



For manufacturing organizations looking to dramatically reduce scrap, rework, complexity, defects, delays, and other forms of waste in business and transactional processes

Lean Six Sigma Green Belt for Manufacturing

Who Should Attend

Participants in this 10-day duration course will learn the theory and application of tools and methods for successful completion of improvement projects in a manufacturing business environment. Tools for the application of the Lean Six Sigma DMAIC (**D**efine-**M**easure-**A**nalyze-**I**mprove-**C**ontrol) improvement strategy will be introduced with hands-on exercises and tutorials to ensure rapid learning and knowledge retention. The training style is tell-show-do, with a strong emphasis on individual hands-on exercises and team-based activities. Training workbooks are comprehensive, self-contained, and serve as excellent references for learning and review. Classroom training sessions are interspersed with periods of work on actual company-supported improvement projects. On completion of this course participants will be able to:

- *Deliver a financial return to their organization through completion of a Six Sigma Green Belt improvement project*
- *Apply benefit-feasibility analysis to identify improvement projects aligned with your organization's priorities for quality, delivery, customer satisfaction, and profitability.*
- *Successfully apply appropriate Six Sigma Green Belt tools to future projects*
- *Perform basic statistical analyses using Excel.*
- *Develop, evaluate, and implement improvements that can dramatically reduce scrap, rework, complexity, defects, delays, and other forms of waste in manufacturing and transactional processes.*
- *Translate Six Sigma analyses into recommendations for improving your work place processes*
- *Apply statistical and/or non-statistical control tools to sustain the gains from project improvements*

Who Should Attend

This course is designed for Engineers, Quality Analysts, Process Improvement Specialists, Program Managers, Project Leaders, and others who want to learn the Lean Six Sigma Black Belt methodology and apply it to make breakthrough improvements in performance within their organization.

Course Duration

This course will take 80 -hours (10-days) to complete. Training sessions are typically delivered in two, 5-day sessions spread over a 1 - 2 month time frame. A training schedule and outline is provided on the page below.

Lean Six Sigma Black Belt Training Schedule and Outline

Day 1	Overview	Lean overview, Six Sigma overview, combining lean and Six Sigma, relation to other initiatives, deployment, overview of DMAIC project roadmap, DMAIC case studies, DMAIC project reporting, requirements for ETI Green Belt certification.
Day 2	Define Phase	Identifying potential improvement projects, prioritizing potential improvement projects, developing a project charter, establishing boundaries for the in-scope process or workflow (part of SIPOC analysis).
Day 3	Measure Phase	Mapping the current-state process, observing the current-state process, identifying opportunities for improvement, types of data, Y and X variables, process sampling, sample size calculation, data formatting, data collection, Excel preliminaries, calculating current-state project metrics for continuous and nominal Y variables, Pareto analysis of defect types or failure reasons, Value-stream data collection and analysis, calculating mean time before/between failure using life data, measurement system analysis.
Day 4		
Day 5		
Day 6	Analyze Phase	Hypothesis testing, comparison and correlation hypotheses with continuous and nominal Y variables, P values, standards of evidence, stratification and before-after analysis with continuous and nominal Y variables, Five Whys, affinity analysis, prioritizing root causes.
Day 7		
Day 8	Improve Phase	Identifying potential solutions, ranking solutions—team process, ranking solutions—DOE (Design of Experiments) method, evaluating the future state with Failure Modes and Effects Analysis), piloting the future state.
Day 9	Control Phase	Standardizing and documenting, concepts of statistical monitoring, response plans, control plans, calculating control limits for the control plan, calculating control limits based on short-term variation.
Day 10		

Course Prerequisites

Green Belt trainees should be assigned a Lean Six Sigma improvement project to work on during and between the training sessions. Information regarding improvement project selection will be provided before the program commences. The instructor will be available to assist in improvement project selection and to consult on challenges presented by this project during the training sessions. Trainees should also have good inter-personal skills and be familiar with personal computers and MS Office, especially MS Excel. No background in statistics is required, although a working knowledge of high school algebra is highly recommended.



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Green Belt Certification

A Six Sigma Green Belt certificate of completion will be awarded to participants who complete this 10-day training course. A “Certified” Six Sigma Green Belt certificate will be awarded to participants who complete this course and one improvement project. This project will be reviewed and approved by the instructor.

Computing Requirements

Personal computing skills are essential to every Lean Six Sigma Black Belt. Every participant in the program must be equipped with a laptop computer loaded with MS Excel (version 2003 or later). They will need to add in the **Analysis ToolPak**, a statistical package that comes with MS Excel. Participants must also possess the following skills:

- Using the Windows operating system, especially file management.
- Creating and modifying line and column charts in Excel.
- Creating and modify simple cell formulas in Excel

Training Materials

Participants in the Green Belt training program will be provided with all necessary texts, workbooks, and electronic copies of data sets.

Training Program Fees

ETI Group can present this training program at your facility. Your cost, including workbooks, materials and software for up to twelve participants is \$22,500. Additional participants, up to a maximum of eighteen people will cost an additional \$375 per person. The training program can also be “tailored” to meet the specific learning needs of your organization.

For more information please contact:

Jack Benham

ETI Group

Tel: 503-484-5979

Email: jbenham@etigroupusa.com