

Six Sigma Body of Knowledge for Green Belts



Outline:

Define Phase

- o Problem Solving Strategy $Y = f(x)$
- o Voice of the Customer
- o Six Sigma and Organization
- o Problem Solving
- o Critical to Quality Characteristics (CTQ's)
- o Cost of Poor Quality (COPQ)
- o Selecting Six Sigma Projects
- o Building a Business Case & Project Charter
- o Cost Benefit Analysis
- o Basics of Project Management

Measure Phase

- o Cause & Effect / Fishbone Diagrams / Root Cause Analysis
- o Process Mapping, SIPOC, Value Stream Map
- o X-Y Diagram
- o Failure Modes & Effects Analysis (FMEA)
- o Six Sigma Statistics
- o Basic Statistics
- o Descriptive Statistics
- o Normal Distributions & Normality
- o Graphical Analysis with many examples
- o Pareto Analysis (80:20 rule)
- o Process Performance Measures (DPU, DPMO, RTY,...)
- o Measurement System Analysis
- o Precision & Accuracy
- o Gage Repeatability & Reproducibility
- o Variable & Attribute MSA

Analyze Phase

- o Sampling Techniques & Uses
- o Practical vs. Statistical
- o Concepts & Goals of Hypothesis Testing
- o Hypothesis test, power of test, errors, risk
- o Test for Means
- o Sample Variance and Population Variance
- o Comparing Two Samples

- o Comparing More Than Two Samples
- o Testing a Sample Against a Standard
- o One and Two Sample Proportion
- o Chi-Squared (Contingency Tables
- o Tests of Equal Variance, Normality Testing
- o Correlation and linear regression

Improve Phase

- o Design of Experiments, steps - Full Factorial
- o Basics of Design for Six Sigma
- o Criteria Selection Matrix
- o Pugh Matrix
- o Risk Mitigation, Failure Mode Effect Analysis

Control Phase

- o SPC Charts significance and usage with examples
- o Control Chart parts and meaning
- o I-MR Chart
- o Xbar-R Chart,
- o U Chart
- o P Chart
- o NP Chart
- o Out of control Patterns
- o Control Plans