

## INTRODUCTION

To manufacture an engineering component, we need to prepare the manufacturing drawing with assigning tolerances, which includes controlling of size, shape and surface texture. Understanding of Limits, fits and Tolerance will control the size limit, GD&T controls the shape and study of surface roughness will help to choose the right machining.

Engineering design and Engineering drawing are incomplete without assigning tolerances. Tolerancing is an important and essential element in product manufacturing for both functional and interchangeability.

Understand the role of GD&T in reduction of manufacturing cost and lead time as well as enhanced product reliability. Thorough knowledge in GD&T – the essential link, connecting the functional departments in the manufacturing industry – is a must for engineers.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing a 5-day Hands-on training on **“Manufacturing Drawing Interpretation : Retrieving Quality Parameters and Measurements”**.

## FOCUS AREAS

- Understanding of Manufacturing drawings
- Limits, Fits, & Tolerance
- Why Tolerance in Manufacturing
- How Tolerance plays a role in product design from cost and reliability perspective
- ISO system of Limits, Fits and tolerances
- Surface Roughness
- GD & T
- Definitions of Terms and Symbols: Feature, FOS, FCF, MMC, LMC and RFS
- Calculation of bonus tolerance per MMC / LMC - Learn through Exercises
- Five groups of GD&T parameters - Form, Orientation, Location, Run out and Profile
- Hands-on Practice on Measuring Instruments
- Hands-on Practice on GD & T Measurements
- Measuring of GD & T Parameters through CMM

## KEY TAKE AWAYS

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

- Thorough knowledge on fundamentals of Tolerances in engineering design
- Represent and interpret tolerances given in drawings
- Significance of fundamental deviation and tolerance grade
- Understand the concepts of GD&T features and correctly interpret GD&T symbols in Engineering Drawings
- Learn about using tolerances at RFS, MMC and LMC conditions and Calculate Bonus tolerance
- Learn Interpretation of GD&T Parameters

## PARTICIPATION FEE

**Rs. 12000/-**  
+18% GST

**IMTMA Members/ Micro Companies/  
IMTMA Non Members/ Others**

**Rs. 8000/-**  
+18% GST

**Individuals/ Educational Institutions /  
Students**

**USD 480/-**  
**Overseas Participants**

**Group Concession : 10% for 3 to 5 and 20% for 6 and more delegates being nominated from the same company**

## PARTICIPANT PROFILE

This programme will benefit Machine shop engineers, technicians as well as fresh engineers aspiring to learn VMC programming and operation. Basic knowledge of machining operations is essential.

## FACULTY

This programme will be conducted by industry experts from IMTMA Technology Centre.

### For Registration Contact

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### Contact Address

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**REGISTRATION :** Prior registration for participation is necessary. Number of participants is limited and will be accepted on ‘First Come First Serve’ basis. A Certificate of participation will be issued to participants.  
**Important Information :** Participation fee includes, course material, working lunch and tea / coffee. Interested companies are requested to register online by clicking on 'REGISTER' button and by filling up the nomination authority and participant's details in specified form.