

Design for Manufacturing and Assembly (DFMA) Advanced Training Course

3 – 7 January 2027
Johannesburg

AGILE LEADERS
Training Center

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Ref: 2061_251250 **Date:** 3 – 7 January 2027 **Location:** Johannesburg **Fees:** 6000 Euro

Overview

Design for Manufacturing and Assembly DFMA Advanced Training Course is a one-week course for product, manufacturing, industrial, assembly, cost, and quality functions who leave with a DFMA Redesign and Should-Cost Dossier. Participants connect product architecture, part-count reduction, Design for Assembly, manufacturing feasibility, tolerance decisions, process selection, assembly sequencing, and cost evidence. Agile Leaders Training Center presents Design for Manufacturing and Assembly through measurable redesign decisions.

Who Should Attend

- Product-design functions responsible for architecture, geometry, interfaces, and release decisions
- Manufacturing-engineering functions responsible for process capability and production feasibility
- Industrial and assembly functions responsible for work sequence, handling, insertion, and fastening
- Cost-engineering functions responsible for should-cost evidence and sourcing comparisons
- Quality and new-product functions responsible for variation, mistake-proofing, and production readiness

The course assumes participants review product drawings, bills of materials, processes, or cost data at work and leaves proprietary software certification and machine-operation training outside its scope.

Departments and Industries

The course supports departments and industries that convert product concepts into repeatable manufacturing and assembly decisions.

- Product development, industrial design, and engineering functions
- Manufacturing engineering, production, and new-product introduction teams
- Automotive, aerospace, electronics, and industrial-equipment organizations
- Medical-device, consumer-product, and contract-manufacturing organizations
- Quality, procurement, supplier development, and cost engineering

Learning Objectives

By the end of this course, participants will be able to:

- Analyze product architecture against minimum-part criteria
- Apply handling, insertion, fastening, and sequencing assessments
- Evaluate material, process, geometry, and tolerance feasibility
- Build should-cost estimates from manufacturing evidence
- Compare redesign options using DFMA scoring and trade-offs
- Develop a cross-functional DFMA redesign dossier

Course Agenda

Day 1: Frame the DFMA Study

- DFMA Scope and Product-Family Selection Matrix
- Functional Architecture and Design Bill of Materials Map
- Minimum-Part Criteria Analysis Sheet
- Part Consolidation and Standardization Opportunity Register
- Cross-Functional Design Review Charter

Day 2: Analyze Design for Assembly

- Part Handling and Orientation Difficulty Scorecard
- Insertion, Alignment, and Access Assessment Method
- Fastener and Joining Method Decision Matrix
- Assembly Sequence and Precedence Diagram
- Mistake-Proofing and Serviceability Review Checklist

Day 3: Evaluate Design for Manufacture

- Material and Manufacturing Process Selection Matrix
- Geometry and Feature Feasibility Checklist
- Tolerance, Variation, and Process Capability Review
- Tooling and Secondary-Operation Driver Map
- Supplier Capability and Production Feedback Log

Day 4: Build Costed Redesign Options

- Material, Cycle, Setup, Tooling, and Overhead Cost Model
- Assembly Time and Labor Cost Estimate
- DFMA Baseline and Redesign Comparison Scorecard
- Quality, Maintainability, and Supply-Risk Trade-Off Matrix
- Design Release and Manufacturing Data Package

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Day 5: Practice DFMA Redesign

- Suggested Exercise: Test Minimum-Part Criteria
- Suggested Exercise: Diagnose Assembly Difficulty
- Suggested Exercise: Review Manufacturing Feasibility
- Suggested Exercise: Compare Costed Redesign Concepts
- Capstone Exercise: Present a DFMA Redesign and Should-Cost Dossier

Practical Exercises

The course uses suggested activities to turn product evidence into traceable DFMA redesign decisions.

- Suggested activity: analyze a mechanical or electromechanical assembly for part elimination, consolidation, and standardization.
- Suggested activity: score handling, orientation, insertion, fastening, and assembly-sequence difficulty.
- Suggested activity: challenge material, process, tolerance, tooling, and supplier assumptions against manufacturing capability.
- Suggested activity: present a costed redesign with quality, service, supply, and implementation trade-offs.

FAQs

Who suits Design for Manufacturing and Assembly training, and what does it assume?

Design for Manufacturing and Assembly training suits cross-functional product teams that already use drawings, bills of materials, process information, or cost evidence and need a structured redesign method.

How does DFMA training differ from general lean manufacturing training?

DFMA training changes product architecture, parts, features, processes, and assembly decisions before or during design release, while general lean training primarily improves waste and flow in operating processes.

What does minimum part count mean in DFMA?

Minimum part count is a structured challenge to whether each separate part must move, use a different material, or remain separate for necessary assembly or service reasons.

How does Design for Assembly reduce assembly difficulty?

Design for Assembly reduces difficulty by simplifying orientation, handling, insertion, access, fastening, joining, sequencing, and mistake-proofing while preserving required function and service needs.

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How does DFMA should-cost support redesign decisions?

DFMA should-cost links material, process, cycle, setup, tooling, secondary operations, assembly labor, and overhead assumptions to comparable product concepts and supplier discussions.

Conclusion

Participants take a DFMA Redesign and Should-Cost Dossier back to their organization. It links architecture, part analysis, assembly difficulty, manufacturing feasibility, cost evidence, design scores, and trade-offs. The dossier changes disconnected design reviews into a traceable route for selecting and releasing production-ready concepts.