



Lean Six Sigma Master Black Belt Standards

Introduction

These open source standards represent the minimum required standards for credentialing the above-named process improvement methodology. To comply with *Process Improvement Credentialing Standards*, organizations must conduct testing which covers all body of knowledge elements below. Organizations must also comply with *Process Improvement Credentialing Standards* 15-point organization standard v 0.1.115 or higher. Elements do not necessarily need to be presented in the order shown below. Trainers and organizations are encouraged to teach additional information above and beyond these standards at each level.

Body of Knowledge

1. Strategic Organizational Leadership
 - 1.1. What Makes a great leader
 - 1.2. General Leadership
 - 1.3. Goals
 - 1.4. Circle of Influence
 - 1.5. Strategy and Diplomacy
 - 1.6. Maslow's Hierarchy
 - 1.7. Management Hierarchy
 - 1.8. Working with Others
 - 1.9. Approach / Creativity
 - 1.10. Mind Mapping
 - 1.11. How to Coach
 - 1.12. General Communication skills
 - 1.13. How to Convince
 - 1.14. How to Give Feedback
 - 1.15. How to Criticize
 - 1.16. How to Delegate
 - 1.17. Leadership Styles
 - 1.18. SWOT Analysis
 - 1.19. Risk Management

2. Project Management
 - 2.1. PM vs Team Leading
 - 2.2. Setting up project objectives
 - 2.3. Identifying scope
 - 2.4. Understanding who are your Stakeholders and clients
 - 2.5. Project Planning
 - 2.6. Project life cycles
 - 2.7. Work breakdown structures
 - 2.8. Deliverables
 - 2.9. Estimating time and cost
 - 2.10. Resource allocation
 - 2.11. Setting up Gantt charts
 - 2.12. Precedence networks Risk management
 - 2.13. Creating contingency plans
 - 2.14. Effective communications
 - 2.15. Effective feedback
 - 2.16. Effective brainstorming
 - 2.17. Project Close
 - 2.18. Stakeholder Acceptance
 - 2.19. Final documentation
 - 2.20. Monitoring

3. Voice of the Customer
 - 3.1. What is VoC
 - 3.2. Focus of VoC
 - 3.3. Effective methods for collecting
 - 3.4. Applying during DMAIC

4. Gage Repeatability and Reproducibility (Gage R&R)
 - 4.1. What is Gage R&R
 - 4.2. When is it used
 - 4.3. Understanding Variation
 - 4.4. The Gage Study
 - 4.5. Repeated measurements
 - 4.6. Selecting part samples
 - 4.7. Equipment variation (EV)
 - 4.8. Total tolerance (TT)
 - 4.9. Average and Mean Report

5. Root Cause Analysis
 - 5.1. What is Root Cause
 - 5.2. Benefits
 - 5.3. When to perform
 - 5.4. Corrective Action
 - 5.5. Problem Solving Process
 - 5.6. 5W2H
 - 5.7. Cause-Effect Diagram
 - 5.8. Corrective Action Plan

6. Value Streams
 - 6.1. What is a Value Stream
 - 6.2. Types of Value Streams
 - 6.3. History of Value Streams
 - 6.4. Identifying the Value Stream
 - 6.5. Eight Service Industry Wastes
 - 6.6. Value Stream Mapping
 - 6.7. Flows of information
 - 6.8. Process Data Box
 - 6.9. Current State
 - 6.10. The Future State
 - 6.11. takt time
 - 6.12. Roadblocks

7. Design of Experiments (DoE)
 - 7.1. What is Design of Experiments
 - 7.2. Method
 - 7.3. $y = f(x_1, x_2, x_3, \dots)$
 - 7.4. Effects, Replicates & Interactions
 - 7.5. DoE Goal
 - 7.6. Model Variables
 - 7.7. Noise variables
 - 7.8. Experimental Plan
 - 7.9. Determine β coefficients
 - 7.10. Replicates

8. Poka Yoke
 - 8.1. What is Mistake Proofing
 - 8.2. Everyday Examples
 - 8.3. Effectiveness & ROI
 - 8.4. Error Proofing and SPC
 - 8.5. Inspection Techniques
 - 8.6. Types of Poka Yokes

9. Failure Modes and Effects Analysis (FMEA)
 - 9.1. What is FMEA
 - 9.2. History
 - 9.3. Benefit
 - 9.4. Applications
 - 9.5. Procedure

10. Hoshin Kanri
 - 10.1. Definition of Hoshin Kanri
 - 10.2. History of Hoshin Kanri
 - 10.3. Introduction to Hoshin Kanri
 - 10.4. Implementing Hoshin Kanri
 - 10.5. Initial Considerations
 - 10.6. High Performance Culture
 - 10.7. Critical Behaviors
 - 10.8. Measuring Performance

11. Kaizen
 - 11.1. What is Kaizen
 - 11.2. History
 - 11.3. Identify the Customer
 - 11.4. Types of Waste
 - 11.5. Kaizen Projects
 - 11.6. The Kaizen Blitz
 - 11.7. Roadblocks

12. Push vs. Pull
 - 12.1. Why Pull
 - 12.2. The Problem of Inventory
 - 12.3. Just In Time (JiT)
 - 12.4. Kanban
 - 12.5. One Piece Flow
 - 12.6. Standard Work & Takt Time

13. Statistical Process Control
 - 13.1. What is Statistical Process Control
 - 13.2. Variability
 - 13.3. Control Charts
 - 13.4. Process Capability Cp
 - 13.5. Measuring Instruments

- 14. Theory of Constraints
 - 14.1. Introduction to Constraints
 - 14.2. Five Steps of Theory of Constraints
 - 14.3. Drum Buffer Rope
 - 14.4. Issues with TOC

- 15. 5S and Visual Controls
 - 15.1. What is 5S
 - 15.2. Elements of 5S
 - 15.2.1. Sort
 - 15.2.2. Straighten
 - 15.2.3. Shine
 - 15.2.4. Standardize
 - 15.2.5. Sustain
 - 15.3. Visual Workplace
 - 15.4. Implementation plan