



▶ DFSS for Product Design

A specialized methodology designed to foresee and eliminate potential defects before and during the design process.

Design for Six Sigma (DFSS) is a powerful methodology aimed at correcting the fact that 80 percent of all product defects are “designed in.” Design flaws can prevent standard Six Sigma methods such as DMAIC from achieving true “Six Sigma” levels of performance. BMG University’s **DFSS for Product Design** course helps you learn how to create and build products with Six Sigma quality in mind.

Course Description

This five day program delivers a thorough education on the DMADV (Define-Measure-Analyze-Design-Verify) methodology and introduces 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.

This DFSS course begins with 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.

Course Specifics

Who Should Attend: 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 Requirements: A laptop computer with Minitab.

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

Course Agenda

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. Topics include:

▶ Day One

- ❑ Why design projects fail
- ❑ DFSS vs. DMAIC
- ❑ Integrating DFSS with Existing Design Systems
- ❑ The DMADV process
- ❑ New Product Design
- ❑ Tollgate Reviews
- ❑ Project Risk Analysis and 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

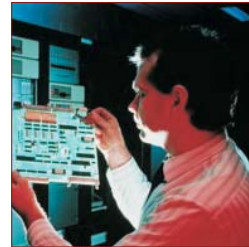
- ❑ Design Scorecards
- ❑ Requirements Flowdown
- ❑ Capability Flowup
- ❑ Robust Design
- ❑ Product Tolerance Analysis

▶ 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



“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, participants 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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