

INTRODUCTION TO DESIGN FOR MANUFACTURING AND ASSEMBLY

COURSE DESCRIPTION

Design for Manufacturing and Assembly (DFMA) is a set of overlapping principles applied to engineering design that consider requirements beyond the functional. DFA ensures a good design early in the design process by focusing on the number of parts, part handling, and ease of assembly. DFM achieves good product designs using simple manufacturing techniques and using standardized parts and materials. Together DFMA helps organizations reach the goal of developing quality products at the lowest cost while saving time. This 3-day workshop will provide you with fundamental knowledge and hands-on practice with Design for Manufacturing and Assembly (DFMA) principles and key tools.

LEARNING OBJECTIVES

- Understand how DFMA impacts product cost and quality.
- Learn the principles of design for assembly for mechanical products.
- Identify ways to simplify your product and dramatically reduce part count.
- Use step-by-step procedures for analyzing and improving DFA including design for handling, presentation, orientation, insertion, fastening, and mistake-proofing for design and process elements.
- Obtain detailed guidelines of DFM covering fabrication processes and see examples of good and bad design for manufacturability.
- Apply DFM principles and general tolerancing recommendations on the most pervasive manufacturing processes, including machining, metal forming, injection molding, casting, additive manufacturing, etc.
- Conduct process capability studies to optimize design and manufacturing targets.
- Analyze and assign appropriate tolerances for new designs.
- Review drawings for proper use of Geometric Dimensioning and Tolerancing to increase tolerances and reduce cost without compromising product function.
- Apply a practical methodology for analyzing & improving the manufacturability of your company's products.

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WHO SHOULD ATTEND

This course is designed for all levels of engineering and manufacturing personnel, as well as their managers. Anyone involved in design or manufacturing - including design engineers, product engineers, manufacturing engineers, process engineers, and quality engineers - will take away valuable skills and knowledge.

COURSE OUTLINE

- Introduction
- Design for Assembly
- Design for Automated Assembly
- Design for Manufacturing
- Design for Machining
- Design for Metal Forming
- Design for Injection Molding
- Design for Casting
- Design for Welding
- Design for Surface Treatment
- Design for Additive Manufacturing
- Process Capability and Tolerances
- GD&T for DFMA
- DFMA And the Development Process

Prerequisites

None.

Course Format

24 hours: 3 in-person sessions.



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