Learnsoft
ENTERPRISE TRAINING

4350 Executive Drive, Suite 100
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Lean Six Sigma Fundamentals

Length: Five Days

Summary: The learning objective of the Lean Six Sigma course is to develop a comprehensive set of skills that will allow you to function effectively with Six Sigma. The Six Sigma body of knowledge includes techniques for both quantitative and non-quantitative analysis, as well as the team leadership skills necessary to get projects across the goal line.

Course Content

INTRODUCTION TO LEAN SIX SIGMA

- Introduction
- Higher Standards for Higher Performance
- Input Determines Output
- Six Sigma Defined
- What's In a Name?
- Success Stories
- The Sigma Level
- The 99.9% Problem
- Calculating the Sigma Level - Toolset
- DNA of a Champion
- Six Sigma Framework
- DMAIC - The Six Sigma Improvement Process
- Lean and DMAIC
- Thought Process Mapping - Toolset
- Organizing for Success
- Working Relationships
- Critical Success Factors
- Exercises and Quiz

DEFINE 1 - THE VALUE STREAM

- Define - Introduction
- Process Thinking
- The Source of Value
- Value Stream Leverage
- Process Mapping - Overview
- Process Mapping (SIPOC)Toolset
- Flow Charts
- Value-Added Flow Charts
- Spaghetti Charts
- Value Stream Mapping Toolset
- Introduction to Minitab
- Pareto Chart Toolset
- Balanced Scorecard Toolset
- Project Selection Toolset
- Project Charter Toolset
- Project Tracking Toolset
- Stakeholder Analysis - RACI Matrix
- Exercises and Quiz

DEFINE 2 - VOICE OF THE CUSTOMER

- Voice of The Customer
- Focus on The Customer
- Understanding Customer Requirements
- Where to Go For Customer Requirements
- Conducting Surveys
- More on Surveys
- Surveys - Sampling Frame
- Structuring Survey Questions
- The Degree of Uncertainty in Sampling
- Guideline for Margin of Error
- Affinity Diagram Toolset
- CTQC Tree Diagram Toolset
- Operational Definition Toolset
- Voice Of The Customer As Specifications
- QFD Toolset
- Define - Progress Review
- Exercises and Quiz

MEASURE 1 - INTRODUCTION TO MEASUREMENT

- Measure
- Measurements
- Discrete vs Continuous Measurements
- Measurement Subjects
- Measurement As A Process
- Cause & Effect Matrix Toolset
- The Analysis of Measurement Systems
- The Requirements of Measurement Systems
- Gage R & R

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• MSA - Graphing
• Attribute Measurement System Analysis
• Calibration of Measurement Systems
• Collecting Data
• Developing a Sampling Plan
• Baseline Performance
• Derivative Performance Metrics - Throughput Yield
• Derivative Performance Metrics - Rolled Throughput Yield
• The Sigma Level Revisited
• Exercises and Quiz

MEASURE 2 - CHARTING PROCESS BEHAVIOR

• Introduction - Measure II
• Trend Chart Toolset
• Histogram Toolset
• Quantifying Process Variability
• SPC - Introduction and Background
• SPC - Introduction to Control Charts
• SPC - Control Chart Limits
• SPC - More On Control Limits
• Implementing SPC
• SPC Chart Selection
• Rational Subgrouping Toolset
• X and Moving Range Charts - Toolset
• Attribute Control Chart Toolset
• X-bar and R Chart Toolset
• Related Theory
• Process Capability Toolset
• Measure - Progress Review
• Exercises and Quiz

ANALYZE 1 - IDENTIFYING ROOT CAUSE

• Analyze I - Introduction
• Finding The Root Cause
• Cause & Effect Diagram Toolset
• Alternative To The Cause & Effect Diagram
• 5-Why, 1-How
• A Combination of 5-Why, Pareto, and Trend Charts
• Scatter Plot Toolset
• Correlation and Regression Analysis
• Multiple Regression Toolset
• Logistic Regression Toolset
• Factors In Determining Sample Size
• Estimating Population Mean
• Exercises and Quiz

ANALYZE 2 - HYPOTHESIS TESTING

• Analyze II - Introduction
• Introduction to Hypothesis Testing
• The Process On Trial
• The Hypothesis - Accept or Reject?
• Types of Error
• Power Analysis
• Power Analysis - Factors
• Hypothesis Testing
• Confidence Intervals
• Treatment Comparisons - Control Charts
• Comparing One Proportion to a Standard
• Comparing Two Proportions - Z-test Toolset
• Comparing Multiple Proportions - Chi-Square
• Comparing One Mean to a Standard - t-test
• Comparing Two Means - t-test Toolset
• Comparing Multiple Means - ANOVA /F-test Toolset
• Confidence Intervals - Least Significant Difference
• Comparing One Variance to a Std. - Chi-Square
• Comparing Two Variances - F-test Toolset
• Parametric vs. Nonparametric Tests
• Hypothesis Testing Learning Lab
• Exercises and Quiz

ANALYZE 3 - DESIGN OF EXPERIMENTS

• Design of Experiments - Introduction
• Design of Experiments
• Design of Experiments - Components
• Design of Experiments - Principles
• Design of Experiments - Purpose
• Design of Experiments - Process
• Design of Experiments - Guidelines
• Blocking
• Blocking and Tackling
• Faster Deliveries Through Experimentation
• Beyond One-Factor Experiments
• Two Level Full Factorial Toolset
• Two Level Fractional Factorial Toolset
• Designing An Experiment To Save The Kingdom
• Better Pizza Through Design of Experiments
• Brewing Better Beer Using DOE

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- Additional Subjects
- Analyze - Progress Review
- Design of Experiments Exercises and Quiz

IMPROVE

- Improve
- Design for Six Sigma (DFSS)
- Benchmarking
- Brainstorming
- Narrowing Down The List of Ideas
- FMEA Toolset
- Error-proofing
- Prioritizing and Selecting a Solution
- Continuous Flow Toolset
- Quick Changeover Toolset
- Pull Scheduling
- Corrective Action Matrix
- Piloting a Solution
- System Dynamics
- Characteristics of Dynamic Systems
- System Dynamics Examples
- Another System Dynamics Example
- System Dynamics Application
- System Dynamics Summary
- Improve - Progress Review
- Exercises and Quiz

CONTROL

- Control
- More On SPC
- The Process Control Plan
- More On FMEA
- Visual Control
- 5-S Approach
- CHECK Process
- Total Productive Maintenance
- TPM Objectives & Benefits
- TPM Metrics
- TPM Core Elements
- TPM Maintenance Activities
- Best Practices and Lessons Learned
- Documenting Process Changes
- Ending the Project
- Control - Progress Review
- Exercises and Quiz

LEADING TEAMS AND LEADING CHANGE

- Leadership Introduction
- Fueling the Improvement Engine
- Leadership Characteristics
- Practice, Study and Reflection - Learning by Modeling
- Leading Teams
- Developing an Effective Team
- Improving Team Development
- Leading Change
- Leading Change - Continued
- Success Factors For Effective Change Management