PINNACLE
PROFESSIONAL DEVELOPMENT, LLC

Lean Six Sigma Green Belt Course Outline

Course Overview

Become a process improvement specialist and drive change, transform processes, optimize efficiency, and excel in your field with the recognition and reward that you deserve.

Lean Six Sigma Green Belt Exam Details

Designation Earned: **accredited** LSSGB (Lean Six Sigma Green Belt)
Accrediting body: The Council for Six Sigma Certification (CSSC)

The Lean Six Sigma Green Belt certification exam is a two-hour, online, 100-question test covering the full Lean Six Sigma Green Belt Curriculum. The passing score is 80%. All students get two attempts. The exam is administered online. You will need a reliable internet connection, a personal computer, and a web browser. You will be issued a certification serial number in the certification body's Official Certification Directory. You will also be issued a digital certificate with the certification body's seal affixed.

Course Details

Public Classes (28 contact hours)	Public Live, Virtual Classes: Monday-Thursday, 9:00 to 5:00 Eastern • March 4-7, 2024 • July 8-11, 2024 • November 4-7, 2024 **Various options and dates available for private classes. Call us!**
Course Materials Provided	Digital materials providing extensive coverage of Lean and Six Sigma principles and fundamentals. • Detailed Exploration of the DMAIC Methodology • In-Depth Statistical analysis with Step-by-Step Instruction using Minitab, JMP, and SigmaXL • Presentation Slide deck • Examples and Case Studies • Chapter-Based Practice Questions
Course Price	$2,495 per participant Discounts available for: • Early enrollment (5 weeks prior to class) • Military veterans • Groups enrollments • **Call or email us for details.**
PMI® PDUs	28 contact hours: Ways of Working: 24; Business Environment: 4 PMI PDU Number: 3446LHLEH5

Prerequisites

Experience leading or participating in process improvement or continuous improvement initiatives recommended, but not required.

Pinnacle Professional Development, LLC
www.pinnacleprodev.com
37510 Sienna Oaks Drive
New Baltimore, MI 48047
For sales information, contact Brian Salk, PhD 586-295-2519; brian@pinnacleprodev.com

Green Belt Certification Benefits

- Career Advancement: Earning a Green Belt Certification opens doors to various career opportunities and advancement, as it's a recognized achievement in process improvement.
- Problem-Solving Proficiency - Develop strong problem-solving abilities, allowing you to address complex challenges and contribute to organizational success.
- Leadership Potential – Green Belts often play crucial roles in process improvement teams, providing leadership and guidance.
- Salary Enhancement – Many organizations value Green Belt-certified professionals, which can lead to increased earning potential.
- Global Recognition – Lean Six Sigma Green Belt Certification is acknowledged worldwide, making it valuable for career growth in diverse industries and locations.
- Process Optimization – You'll learn how to optimize processes, reduce defects, and enhance customer satisfaction, making you a valuable asset to any organization.
- Project Management Skills – Acquire strong project management skills that are essential for successful process improvement projects.
- Professional Growth – Lean Six Sigma encourages continuous learning and skill development, supporting your ongoing professional growth and placing you on a upwardly mobile path in the Lean Six Sigma Industry.

Instructor

Your training class is only as good as your instructor. Your instructor has over 25 years of experience leading projects and continuous improvement initiatives. He has effectively combined and applied best practices from Lean Six Sigma, traditional project management, and agile project management to meet client business goals successfully. He has tens of thousands of hours training candidates on Lean Six Sigma, project management (e.g., PMP®, Scrum), and technical IT skills.
He has helped hundreds of candidates earn their LSSBB and LSSGB certifications since 2010.

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Note: topics with strikethrough (~~strikethrough~~) are covered in the Lean Six Sigma Black Belt training, but they are **not** part of this Lean Six Sigma Green Belt training

1.0 Define Phase

- 1.1 Overview of Six Sigma
  - 1.1.1 What is Six Sigma
  - 1.1.2 Six Sigma History
  - 1.1.3 Six Sigma Approach Y = f(x)
  - 1.1.4 Six Sigma Methodology
  - 1.1.5 Roles & Responsibilities
- 1.2 Fundamentals of Six Sigma
  - 1.2.1 Defining a Process
  - 1.2.2 VOC & CTQ's
  - 1.2.3 QFD
  - 1.2.4 Cost of Poor Quality
  - 1.2.5 Pareto Analysis (80:20 rule)
- 1.3 Lean Six Sigma Projects
  - 1.3.1 Six Sigma Metrics
  - 1.3.2 Rolled Throughput Yield
  - 1.3.3 Business Case & Charter
  - 1.3.4 Project Team Selection
  - 1.3.5 Project Risk Management
  - 1.3.6 Project Planning
- 1.4 Lean Fundamentals
  - 1.4.1 Lean and Six Sigma
  - 1.4.2 History of Lean
  - 1.4.3 Seven Deadly Muda
  - 1.4.4 Five-S (5S)
- Define Phase Practice Test

