

## INTRODUCTION

In any manufacturing activity, obtaining credible, dependable, correct and traceable measurements is one of the basic requirements in order to achieve required levels of product quality. No measurement is exact and every measurement is subject to some uncertainty. 'Uncertainty of measurement' is the doubt that exists about the result of any measurement. A measured value is only complete if it is accompanied by a statement of associated uncertainty. Measurement uncertainties can occur from the measuring instrument, from the part/component being measured, from environment, from the operator, and/or from other sources. Use of good practices such as reliable calibration equipment, traceable reference standards, careful calibration process, correct evaluation, good record keeping etc, can reduce measurement uncertainties.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing a 2 day on-line programme on “Calibration of Dimensional Measuring Instruments & Evaluation of Uncertainty”. This webinar is designed to expose participants not only to the concepts of measurement uncertainty, but also provides an understanding of how to actually estimate the measurement uncertainty for different types of measurements.

## FOCUS AREAS

1. What is Calibration and why is it necessary
2. Relevance of uncertainty and its concept
3. Influencing factors for a measurement
4. Statistical background for uncertainty evaluation
5. Combining various errors and combined uncertainty
6. Sensitivity coefficient and its relevance
7. Concept of degrees of freedom and confidence levels
8. Expanded uncertainty
9. Uncertainty budgeting
10. Improvement of measurement process etc.

## KEY TAKE AWAYS

After undergoing the programme, the participants will be able to:

1. Understand need of calibration
2. Understand need for environmental control
3. Understand the difference between accuracy and measurement uncertainty
4. Importance of documenting calibration processes
5. Understand influencing factors for uncertainties
6. Evaluation of combined calibration uncertainties
7. Have an overview of Laboratory accreditation as per ISO/IEC 17025:2017 and accreditation process

## FEE PER PARTICIPANT (PER LOGIN)

**Rs. 4500/-**  
+18% GST

**IMTMA Members/ Micro Companies/ Individuals/  
Educational Institutions / Students/ IMTMA Non  
Members/ Others**

**USD 180/-**  
**Overseas Participants**

**Group Concession : 20% for 3 to 5 and 30% for 6 and more delegates being nominated from the same company**

## FACULTY

This programme will be conducted by **Mr. B N Taranath.**

Mr. Taranath is the Former Head of Precision Engineering, Central Manufacturing Technology Institute (CMTI), Lead assessor for NABL and International Accreditation Service Inc. (USA) and an acknowledged expert in the field of Precision Measurements & Metrology. He is currently working with International Accreditation Service (IAS), Los Angeles, California and USA as a Staff Metrologist, Expert consultant and Accreditation Officer. His work involves assessment of laboratories, training, expert consultations etc and assessed a large number of labs & conducted many training programmes in United States, Egypt, Saudi Arabia, Mexico, Dubai, Israel, Bahrain, India Etc. He is also engaged in setting up metrology laboratories & laboratory accreditation both in India & abroad.

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