



ELECTRICAL (DC/LF) METROLOGY - PART 2

Aim of Course

This course follows on from the Electrical (DC/LF) Metrology Part 1 course and focuses on high accuracy level electrical measurements predominantly in the Calibration Laboratory.

Pre-Requisites for attending this course

- Introduction to Measurement (strongly recommended)
- Method Validation (Calibration) (strongly recommended)
- Electrical (DC/LF) Metrology Part 1
- Uncertainty of Measurement – GUM (Physical)

Course Overview

This course focuses on making very accurate electrical measurements. We learn about the traceability to National and International standards and how these are transferred to practical measurements in the laboratory. We cover typical laboratory equipment and techniques using Null detectors, Ratio dividers, Bridges, long scale DMMs and the approach to doing calibrations at Secondary and Primary level. Also covered are Inductors, Capacitors, Electrical Simulation (of temperature) and other typical electrical calibration laboratory activities.

Where possible, practical exercises will be done.

There will be several worked examples of how to apply uncertainty of measurement (UoM) in this field to obtain a result that is compliant with the requirements of the ISO GUM and ISO/IEC 17025.

Course requirements

The student needs to be FULLY aware of all of the basics that are covered in Level 1 or they will not cope with this course. There is not enough time to go back and teach the basics and those students that don't have them, get left behind. A lot more time is spent on factors that affect the UoM and the student needs to be fully aware of the UoM process and the appropriate mathematics as it is assumed that they have done the UoM course.

A scientific calculator (such as a Sharp EL 531 or similar) must be brought by each student. (Pens, Paper, Course notes, Tea/Coffee and Lunch will be provided). Arrangements can normally be made for special dietary requirements but please advise the NLA-SA at least a week before the course is due to start.

Who should attend?

Metrologists working in an Electrical (DC/LF) Calibration laboratory.

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 the 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