

## INTRODUCTION

Geometric Dimensioning and Tolerancing (GD&T) system eliminates ambiguities in engineering drawings and brings out the designer's intent very clearly. It ensures seamless communication between design, engineering, manufacturing, and quality teams across the entire organization enabling them to work in a concurrent engineering environment. The application of the GD&T system helps to reduce manufacturing and inspection costs drastically.

Many times, having GD&T symbols are understood, doubts prevail about the selection of datum and applying the right parameters during the design process. Selection of the right DRF, as well as GD&T parameters meeting the functionality and manufacturability requirements, is the key to successful design for higher reliability and at a low manufacturing cost.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organising a 5-day workshop on **"Applying GD&T in Design through Manufacturing - What, Why and How?"** with a practical approach par industry. **All participants will be involved in three projects with a detailed study of design intent, selection of datum, and applying GD&T parameters for the various parts of the assembly based on the functional perspective.**

**Special Offer: Participants will be provided FREE ACCESS to the IMTMA E'learning course on "GD&T" towards continual learning and upskilling. Access will be valid from 25 Oct. to 3 Nov. 2021.**

## FOCUS AREAS

### Day1: Definitions, Terms, and Symbols of GD&T

- Tolerance concepts, MMC / LMC / RFS and their applications
- Calculation of bonus tolerance per MMC / LMC
- Definition of datum and Datum reference frame (DRF)
- Fundamental rules of GD&T per ASME.
- Coordinate VS geometric tolerancing.
- Selection of Datum

### Day 2: Concepts in GD&T

- Form tolerances and applications
- Orientation tolerances and applications
- Location tolerances and applications
- Run out tolerances and applications
- Profile tolerances and applications

### Day 3: GD&T Application with the case study

- Worst case boundary
- Datum shift
- Composite Position tolerance
- Application of GD&T
  - Study of design intent
  - Selection of DRF
  - Applying the GD&T parameters

### Day 4: Practical workshops on the application of GD&T

- **Workshop 1** – Spindle assembly
- **Workshop 2** – X Y Coordinate Table

### Day 5: Practical workshops on the application of GD&T

- **Workshop 3** – Industrial Gearbox
- Interaction and review of all 3 workshops

## Unique Features of the Programme:

- Workouts in groups, Presentation and Review
- Practical workshops on GD&T application in a real scenario
- Understanding the product function before GD&T
- Why and How GD&T from performance perception
- Negative impact of inappropriate GD&T on cost and performance
- Debate on why-why of GD&T during application
- Debate on design optimization from GD&T perspective

## KEY TAKE AWAYS

- 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.
- Gain a practical insight into inspection of GD&T features using conventional methods
- Learn how to select the right GD&T parameters
- Learn a selection of GD&T parameters through many workouts using actual assembly and part drawings
- Learn through group activity on GD&T parameters selection

## FEE PER PARTICIPANT (PER LOGIN)

**Rs. 12000/-**

+18% GST

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

**USD 480/-**

**Overseas Participants**

**Group Concession : 10% for 3 to 5 and 15% for 6 and more delegates being nominated from the same company**

## PARTICIPANT PROFILE

**Pre requisites:** This will be an advanced level program. Basic Knowledge of Engineering Drawing, Limits/Fits/Tolerances and GD&T principles will be essential for participation. There will be a pre-course questionnaire after registration.

## FACULTY

This program will be conducted by **Mr. Ravi Shankar Nadig, Mr. Ganapathi K N and Mr. Rajashekara H V**

### Ravi Shankar Nadig, GD&T Expert

He is a Manufacturing and Dimensional Management Professional with 27 years of experience in the Machine tool, Automotive, and Aerospace industries. He has worked as a Scientist in Central Manufacturing Technology Institute (CMTI), Bangalore (9 years) and as a Consultant in Tata Consultancy Services (TCS) for 15 years. His core competency is in the Design and Manufacture of precision machine elements for Defence and Space applications, automotive and general engineering parts. He is a Senior GD&T professional certified by ASME (Y14.5-2009). He holds a Bachelor's Degree in Mechanical Engineering.

### Ganapathi K N, GD&T Expert

He is presently working as Advisor Training at IMTMA, having 16 years of industrial and 16 years of academic/Training experience. He is a mechanical engineer with a post-graduate in metal casting science and engineering. Prior to IMTMA, Ganapathi has worked in various capacities in manufacturing companies. He has a thorough knowledge of GD&T and various Manufacturing process. He has carried out many specialised programmes on GD&T and manufacturing process-related programme for industries. He has also taught these topics to post-graduate engineering students.

### Rajashekara H V, Machine Tool Design Expert

He is currently working as an Advisor & Head of Design Institute - IMTMA has 28 years of experience in the Design and Development of Metal cutting CNC machines at M/s HMT Machine Tools and M/s Johnson Electric International Limited, HongKong and 7 years as Senior Director, IMTMA Design Institute. He has an overall experience of 35 Years from both shop floor and training.

## For Registration Contact

**Nishant Singh**  
**Programme Coordinator**  
9823174010  
[nishant@imtma.in](mailto:nishant@imtma.in)

## Contact Address

**INDIAN MACHINE TOOL MANUFACTURERS' ASSOCIATION**  
Plot 249F, Phase IV, Udyog vihar, Sector - 18,  
Gurgaon - 122015  
Tata no- +91-124-6463101  
Tel : 0124 4014101 - 04  
Fax : +91-124-4014108



imtmatraining.67038796@hdfcbank