

## LEAN SIX SIGMA GREEN BELT CERTIFICATION TRAINING

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### COURSE LENGTH: 5.0 DAYS

Comprehensive training and exam preparation to achieve Lean Six Sigma Green Belt Certification with the International Association of Six Sigma Certification (IASSC) – the most highly regarded independent global Green Belt Certification.

This course is very comprehensive and doesn't require any pre-requisite training. You will learn the foundation skills and develop up to the Green Belt level as part of this intensive 5-day course. However, this training does move quickly and covers a lot of in-depth information in great detail.

For participants focused on Certification preparation, it is important to know that the IASSC Global Certification is exam based. Which means you can sit the exam and become certified as soon as you have successfully passed the exam which is based on global benchmarks.

This comprehensive training course is available across the U.S., including Atlanta, Austin, Baltimore, Birmingham, Boston, Charlotte, Chicago, Dallas, Houston, Jackson, Los Angeles, Manhattan, Miami, New York, Orlando, Philadelphia, San Antonio and Seattle.

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## LEAN SIX SIGMA GREEN BELT CERTIFICATION TRAINING COURSE OUTLINE

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### FOREWORD

In this course, you will develop the knowledge to pass the certification exam, **and** learn techniques that you can use as a Continuous Improvement Practitioner. The course first teaches you the theory, after which you will work through a series of case studies to practice the application of the techniques.

This course is designed to take you from little to no experience, right through to Green Belt certification standard knowledge; ready for sign-off by the IASSC after you pass your certification exam.

Be careful when comparing the PD Training course to other courses. Often companies will require you to attend the Yellow Belt course first, then the Green Belt, while this comprehensive course builds your knowledge and skills in one 5-day course.

This is an exam-based certification administered by the IASSC, which means that you can receive the training and then get certified as soon as you are ready. The exam you pass means that you are marked against a global benchmark - and will have a globally recognized credential.

Many other LSS Green Belt Certifications require you to complete a project in the workplace that gets signed off by your trainer, which is very subjective, and means that you can't get 'certified' until your project at work is complete. This is not required with the PD Training course.

Join this Lean Six Sigma Green Belt Certification, learn from the best, and achieve your certification with a free practice exam and free IASSC exam voucher.

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### OUTCOMES

#### During this course, you will develop:

- ▶ Understanding of the concepts, implementation & objectives of Six Sigma
- ▶ Ability to use a structured approach to process improvement
- ▶ Ability to use DMAIC methodology - Define, Measure, Analyze, Implement & Control
- ▶ Skills to predict, prevent and control defects in a process
- ▶ Understanding of the elements of waste
- ▶ Skills to achieve sustainable quality improvement through process improvement
- ▶ Understanding of the tools of process discovery
- ▶ Understanding of variation in processes
- ▶ Skills to reduce variation in processes and achieve predicted outcomes
- ▶ Ability to identify, measure and analyze process potential
- ▶ Usage of inferential statistics
- ▶ Usage of hypothesis testing
- ▶ Understanding when to use which Six Sigma methodology
- ▶ Ability to use Capability Analysis to control processes
- ▶ Knowledge of the interdependence of Lean tools
- ▶ Skills to prevent, identify and control defects
- ▶ Understanding and use of statistical process control
- ▶ Skills to train, document, monitor, respond, and align systems
- ▶ Skills to provide sustainable & cost-effective improvement in processes

This Lean Six Sigma Green Belt Certification training course has been designed to build your knowledge and capability to improve the performance of processes, and subsequently the performance of the business of which you are a part. The focus of the course is process-centric. Your role in process performance improvement will be enhanced through the use of the

methodologies of Six Sigma, Lean and Process Management.

By taking this course, you will have a well-rounded and firm grasp of many of the tools of these methodologies. We firmly believe this is one of the most effective classes you will ever take and it is our commitment to provide you that value.

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## MODULES

### Lesson 1: Understanding Six Sigma (Define Phase Module 1)

LSS Green Belt Define Phase - The Define Phase of the DMAIC methodology is constructed to introduce the fundamentals of Lean Six Sigma.

