



Lean Six Sigma Black Belt Certification Training

simpli|learn

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Program Overview:

The Lean Six Sigma Black Belt training and certification course is designed to help you master the combined concepts of Lean and Six Sigma. This course will help you develop an in-depth understanding of the Six Sigma phases Define, Measure, Analyze, Improve, and Control (DMAIC) and how to maximize customer value while minimizing waste.

Program Features:

- > 9 hours of online self-paced learning
- > 36 hours of instructor-led training
- > 4 Lean Six Sigma Black Belt simulation exams
- > 35 PDUs offered and six end-of-chapter quizzes
- > Two-course end projects
- > Experiential learning through case studies
- > Course completion certificate

Delivery Mode:

Online Bootcamp - The online self paced videos are a prerequisite for attending the live virtual classroom sessions for the respective topics.

Prerequisites:

There are no prerequisites required to sit for the IASSC Certified Lean Six Sigma Black Belt exam. Formal Lean Six Sigma training from a verified Lean Six Sigma trainer or corporate program is suggested if applicants want to increase their chances of passing the exam. It is also recommended that exam takers have some degree of real-world Lean Six Sigma work experience.

Target Audience:

- > Senior management (especially if the company intends to implement Lean Six Sigma)
- > Team leaders
- > Software professionals
- > Project managers
- > Quality assurance engineers
- > Software quality assurance team members
- > Management students

Key Learning Outcomes:

At the end of Simplilearn's Lean Six Sigma Black Belt training, you will know how to:

- > Apply Lean concepts such as 5S, waste reduction, process mapping, value stream mapping, and mistake proofing
- > Apply basic and more advanced statistical analyses to determine the relationship between key inputs and process outputs
- > Effectively manage team dynamics and understand how to work with multiple levels of leadership to remove barriers and achieve project success
- > Close projects and hand over control to process owners
- > Present projects to instructors, peers, and managers

Certification Alignment:

Our Certified Lean Six Sigma Black Belt is accredited by [IASSC](#)

Certification Details and Criteria:

Simplilearn Lean Six Sigma Black Belt Certification follows the flipped classroom model. The online self-paced content acts as the pre-read material for the live sessions. The learner needs to complete the online self-paced videos, attend live sessions and pass both the projects and assessments to get the Simplilearn certification.

IASSC Certification-

The exam fee is included for all regions except the Indian subcontinent and Africa.

The candidate can earn IASSC certification in Lean Six Sigma Black Belt by appearing for the IASSC Certified Lean Six Sigma Black Belt exam and scoring a minimum of 70%. Upon succeeding, the candidate will receive a certificate, suitable for framing, issued by the IASSC.

Course Curriculum:

Session 00 - Course Introduction

Session 01 - Define Phase

Lesson 01 - The Basics of Six Sigma

- > Introduction to define phase
- > Learning objectives
- > Six Sigma
- > Lean
- > Sigma shift
- > Yield
- > Continuous Improvement Process Evolution
- > Six Sigma Deliverables
- > Problem Solving Strategy
- > VOC Campaign
- > VOC Tools
- > KANO Analysis
- > Six Sigma Roles and Responsibilities
- > Project Champion and Master Black Belt
- > Black Belt and Yellow Belt
- > Drivers of Six Sigma

Lesson 02 - The Fundamentals of Six Sigma

- > Process
- > Project charter
- > Critical to quality
- > Cost of poor quality
- > Calculating CoPQ
- > Pareto Analysis
- > Basic six sigma metrics

Lesson 03 - Selecting Lean Six Sigma Projects

- > Selecting Lean Six Sigma Projects
- > Project Selection Roadmap
- > Project Charter Elements
- > Project Charter Business Case
- > Project Charter Problem Statement
- > Project Charter Goal Statement
- > Project Charter Scope
- > Project Charter Key Milestones
- > Project Charter Team Selection
- > Tuckman's Stages of Team Formation
- > The RACI Matrix
- > Expected Financial Benefits
- > Developing Project Metrics
- > key performance indicator
- > Financial Evaluation and Benefits Capture
- > Net present value

Lesson 04 - The Lean Enterprise

- > Selecting lean six sigma projects
- > Principles of Lean
- > Lean Methodology
- > Lean and Six Sigma
- > 3M's of Lean
- > Categories of Waste: TIMWOOD
- > Category of Waste: DOWNTIME
- > 5S
- > Steps in 5S

Session 02 - Measure Phase

Lesson 01 - Process Definition

- > Introduction to measure phase
- > Learning Objectives
- > Tools to Define a Process
- > Cause and Effect Diagram
- > Drawing a Fishbone diagram
- > Root Cause
- > Process Mapping
- > Creating a Process Map
- > Process Mapping Levels
- > Four Types of Process Maps
- > SIPOC Process Map
- > Value Stream Maps
- > Value Stream Maps: Key Metrics
- > X-Y Diagram or Scatter Plots
- > Failure Mode and Effects Analysis (FMEA)
- > FMEA Process
- > FMEA Template
- > Severity, Occurrence, and Detection Table
- > Risk Priority Number (RPN)

