

Fundamentals of GD&T Workshop

(Based on ASME Y14.5M-1994)

Course Developer: Alex Krulikowski, President of Effective Training Inc. (ETI)



Learn geometric dimensioning and tolerancing from the experts. One of ETI's qualified instructors will come to your site to conduct a hands-on workshop on GD&T fundamentals. We provide training at locations around the world, and all of our workshops can be customized to include your drawings and parts.

ETI's training and materials were developed by Alex Krulikowski, the noted GD&T educator, author, and consultant. He has a degree in industrial vocational education and more than 30 years of industrial experience putting GD&T to practical use on the shop floor. Alex is a member of the ASME Y14.5 Committee on Dimensioning and Tolerancing and served as chairman of the Y14.41 Committee on Solid Model Dimensioning for six years, so he's an expert on how to teach GD&T's application as prescribed by the standards. He has helped more than 60,000 students learn GD&T through his textbooks, self-study courses, computer-based training software, and online learning center.

Learning to interpret and apply GD&T properly will help you and your company:

- Save money at the design stage
- Enable global sourcing
- Reduce drawing errors
- Increase productivity
- Increase part tolerances
- Assure that mating parts will assemble
- Eliminate scrap
- Improve inspection accuracy

About the Course

If you have a basic understanding of mechanical drawings, we can teach you the terms, rules, symbols, and concepts of GD&T as prescribed in the ASME Y14.5M-1994 Standard.

You'll get an in-depth explanation of geometric symbols, including each symbol's requirements, tolerance zones, and limitations. The class includes a comparison of GD&T to coordinate tolerancing; an explanation of tolerance zones; Rules #1 and #2; form and orientation controls; tolerance of position; runout and profile controls. Throughout the class, you'll hone your newly acquired skills with over 300 practice problems. This complete course in GD&T fundamentals is the most thorough and comprehensive training on the market.

Who Should Attend

This workshop is a valuable tool for individuals who create or interpret engineering drawings: product and gage designers; process, product, and manufacturing engineers; supplier quality engineers; CMM operators; buyers/purchasers; checkers; inspectors; technicians; and sales engineers.

Workshop Highlights

The workshop is based on a series of goals and objectives. It includes numerous practice problems and in-depth coverage of dimensioning and tolerancing. You will learn the benefits of GD&T and leave with the ability to interpret GD&T on drawings. CEUs will be awarded for successful completion of the course.

Skill Level Needed

Student should have basic print reading skills. We recommend ETI's *Engineering Drawing Requirements* course.

Each workshop participant receives:

- A copy of *The Fundamentals of GD&T*, by Alex Krulikowski
- A *GD&T Ultimate Pocket Guide*
- A *Fundamentals of GD&T Exercise Workbook*
- Class handouts
- An official certificate of completion



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Quantity discounts available. Call 1-800-886-0909 to enroll today.

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Course Topics

Introduction

Engineering drawings
GD&T/coordinate dimensioning comparison
Eight key GD&T terms

Terminology

GD&T modifiers and symbols
Rule #1 and Rule #2
Basic dimensions, virtual condition, bonus tolerance

Form Controls

Flatness, straightness, circularity, and cylindricity

Datums

The datum system (planar datums)
Interpreting datum targets
Feature of size datum specifications (RFS)
Feature of size datum specifications (MMC)

Orientation Controls

Perpendicularity
Angularity
Parallelism

Tolerance of Position Controls

Definitions, conventions, advantages, basic theories
RFS and MMC tolerance of position applications
Cartoon gages for tolerance of position (MMC) applications
Tolerance of position special applications
Calculating distances on parts dimensioned w/ tolerance of position
Fixed and floating fastener formulas

Concentricity/Symmetry Controls

Concentricity
Symmetry

Runout Controls

Circular runout
Total runout

Profile Controls

Profile tolerancing
Profile of a surface
Profile of a line

Final Exam

Closing comments

All of our workshops can be customized to include your drawings and parts.

Receive a complete GD&T education.

We have a series of workshops that add up to a total GD&T education:

- Engineering Drawing Requirements
- GD&T Fundamentals
- GD&T Advanced Concepts
- Tolerance Stacks
- Statistical Tolerance Stacks
- GD&T One-Day Overview

Provide your management with a half-day overview of GD&T.

ETI also provides a half-day executive overview of geometric dimensioning and tolerancing.

Understand the difference between the ASME and ISO standards.

If you do business internationally, we can train your employees in the differences between the ASME and ISO standards.

Understand the fundamental definitions, concepts, and methods from the new ASME Y14.41-2003 Standard.

The Y14.41 Standard establishes requirements for preparing, organizing and interpreting 3-D digital product images. ETI's Solid Model Tolerancing course explains the ASME Y14.41 Standard and how to apply it in your organization.

Students who attend our workshops walk away with more than knowledge. They gain on-the-job skills because our materials are performance-based, and each workshop approaches the subject from a design perspective.

For more onsite workshop information—or to request a custom quote package—contact a GD&T account executive at 1-800-886-0909, or email sales@etinews.com.

Need to train a large group?

ETI provides training onsite, online and through the GD&T Trainer Professional Edition computer-based training software. Call to learn more about the training option that's right for your company.



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