



## Academy for Certification

### Lean Six Sigma Black Belt

#### **1. Foundation of Lean and Six Sigma**

- 1.1. Lean Six Sigma philosophy
- 1.2. Types of variation & Muda
- 1.3. Toyota production system and Kaizen philosophy
- 1.4. The DMAIC Team
- 1.5. Drivers and Metrics
- 1.6. Customer Data
- 1.7. Project Types and Selection
- 1.8. Theory of Constraints
- 1.9. Project Planning Tools
- 1.10. Projects impact and ROI
- 1.11. Project Documentation
- 1.12. Advanced Lean Six Sigma Metrics
- 1.13. Team Dynamics and Performance
- 1.14. SIPOC Diagrams
- 1.15. Project Authorization
- 1.16. Communications
- 1.17. Project Management Tools
- 1.18. Financial assessment for projects

#### **2. Measure phase**

- 2.1. Data Collection
- 2.2. Process Maps
- 2.3. Basic Statistics
- 2.4. Minitab application
- 2.5. Process Mapping
- 2.6. Cause and Effect Analysis
- 2.7. FMEA
- 2.8. Probability and Statistics
- 2.9. Measurement Systems Analysis
- 2.10. Data Types
- 2.11. Data Collection and Summary
- 2.12. Process Capability
- 2.13. Exploratory Data Analysis
- 2.14. Probability distributions
- 2.15. Advanced Process Capability



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### **3. Analyze Phase**

- 3.1. Theory of Constraints
- 3.2. Lean value Analysis
- 3.3. Hypothesis Testing
- 3.4. ANOVA
- 3.5. Regression
- 3.6. Chi-square
- 3.7. Graphical Analysis
- 3.8. Lean Analysis Tools
- 3.9. Logistic Regression
- 3.10. Statistical vs Practical Significance
- 3.11. Sample Size
- 3.12. Central Limit Theorem and Confidence Intervals
- 3.13. Chi-Square and Contingency Tests
- 3.14. Non-Parametric tests

### **4. Improve Phase**

- 4.1. Lean Improvement Tools
- 4.2. Work Balancing
- 4.3. Visual Management
- 4.4. Total Productive Maintenance
- 4.5. Kaizen
- 4.6. 5S & Visual Management
- 4.7. Plan-Do-Check-Act
- 4.8. Introduction to Design of Experiments
- 4.9. Implementation and Validation Solutions
- 4.10. Fractional Factorial Experiments
- 4.11. Split Plot Designs
- 4.12. Design for Six Sigma
- 4.13. Review Implementation and Pilot Improvements
- 4.14. Acceptance Sampling Plans
- 4.15. Measurement System Reanalysis

### **5. Control Phase**

- 5.1. Standard Work
- 5.2. Control Charting
- 5.3. Control Plans
- 5.4. Mistake (Error) Proofing
- 5.5. Enterprise Leadership
- 5.6. Handling Roadblocks
- 5.7. Change Management and Team Management
- 5.8. Benchmarking
- 5.9. Performance Measures
- 5.10. Financial Measures