



# Quality-One International

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## DFSS Course Outline

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- Introduction to Design for Six Sigma (DFSS)
- Benefits of DFSS
- DFSS Models: DMADV, IDOV, CDOV, DMEDI
- Define
  - Project Charter
  - Program and Project Management
  - Voice of the Customer (VOC)
  - Market Research
  - Historical Issues and Team Experience
  - Business Plan and Marketing Plan
  - Product and Process Benchmark
  - Product Reliability Studies
  - Preliminary Critical to Quality (CTQs)
- Measure
  - QFD House of Quality
  - QFD Design Matrix
  - Quantify Customer Wants, Needs and Desires
  - Establish Design Goals
  - Establish Reliability and Quality Goals
  - Detailed CTQs
  - Preliminary List of Special Characteristics
  - Project Charter Update
- Analyze
  - CTQs to Design Requirements and Specifications
  - Preliminary Test Plan Development / DVP&R
  - Develop Concept Designs to Meet or Exceed CTQs
  - Options based on Acceptance Criteria (Quality, Cost, Delivery, Safety)
  - Pugh Matrix Selection Tool
  - Product and Process Assumptions
  - Preliminary Bill of Material
  - Preliminary Process Flow
  - Identify Risks to Program
- Design
  - Project Management and Design Review
  - Design FMEA
  - Design for Manufacturing and Assembly (DFM/A)
  - New Equipment, Tooling and Facilities Requirements



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- Special Product and Process Characteristics
- Gages / Testing Equipment Requirements
- Quality System Updates
- Process Flow Chart
- Special Characteristics Matrix
- Process FMEA
- Control Plan Methodology
- Process Instructions
- MSA Plan
- Preliminary Process Capability Estimates to Six Sigma Levels
- Mitigate risks
- Verification
  - Update DVP&R
  - Critical Design Review
  - Prototype Control Plan
  - Simulated Production Run
  - MSA Results
  - Process Capability Studies
  - Stability
  - Ppk Cpk
  - Statistical Significance
  - Inference Testing
  - Production Validation Testing
- Capture of Lessons Learned and Replicate
  - Effective Use of Lessons Learned
  - Replication