ASME L&D LEARNING & DEVELOPMENT

Indian Machine Tool Manufacturers' Association

Virtual Classroom Training on

ASME Y14.5 Fundamentals of Geometric Dimensioning and Tolerancing in Design thru Manufacturing - 2.25 CEUs, 22.5 PDHs

(including preparatory for GDTP-Technologist Level Examination)

24 - 28 April 2023 | Online | 22.5 Hours

INTRODUCTION

BUILD YOUR GD&T EXPERTISE DIRECT FROM THE SOURCE!

DO YOU KNOW?

The American Society of Mechanical Engineers (ASME) founded in 1880, is the author of Y14 series of Standards. Y14.5M is a well recognized GOLD Standard used through out the world by engineering professionals in their work & who aspire for achieving ASME GDTP Certification has a Hallmark of demonstrating their understanding and proficiency in GD&T application skills.

The Indian Machine Tools Manufacturers' Association (IMTMA) founded in 1946, has a state of art training facility equipped with world class machining and measurement system lab best suited to facilitate the hands on practical training on GD&T topics. IMTMA is an Authorized Provider for ASME L&D programs in GD&T for engineering professionals across India.

Complimentary Membership for Non-members

ASME Y14.5M code books for reference shall be provided during the course

ABOUT GD&T

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 working in a concurrent engineering environment. In the competitive industrial scenario prevailing today, proper application of GD&T system helps the companies to reduce the manufacturing and inspection costs.

COURSE DESCRIPTION

This training program will

- Focus on understanding the system of GD&T and the methods of applying it in real time design by using case studies, examples and exercises.
- Cover the philosophies of how, when, and where to apply geometrics along with common sense tips for producing quality parts
- Provide a solid grounding in the fundamentals of geometric tolerancing based on the latest ASME Y14.5-2009 Standard
- Prepare participants for the ASME Geometric Dimensioning & Tolerancing Professional (GDTP-Technologist) Level examination.

In addition the program will provide unique live demo in measurement Lab to within the application of GD&T rules using the functional gauges , conventional as well as state of the art measuring systems like CMM on various engineering parts & components.

COURSE OUTLINE

Introduction to GD&T

- Fundamental dimensioning rules
- Coordinate tolerancing & its shortcomings
- Geometric tolerancing and its benefits
- Typical Measurement Equipment used

GD&T Terms, Symbols, Rules, Concepts

- Dimension Types
- GD&T Symbology FCF, Modifiers and Symbols
- Feature and Feature of size
- Material conditions MMC, LMC, RFS
- Variation Types on a Feature
- Difference between Regular and Irregular Features of Size
- Virtual Condition
- Statistical Tolerancing
- Continuous Feature symbol for multiple features of sizes

Datums

- Importance of Datums
- Restraining degrees of freedom with datums
- Datum Application to Features and Features of Size.
- Use of Datum targets
- Datum Shift - Material Conditions applied to Datums

Form Tolerances

- Form Tolerances Flatness, Straightness, Circularity, Cylindricity
- Form tolerance applications
- Inspecting flatness

Orientation Tolerances

- Orientation Tolerances – Angularity, Parallelism, Perpendicularity
- Implied right angles, Degrees basic angle, tolerance linear units
- Application of Orientation tolerances
- Inspecting Orientation tolerances

Profile Tolerance

- Profile Tolerance and its applications
- Inspecting Profile tolerances
- Composite Profile
- Profile for Co-planar surfaces

Location Tolerances

- Location Tolerances Position, Symmetry, Concentricity
- Application of Position Tolerance Feature Control Frame
- Size and Shape of Tolerance Zone
- Position Tolerance measurement methods - Functional Gage, CMM data
- Zero Tolerancing at MMC

Composite Position Tolerance

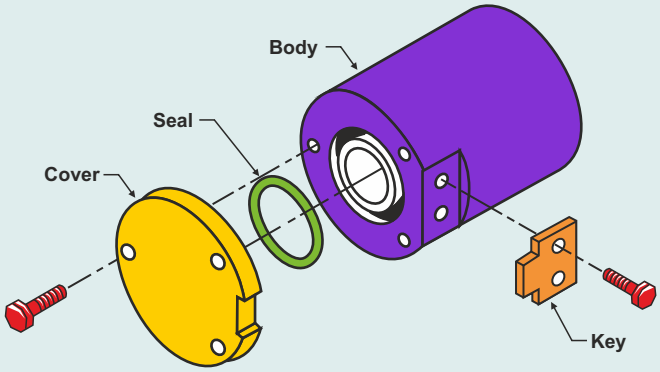
- Basic concept and characteristics
- Various Interpretations of composite position tolerance