Lesson 02 - Six Sigma Statistics

- > Data
- > Measuring data
- > Basic Statistics
- > Measures of Central Tendency
- > Measures of Dispersion
- > Data Collection Plan
- > Data Collection Methodology
- > Develop a Measurement Plan
- > Collect Data
- > Sampling
- > Sampling methods
- > Graphical Analysis
- > Graphical Analysis Tool
- > Introduction to Minitab
- > Demo: Box Plot One Variable
- > Demo: Box Plot with Three Variables
- > Demo: Time series plot
- > Normal Distribution
- > Standard Normal Distribution
- > Demo: Normality

Lesson 03 - Measurement System Analysis

- > Introduction
- > Measurement System Analysis: Overview
- > Good and Poor Measurement System Analysis
- > Measurement Error: Categories
- > MSA: Sources of Variation
- > Repeatability
- > Reproducibility
- > Accuracy and Precision
- > Bias
- > Stability
- > Linearity
- > MSA: Types
- > Gage R&R Guidance in MINITAB
- > Gage R&R Ground Rules
- > Demo: Gage R_R Continuous Data
- > Attribute Gage Study
- > Demo: Gage R_R Attribute Data

Lesson 04- Process Capability

- > Introduction
- > Process Capability
- > RUMBA Analysis
- > Process Capabilities
- > Data Types
- > Baseline Performance
- > Components of Variation
- > Process Stability
- > Process Capability: Indices
- > Demo: Capability Analysis Continuous Data
- > Process Capability Indices: Example
- > Demo: Capability Analysis Continuous Data Sigma Level
- > Z Score
- > Process Baseline
- > Defects Per Unit
- > Defects Per Million Opportunities
- > Attribute Data: Example
- > Short-term and long-term Process Capability

Session 03 - Analyze Phase

Lesson 01 - Classes of Distribution

- > Introduction to Analyze phase
- > Learning Objectives
- > Frequency Distribution
- > Demo: Frequency Distribution
- > Probability Distribution
- > Types of Probability Distribution
- > Types of Discrete Probability Distribution
- > Types of Continuous Probability Distribution

Lesson 02 - Inferential Statistics

- > Introduction
- > Inferential Statistics
- > Branches of Inferential Statistics
- > Central Limit Theorem

Lesson 03 - Hypothesis Testing

- > Introduction
- > Basics of Hypothesis Testing
- > Confidence Interval
- > Significant difference
- > Detecting Significance
- > Statistical Hypothesis Test
- > Hypothesis Testing: Risks
- > Beta Risk
- > Power of a Hypothesis Test
- > Sample Size
- > Hypothesis Testing Roadmap

Lesson 04 - Hypothesis Testing with Normal Data

- > Introduction
- > Normal Data
- > One Sample t-test
- > One Sample t-test Sample Size
- > Demo:1 sample t test
- > Two-Sample t-test
- > Two-Sample t-test Example
- > Demo: 2 sample t test
- > Demo: Bartlett's Test
- > Paired t-test
- > Demo: Paired test
- > ANOVA
- > Demo: Anova
- > Residual Plot

Lesson 05 - Hypothesis Testing with Non-Normal Data

- > Introduction
- > Non Parametric tests
- > Mann-Whitney Tests
- > Demo: Mann_Whitney_Test
- > Kruskal-Wallis Test
- > Demo: Kruskal_Wallis_Test
- > Mood's Median Test
- > Demo: Mood's Median Test
- > Friedman Test
- > Demo: Friedman_Test
- > 1 Sample Sign Test
- > Demo: 1_Sample_Sign_Test
- > 1 Sample Wilcoxon Test
- > Demo: 1 Sample Wilcoxon Test
- > One-Sample Proportion Test
- > Demo: One-Sample Proportion Test
- > Two-Sample Proportion Test
- > Demo:Two-Sample Proportion Test
- > Chi-Square Tests
- > Demo: Chi-Square_Test_of_Independence
- > Chi-Square Goodness-of-Fit Test
- > Demo: Chi-Square Goodness-of-Fit Test
- > Chi-Square Cross Tabulation
- > Demo: Chi-Square Cross Tabulation
- > Demo: Levene_F-Test

Session 04 - Improve Phase

Lesson 01 - Simple Linear Regression

- > Introduction to improve phase
- > Learning objectives
- > Correlation
- > Demo: correlation
- > Demo: Scatter plot
- > Correlation and Causation
- > Predictor measures and Results
- > Correlation Coefficients
- > Regression Analysis
- > Demo: Regression
- > Residual Analysis

