

DFSS for Product Design

Foresee and eliminate potential defects before and during the design process.

Design for Six Sigma (DFSS) is a powerful problem-solving methodology aimed at tackling a core issue facing many of today's products and services – 80 percent of all defects are “designed in.” Design flaws can prevent standard Six Sigma methods such as DMAIC from achieving true Six Sigma levels of performance. Breakthrough improvement requires either the creation of new products, or the redesign of existing ones using DFSS.



Course Description

DFSS for Product Design helps Six Sigma practitioners further their understanding and application of Six Sigma concepts in regard to designing new products. This five day program delivers a thorough education on the DMADV (Define-Measure-Analyze-Design-Verify) methodology and helps students master a variety of techniques used to reduce defects during the design processes. All of the topics covered are universally applicable to the design of any type of product.

BMGI's DFSS training is built around the idea that “Design” is a truly cross-functional undertaking and not the sole responsibility of the “Product Designer.” While statistical design tools are an integral part of this course, the importance of VOC (voice of the customer), financial analysis and supplier selection is also emphasized.

DFSS for Product Design starts with an overview of DFSS and how to capture the voice of the customer, then moves into defining product, system and sub-system requirements. The course agenda is organized into four content areas:

- ❑ Introduction to DFSS and the DMADV methodology
- ❑ Voice of the Customer
- ❑ Launching and leading DFSS projects
- ❑ Statistical design tools

Course Specifics

Who Should Attend/Prerequisites: Six Sigma Black Belts or Green Belts who have an understanding of both ANOVA and regression, and have completed at least one project.

Course Length: Five (5) consecutive days (36 hours of instruction).

Course Includes: Training manual, data files and DFSS templates.

Course Requirements: Participants need a laptop computer running Minitab.

CEUs: BMGI is authorized by IACET to offer 3.6 CEUs for this program.

(continued)

“I had hit a wall with DMAIC... with DFSS I now have a new arsenal of new tools for breakthrough.”

– Dean Kounelis
Master Black Belt
Siemens VDO Automotive

KEY LEARNING OUTCOMES

After this course, students will be able to:

- ❑ Identify DFSS vs. DMAIC projects.
- ❑ Describe the objectives of each of the DMADV phases.
- ❑ Complete a project financial analysis.
- ❑ Complete a project risk analysis.
- ❑ Analyze a QFD.
- ❑ Select product concepts based on a Pugh Matrix.
- ❑ Complete a design scorecard.
- ❑ Design and analyze a Robust DOE.
- ❑ Complete a product tolerance analysis including Monte Carlo Simulation.
- ❑ Analyze reliability data.
- ❑ Describe the principles of DFMA.
- ❑ Select appropriate maintenance strategies for products.

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Course Agenda

▶ Day One

- ❑ Why Design Projects Fail
- ❑ DFSS Defined
- ❑ DFSS vs. DMAIC
- ❑ Integrating DFSS with Existing Design Methodologies
- ❑ The DMADV Process
- ❑ How Do You Know If You Need a New Product?
- ❑ Tollgate Reviews
- ❑ Project Risk Analysis & Design FMEA

▶ Day Two

- ❑ Design Project Financial Analysis
- ❑ Capturing the Voice of the Customer (VOC)
- ❑ Translating the VOC into Design Requirements
- ❑ Quality Function Deployment (QFD)
- ❑ Pugh's Method for Concept Selection

▶ Day Three

- ❑ Design Scorecards
- ❑ Requirements Flowdown
- ❑ Capability Flowup
- ❑ Robust Design
- ❑ Product Tolerance Analysis

▶ Day Four

- ❑ Monte Carlo Simulation
- ❑ Statistics of Reliability
- ❑ Analysis of Reliability Data
- ❑ Reliability Predictions

▶ Day Five

- ❑ Maintenance Planning
- ❑ Robust DOE
- ❑ Design for Manufacture and Assembly Maintainability

BMGI holds this class regularly in cities around the world.

Classes can also be scheduled onsite for groups of six or more.

Curriculum is available for licensing.



USA Headquarters
1921 Corporate Center Cir.
Longmont, CO 80501

1-800-467-4462
+1 303-827-0010
MoreInfo@BMGI.com
www.BMGI.com