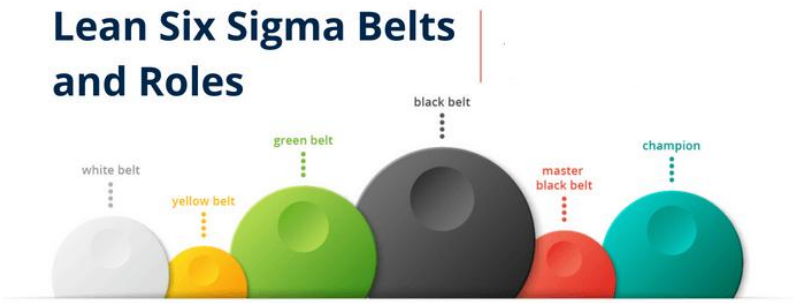
Lean Six Sigma Black Belt

SterlingNext Certification

Certification **Course Outline**



STERLING NEXT

Lesson 01 - Introduction To Lean Six Sigma

- Introduction
- Higher Standards for Higher Performance
- Input Determines Output
- Leon Six Sigma Defined
- What's In a Name?
- The 5 Leon Principles
- The 8 Forms of Waste
- Success Stories
- The Sigma Level
- The 99.9% Problem
- DNA of a Champion
- Leon Six Sigma Framework
- DMAIC - The Leon Six Sigma Improvement Process
- Leon and DMAIC
- Thought Process Mopping
- Toolset
- Organizing for Success
- Working Relationships
- Critical Success Factors
- Introduction to EngineRoom®
- Exercises and Quiz

Lesson 02 - Starting A Project and Leading Teams

- Getting Started -Project Initiation
- Balanced Scorecard Toolset
- Project Selection Toolset
- Project Charter Toolset
- Project Planning & Tracking Toolset
- Leadership Thinking
- Robot Leadership
- Fueling The Improvement Engine
- Leadership Characteristics
- Practice, Study and Reflection-Learning by Modeling
- Leading Teams
- Developing an Effective Team
- Improving Team Development
- 4 Conversations Toolset
- leading Change
- leading Change-Continued
- Success Factors for Effective Change Management
- Stakeholder Analysis-RACI Matrix
- leadership Reflection
- Exercises and Quiz

Lesson 03 - Define II - Voice of the Customer

- Voice of The Customer
- Focus on The Customer
- Understanding Customer Requirements
- Where to Go for Customer Requirements
- Conducting Surveys

- Survey Considerations
- Surveys -Sampling Frame
- Structuring Survey Questions
- The Degree of Uncertainty in Sampling
- Guideline for Margin of Error
- Affinity Diagram Toolset
- CTQC flee Diagram Toolset
- Operational Definition Toolset
- Voice Of the Customer as Specifications
- QFD Toolset
- Exercises and Quiz

Lesson 04 - Define III -Mopping the Process

- Drawing a Process Picture
- Process Thinking
- The Source of Value
- Value Stream Leverage
- Process Mopping - Overview
- Process Mopping (SIPOC) Toolset
- Flow Chans
- Value-Added Flow Charts
- Spaghetti Charts
- Takt lime
- Value Stream Mopping Toolset
- Define Tollgate -Progress Review
- Exercises and Quiz

Lesson 05 - Measure I - Measurements and Basic Statistics

- Measurements and Basic Statistics
- Business Problem Solving
- Basic Statistical Terms
- Descriptive and inferential Statistics
- Measurements
- Discrete vs. Continuous Measurements
- Measurement Subjects
- Graphical Summaries
- Pareto Chart Toolset
- Histogram Toolset
- Understanding Variation
- Measuring Central Tendency
- Quantifying Process Variability
- The Normal Distribution
- Exercises and Quiz

Lesson 06 - Measure II -Measurement System Analysis

- Measurement System Analysis
- Introduction
- Measurement As A Process
- Cause & Effect Matrix Toolset
- The Analysis of Measurement Systems
- The Requirements of Measurement Systems
- Variable MSA - Gauge R & R
- 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
- Calculating the Sigma Level - Toolset
- Exercises and Quiz

Lesson 07 - Measure III -Charting Process Behavior

- Introduction -Charting Process Behavior
- Trend Chart Toolset
- SPC -Introduction and Background
- SPC -Introduction to Control Charts
- SPC - Control Chan 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
- Process Capability Toolset
- The Sigma Level Revisited
- Measure Tollgate - Progress Review
- Exercises and Quiz

Lesson 08 – Analyze I - Identifying Potential Root Causes

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

Lesson 09 – Analyze II – 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. Non-Parametric Tests Non-Parametric Toolset
- Hypothesis Testing Learning Lab
- Exercises and Quiz

Lesson 10 - Analyze III - Design of Experiment

- Design of Experiments -Introduction
- Design of Experiments -History
- Design of Experiments -Components
- Design of Experiments - Principles
- Design of Experiments - Purpose
- Design of Experiments -Process
- Design of Experiments -Guidelines
- Selecting the Right Design
- Blocking
- Blocking and Tackling
- Faster Deliveries Through Experimentation
- Beyond One-Factor Experiments
- Two Level Full Factorial Toolset
- Two Level Fractional Factorial Toolset
- General Factorial Toolset
- DOE Power and Sample Size

- Designing An Experiment to Save The Kingdom
- Better Pizza Through Design of Experiments
- Designing Experiments to Sell More Coffee
- Additional Subjects
- Analyze Tollgate -Progress Review
- Design of Experiments Exercises and Quiz

Lesson 11 – Improve

- Improve
- Design for Lean Six Sigma (DFSS)
- Benchmarking
- Brainstorming
- Narrowing Down the List of Ideas
- FMEA Toolset
- Error-proofing
- Prioritizing and Selecting a Solution
- The A3 One - Page report
- Continuous Flow Toolset
- Quick Changeover Toolset
- Cellular Processing Toolset
- Balancing Capacity with Demand
- The Theory of Constraints {TOC) Toolset
- Pull System Overview
- Pull Scheduling
- Pull Systems
- Core Process Pull Toolset
- Kaizen Toolset
- Corrective Action Matrix
- Piloting a Solution

- System Dynamics Toolset
- Improve Tollgate - Progress review
- Exercises and Quiz

Lesson 12 – Control

- Control
- Control Charts revisited
- The Process Control Plan
- More On FMEA
- Visual Control
- 5-S Approach
- CHECK Process
- Total Productive Maintenance
- TPM Objectives & Benefits
- TPM Metrics
- TPM Cole Elements
- TPM Maintenance Activities
- Best Practices and Lessons Learned
- Standardized Work - Documenting Process Changes
- Ending the Project
- Control Tollgate - Progress review
- Exercises and Quiz
- Course Completion
- The Lean Six Sigma Journey