2.0 Measure Phase

- 2.1 Process Definition
  - 2.1.1 Cause & Effect Diagram
  - 2.1.2 Cause & Effect Matrix
  - 2.1.3 Process Mapping
  - 2.1.4 Failure Modes & Effects Analysis
  - 2.1.5 Theory of Constraints
- 2.2 Six Sigma Statistics
  - 2.2.1 Basic Statistics
  - 2.2.2 Descriptive Statistics
  - 2.2.3 Distributions & Normality
  - 2.2.4 Graphical Analysis
- 2.3 MSA
  - 2.3.1 Precision & Accuracy
  - 2.3.2 Bias, Linearity & Stability
  - 2.3.3 Gage R&R
  - 2.3.4 Variable & Attribute MSA
- 2.4 Process Capability
  - 2.4.1 Capability Analysis
  - 2.4.2 Concept of Stability
  - 2.4.3 Attribute & Discrete Capability
  - 2.4.4 Monitoring Techniques
- Measure Phase Practice Test

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3.0 Analyze Phase

- ~~3.1 Patterns of Variation~~
  - ~~3.1.1 Multi-Vari Analysis~~
  - ~~3.1.2 Classes of Distributions~~
- 3.2 Inferential Statistics
  - 3.2.1 Understanding Inference
  - 3.2.2 Sampling Techniques & Uses
  - 3.2.3 Sample Size
  - 3.2.4 Central Limit Theorem
- 3.3 Hypothesis Testing
  - 3.3.1 Goals of Hypothesis Testing
  - 3.3.2 Statistical Significance
  - 3.3.4 Risk; Alpha & Beta
  - 3.3.5 Types of Hypothesis Test
- 3.4 Hypothesis Tests: Normal Data
  - 3.4.1 1 & 2 sample t-tests
  - 3.4.2 1 sample variance
  - 3.4.3 One Way ANOVA
- 3.5 Hypothesis Tests: Non-Normal Data
  - 3.5.1 Mann-Whitney & Mood's Median
  - 3.5.2 Kruskal-Wallis
- 3.5.3 Moods Median
- 3.5.4 Friedman
  - 3.5.5 1 Sample Sign
  - 3.5.6 1 Sample Wilcoxon
  - 3.5.7 1 and 2 Sample Proportion
  - 3.5.8 Chi-Squared
  - 3.5.9 Test of Equal Variances
- Analyze Phase Practice Test

4.0 Improve Phase

- 4.1 Simple Linear Regression
  - 4.1.1 Correlation
  - 4.1.2 X-Y Diagram
  - 4.1.3 Regression Equations
  - 4.1.4 Residuals Analysis
- 4.2 Multiple Regression Analysis
  - 4.2.1 Non-Linear Regression
  - 4.2.2 Multiple Linear Regression
  - 4.2.3 Confidence Intervals
  - 4.2.4 Residuals Analysis
  - ~~4.2.5 Data Transformation, Box Cox~~
  - ~~4.2.6 Stepwise Regression~~
  - ~~4.2.7 Logistic Regression~~
- ~~4.3 Designed Experiments~~
  - ~~4.3.1 Experiment Objectives~~
  - ~~4.3.2 Experimental Methods~~
  - ~~4.3.3 DOE Design Considerations~~
- ~~4.4 Full Factorial Experiments~~
  - ~~4.4.1 2k Full Factorial Designs~~
  - ~~4.4.2 Linear & Quadratic Models~~
  - ~~4.4.3 Balanced & Orthogonal Designs~~
  - ~~4.4.4 Fit, Model & Center Points~~
- ~~4.5 Fractional Factorial Experiments~~
  - ~~4.5.1 Designs~~
  - ~~4.5.2 Confounding Effects~~
  - ~~4.5.3 Experimental Resolution~~
- Improve Phase Practice Test

5.0 Control Phase

- 5.1 Lean Controls
  - 5.1.1 Control Methods for 5S
  - 5.1.2 Kanban
  - 5.1.3 Poka-Yoke
- 5.2 Statistical Process Control (SPC)
  - 5.2.1 Data Collection for SPC
  - 5.2.2 I-MR Chart
  - 5.2.3 Xbar-R Chart
  - 5.2.4 U Chart
  - 5.2.5 P Chart
  - 5.2.6 NP Chart
  - 5.2.7 X-S chart
  - 5.2.8 CumSum Chart
  - 5.2.9 EWMA Chart
  - 5.2.10 Control Methods
  - 5.2.11 Control Chart Anatomy
  - 5.2.12 Subgroups, Variation, Sampling
  - 5.2.13 Center Line & Control Limits
- Control Phase Test

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