
Reading Engineering Drawings and Intro to GD&T

Overview and Purpose

This 2-day workshop will provide you with fundamental knowledge and hands-on practice for interpreting and using engineering drawings. Topics addressed include the purpose and development of engineering drawings for creating new products and processes, the basic elements of any engineering drawing, and especially the representation of views using orthographic projection. The course employs “learn-by-doing” and “hands-on” exercises rather than traditional lecture-based approaches.

Highlight: Participants practice interpretation by sketching orthographic views, and by creating clay models of parts represented on sample drawings.

Here are some of the things that you’ll learn:

- How to interpret related views using the North American and European/Asia systems
- How to interpret the various types of lines used on engineering drawings
- Step-by-step guidelines for sketching basic engineering drawings
- The types and purposes of different types of drawings, including detailed, assembly, and outline drawings
- How to visualize and create the 3-D part using the 2-D drawing views
- The fundamentals of dimensions, tolerances, symbols, and notes
- An introduction to common Geometric Dimensioning and Tolerancing elements

Who should attend?

Reading Engineering Drawings is intended for all individuals who use engineering drawings for sales/service, purchasing, quality, tooling, and any manufacturing plant activity. The course is also recommended for entry-level engineers and other personnel who may require a review or update of engineering drawing fundamentals.

Course Outline

Day 1

Introduction

- Pre-Assessment
- Course Objectives
- Participant Introductions, Goals, and Expectations
- Discuss the role of engineering drawings in the automotive industry
- Identify various types of graphic representations

Alphabet of Lines

- Identify different types of lines used in engineering drawings
- Describe what each type of line represents in engineering drawings
- Application Exercises

Understanding Orthographic Projection Drawings

- Identify the principal orthographic views on a drawing
- Visualize objects depicted with orthographic projections
- Interpret drawings to create sample parts out of clay
- Sketch objects using orthographic views
- Application Exercises

Basic Print Information

- Describe the major features of the title block, revision block and drawing notes
- Describe the purpose of the title block
- Describe the implication of each element in the title block
- Describe the difference between general notes and local notes
- Describe the items of information required when using the drawing change system
- Application Exercises

Day 2

Supplemental Views

- Describe the purpose of auxiliary views
- Describe the purpose of section views
- Interpret auxiliary and section views

Detail and Assembly Drawings

- Identify various types of drawings, including detail and assembly drawings

Dimensions and Tolerances

- Identify dimensions and tolerances on engineering drawings
- Describe the types of dimensions and corresponding tolerances
- Interpret symbols used with dimensions and tolerances

Geometric Dimensioning and Tolerancing

- Identify geometric dimensioning and tolerancing on an engineering drawing
- Describe the benefits of geometric dimensioning and tolerancing
- Identify geometric dimensioning and tolerancing symbols, including basic dimension, datums, and feature control frames
- Describe the information shown in the feature control frame

Other Manufacturing Specifications

- Identify different types of thread representations
- Describe different specifications of screw threads
- Identify callouts for counterbores, countersinks, drill, and ream operations
- Identify surface texture callouts
- Describe the purpose of surface callouts

Appendix and Reference Information

Course Summary

- Key Points, Review, and Q&A
- Post Assessment
- Course Evaluation