

Lean Six Sigma Training Black Belt



Course Description

The Six Sigma methodology is a systematic application that is focused on achieving significant financial results and increasing customer satisfaction. When properly deployed on carefully selected business projects, this methodology can lead to a significant reduction—and in many cases, elimination—of defects, process waste, and out-of-control processes, which translate into dramatic business gains.

This Black Belt course provides a comprehensive and disciplined model for improvement. Every participant will learn how to meet his or her company's business objectives through the recognized DMAIC process. Attendees will learn how to direct Lean Six Sigma projects and obtain the maximum improvements from the learned techniques and skills. This course is conducted in four five-day sessions with four weeks between sessions.

Learned skills are practiced and applied through individual and team exercises, as well as to the individual projects. Participants will be able to apply the concepts learned in the class to a business improvement project assigned to them by their management sponsor. Upon completion of the course, students will receive a certificate of completion and are prepared to sit for the ASQ Six Sigma Black Belt Certification Exam.

Who Should Attend

This course is designed for individuals from diverse organizational functions—operations, quality, logistics, finance, production, engineering, and other staff functions seeking to bring significant business results to their organizations. Participants are traditionally well versed in technical aspects of their jobs, are team leaders, and are effective project facilitators.

Learning Objectives

- Achieve significant improvements in critical business processes
- Apply statistical and problem-solving tools to an improvement project brought to class on the first day
- Reduce process variation
- Eliminate waste and defects by applying lean and Six Sigma
- Collect, analyze, and quantify data that enable process improvements
- Learn how to execute the Six Sigma methodology
- Establish and define process capability
- Identify and eliminate dominant process variation sources
- Characterize and optimize processes by computing and applying statistical techniques
- Design, simulate, and execute designed experiments that depict validated improvement
- Learn how to plan and implement process control to hold project gains

Duration

Overall, the course takes 134 hours to complete and is designed for four 1-week sessions (8-hours per day, 5-days per week) with a few weeks off between the first, second, and third sessions for students to work on their respective projects. However, the exact course schedule can be customized to best serve clients' needs.

Mode of Delivery

Live Virtual or In-person options are available

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Course Outline

Week 1

- Overview and Foundation of Lean and Six Sigma
- Drivers and Metrics
- Projects
- Theory of Constraints
- Customer Data
- Project Planning Tools
- Project Documentation
- Basic Lean Six Sigma Metrics
- Team Dynamics and Performance
- Overview of Measure
- Introduction to Minitab
- Process Mapping
- Cause and Effect Analysis
- FMEA
- Probability and Statistics
- Measurement Systems Analysis
- Data Collection and Summary
- Process Capability

Week 2

- Analyze Phase Overview
- Hypothesis Testing
- ANOVA
- Regression
- Chi-square
- Graphical Analysis
- Lean Analysis Tools
- Analyze Phase Transition
- Improve Overview
- Lean Improvement Tools
- Introduction to Design of Experiments
- DOE Golf Experiment
- Implementation and Validation Solutions
- Improve Phase Transition
- Control Phase Overview
- Standard Work
- Control Charting
- Control Plans
- Control Phase Transition

Week 3

- Enterprise Leadership
- Handling Roadblocks
- Change Management and Team Management
- Benchmarking
- Performance Measures
- Financial Measures
- Team Management
- Voice of the Customer
- Charter and Tracking
- Overview of Measure Phase
- Data Types
- Exploratory Data Analysis
- Probability
- Advanced Process Capability
- Overview of Analyze Phase
- Regression
- Multivariate
- Logistic Regression
- Statistical vs Practical Significance
- Sample Size
- Central Limit Theorem and Confidence Intervals
- ANOVA
- Chi-Square and Contingency Tests
- Non-Parametrics

Week 4

- Overview of Improve
- GB DOE Refresher Minitab
- Fractional Factorial Experiments
- Catapult
- Split Plot Designs
- Design for Six Sigma
- Advanced Lean Tools
- Review Implementation and Pilot Improvements
- Acceptance Sampling Plans
- Total Productive Maintenance
- Visual Management
- Measurement System Reanalysis
- Control Plan
- Sustain Improvements