Lesson 02 - Multiple Regression Analysis

- > Introduction
- > Multi-Vari Analysis
- > Demo: Multi-Vari Analysis
- > Non Linear Regression
- > Multiple Linear Regression
- > Demo: Multiple Linear Regression
- > Variance Inflation Factor (VIF)
- > Variance Inflation Factor (VIF): Example
- > Confidence Interval in Multiple Linear Regression
- > Box Cox Transformation
- > Demo: Box-Cox Transformation

Lesson 03 - Designed Experiments

- > Introduction
- > Designed Experiments
- > Phases of DOE Process
- > Optimization and confirmation
- > Types of DOE Strategies
- > Full Factorial and Fractional Factorial Approaches
- > Experimental Design: Considerations

Lesson 04 - Factorial Experiments

- > Introduction
- > Factorial Designs
- > Full Factorial Experiments
- > Demo: Full Factorial Experiments
- > Quadratic Models
- > Types of Response Surface Designs
- > Balanced and Orthogonal Design
- > Center Points
- > Fractional Factorial Experiment
- > Confounding

Session 05 - Control Phase

Lesson 01 - Lean Controls

- > Introduction to Control Phase
- > Learning Objectives
- > Control Methods of 5S
- > Sort
- > Set in order
- > Shine standardize and sustain
- > Kanban
- > Kanban Principles
- > Steps to Implement Kanban
- > Poka Yoke or Mistake Proofing
- > Mistake Proofing Examples

Lesson 02 - Statistical Process Control (SPC)

- > Introduction
- > Statistical Process Control: Purpose
- > Control Charts
- > Control Charts: Objectives
- > Control Charts: Uses
- > Control Charts: Types
- > Control Charts: Steps
- > Subgroup
- > Consideration for Rational Subgrouping
- > Charts for Attribute Data
- > Tests for Special Causes
- > Demo: I MR chart
- > Demo: X Bar R chart
- > Demo: X Bar s chart
- > Demo: P charts
- > Demo: NP carts
- > Demo: U Charts
- > Demo: C charts
- > Demo: Cusum chart
- > Demo: EWMA chart

Lesson 03 - Six Sigma Control Plans

- > Introduction
- > Project Cost Benefit Analysis
- > Return on Investment (ROI)
- > Cost Benefit Analysis
- > Cost Benefit Analysis: Steps
- > NPV and IRR
- > Selecting the Right Solutions: Guidelines
- > Implementation of Proposed Solutions: Roadmap
- > Control Plan
- > Elements of a Control Plan
- > Control Plan: Training
- > Response Plan
- > Project Closure

Practise **Projects:**

- > V-tech Hydraulic Solutions
- > Elite Elegance

Customer **Reviews:**



Simhachalam Mamidi

Manager - Quality, Risk Advisory & IT Audit at Wipro

Excellent course with clear demonstration of concepts.



Gafoor Sarang

Director Operational Excellence at CSL Behring

Training was great; the trainer had good knowledge.



Nilesh T Naik

Manager Global Logistics at Datacard Group

It's really good to understand various decision making concepts before implementing them.



Namuduri A R Chandu

Project Manager at Geometric Ltd.

Trainer's knowledge is precise & has depth simplified to general terms & concepts are clear.

About Us:

Simplilearn is the world's #1 online bootcamp provider that enables learners through rigorous and highly specialized training. We focus on emerging technologies and processes that are transforming the digital world, at a fraction of the cost and time as traditional approaches. Over one million professionals and 2000 corporate training organizations have harnessed our award-winning programs to achieve their career and business goals.

For more information, please visit our website:

<https://www.simplilearn.com/quality-management/lean-six-sigma-black-belt-training>



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Simplilearn is the world's #1 online bootcamp for digital economy skills training focused on helping people acquire the skills they need to thrive in the digital economy. Simplilearn provides outcome-based online training across technologies and applications in Data Science, AI and Machine Learning, Cloud Computing, Cyber Security, Digital Marketing, DevOps, Project Management, and other critical digital disciplines.

Through individual courses, comprehensive certification programs, and partnerships with world-renowned universities, Simplilearn provides millions of professionals and thousands of corporate training organizations with the work-ready skills they need to excel in their careers. Based in San Francisco, CA, and Bangalore, India, Simplilearn has helped more than one million professionals and 2,000 companies across 150 countries get trained, acquire certifications, and reach their business and career goals. With over 1,000 live classes each month, real-world projects, and more, professionals learn by doing at Simplilearn. Ongoing industry recognition for the company includes the 2020 Aegis Graham Bell Award for Innovation in EdTech and the 2020 Stevie® Gold Award for Customer Service Success.

India - United States - Singapore

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