



IMTMA Technology Centre

Indian Machine Tool Manufacturers' Association

www.imtmatraining.in

ASME Training on Geometric Dimensioning and Tolerancing in Design thru Manufacturing (for GDTP-Technologist Level)

Date : 3 Days, 2.25 CEUs, 22.5 PDHs on 20 - 22 June 2018

@ BANGALORE

For Registration contact :

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Last date for registration
13 June 2018

Participation Fee
(Non Residential - 3 days)

Rs. 25,000/-
+ 18% GST per participant

For other enquiries

Prakhar Deep
ASME (India)
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E-mail : deepp@asme.org
ASME INDIA PVT. LTD., 335, Udyog Vihar, Phase - IV, Gurgaon - 122015
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Contact Address

INDIAN MACHINE TOOL
MANUFACTURERS' ASSOCIATION
@ BIEC, 10th Mile,
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Bangalore - 562 123
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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

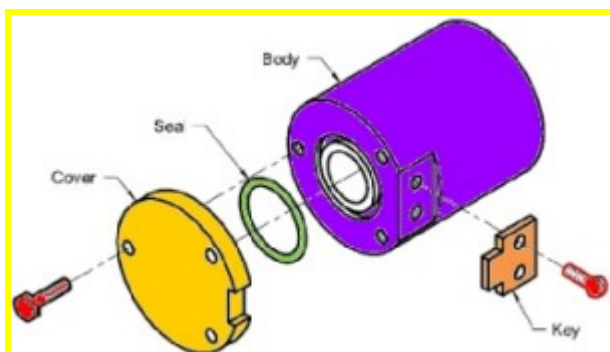
- Importance of Datums
- Restraining degrees of freedom with datums
- Datum Application to Features and Features of Size.
- Use of Datum targets
- Datum Shift - Material Conditions applied to Datums

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



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.

Complimentary 1 year ASME membership for non - member participants

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



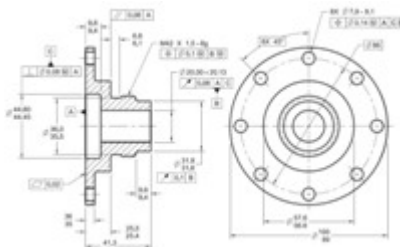
ABOUT GD&T

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 hands-on sessions in measurement Lab to practice 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.

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 rules for practice

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 are 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.

INSTRUCTOR PROFILE

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 28 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 500 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. Prior to working at IMTMA, Mr. Krishnamoorthy has worked at ISRO Satellite Centre, Bangalore in the field of Precision Machining of satellite on-board 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 competitiveness of industry.

LIVE DEMO / PRACTICALS AT IMTMA TECHNOLOGY CENTRE : The class room 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.

REGISTRATION : Prior registration for participation is necessary. Number of participants is limited and will be accepted on 'First Come First Serve' basis.

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.

FEE : The stipulated fee can be paid online by clicking on "Register and Pay online" button and using the secured HDFC payment gateway. Upon successful registration and payment, a separate registration and payment confirmation will be sent to the nominating authority mail id confirming the registration and OR payment details. Alternatively, a Demand Draft or at par cheque in favour of 'Indian Machine Tool Manufacturers' Association' payable at Bangalore can be sent to the programme coordinator at the address mentioned in the brochure.

About IMTMA :

Indian Machine Tool Manufacturers' Association (IMTMA) is the single point of contact for the machine tool industry in India. The Association has over the years transformed itself to looking beyond, to focus on issues of productivity, quality, technology, new product development, design, customer satisfaction, etc. for enhancing competitiveness of the industry in both domestic and Foreign markets. IMTMA has established a state-of-art facility at IMTMA Technology Centre, BIEC, Bangalore. IMTMA offers 150 programmes over 80 Topics for the industry. It also conducts a comprehensive 'Finishing School' programme in Production Engineering for fresh engineers. It has delivered over 86000 Man days programmes in PRODUCTIVITY, QUALITY, RELIABILITY, DESIGN, AUTOMATION, MAINTENANCE AND MANUFACTURING



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- 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

Participants Feedback

Wonderful initiative. Beautifully covered the topic and in depth explanation. IMTMA can co-ordinate with universities to bring GD&T as part of academia. - **Sushruth Kallimath, Lead Engineer, Aerostructures Manufacturing India Pvt. Ltd.**

Industries Participated

The previous programmes have been well received by delegates from **Indian Institute of Astrophysics, JJ Glastronics, Borg Warner Cooling Systems, Aerostructures Manufacturing India, Tamboli Engineers, Honda Motorcycle & Scooter India, Haselmeier India, DENSO Kirloskar Industries, etc.**