- ▶ Describe the objectives of Six Sigma
- ▶ Describe the relationship between variation and sigma
- ▶ Recognise some Six Sigma concepts
- ▶ Recognise the Six Sigma implementation model
- ▶ Describe your role and responsibilities in Six Sigma

### Lesson 3: Selecting Projects (Define Phase Module 3)

- ▶ Utilise a structured approach to select projects
- ▶ Refine and Define the problem into a Project Charter
- ▶ Make an initial estimate of your project's benefits

### Lesson 5: Wrap Up & Action Items (Define Phase)

### Lesson 7: Six Sigma Statistics (Measure Phase Module 2)

- ▶ Explain the various statistics used to express location and spread of data
- ▶ Describe the characteristics of a Normal Distribution
- ▶ Test for Normality
- ▶ Describe the difference between Special Cause and Common Cause Variation
- ▶ Generate a variety of graphs for data

### Lesson 2: Six Sigma Fundamentals (Define Phase Module 2)

- ▶ Describe what is meant by "Process Focus"
- ▶ Describe the importance of VOC, VOB, and VOE, and CTQ's
- ▶ Explain COPQ
- ▶ Generate a Process Map
- ▶ Describe the Basic Six Sigma metrics
- ▶ Explain the difference between FTY and RTY
- ▶ Explain the difference between DPU and DPMO

### Lesson 4: Elements of Waste (Define Phase Module 4)

- ▶ Have a clear understanding of the specific deliverables
- ▶ Have started to develop a Project Plan to meet the deliverables
- ▶ Have identified ways to deal with potential roadblocks
- ▶ Be ready to apply the Six Sigma method through your project

### Lesson 6: Process Discovery (Measure Phase Module 1)

LSS Green Belt Measure Phase - The Measure Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for characterising your business issues.

- ▶ Create a high level Process Map
- ▶ Create a Fishbone Diagram
- ▶ Create an X-Y Diagram
- ▶ Describe the elements of a FMEA
- ▶ Explain the importance of a FMEA
- ▶ Describe why each tool is important

### Lesson 8: Measurement System Analysis (Measure Phase Module 3)

- ▶ Perform the step by step methodology in Variable and Attribute MSA's
- ▶ Identify the various components of variation so corrections can be made and the gage error reduced
- ▶ Recognise the differences between Repeatability, Reproducibility, Accuracy and Calibration

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### Lesson 9: Process Capability (Measure Phase Module 4)

- ▶ Estimate Capability for Continuous Data
- ▶ Describe the impact of Non-normal Data on the analysis presented in this module for Continuous Capability
- ▶ Estimate Capability for Attribute Data

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### Lesson 11: "X" Sifting (Analyse Phase Module 1)

LSS Green Belt Analyse Phase - The Analyse Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for isolating critical factors.

- ▶ Perform a Multi-Vari Analysis
- ▶ Interpret and a Multi-Vari Graph
- ▶ Identify when a Multi-Vari Analysis is applicable
- ▶ Interpret what Skewed data looks like
- ▶ Explain how data distributions become Non-normal when they are really Normal

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### Lesson 13: Intro to Hypothesis Testing (Analyse Phase Module 3)

- ▶ Articulate the purpose of Hypothesis Testing
- ▶ Explain the concepts of the Central Tendency
- ▶ Be familiar with the types of Hypothesis Tests

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### Lesson 15: Hypothesis Testing Normal Data Part 2 (Analyse Phase Module 5)

- ▶ Be able to conduct Hypothesis Testing of Variances
- ▶ Understand how to Analyse Hypothesis Testing Results

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### Lesson 17: Hypothesis Testing Non-Normal Data Part 2 (Analyse Phase Module 7)

- ▶ Calculate and explain test for proportions
- ▶ Calculate and explain contingency tests

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### Lesson 19: Process Modeling Regression (Improve Phase Module 1)

LSS Green Belt Improve Phase - The Improve Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions.