Runout Tolerances

- Basic concepts and characteristics of Circular and Total Runout

Preparation and mock test for ASME Certification examination

KEY TAKE AWAYS



At the end of course, participants will be able to understand -

- Importance of applying correct GD&T on drawings
- Important GD&T terms and definitions
- Relationship of geometric characteristic and feature types such as RFS, MMC and LMC conditions and calculate bonus tolerance
- Inspection of GD&T features using conventional, CMM's & Functional gauges
- Application of GD&T controls for new product development using case studies.
- ASME Y14.5M standard code book for practice
- Preparation for ASME Certification

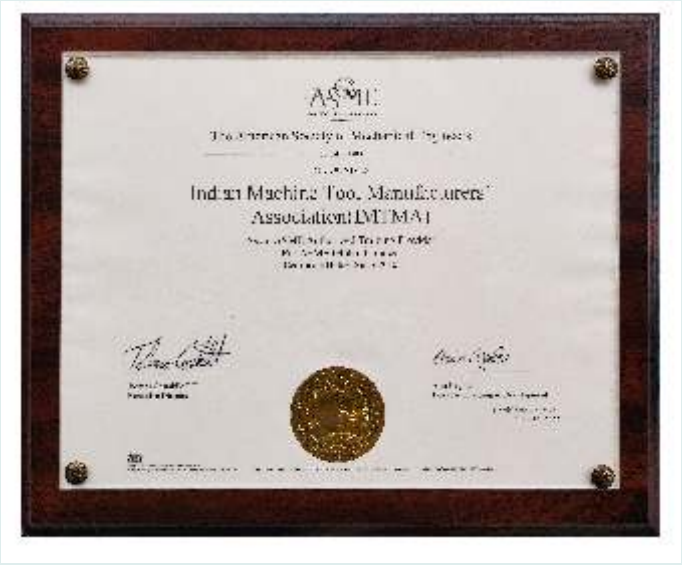
TARGET AUDIENCE

The course is suited for beginners as well as experienced professionals with no prior or minimal GD&T experience, who are looking to get an in-depth knowledge and grip on best practices in GD&T and the ASMEY14.5M-2009 standard, OR aiming for ASME GDTP Technologist Certification.

At the end of this course the participants will also attempt a mock test based on ASME GDTP - "Body of Knowledge" Guide to prepare individuals for ASME GDTP-Technologist certification exam. The answer Key will also be provided to all participants after completion of Mock test, for self-evaluation.

LIVE DEMO

The sessions will be supported with live demonstration of measurement of GD&T parameters using CNC Co-ordinate Measuring Machine (CMM) as well as conventional metrology equipment. Demonstrations will be delivered by Industry Experts from IMTMA Technology Centre.



ASME CERTIFICATE

An accredited ASME Gold Seal certificate of course completion shall be awarded to the participants upon their successful completion of the course.

GDTP Certification - Technologist Level :

Technologist Geometric Dimensioning and Tolerancing Professional (GDTP) Certification, achieved by passing a computer-based, multiple choice examination, provides an objective measure of an individual's ability to understand drawings which have been prepared using the language of Geometric Dimensioning and Tolerancing (GD&T), as defined in the ASME Y14.5 Standard.

The ASME GDTP Technologist symbol is for the sole use of those individuals who have demonstrated the required qualifications in accordance with the ASME Y14.5.2 Standard for the Certification of Geometric Dimensioning and Tolerancing Professionals (GDTP). The symbol was developed for the benefit of those who met the qualifications, and for recognition of their achievement within the field of engineering.

Note: Completing this course does not result into a participant receiving GDTP certification. It's a separate and an independent process

INSTRUCTOR PROFILE

Mr. M. Krishnamoorthy, is the Senior Director of IMTMA Technology Centre and an authorized training instructor with ASME, NY for delivering accredited ASME GD&T Trainings. He has undergone advanced training in GD&T from ASME at Seattle, USA. He is a certified ASME GDTP Senior Professional after successful completion of Senior Level GDTP certification examination by ASME, USA.

For over 30 years of his continued engineering practice in the industry, he has acquired astute expertise in the application and use of GD&T principles in CAD/CAM, high precision CNC machining as well as conducting Technical Trainings. He has imparted specialized training in GD&T for more than 800 engineers across manufacturing companies in India and assisted them in implementing GD&T in design through manufacturing. He is a post graduate in Production Engineering from PSG College of Technology, Coimbatore.

Course Fee

IMTMA Members &
Micro Industries / IMTMA Non - Members

₹ 25,000/-

+ 18% GST per participant

Overseas participation **$ 1,000/-**

For Registration Contact

Digvijay Nath Pandey
Programme Co-ordinator - IMTMA
Mob : +91 7349067391
E-mail: digvijay@imtma.in

IMTMA Technology Centre
Indian Machine Tool Manufacturers' Association

INDIAN MACHINE TOOL MANUFACTURES ASSOCIATION
Bangalore International Exhibition Centre (BIEC),
10th Mile, Tumkur Road, Madavara post, Bangalore - 562 123
Tel : +91 80 6624 6600 ; Fax : +91 80 6624 6661
E-mail : training@imtma.in