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Six Sigma Black Belt (upgrade) Outline

This is a ten-day course for participants who are charged with implementing Six Sigma in their organizations. The course covers both DMAIC and DFSS methodologies and uses more advanced statistical tools than Green Belt training. The course also includes change management concepts and techniques as well as team leading skills. Participants must lead a Six Sigma project while completing the course. Coaching sessions, in between classroom training, are also available. Certification is available based on project completion and passing a written exam.

Pre-requisite: must have completed Green Belt training.

Six Sigma Black Belt Outline

Six Sigma Introduction/Overview

- Overview of Six Sigma
- Overview of DMAIC/DFSS methodology
- Process Consulting
- Leading Change
 - Effective Teams
 - Setting Expectations
 - Structuring and Facilitating Meetings
 - Managing Conflict

Define Phase

- Intro to Define
- Voice of the Customer (VOC)
- CT Tree
- Problem Statements
- Project Charter
- COPIS (aka SIPOC)/ Project Scope
- Project Benefits and Strategic Alignment
- Change Management Parts 1 to 3



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Measure Phase

- Introduction to Measure
- QFD
- Process Mapping
- Progressive Search
- Multivari
- FMEA
- Types of Data
- Measurement Error
- Sources of Variation
- Repeatability & Reproducibility
- Sampling Strategies
- Measurement System Analysis
- Gage R&Rs
- Process Capability
- Defect, DPU, DPO, & DPMO
- Change Management Part 4 and 5

Analyze Phase

- Introduction to Analyze
- Basic Statistics
- Z-Bench
- Types of Yield
- Rational Subgrouping
- Process Capability
- Benchmarking
- Hypothesis Testing
- Normality
- Graphical tools for Analysis
 - Descriptive Statistics
 - Run Charts
 - Histograms
 - Box Plots
 - Scatter Plots
 - Pareto
- Hypothesis Tests
 - T-tests



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F-tests
HOV
ANOVAs
Chi-Square & Nonparametrics
Component Search and Pair Comparisons
System Reliability
Weibull analysis
Correlation & Regression
Linear Tolerancing
Change Management

Improve Phase

Introduction to Improve
DOE Planning
Full & Fractional Factorials
Design for Manufacturability
B vs. C/Variable Search
Lean Tools

Control Phase

Introduction to Control
Pilot Plans
Poka Yoke
Risk Management (FMEA)
Control Charts
Reliability Testing
Leveraging
Change Management