



# Using Geometric Dimensioning and Tolerancing (GD&T) To Lower Product Manufacturing Costs

Merwan Mehta, Ph. D.

# Introduction to Concept

- 70% of product cost is locked in at design stage
- 80% of chronic quality issues are related to sub-standard product design
- Geometric designing and tolerancing (GD&T) can be used to overcome this
- Use GD&T to capture functional requirements & translate into correct manufacturing tolerances

# Use GD&T as a Strategic Tool

- Allow assembly components to have maximum amount of tolerance
- Eliminate issuance of discrepancy waivers
- Ensure good products (around 25%) are not rejected due to bad tolerancing
- Use “zero tolerance at the maximum material virtual condition (MMVC)”

# Learn for Good!

- Central principles of:
  - ANSI Y14.5 – 2009
  - ISO 8015
- Learn what is similar and different between the two standards
- How to use GD&T for strategic advantage

# GD&T can be your secret weapon!

- Create standard-compliant drawings
- Understand how to interpret and inspect geometrical requirements
- How GD&T can be combined into a product designing system
- Bring down manufacturing cost of products without undermining product functionality

# Learning Objectives

- Concepts of zero defects & on-target tolerancing
- Drawing conventions used in GD&T for ANSI and ISO applications
- Limits, fits and datum systems
- Form control, orientation control, location control, run-out and profile control
- Comparison of ANSI and ISO GD&T practices
- How to standardize GD&T concepts

# Who Should Attend

- People who use blue-prints
- Industrial engineers
- Industrial engineering technologists
- Shop floor supervisors
- Mid-level manufacturing managers
- Design engineers
- Quality engineers
  
- Beginners to intermediate level