

Geometric Dimension and Tolerance (GD&T) with Ai Assisted

HRD Corp registered training program ID: 10001690840



*Great products begin
with precise design*



Face to face
Instructor-Led Training



18 & 19 AUG 2026
(TUE & WED)



9:00 AM
5:00 PM



Jazz Hotel,
Penang



Register Now!



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*"Design is where
quality is first created"*

Course Overview

Modern manufacturing requires precise communication between product design, manufacturing operations, and quality assurance teams. Traditional dimensioning methods based solely on \pm tolerances often create ambiguity in engineering drawings, resulting in misinterpretation, inconsistent manufacturing outcomes, and unnecessary production costs. Geometric Dimensioning and Tolerancing (GD&T) provides a standardized engineering language that clearly defines allowable geometric variation while ensuring that parts function correctly within assemblies.

GD&T is widely applied in industries such as automotive manufacturing, aerospace engineering, semiconductor equipment production, and precision mechanical engineering. By defining geometric controls such as flatness, perpendicularity, position, profile, and runout, GD&T enables engineers to communicate design intent more clearly while maintaining part interchangeability and assembly reliability.

In modern Industry 4.0 manufacturing environments, Artificial Intelligence (AI) is increasingly used to support engineering decision-making. AI tools can assist in interpreting engineering drawings, analyzing tolerance variations, detecting manufacturing deviations, and supporting automated inspection systems such as Coordinate Measuring Machines (CMM) and machine vision inspection platforms.

This two-day training program integrates GD&T fundamentals with practical manufacturing applications while introducing AI-assisted engineering analysis. Participants will learn how GD&T supports machining, assembly alignment, inspection planning, and data-driven quality improvement within modern manufacturing environments.

Scan
for more
information



Learning Outcomes

By the end of this workshop, participants will be able to:

- Explain the principles and purpose of Geometric Dimensioning and Tolerancing.
- Interpret GD&T symbols and feature control frames used in engineering drawings.
- Understand the concept and application of datum reference systems.
- Identify and apply form tolerances such as straightness, flatness, circularity, and cylindricity.
- Interpret orientation tolerances including parallelism, perpendicularity, and angularity.
- Analyse location tolerances such as position, concentricity, and symmetry.
- Understand profile tolerances and their application in controlling complex surfaces.
- Interpret runout and total runout tolerances used in rotating components.
- Improve communication between design, manufacturing, and inspection teams through standardized GD&T practices.
- Apply GD&T principles to improve product quality and manufacturing consistency.
- Recognize the role of AI technologies in tolerance analysis and manufacturing quality improvement.



Course Benefits

Participants will gain the ability to interpret GD&T symbols accurately and understand the design intent behind engineering drawings. This knowledge helps reduce manufacturing errors, improve product quality, and enhance communication between engineering, production, and inspection teams. Organisations benefit through improved efficiency, reduced rework, and better compliance with international engineering standards.

Who Should Attend?

This course is suitable for design engineers, manufacturing engineers, quality engineers, production supervisors, inspectors, technicians, and professionals involved in engineering drawing interpretation. It is particularly beneficial for personnel working in manufacturing industries where precision components and accurate dimensional control are essential for product performance and quality.

Training Methodology

The programme adopts an interactive and practical learning approach that combines instructor-led presentations, engineering drawing interpretation exercises, real industrial examples, and group discussions. Participants will engage in hands-on problem-solving activities that reinforce GD&T concepts and improve their ability to interpret and apply geometric tolerancing in real workplace scenarios.

Training Duration

Full 2 day training (9:00 am-5:00 pm)

HRD Corp Registered Program ID Nos

10001690840

Public Program Course Fee

Single Registration – RM 1,480.00 nett per participant

Group Registration – RM 1100.00 nett per participant
(For 4 participants or more from the same organization)

(The fee covers training materials, lunch, coffee/tea, snacks, supplementary notes, a detailed training report with assessment and a Certificate of Completion)



In-House Training Enquiry

For more information regarding our In-House/ Public Program courses, please email us your inquiry at sales@progresslink.com.my

or to speak to our Sales Consultant at +604- 297 6881 or 011-1289 6881

For public program schedules, please visit our website: www.progresslink.com.my/events/

Register
TODAY
TRAINING FEES ARE ELIGIBLE FOR
HRD CORP CLAIMABLE COURSE SCHEME.



PROGRESS LINK TRAINING & CONSULTANCY SDN BHD (880988-H)

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10470 Tanjung Tokong, Penang, Malaysia.

