

Lean Six Sigma Black Belt

Duration: 10 days; Instructor-led

WHAT YOU WILL LEARN

Black Belt certification represents the extensive study and exhaustive application of Lean Six Sigma and other process improvement techniques. Black Belt participants will plunge greater into the Lean Six sigma methodologies and bring the participants to the level to steer project teams to achieve innovative business improvements for their organizations. This course will also emphasize on advanced statistical analysis and organizational change management.

Black Belts who are seeking in-depth knowledge to advance their statistical abilities will have a considerable amount of hands-on practice in techniques such as SPC, MSA, Hypothesis Testing, Regression, DOE, sample calculation and many others.

AUDIENCE

This course is for individuals from diverse organizational functions-operations, quality, logistics, finance, production, engineering and other staff functions. Participants are normally process experts, team members, project leaders who will lead bigger projects, professional members who are involved in research, innovation or consultation in process improvement practices and future leader who are looking to contribute to high impact projects by incorporating Lean Six Sigma methodology.

METHODOLOGY

The classroom hours are characterized by interactive lecture, group activities, individual assignments, peer-to-peer networking and specific coaching by expert instructors who are extensively experienced with many successful change initiatives across a wide spectrum of industries. To further emphasize application, portions of this course are formulated to assisting peer to peer learning as professionals share their unique perspectives, projects and experiences.

The on-site coaching and consulting may be scheduled immediately post training or at a later time, largely dependent on individual's needs. A consultant will meet you individually to provide insights and recommendations for the overall initiative improvement projects in your

organization.

COURSE OBJECTIVES

- Gain thorough understanding of Lean tools and the DMAIC method
- Identify areas where improvements can be made
- Further develop skills to use analytics, mathematical models and design techniques
- Decide on sampling strategies, sample size and confidence intervals
- Describe the difference between long-term and short-term process capability
- Characterize and optimize processes by computing and applying statistical techniques.
- Develop and analyze control charts for both continuous and discrete data
- Perform a measurement system analysis
- Apply hypothesis tests to compare variance, means and proportions
- Conduct regression and residual analyses
- Design, simulate, and execute designed experiments that depict validated improvement.
- Learn how to plan and implement process control to sustain project gains

OUTLINES

Module 1: Introduction

- In-depth coaching on Lean Six Sigma fundamentals and methodologies
- Lean Six Sigma project selection criteria
- Capturing the relationship among different business entities including internal and external impacts
- Refresher on Lean Six Sigma Green Belt

Module 2: Leadership & Coaching

- Identifying different roles that influences decision making, resources, supporting pillars
- Eliminating potential roadblocks in the process of getting green light for project execution
- Dealing with difficult team members
- Implementing strategic planning for deployment

Module 3: Project Management

- Understand and create a structure for project realization
- Stakeholder management
- Developing essential resource management such as human capital, finance, etc.
- Project monitoring and control

Module 4: Define

- Bringing the customer needs into perspective (VOC - identify, data collection, requirement listing, etc)
- Aligning the project scoping (Project charter - business case, problem statement, goals, SMART, project timeline, measurements, data analysis etc)

Module 5: Measure

- Capturing critical data that impacts selected project (Fishbone diagram, takt time, cycle time, work in progress, etc)
- Selection of process analysis tools for data gathering (mapping, charts, diagrams, etc)
- Define, categorize and plan data collection methods (check sheets, data collection plan, sampling, etc)
- Measurement systems and statistics (MSA, graphical analysis, capability analysis (Cp, Cpk), etc)

Module 6: Analyze

- Identify methods and tools to interpret collected data
- Analyse and interpret the correlation between variables (regression, central theorem, ANOVA, etc)
- Determine the significance of hypothesis testing (type of errors, variances, parametric, non-parametric tests, etc)
- Non normal data handling
- Hands-on with Minitab software for data analysis (Chi-Square, t-test, boxplot, pareto chart, etc)

Module 7: Improve

- Generating ideas (brainstorming, out of the box thinking)
- Designing/planning experiments to determine the objectives, responses and outcome of the test (DOE, sample size, randomization, etc)
- Identify and eliminate waste techniques (Kaizen, Kanban, Poka Yoke, etc)
- Solution risk assessment (FMEA)
- Running pilot testing

Module 8: Control

- Putting in controls for monitoring improvement (SPC, control charts, TPM, etc)
- Introducing visual management elements
- Documentation development for sustaining improvement (control plan, SOPs, etc)
- Establish training for knowledge transfer to process owners
- Balanced scorecard (Benefits realization)
- Handover (SOP, FMEA, compliance etc...)
- Team recognition and project closure