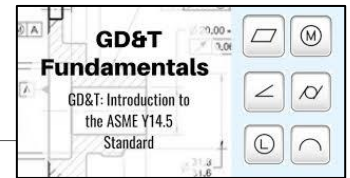


Fundamentals of GD&T ASME Y14.5-1994



Overview

Course Length: 24 - 48 hours (*can be taken via flexible schedule in-center or remotely*)

Description: This course is a comprehensive fundamentals course covering the ASME Y14.5M-1994 Geometric Dimension and Tolerancing (GD&T) standard. The course is designed for anyone who designs, drafts, engineers, purchases, manufactures, estimates, and inspects parts and assemblies. Particular emphasis is placed on those who design and manufacture and those responsible for quality. The course is structured into 16 different units to provide detailed lessons, using instructor-led videos for delivering valuable knowledge in GD&T. Every engineer needs to take this course!

Course Objectives/Topics

- GD&T Introduction and Overview
- Definitions and Concepts
- 3 Big Concepts
- Material Condition Modifiers Overview
- Virtual Condition & Features Control Frames
- General Rules Overview
- Datum Theory Overview
- Datum Theory to Reality
- Position Tolerancing
- Form Controls - Straightness
- Additional Form Controls
- Orientation Controls
- Profile Controls
- Runout Controls
- Concentricity & Symmetry Controls
- Review
- **Please see page 2 for detailed topic list**

Prerequisites

A working understanding of technical drawings (perspectives, sections, details, etc.).

Audience

This program is designed for anyone who designs, drafts, engineers, purchases, manufactures, estimates, or inspects parts and assemblies. Particular emphasis is placed on those who design and manufacture, and those responsible for quality.

Course Outline

GD&T Introduction and Overview

- AGI Introduction
- Introduction to GD&T
- Rule Number One
- When Should You Use GD&T
- What is High Quality
- Why Use GD&T
- Advantages of Using Symbols
- The GD&T Language

Definitions and Concepts

- Geometric Characteristics
- Sample Drawing without GD&T
- Sample Drawing with GD&T
- Completing the Drawing

3 Big Concepts

- Features and Basic Dimensions
- 3 Big Concepts

Material Condition Modifiers Overview

- Maximum Material Condition
- Least Material Condition
- Regardless of Feature Size

Virtual Condition & Features Control Frames

- MMC Virtual Condition
- Feature Control Frames
- Reading Feature Control Frames

General Rules Overview

- General Rules Part 1 of 2
- General Rules Part 2 of 2

Datum Theory Overview

- Datum Terminology
- Datum Theory

Datum Theory to Reality

- Degrees of Freedom Part 1 of 2
- Degrees of Freedom Part 2 of 2
- Datum Reality
- Datum Reference Frames
- The Datum Feature Symbol
- Datums to Datum Features
- Datum Selection Exercise Part 1 of 2
- Datum Selection Exercise Part 2 of 2

Position Tolerancing

- Position Tolerance Part 1 of 2
- Position Tolerance Part 2 of 2
- 3 Big Concepts Review

Form Controls - Straightness

- Surface Straightness
- Derived Median Line Straightness

Additional Form Controls

- Form Control - Flatness
- Form Control - Circularity
- Form Control – Cylindricity

Orientation Controls

- Orientation Control - Perpendicularity
- Orientation Control - Angularity
- Orientation Control – Parallelism

Profile Controls

- Profile Controls

Runout Controls

- Circular Runout Controls
- Total Runout Controls

Concentricity & Symmetry Controls

- Concentricity Controls
- Symmetry Controls

Review

- Course Review

Please note that course material, content, structure and delivery methods are subject to change without notice.