

The System Approach to Component Tolerancing

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 the system approach to component tolerancing. 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

This workshop teaches the thought processes involved in assigning GD&T to components. It will change the way many engineers think about part tolerancing.

The workshop focuses on four key areas:

- Understanding what constitutes good and poor drawing practices
- Understanding the common dimensioning methods used in industry
- Using geometric tolerancing to communicate system functions on component dimensions
- Understanding the logic on how to apply GD&T to components

Students will actually perform a design function analysis on a part assembly provided by your company, then specify GD&T on the assembly components during the workshop.

Who Should Attend

This workshop is designed for product engineers, designers, checkers, and engineering managers.

Prerequisites

The student should have knowledge of engineering drawing requirements, GD&T fundamentals, and advanced concepts. An understanding of tolerance analysis is highly recommended.

Workshop Highlights

Students will learn how to do a design functional analysis on an assembly and use this information to assign dimensions and tolerances. They will also learn how to select datum features and how to fully define component surfaces using GD&T. Establishing tolerance values is not covered.

Each workshop participant receives:

- The *System Approach to Component Tolerancing* course notes
- Class handouts
- An official certificate of completion



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The System Approach to Component Tolerancing

Course Highlights

This workshop teaches the thought process involved in assigning GD&T to components. Topics covered include:

Introduction

Course goals and information

Product development

Product development process
Dimensioning and tolerancing

Importance of technically correct drawings

Purpose of drawings
What is a poor drawing?
Definition of technically correct drawing

Principles and guidelines for making technically correct drawings

Standards
The principles of dimensioning
Drawing discussion

Dimensioning approaches

Common dimensioning approaches
Comparison of dimensioning approaches
Pros and cons of the dimensioning approaches
Workshop dimensioning approach

Specifying datums based on mounting and performing features

Two types of datum features
Datum selection
Qualifying datums
Datum discussion

STUDENTS PERFORM A DFA ON A COMPANY ASSEMBLY AND SPECIFY GD&T ON THE COMPONENTS

Using GD&T to describe functional relationships on a component

Converting functional requirements to dimensions & tolerances

Understanding the system approach to component tolerancing

Definitions
The Design Functional Analysis (DFA) process
Converting dimensional requirements into GD&T
Students complete a DFA on a workshop product

Using the system approach to component tolerancing on a customer design

Discussion of customer assembly
Student complete a DFA on a customer assembly
Students dimension components from the assembly
Converting dimensional requirements into GD&T

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

Provide your employees or management with an overview of GD&T.

Let ETI provide employees with an a short intro or refresher on GD&T. We can also give your management team a perspective of how GD&T affects the organization and product development process, plus how it can maximize your ROI.

Understand the difference between the ASME and ISO standards.

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

Learn about the fundamental definitions, concepts, and methods from the ASME Y14.41-2003 Standard.

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

Learn and practice the system approach to component design. NEW

This course will change the way many engineers think about part tolerancing. Students will actually do a design functional analysis on a customer assembly, then specify GD&T on components from the assembly during the workshop.

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



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