



Jayasree Reva Phoenix Metrology Pvt. Ltd.

Calibration | Inspection | Testing | Training | Services

ISO 9001:2015 Certified | ISO/IEC 17025:2017 Accredited



Dimension - Precision Metrology | Training Brochure

INTRODUCTION

Dimensional precision metrology is a subfield of metrology that focuses on the measurement of physical dimensions with an extremely high degree of accuracy and precision. It involves the use of specialized instruments and techniques to measure dimensions with tolerances in the sub-micrometer or even nanometer range.

COURSE FEATURES

Training course covers the following contents:

- Practical & Theoretical Training of Dimension - Precision Calibration
- Specific Criteria & Guidelines Dimension - Precision Calibration
- Estimation and Expression of Uncertainty in Measurement as per NABL 141
- Calibration and Measurement Capability (CMC) and Measurement Uncertainty in Calibration as per NABL 143
- Participation in Proficiency Testing Activities as per NABL 163



Length Measuring Machine



Surface Roughness Tester



2D Linear Height Gauge



Comparator Stand



Electronic Level



TRAINING MATERIAL

Material in soft for Dimension - Precision metrology as per ISO/IEC 17025: 2017, NABL oriented best-in-class training material traceable to National and International Standard requirements.

PRINCIPLE | THEORY

The principles of dimensional precision metrology are based on the fundamental concepts of accuracy, precision, and repeatability. Accuracy refers to how closely a measured value corresponds to the true or accepted value of a dimension. Precision refers to the degree of variation or scatter in a series of measurements of the same dimension. Repeatability refers to the ability to obtain the same measurement result when the same dimension is measured multiple times under the same conditions.



CALIBRATION RANGE

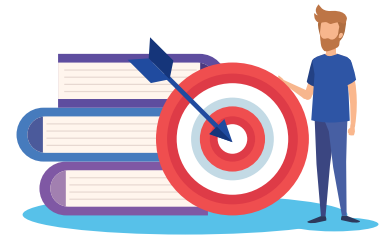
- Length Measuring Machine (0 to 1000 mm)
- Profile Projector | Video Measuring Machine | Microscope (0 to 300 mm | Angle 360° | Magnification 100x)
- Electronic Level (0 to 2 mm)
- Surface Roughness Tester (0 to 360 mm, R_a , R_y , R_z)
- Comparator Stand (0 to 3000 mm)
- Tape & Scale Calibrator (0 to 1000 mm)
- 2D Linear Height Gauge (0 to 1000 mm)
- 3D Co-ordinate Measuring Machine (X=1000 mm, Y=1000 mm, Z=1000 mm)
- Dial Calibration Tester (0 to 25 mm)

EXPECTED PARTICIPANTS

- Laboratory Managers
- Calibration and Testing Engineers
- Laboratory Engineers
- Quality Managers
- Metrology Professionals
- NABL Lab Engineers



OBJECTIVES OF DIMENSION - PRECISION WORKSHOP



- Basic knowledge of calibration such as requirements of calibration, why do we need calibration, equipment selection, types of equipments, metrological traceability, selection of calibration agency etc.
- Understand requirement of ISO/IEC 17025:2017 requirements for measurement uncertainty.
- Understand theory of uncertainty of measurement, selection of uncertainty measurement factors, and calculation of measurement uncertainty.
- Understand the relevance of instrument measurement, including the use of instrument.
- Understand technical requirements and calibration method for relevant instruments.
- Preparation of calibration certificates and work sheet.

COURSE CONTENT

Course content covers the following topics:

- Comprehensive Trainer's Guide
- Power Point Presentation: Dimension - Precision Metrology
- Introduction to Measurements, Fundamental & Derived Units
- Standards Organizations and Document Standards
- Calibration Procedures | Methods | Processes
- Practical example from the trainer selecting the best solution
- Documentation Training as per ISO/IEC 17025: 2017
- Measurement Uncertainty
- Questions & Answers
- Practical examples from your business (In-house courses only)
- Summary & Review



WORKSHOP METHODOLOGY



TRAINING SESSION

Theoretical training on the basics of the subject.

- Dimension - Precision Laboratory



WORKSHOP & TEAM EXERCISES

Case studies from relevant industry samples taken up in line with the guidelines and formats.

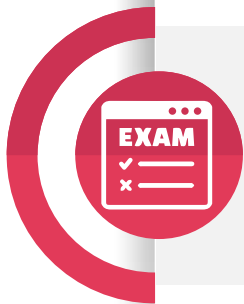
- Dimension - Precision Laboratory



GRADED EXERCISE

Graded exercises to evaluate individual participant's progress during the course.

- Dimension - Precision Laboratory



FINAL EXAMS

Business as usual, we have a final examination to evaluate and certify the participants.



CONTINUING SUPPORT

We provide continuing support to new projects and provide project assistance based on client requirements.

CERTIFICATION

- Certificate of course completion to successful participants.
- Attendance for the entire duration of the course is compulsory.



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Dimensional | Pressure | Torque | Force | Hardness | Impact | Mass | Volume |
Electro-Technical | Thermal | Acoustics | Acceleration & Speed | Fluid Flow | Optical |
UTM | TTM | Tachometer | Anemometer | Durometer | Lux Meter | Push Pull Gauge |
Rockwell | Brinell | Vickers | Micro Vickers | Mechanical Testing | Impact Testing :
Mechanical Properties of Metals and Non-Metals



CONTACT US

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