Manufacturing Technology Training
An IMTMA initiative

ASME Y14.5 Geometric Dimensioning and Tolerancing in Design thru Manufacturing, 2.25 CEUs, 22.5 PDHs (including preparatory for GDTP-Technologist Level Examination)
Date : 17 to 21 October, 2022
Time : 0910 Hrs to 1330 Hrs (Online Mode)

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

BUILD YOUR GD&T EXPERTISE DIRECT FROM THE SOURCE!

DO YOU KNOW?

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) IS THE MOST RESPECTED PROVIDER OF GD&T TRAINING AND DEVELOPMENT COURSES, WORLD-FAMOUS "GEOMETRIC DIMENSIONING & TOLERANCING PROFESSIONAL (GDTP) CERTIFICATION; PLUS HANDBOOKS AND GD&T CODES FOR ENGINEERING PROFESSIONALS!

THE INDIAN MACHINE TOOLS MANUFACTURERS' ASSOCIATION (IMTMA) 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. **IMTMA IS AN AUTHORISED TRAINING PROVIDER (ATP) OF ASME, CERTIFIED FOR PROVIDING IACET ACCREDITED ASME TRAINING COURSES ON ASME Y14.5 STANDARD TO ENGINEERING PROFESSIONALS ACROSS INDIA.**

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing a 5-day programme on **"ASME Geometric Dimensioning & Tolerancing for GDTP Technologist Level certification".**

COURSE CONTENTS

Introduction to GD&T

- Fundamental dimensioning rules
- Coordinate tolerancing & its shortcomings
- Geometric tolerancing and itsbenefits
- 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 Conditionsapplied 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, Degreesbasic angle, tolerance linear units
- Application of Orientationtolerances
- Inspecting Orientation tolerances

Profile Tolerances

- 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

FOCUS AREAS

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- Coordinate Tolerancing & its shortcomings

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- Feature and Feature of size
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- Restraining degrees of freedom with datums
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- Form Tolerances: Flatness, Straightness, Circularity, Cylindricity
- Form tolerance applications

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- Orientation Tolerances –Angularity, Parallelism, Perpendicularity
- Application of Orientation tolerances

Profile Tolerances

- Profile Tolerance and its applications
- Composite Profile

Location Tolerances

- Location Tolerances Position, Symmetry, Concentricity
- Application of Position Tolerance Feature Control Frame
- Position Tolerance measurement methods - Functional Gage, CMM data
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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.

KEY TAKE AWAYS

At the end of the 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 codebook for practice
- **Preparation for ASME Certification**
- **Complimentary ASME membership for non - member participants**

FEE PER PARTICIPANT (PER LOGIN)

Rs. 25000/-
+18% GST
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others

USD 1000/-
Overseas Participants

PARTICIPANT PROFILE

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

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

FACULTY

This program will be conducted by **Mr M. Krishnamoorthy**.
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 in 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 Training. 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 postgraduate in Production Engineering from PSG College of Technology, Coimbatore. Prior to working at IMTMA, **Mr Krishnamoorthy** has worked at ISRO Satellite Centre, Bangalore in the field of Precision Machining of the satellite onboard components. After ISRO, he was with Perfect Moulds and UMS technologies as a specialist in Tool Planning and Production and Technical Training in CAD/CAM/CAE, respectively.

At IMTMA, his role is to develop and introduce new programs for enhancing the competitiveness of the industry.

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REGISTRATION : Prior registration with an online advance payment is must. Number of participants is limited and will be accepted on ‘First Come First Serve’ basis. A Certificate of participation will be issued to participants.