

Practical Lean Six Sigma Green Belt and Black Belt Workshop

This workshop brings a practical view to the use and implementation of Lean Six Sigma ideas and tools in strategically aligned business process improvement projects. Upon completing this workshop, participants will:

- Understand Lean Six Sigma as a method to managing processes and as an approach to business improvement.
- Come away with an awareness of process management, analysis, and improvement techniques integral to Lean Six Sigma.
- Based on discussion of case examples, understand the “red flags” of opportunity, as well as the concepts and tools used to make business process enhancements.
- Be exposed to the importance of organizational behavior in making Lean Six Sigma improvements stick, and understand the use of concepts and tools for building team work and collaboration within the workforce.
- Learn about typical bottom-line improvements achieved to benefit customers, employees, and other stakeholders. Understand how cost, inventory, and cycle time reductions, as well as product and service quality improvements and greater employee engagement can be attained with the Practical Lean Six Sigma approach.

Black Belt (Fourteen Days over a 14-week period)

Practical Lean Six Sigma Black Belt training is designed for people who will perform or facilitate process analysis and improvement activities, and will conduct or support business process data collection and analysis.

Participants in Practical Lean Six Sigma Black Belt training must successfully complete and present the details of a strategically-linked process improvement project, a designed experiment, and an application of statistical process control. Several statistical analyses are required, as well as the successful completion of statistical tools competency and design of experiments (DOE) examinations. Participants must also attend all class days and present their projects for evaluation and feedback.

Prerequisite: A technical background with advanced mathematics skills, be competent in computer use of spreadsheets and data applications, and be able to use a calculator, charts, and graphs.

Green Belt (Ten Days over a 14-week period)

Practical Lean Six Sigma Green Belt training is designed for people who will participate in data collection, process analysis and improvement activities , but who typically will not lead the statistical analysis of business process data (beyond Statistical Process Control) or the direction of Lean Six Sigma activities. It is appropriate for non-management and non-technical personnel from all levels and all areas of the organization.

Each participant must successfully complete and present the details of a strategically-linked process improvement project and an application of Statistical Process Control; and attend all class days, complete assignments, successfully complete the Statistical Process Control (SPC) examination, and present the project for evaluation and feedback.

Prerequisite: Participants seeking Practical Lean Six Sigma Green Belt training should be capable in basic mathematics skills, and be able to use a calculator, charts, and graphs.

Topics and Descriptions (Except where noted, topics are both Green Belt & Black Belt)

- Topic 1** **Introduction to Lean Six Sigma and Strategic Process Improvement.** This module provides the foundation for effectively facilitating process improvement activities by clarifying the major leading contemporary business management philosophies, such as Lean Process Management, and Six Sigma. It provides an explanation of the concepts underlying the use of process improvement as a business strategy, the importance of customer focus, and the organizational elements that must be present for this approach to be successful. This module provides participants with an understanding of the importance of linking the organization's improvement activities to the business strategic plan. The DMAIC (Define, Measure, Analyze, Implement, Control) model will be introduced.
- Topic 2** **Facilitation of Team-Based Improvement Projects.** Through discussion and hands-on exercises, this module will expose participants to the importance and contribution of team dynamics to effective process management and improvement. Included are topics such as teambuilding, effective meetings, keeping conflict constructive, consensus building, characteristics of successful teams, and Project Management.

- Topic 3** **DMAIC Process Improvement: DEFINE.** This module begins the integration of Lean Process Management techniques with Six Sigma concepts through a hand-on simulation exercise which will be carried from day to day throughout the entire course. The fundamentals of process management will be understood. Concepts such as non-value added waste, Voice of the Customer, SIPOC, and Improvement Initiative Deployment Planning (Value-Stream Analysis), will be explored, as will the use of process measures to pinpoint process issues. Participants will understand process improvement beginning with a clear definition of the problem(s).
- Topic 4** **DMAIC Process Improvement: MEASURE.** This module focuses on the importance of a well-designed performance measurement system as a tool for effective management of key organizational processes. Participants will be taught techniques for selecting appropriate measures, in-process and end-process, that direct performance in the intended direction, collecting useful data, and using metrics to identify and monitor improvement targets in order to ensure the attainment of key organizational objectives. Several tools for tracking results and focusing improvement efforts will be used and demonstrated through the hands-on simulation exercise.
- Topic 5** **DMAIC Process Improvement: ANALYZE.** Effective process analysis is the key to successful problem resolution or process improvement. This module begins with a review of the Problem-Solving/Process Improvement model, and then covers the most effective tools for thoroughly defining and evaluating targeted processes as well as focusing the improvement effort. A number of tools and ideas will be used including the Value Stream drill down, Root-Cause Analysis, and more analysis tools.
- Topic 6** **DMAIC Process Improvement: IMPROVE.** This module will focus on identifying ways to develop solutions and improvements, and will describe the process and tools to develop and evaluate improvement ideas. How to build effective action and implementation plans and the Rapid Improvement/Kaizen implementation structure will be introduced. Lean Six Sigma Process Management tools will be demonstrated through the hands-on simulation exercise.
- Topic 7** **DMAIC Process Improvement: CONTROL.** This module introduces the use of tools such as Statistical Process Control, to monitor improvement activities and assure the sustainment of the improved processes.

Topic 8 **Statistical Process Control and Process Capability.** This module demonstrates the simple but powerful Statistical Process Control tool for studying key business processes or product characteristics in order to identify and predict performance patterns. The proper use of SPC can create an organization that is proactive in identifying potential problems rather than one that merely responds after problem surface. Topics covered include Variables and Attributes Control Charts, Process Capability Analysis, and the effective management of SPC throughout the organization.

Topic 9 **BLACK BELT ONLY**

Statistics for Effective Process Improvements. This module introduces advanced statistical tools that will help students determine the data that needs to be collected, interpret the data, and make decisions that maximize the effectiveness of process improvement activities. Statistical analysis tools include: probability distributions, confidence intervals, correlation analysis, and sampling plans.

Topic 10 **BLACK BELT ONLY**

Introduction to Designed Experiments. This module provides participants with the tools necessary to identify those inputs critical to their processes and then set optimum levels for these inputs by performing Full and Fractional Factorial Designed Experiments. Data analysis will be performed graphically using tools such as Normal Probability plots and Interaction Graphs, and statistically with Analysis of Variance (ANOVA).