

IASSC Certified Lean Six Sigma Green Belt Course

Course Duration: 40 Hrs.

Course code: LSSGB

Course Overview

Designed to align with the leading Green Belt standard set by the globally recognized accreditation body - IASSC, this Lean Six Sigma Green Belt Certification Course offers a complete introduction to Six Sigma, DMAIC methodology, how to measure company performance, identify issues and offer solutions using real-world examples.

What you'll learn?

Introduction: The Lean Six Sigma Green Belt course equips learners with the skills to improve business processes, maximize efficiency, and reduce waste through the DMAIC methodology.

Learning Objectives and Outcomes:

- Understand the key concepts and principles of Six Sigma and its application in process improvement.
- Gain proficiency in selecting the right projects that align with business objectives and customer needs.
- Identify and eliminate elements of waste in processes to enhance performance.
- Master the use of Six Sigma statistical tools for data-driven analysis and decision-making.
- Perform Measurement System Analysis (MSA) to ensure the accuracy and reliability of data.
- Assess and enhance process capability to meet customer specifications and expectations.

- Utilize inferential statistics and hypothesis testing to analyze process data and draw meaningful conclusions.
- Implement process modeling and regression techniques to identify factors affecting process outcomes.
- Design and conduct experiments to improve process performance and solve complex problems.
- Develop and apply control plans to maintain improvements and ensure long-term process stability.

Target Audience

The Lean Six Sigma Green Belt course is designed for professionals seeking to improve business processes and quality management.

- Quality Assurance Managers
- Operations Managers
- Production Managers
- Process Improvement Consultants
- Project Managers
- Team Leaders
- Business Analysts
- Manufacturing Engineers
- Continuous Improvement Managers
- Industrial Engineers
- Management Consultants
- Change Managers
- Business Process Managers
- Supply Chain Managers
- Systems Managers

- Performance Managers
- Compliance Managers

Pre-Requisites

Learners need to possess an undergraduate degree or a high school diploma.

Course Content

Module1: Define Phase

1.1 The Basics of Six Sigma

- Meanings of Six Sigma
- General History of Six Sigma & Continuous Improvement
- Deliverables of a Lean Six Sigma Project
- The Problem-Solving Strategy $Y = f(x)$
- Voice of the Customer, Business and Employee
- Six Sigma Roles & Responsibilities

1.2 The Fundamentals of Six Sigma

- Defining a Process
- Critical to Quality Characteristics (CTQ's)
- Cost of Poor Quality (COPQ)
- Pareto Analysis (80:20 rule)
- Basic Six Sigma Metrics

1.3 Selecting Lean Six Sigma Projects

- Building a Business Case & Project Charter
- Developing Project Metrics
- Financial Evaluation & Benefits Capture

1.4 The Lean Enterprise

- Understanding Lean
- The History of Lean
- Lean & Six Sigma
- The Seven Elements of Waste
- Overproduction
- Correction
- Inventory
- Motion
- Overprocessing
- Conveyance
- Waiting

Module2: Measure Phase

2.1 Process Definition

- Cause & Effect / Fishbone Diagrams
- Process Mapping, SIPOC, Value Stream Map
- X-Y Diagram
- Failure Modes & Effects Analysis (FMEA)

2.2 Six Sigma Statistics

- Basic Statistics
- Descriptive Statistics
- Normal Distributions & Normality
- Graphical Analysis

2.3 Measurement System Analysis

- Precision & Accuracy
- Bias, Linearity & Stability
- Gage Repeatability & Reproducibility
- Variable & Attribute MSA

2.4 Process Capability

- Capability Analysis
- Concept of Stability
- Attribute & Discrete Capability
- Monitoring Techniques

Module3: Analyze Phase

3.1 Patterns of Variation

- Multi-Vari Analysis
- Classes of Distributions

3.2 Inferential Statistics

- Understanding Inference
- Sampling Techniques & Uses
- Central Limit Theorem

3.3 Hypothesis Testing

- General Concepts & Goals of Hypothesis Testing
- Significance; Practical vs. Statistical
- Risk; Alpha & Beta
- Types of Hypothesis Test

3.4 Hypothesis Testing with Normal Data

- 1 and 2 sample t-tests
- 1 sample variance
- One Way ANOVA

3.5 Hypothesis Testing with Non-Normal Data

- Mann-Whitney
- Kruskal-Wallis

- Mood's Median
- Friedman
- 1 Sample Sign
- 1 Sample Wilcoxon
- One and Two Sample Proportion
- Chi-Squared (Contingency Tables)

Module4: Improve Phase

4.1 Simple Linear Regression

- Correlation
- Regression Equations
- Residuals Analysis
- Multiple Regression Analysis
- Non- Linear Regression
- Multiple Linear Regression
- Confidence & Prediction Intervals
- Residuals Analysis
- Data Transformation, Box Cox

Module5: Control Phase

5.1 Lean Controls

- Control Methods for 5S
- Kanban
- Poka-Yoke (Mistake Proofing)

5.2 Statistical Process Control (SPC)

- Data Collection for SPC

- I-MR Chart
- Xbar-R Chart
- U Chart
- P Chart
- 5NP Chart
- Xbar-S Chart
- 5CuSum Chart
- EWMA Chart
- Control Methods
- 5.3 Six Sigma Control Plans
- Cost Benefit Analysis
- Elements of the Control Plan
- 5 Elements of the Response Plan

