

Tolerancing Strategies with GD&T

Course Description

Tolerancing strategies are rarely taught in engineering programs. Designers and engineers are left to fend for themselves, frequently pulling past design practices forward, whether there is a rational basis to do so or not.

This advanced three-day course combines tolerancing concepts with statistical methods. We examine part tolerances, fixture tolerances, gage tolerances, assembly tolerances and the interactions between them. Tolerance stacks are evaluated via worst case analysis and a variety of statistical techniques. Strategies for robust design capitalize on operational definitions of GD&T to minimize loss to society.

Course Outline

1. Selective Review of ASME Y14.5 - 2009
2. Introduction to Stack-Up Analysis
3. Understanding Dimensional Variation
4. Datum Schemes and Strategies
5. Common Tolerancing Applications
6. Tolerance Stack Analysis Methods
7. Tolerance Design Methods
8. Dimensional Management
9. Process Capability for Positional Tolerances
10. Process Capability for Components and Assemblies

Key Course Objectives

- ✓ Review recent changes to ASME Y14.5 – 2009.
- ✓ Perform stack up analysis for simple linear stacks.
- ✓ Perform stack up analysis with GD&T and bonus tolerances.
- ✓ Select appropriate solutions from six stack analysis methods.
- ✓ Determine process capability requirements for components.