- ▶ Perform the steps in a Correlation and a Regression Analysis
- ▶ Explain when Correlation and Regression is appropriate

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### Lesson 10: Wrap Up & Action Items (Measure Phase)

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### Lesson 12: Inferential Statistics (Analyse Phase Module 2)

- ▶ Explain the meaning of the term "Inferential Statistics".
- ▶ Describe the basic tenets of the Central Limit Theorem.
- ▶ Describe the impact of sample size on your estimates of population parameters.
- ▶ Explain Standard Error

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### Lesson 14: Hypothesis Testing Normal Data Part 1 (Analyse Phase Module 4)

- ▶ Determine appropriate sample sizes for testing Means
- ▶ Conduct various Hypothesis Tests for Means
- ▶ Properly Analyse Results

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### Lesson 16: Hypothesis Testing Non-Normal Data Part 1 (Analyse Phase Module 6)

- ▶ Conduct Hypothesis Testing for equal variance
- ▶ Conduct Hypothesis Testing for Medians
- ▶ Analyse and interpret the results

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### Lesson 18: Wrap Up & Action Items (Analyse Phase)

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### Lesson 20: Advanced Process Modeling (Improve Phase Module 2)

- ▶ Perform Non-Linear Regression Analysis
- ▶ Perform Multiple Linear Regression Analysis (MLR)
- ▶ Examine Residuals Analysis and understand its effects

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### Lesson 21: Designing Experiments (Improve Phase Module 3)

- ▶ Determine the reason for experimenting
- ▶ Describe the difference between a physical model and a DOE model
- ▶ Explain an OFAT experiment and its primary weakness
- ▶ Shown Main Effects Plots and interactions, determine which effects and interactions may be significant
- ▶ Create a Full Factorial Design

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### Lesson 23: Advanced Experiments (Control Phase Module 1)

LSS Green Belt Control Phase - The Control Phase of the DMAIC methodology is constructed to introduce important Lean Six Sigma tools for properly controlling solutions.

- ▶ Use the results of a DOE to determine how to further optimise a process using the steepest ascent/descent method

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### Lesson 25: Lean Controls (Control Phase Module 3)

- ▶ Describe Lean tools
- ▶ Understand how these tools can help with project sustainability
- ▶ Understand how the Lean tools depends on each other
- ▶ Understand how tools must document the defect prevention created in the Control Phase

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### Lesson 27: Statistical Process Control - SPC (Control Phase Module 5)

- ▶ Describe the elements of an SPC Chart and the purposes of SPC
- ▶ Understand how SPC ranks in defect prevention
- ▶ Describe the 9 Step route or methodology of implementing a chart
- ▶ Design subgroups if needed for SPC usage
- ▶ Determine the frequency of sampling
- ▶ Understand the Control Chart selection methodology
- ▶ Be familiar with Control Chart parameter calculations such as UCL, LCL and the Center Line

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### Lesson 29: Wrap Up & Action Items (Control Phase)

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### Lesson 22: Wrap Up & Action Items (Improve Phase)

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### Lesson 24: Capability Analysis (Control Phase Module 2)

- ▶ Understand the importance of Capability Analysis as it is applied in the Control Phase
- ▶ Select the appropriate method for Capability Analysis based on the type of data distribution of your process
- ▶ Interpret the output of MINITAB's Capability functions
- ▶ Understand how the use for Capability Analysis may alter through the DMAIC phases

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### Lesson 26: Defect Controls (Control Phase Module 4)

- ▶ Describe some methods of defect prevention
- ▶ Understand how these techniques can help with project sustainability
  - ▶ Including reducing those outliers as seen in the Advanced Process Capability section
  - ▶ If the vital X was identified, prevent the cause of defective Y
- ▶ Understand what tools must document the defect prevention created in the Control Phase

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### Lesson 28: Six Sigma Control Plans (Control Phase Module 6)

- ▶ Understand the 5 phases of the Control Plan
  - ▶ Training
  - ▶ Documentation
  - ▶ Monitoring
  - ▶ Response
  - ▶ Aligning Systems and Structures

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## WEB LINKS

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▶ [View this course online](#)

▶ [In-house Training Instant Quote](#)