

Lean Six Sigma Green Belt Certification Program

Classroom Training

I. Recognize Phase (Overview: Six Sigma and the Organization)

A. SIX SIGMA AND ORGANIZATIONAL GOALS

1. Value of Six Sigma
2. Organizational Goals and Six Sigma Projects
3. Organizational Drivers and Metrics

B. LEAN PRINCIPLES IN THE ORGANIZATION

1. Lean Concepts
2. Value Stream Mapping

C. DESIGN FOR SIX SIGMA METHODOLOGIES

1. Design for Six Sigma Road Map
2. Basic Failure Mode and Effect Analysis (FMEA)
3. Design FMEA and Process FMEA

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II. Define Phase

A. PROJECT IDENTIFICATION

1. Project selection
2. Process Elements
3. Benchmarking
4. Process Inputs and Outputs (SIPOC)
5. Owners and Stakeholders

B. VOICE OF THE CUSTOMER

1. Customer Identification
2. Customer Data
3. Customer Requirements (Quality Function Deployment)

C. PROJECT MANAGEMENT BASICS

1. Project Charter
2. Project Scope
3. Project Metrics

4. Project Planning Tools (Gantt Charts, CPM, and PERT)
5. Project Documentation
6. Project Risk Analysis
7. Project Closure

D. 7 MANAGEMENT AND PLANNING TOOLS

E. BUSINESS RESULTS FOR PROJECTS

1. Process Performance (Capability, COPQ, DPMO, DPU, RTY, and Sigma Levels)
2. Communication

F. TEAM DYNAMICS AND PERFORMANCE

1. Team Stages and Dynamics (GroupThink and Tuckman Model)
2. Team Roles and Responsibilities
3. Team Tools (Brainstorming, Multi-voting, and Nominal Group Technique)
4. Team Communication

Projects Mentoring

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III. Measure Phase

A. PROCESS ANALYSIS AND DOCUMENTATION

B. PROBABILITY AND STATISTICS

1. Basic Probability Concepts
2. Central Limit Theorem

C. STATISTICAL DISTRIBUTIONS (BINOMIAL, CHI-SQUARED, F, NORMAL, POISSON, T, AND Z)

D. COLLECTING AND SUMMARIZING DATA

1. Types of Data and Measurement Scales
2. Sampling and Data Collection Methods
3. Descriptive Statistics
4. Graphical Methods (Box-and-Whisker, Histograms, Scatter Plots, and Stem-and-Leaf)

E. MEASUREMENT SYSTEM ANALYSIS (GR&R)

F. PROCESS AND PERFORMANCE CAPABILITY

1. Process Performance vs. Process Specifications
2. Process Capability Studies
3. Process Capability (Cp, Cpk, Cpm) and Process Performance (Pp, Ppk) Indices
4. Short-Term vs. Long-Term Capability and Sigma Shift

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IV. Analyze Phase

A. EXPLORATORY DATA ANALYSIS

1. Multi-Vari Studies (Cyclical, Positional, and Temporal)
2. Correlation and Linear Regression

B. HYPOTHESIS TESTING

1. Basics
2. Tests for Means, Variances, and Proportions

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V. Improve Phase

A. DESIGN OF EXPERIMENTS

1. Basic Terms
2. DOE Graphs and Plots

B. ROOT CAUSE ANALYSIS

C. LEAN TOOLS

1. Waste Elimination (5S, Kanban, Poka Yoke, and Standardized Work)
2. Cycle-Time Reduction
3. Kaizen and Kaizen Blitz

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VI. Control Phase

A. STATISTICAL PROCESS CONTROL (SPC)

1. SPC Basics
2. Rational Subgrouping
3. Control Charts

B. CONTROL PLAN

C. LEAN TOOLS FOR PROCESS CONTROL

1. Total Productive Maintenance (TPM)
2. Visual Factory

VII. Standardize Phase (Generalize Solutions and Follow-up)

VIII. Integration Phase (Communicate Success and Lessons Learned)

Projects Mentoring

Certification Exam