Six Sigma Green Belt Training/Certification

Objectives

- Use the Six Sigma approach to quantify the critical quality issues in your company.
- Learn how to integrate the principles of business, statistics, and engineering to achieve results.
- Transform process improvement opportunities into clearly defined Six Sigma projects.
- Use statistical tools to identify and determine the relationship between inputs and outputs of a process.
- Use Six Sigma methodologies to increase productivity and improve quality.
- Reduce cost and reduce waste.
- Reduce variation and improve quality and reliability.
- Implement Six Sigma methods that ensure long term improvements.

The training will provide the details of the major topics below.

Overview, Concepts, and Business Success of Six Sigma

Overview: What is Six Sigma?
What Six Sigma can do for your company?
Six Sigma: a customer focused approach
Quality Defined: Who determines quality?
Sigma Levels/Metrics for Six Sigma
Business Success of Lean Six Sigma
Company Cases and Success Stories
Six Sigma DMAIC Process
Process Improvement
Process Mapping
Introduction to Lean Six Sigma
Introduction to Design for Six Sigma (DFSS)
Six Sigma/Lean Sigma/ Design for Six Sigma
Measuring Sigma Levels: How much improvement is attained by improving from Two-to Six sigma levels?
Introduction to Quality Function Deployment
Introduction to Failure Mode and Effects Analysis (FMEA)
Integrating Lean and Six Sigma
Six Sigma and Design for Six Sigma

Statistical Concepts and Tools for Six Sigma

Statistics and Six Sigma
Basic Statistical Concepts: Variation and Variation Reduction

Overview of Descriptive and Inferential Statistics
- Statistics and Variability
- Descriptive Statistics: Graphical and Numerical Tools
- Visual Representation of Data

Software Introduction (MINITAB)
Quality Tools (Computer applications)

Introduction to Probability and Probability Distributions
Review of Discrete and Continuous Probability Distributions
Computer Simulations to Understand Statistical Concepts

Review of:
- Sampling and Sampling Distribution
- Estimation and Confidence Interval
- Hypothesis Testing
- Analysis of Variance (ANOVA)

Computer Applications, Cases, and Simulations Involving above topics

Six Sigma Define Phase

Six Sigma Projects
Some reasons for taking up Six Sigma projects
What can initiate a Six Sigma project?
Six Sigma Problem Definitions
Defining the Problem: Project Charter
Six Sigma Project Team:
- Master Black Belts
- Black Belts
- Green Belts
- Team Members

Who owns the project? Stakeholders
Six Sigma Metrics: defining metrics
- Primary and Secondary Metrics

Project and Project Management
Flow Charting/Process Mapping
Sources of Variation and Variation reduction
Project Duration and Expected Outcome
Expected Improvement and Savings
Probability of Success
Project Risk and Return Analysis
Financial Implications
Final Project Charter
Review Team: Project Review and Review Criteria for the Define Phase
Case /Project on Define Phase

Six Sigma Measurement Phase

Determine the current state of the process (How are we doing?)
Metrics to be measured
Data and Data Types
Sample Size
Access Measurement Systems
Measurement System Analysis
Measurement Systems Analysis/ Gage R&R
Data Collection Plan and Procedure
Obtain Data
Statistical Tools Required for the Measurement Phase
Process Capability Analysis
Determine the Current Process Capability
Review Criteria for the Measurement Phase
Project/case on Measurement Phase/computer implementation

Six Sigma Analysis Phases

Determine the root cause/causes of the problem (What is wrong?)
Analyze the data collected to determine the causes of the problem
- Six Sigma Statistical Analysis Topics
- Hypothesis Testing
- Analysis of Variance
- Correlation
- Simple Regression
- Project /case and computer implementation (MINITAB)

Six Sigma Improvement Phase

The green belt training will provide only the introduction and basic concepts of the topics below. The detailed treatment of the topics below is provided in Black Belt training.

Improve the Process
Six Sigma Improvement Topics: Introduction to
Factorial Experiments- One, Two, Four-
factorial design
- Blocking, Latin Square
- Fractional Factorial Introduction
- Blocking
- EVOP Introduction
- Response Surface Introduction

Introduction to Regression and Model Building
Project/computer implementation (MINITAB)

Six Sigma Control Phase

Maintain the improvement through control
Control plans
Control Charts Basics

How, why, and at what stage the control charts work
Statistical Process Control (SPC)
Computerized Applications of Control
Charts: all types
Project/case computer implementation (MINITAB)

Some other topics

Quality Tools
Overview of Statistical Tools for Six Sigma
Graphical Tools using Computer
Computerized Applications of Control Charts
Design of Experiments (DOE)
House of Quality
Design of Experiments using Computer
Multi-Vari/other Graphical Techniques
Process Capability Analysis
Measurement Systems Analysis (Gage R&R)

TO GET CERTIFIED AS A GREEN BELT, YOU WILL BE REQUIRED TO PASS A WRITTEN TEST AFTER THE COMPLETION OF THE TRAINING. THE PRACTICE TESTS FOR GREEN BELT CERTIFICATION WILL BE MADE AVAILABLE TO YOU THAT WILL PREPARE YOU FOR THE ACTUAL CERTIFICATION TEST. NO PROJECT IS REQUIRED FOR GREEN BELT CERTIFICATION.