



Advanced Geometric Dimensioning and Tolerancing

(16 hours)

Course description

Advanced Geometric Dimensioning and Tolerancing is a problem solving course that will provide participants with the tolerancing tools and techniques to:

- Design and interpret drawings requiring complex GD&T concepts
- Focus on practical applications of GD&T for mating parts
- Communicate design intent to persons in manufacturing and inspection

Suggested participants

Mechanical Engineers

Manufacturing Engineers

Design Engineers

Quality Inspectors

Quality Engineers

Machinists

Anyone who may be required to produce or interpret complex engineering drawings.

Course format

This course is presented in a problem solving, team format.

Each team will present its best solution on an overhead transparency.

Then the merits of each solution will be explored in a class discussion.

Course Outline

- I. Introduction
- II. Datums
 1. Implied
 2. Features of Size
 3. Inclined Datum features
 4. Multiple Datum Features
 5. Simulation of a Single Datum Plane
 6. Partial Surface as a Datum Feature
 7. Multiple Datum Reference Frames
- III. Composite Positional Tolerancing
 1. Primary Datum Repeated
 2. Primary and Secondary Datums Repeated
 3. Two Single Segment Feature Control Frames
- IV. Fasteners
 1. Floating Fasteners
 2. Fixed Fasteners
 3. Fasteners at "0" Positional Tolerance
- V. Multiple patterns of Features Located to Common Datums
 1. Datum to Datum Pattern Relationship
 2. Feature to Feature Relationship
 3. Inspection Requirements
 4. Separate and Simultaneous Requirements

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- VI. Pattern of Features Located to a Common Datum of Size Controlled by a Geometric Tolerance (Virtual Condition Rule)
 - 1. Shift Tolerance from Size Datums at MMC
 - 2. Inspection Requirements for the Virtual Condition Rule
- VII. Profile
 - 1. A Form Control
 - 2. A Form and Orientation Control
 - 3. A Form, Orientation, and Location Control