

Tolerance Stacks Workshop

(Concept driven)

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



Learn to calculate tolerance stacks from the experts. One of ETI's qualified instructors will come to your site to conduct a hands-on workshop on tolerance stacks. 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. Alex 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. As a member of the ASME Y14.5 Committee on Dimensioning and Tolerancing and chairman of the Y14.41 Committee on Solid Model Dimensioning, Alex is 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

Exclusively from ETI, this advanced course will show you how to calculate tolerance stacks, a crucial skill in today's competitive workplace. Solve problems in the design stage instead of the production stage, and save time and money by getting it right the first time.

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 tolerance stacks applications. You'll learn how to use tolerance stacks to establish part tolerances, analyze design, create process designs, use geometric tolerances in stacks, and much much more. CEUs will be awarded for successful completion of the course.

Skill Level Needed

Please be aware that this is not an introductory course. In order to qualify for this course, you must already know how to read a blueprint and be familiar with the fundamentals of geometric tolerancing. We recommend taking our engineering drawings requirements, GD&T fundamentals, and advanced concepts workshops before attempting this course.

Each workshop participant receives:

- A copy of the *Tolerance Stacks* textbook, by Alex Krulikowski
- A *Tolerance Stacks Drawing Package*
- A *Tolerance Stacks Exercise Workbook*
- A *Tolerance Stacks Summary Chart*
- 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

- Importance of stacks
- Prerequisite skills
- Introduction to stacks
- The four basic stack steps
- Part stacks using coordinate dimensions
- Part stacks using runout, profile, and position
- Part stacks using bonus (planar & RFS datums)
- Part stacks using position with bonus and shift
- Part stacks using multiple geometric tolerances
- Assembly stacks using coordinate dimensions
- Assembly stacks using runout, profile, and position
- Stacks using form controls applied to a feature
- Stacks using straightness applied to a feature of size
- Stacks using orientation controls applied to a feature
- Stacks using orientation controls applied to a feature of size
- Assembly stacks using multiple geometric tolerances
- Stack matrix chart
- Evaluating a stack answer

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

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, and 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. 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.



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