laboratory personnel have successfully attended this course per year, a feature of which is its strong practical flavour. Attendees are provided with the tools and skills needed to evaluate and estimate uncertainties in their own laboratories.

Whilst those planning to attend the NLA-SA courses are recommended to bring their own calculators, in the case of this course a suitable statistical calculator is provided.

Pre-Requisites for attending this course

- It is assumed that the attendee has a first degree/diploma level of knowledge in the sciences.
- It is also assumed that the attendee has a Grade 12 level of knowledge of mathematics.

Course Overview

1. Introduction
2. Definitions
3. Evaluating uncertainty contributions
4. Sensitivity coefficients
5. The uncertainty budget
6. Reporting the results
7. Sources of error
8. Modeling
9. Assumptions in GUM

Who should attend?

Calibration and Physical Testing Laboratory Personnel

Course Duration

5 Days

Evaluation

Attendance of the course, daily tests and the passing of a final examination are required (counting typically 30% for Daily tests and 70% for the Final Exam) in order to successfully complete this course.

The examination will be written approximately two weeks after completion of the course.

National Laboratory Association
South Africa

PO Box 298 • Persequor Park • 0020
1 De Havilland Crescent • Persequor
Technopark • Pretoria • South Africa

Tel: +27(0)12 349 1500 • Fax: +27(0)12 349 1501

www.nla.org.za