

# Online Green Belt Training

## Course Objectives

By completing this course, students will be able to:

- Recognize key attributes of a successful Six Sigma program.
- Appreciate project selection criteria.
- Realize the role of a Green Belt in the Six Sigma organization.
- Understand fundamentals of the DMAIC problem solving methodology.
- Use basic Six Sigma tools for Six Sigma project definition and process baseline.
- Understand the need for advanced problem-solving and improvement methodologies used by Project Teams.
- Actively participate in a Six Sigma team.

## Prerequisites

Students should have a general understanding of basic mathematical functions, the reading comprehension level of a high school graduate, and general proficiency in using Windows-based computer software.

## Intended Audience

This training is suitable for anyone wanting to learn the fundamental skills necessary to contribute to a Six Sigma team as a Green Belt. In addition, Six Sigma Champions, who sponsor projects, will also benefit from this understanding of the Six Sigma project methodology.

## PC Requirements

To access this course and Study Guide, users need:

- An Internet connection
- A suitable browser, such as Internet Explorer 5.0 or higher, with cookies enabled.

To run the Green Belt XL software, users need one of the following Microsoft Excel versions running in MS Windows: Excel 97, Excel 2000, Excel 2002 or Excel XP.

## Materials Provided

In addition to the online access, each course includes the following materials for a complete learning experience (a \$400 value):

- [Six Sigma Demystified](#) by Paul Keller
- [Six Sigma Handbook](#) by Thomas Pyzdek
- *Green Belt* Notebook
- [Green Belt XL](#) software (Student Version) by Quality America

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## Topic Overview

1. Why Do Six Sigma
  - a) Definition and graphical view of Six Sigma
    - (i) Overview of business applications
    - (ii) Example Sigma Levels
    - (iii) Introduction to DPMO and cost as metrics.
  - b) Comparisons between typical TQM and Six Sigma Programs.
  - c) Origins and Success Stories.
2. How to Deploy Six Sigma
  - a) Leadership responsibilities.
  - b) Description of the roles and responsibilities.
  - c) Resource allocation.
  - d) Data driven decision making.
  - e) Organizational metrics and dashboards.
3. DEFINE: Project Definition
  - a) Tasks.
  - b) Work Breakdown Structure.
  - c) Pareto Diagrams.
  - d) Process Maps.
  - e) Matrix Diagrams.
  - f) Project Charters.
  - g) Reporting.
4. DEFINE: Project Scheduling
  - a) Activity Network Diagram.
  - b) PERT Analysis.
  - c) GANNT Chart.
5. DEFINE: Change Management and Six Sigma Teams
  - a) Problems with Change.
  - b) Achieving Buy-In.
  - c) Team Formation, Rules & Responsibilities.
    - (i) Stages of Team Development.
    - (ii) Overcoming Problems.
  - d) Consensus Building
    - (i) Affinity Diagram.
    - (ii) Nominal Group Technique.
    - (iii) Prioritization Matrix.
6. MEASURE: Tools
  - a) Measure Stage Objectives
  - b) Flowcharts.
  - c) Process Maps.
  - d) SIPOC.
  - e) Box-Whisker Plots.

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- f) Cause & Effect Diagrams.
  - g) Check Sheets.
  - h) Interrelationship Digraph.
  - i) Stem & Leaf Plots.
7. MEASURE: Establishing Process Baseline
- a) Enumerative vs. Analytic Statistics.
  - b) Process Variation.
    - (i) Deming's Red Bead.
  - c) Benefits of Control Charts.
  - d) Requirements vs. Control.
    - (i) Tampering.
  - e) Control Chart Interpretation.
    - (i) Relative to Process Baseline Estimates.
8. MEASURE: X-Bar Charts
- a) Uses.
  - b) Construction & Calculations.
  - c) Assumptions.
  - d) Rational Subgroups.
  - e) Sampling Considerations.
  - f) Interpretation.
    - (i) Run Test Rules.
9. MEASURE: Individuals Data
- a) Uses.
  - b) Construction & Calculations.
  - c) Assumptions.
  - d) Sampling Considerations.
  - e) Interpretation.
  - f) Overview of Other Individuals Charts.
    - (i) Run Charts.
    - (ii) Moving Average Charts.
    - (iii) EWMA Charts.
10. MEASURE: Process Capability
- a) Histograms.
  - b) Probability Plots.
  - c) Goodness of Fit Tests.
  - d) Capability & Performance Indices.
    - (i) Relative to Process Control.
    - (ii) Interpretation.
    - (iii) Estimating Error.
11. MEASURE: Attribute Charts
- a) Uses.
  - b) Selection.
  - c) Construction & Calculations.
  - d) Sampling Considerations.

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12. ANALYZE: Regression Analysis
  - a) Scatter Diagrams.
  - b) Linear Model.
  - c) Interpreting the ANOVA Table.
  - d) Confidence & Prediction Limits.
  - e) Residuals Analysis.
  - f) Overview of Multiple Regression Tools
    - (i)DOE vs. Traditional Experiments & Data Mining
13. ANALYZE: Lean Thinking
  - a) Definition of Waste.
  - b) Analyzing Process for NVA.
    - (i)Cycle Efficiencies
    - (ii)Lead Time and Velocity
  - c) Methods to Increase Velocity.
    - (i)Standardization
    - (ii)Optimization
    - (iii)Spaghetti Diagrams
    - (iv)5S
    - (v)Level Loading.
    - (vi)Flow
    - (vii)Setup Reductions
14. IMPROVE: Tools
  - a) Improve Stage Objectives.
  - b) Tools to Prioritize Improvement Opportunities.
  - c) Tools to Define New Process Flow.
    - (i)Lean Tools to reduce NVA and Achieve Flow.
  - d) Tools to Define & Mitigate Failure Modes.
    - (i)PDPC.
    - (ii)FMECA.
    - (iii)Preventing Failures.
  - e) Reference to Tools for Defining New Process Levels.
15. CONTROL: Tools
  - a) Control Stage Objectives.
  - b) Control Plans.
  - c) Training.
  - d) Measuring Improvement.