Tel : +6 04- 297 6881 Fax : +6 04- 297 6882

Email: sales@progresslink.com.my

Website: www.progresslink.com.my

COURSE MODULE

DAY ONE- Fundamentals and Interpretation of GD&T

Module 1: Introduction to GD&T Concepts

- Limitations of traditional dimensioning
- Introduction to geometric dimensioning principles
- Benefits of GD&T in engineering and manufacturing
- Overview of GD&T standards and terminology (ASME Y14.5 / ISO GPS)
- Fundamental rules of GD&T
- Role of GD&T in machining, assembly and inspection planning

Module 2: GD&T Symbols and Terminology

- Feature control frame structure
- GD&T symbols and meanings
- Basic dimensioning rules
- Tolerance zones and feature relationships
- Modifiers and material condition symbols (MMC, LMC, RFS)
- Interpretation of GD&T symbols in manufacturing drawings

Module 3: Datums and Datum Reference Frames

- Definition and purpose of datums
- Primary, secondary, and tertiary datums
- Establishing datum reference frames
- Functional datums in design and assembly
- Datum application in machining fixtures and inspection setups
- Use of datums in Coordinate Measuring Machine (CMM) inspection
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Module 4: Form Tolerances

- Straightness
- Flatness
- Circularity (roundness)
- Cylindricity
- Application of form tolerances in machining accuracy
- Manufacturing variation and surface form control

COURSE MODULE

DAY TWO- Application of GD&T in Design, Manufacturing and Inspection

Module 5: Orientation Tolerances

- Parallelism
- Perpendicularity
- Angularity
- Orientation tolerance zones
- Relationship between orientation controls and datum systems
- Inspection methods for orientation tolerances

Module 6: Location Tolerances

- Position tolerance
- Concentricity and symmetry
- True position calculations
- Feature relationships and assembly alignment
- Tolerance stack-up considerations in assemblies
- Statistical vs worst-case tolerance analysis

Module 7: Profile Tolerances

- Profile of a line
- Profile of a surface
- Functional application of profile tolerances
- Control of complex surfaces and free-form geometry
- Applications in casting, moulding and advanced manufacturing

Module 8: Runout and Total Runout

- Circular runout
- Total runout
- Applications in rotating components
- Inspection considerations using dial indicators and CMM
- Relationship between runout and machine alignment

Module 9: AI-Assisted GD&T Analysis and Digital Manufacturing

- AI-based interpretation of engineering drawings and GD&T symbols
- Integration of AI with CMM inspection and machine vision systems
- Machine learning analysis of dimensional measurement data
- AI-driven manufacturing quality monitoring and predictive defect detection
- Use of digital inspection data for Industry 4.0 smart manufacturing

PROGRESS LINK

REGISTRATION FORM

GEOMETRIC DIMENSION AND TOLERANCE (GD&T) WITH AI ASSISTED

18th & 19th AUGUST 2026 (TUE & WED)

The Manager
PROGRESS LINK TRAINING & CONSULTANCY SDN BHD
C-3-1, Vantage Desiran Tanjung, Tanjung Tokong, 10470 Tanjung Tokong, Penang, Malaysia.
Tel: 04-297 6881; Fax: 04-297 6882
Email: sales@progresslink.com.my

Dear Sir/Madam,

Please register the following participant(s) for this program as follows:-

Course Title: GEOMETRIC DIMENSION AND TOLERANCE (GD&T) WITH AI ASSISTED 20th &

Venue: JAZZ HOTEL, PENANG

Date: 18th & 19th AUG 2026 (TUE & WED)

Registration (Please tick (✓) accordingly)

Single registration (1 x participant) = RM1,480.00 2 x participants = RM2,960.00 3 x participants = RM4440.00

Group registration discount (Minimum 4 participants or more from the same organisation)

No. of participants _____ x RM 1,110.00 per pax = Total RM _____

Payment Method (Please tick (✓) accordingly)

Claim under HRD Corp Claimable Courses scheme (Program ID:10001690840- Public Program)

Enclosed cheque nos. _____ being payment made in favour of "PROGRESS LINK TRAINING & CONSULTANCY SDN BHD"

Online transfer / Direct bank-in to PUBLIC BANK BERHAD account number 3194 100 708 (please email us the bank-in slip)

Requested by:

Name: _____

Designation: _____

Email: _____

Company name: _____

Address: _____

Tel No.: _____ Mobile No: _____ Fax No.: _____

Signature: _____

Date: _____

Company Stamp

Terms & Conditions:-

Kindly forward the payment to us at least one week before the commencement of the program. A completed registration form submitted by fax, mailed, or e-mailed to Progress Link & Consultancy Sdn Bhd would be confirmed. All cancellations must be made in writing. There will be no charge for cancellations received 14 or more working days before the start of the program. Cancellation received between 7 – 13 working days before the start of the program is subject to a cancellation fee of 50% of the course fees. Cancellation received 6 working days and below before the start of the program is subject to a full 100% cancellation fee of the course fees. If the full course fees are payable if the participant fails to attend the program. However, a replacement may be accepted at no additional cost, subject to approval. Progress Link Training & Consultancy Sdn Bhd reserves the right to change the facilitator, reschedule or cancel the program and all efforts will be taken to inform participants of the changes. Should the program be cancelled or postponed, Progress Link Training & Consultancy Sdn Bhd is not responsible for covering airfare, hotel, other travel costs, or any additional costs incurred by the participants.

1. Participant Name :

IC or Passport No :

Designation :

Mobile No:

Email address :

2. Participant Name :

IC or Passport No :

Designation :

Mobile No:

Email address :

3. Participant Name :

IC or Passport No :

Designation :

Mobile No:

Email address :

4. Participant Name :

IC or Passport No :

Designation :

Mobile No:

Email address :

5. Participant Name :

IC or Passport No :

Designation :

Mobile No:

Email address :

(If there are more participants, please attach a separate list)