

# € TRAINING

Lean Six-Sigma Green Belt



## Lean Six-Sigma Green Belt

### Introduction:

This high impact program skillfully trains the participant to become a Lean Six-Sigma Green Belt professionals. This training enhances professional core competencies in World-Class business processes. Additionally, participants are better qualified to increase operational effectiveness, engage employees, reduce operating expenses, improve industry reputation, and leverage business excellence. Customer value creation awareness is a prime element of this unique training initiative.

### Course Objectives:

At the end of this course the participants will be able to:

- Enhance their understanding of the basic level Lean Six-Sigma process.
- Learn to successfully deploy Six-Sigma into current business operations for effectiveness through teamwork.
- Learn the basics of Lean Six-Sigma methodology, statistical analysis, and its analytical integration into the business process.
- Learn to integrate the principles of Lean Six-Sigma to establish process control and minimize process variation, subsequently, reducing operational costs.
- Develop their understanding of the skills and behaviors required to fully deploy Lean Six-Sigma into your organization.
- Understand how to deploy the potential of Lean Six-Sigma as a strategic business tool.
- Learn the basics of Lean Processing and Six-Sigma applications to focus on the reduction of operational costs.
- Learn to maximize profits by reducing process variation and expanding operational control and stability.
- Re-define their perception of "normal" to "excellent" with the skillful application of Lean Six-Sigma tools.

### Targeted Audience:

- Quality Assurance Professionals
- Managers, Supervisors, and Professionals who wish to fully utilize Six Sigma approach in their organizations

### Course Outlines:

#### Unit 1: Understanding The Strategic Power of Six-Sigma Methodology:

- VOC, stakeholders & process owners, CTQ elements
- The basis of Six-Sigma; history and development; Understanding DMAIC process
- Strategic concepts & benefits of Benchmarking
- Six-Sigma deployment: DMAIC Concept
- Tollgate concept for Six-Sigma organizational functionality
- The power of data analysis in organization effectiveness and clarification
- Concepts of the Kano Analysis—three key elements of customer awareness
- Six Sigma in action. Project charters—Six-Sigma project integration
- The impact of the lean process and Six Sigma, the perfect algorithm

- "Do It Yourself Six-Sigma" The application of Project Templates
- Defining Timelines and Deliverables—a clear project game plan
- The focus on value creation in business processes
- "Speed and Accuracy" Blending proven processing concepts
- Quality function deployment QFD for business operations
- Six Sigma as a Strategic Strategy and a Measurement of organizational quality
- Data-driven decision making—removing subjectivity in business decisions
- Key Metrics & Drivers for Organizational effectiveness market share
- World-Class Transformation to enhance competitiveness
- Kano analysis; three levels of customer responsiveness

## Unit 2: Six-Sigma Deployment for Organization Effectiveness:

- Calculation: The costs of poor quality: COPQ; Understanding ROI
- Attribute and Continuous Data—recognizing the differences for application
- Descriptive and Inferential statistics—knowing when to use what
- Histograms. Measures of central tendency—normal statistical distributions
- Normal Distributions, Standard Scores, Z tables
- Student's t-Tests, statistical degrees of freedom
- Process Capability - the voice of the process; central tendency of the data set
- Statistical Mean, Median & Mode; Calculation of Sigma Failure Rates; DPMO
- Microsoft Excel & Minitab Statistical Software Applications
- Process Base Line; Data Collection Plan
- $Y = f(x)$  - Matrix; Identification of KPIV
- Graphing Discrete & Continuous Data; software interface
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- Population & Sample data
- Central Limit Theorem, confidence intervals
- Hypothesis Testing for the mean, Type I & Type II Errors, alpha risks
- Process Capability
- Process Tolerance, Measures of Dispersion, central tendency, Cp & Cpk,
- Statistical natural process Limits & Customer Specification Limits: LCL & UCL
- Bivariate data analysis in Six-Sigma applications
- Gauge R&R; Measurement Systems Analysis MSA

## Unit 3: Concepts of Lean Processing:

- History of Lean Manufacturing
- Lean Analysis: transformation from the current state to future state
- Cycle Time Compression; improving process throughput
- Supply Chain Acceleration
- Value Stream Mapping; focus on value creation: value chain identification
- Muda: Identifying Seven Types of Wastes
- Muri: Work complexity & fatigue factors
- Mura: Focus on Process Flow; Roll Throughput Yield RTY
- 5S concepts for workplace organization & effectiveness
- Visual controls, Poka Yoke concept; prevention/detection/mitigation
- SMED Concepts to speed up processes
- Team dynamics, Team conflict: forming, storming, norming, performing
- SIPOC Diagrams; three levels of Process maps, flowcharts

## Unit 4: Blending Lean Principles in Business Processes:

- Standardized Work Applications to maximize efficiency and reduce variation
- Batch & Queue VS Single element processing
- Kanban Inventory operational systems
- Understanding the Theory of Constraints
- Total Productive Maintenance TPM for operational costs reduction
- The effective integration of RFID/bar codes
- Employee Empowerment for organizational effectiveness/Kaizen interface \*
- Point of Use Supply
- Quality at the Source
- Green Process Integration
- Six-Sigma project work/team dynamics and interaction
- Cause & Effect Diagrams: Ishikawa/fishbone chart Analysis
- FMEA Matrix applications for Six-Sigma; calculating the RPN
- Production Balance: The Importance of TAKT Time Awareness
- Project tools: Gantt charts, critical path method CPM & PERT evaluation
- Brainstorming for Results, Pareto Analysis 80/20 Analysis\*
- Improving the Process for effectiveness; Lean process & Six-Sigma Integration
- High-level Green Analysis
- Ishikawa Diagrams, Brainstorming, Pareto 80/20
- Brainstorm for Project Benefits—integration of team dynamics: the Five whys

## Unit 5: Skillfully Applying the Tools of Six-Sigma for Success:

- Tools to speed analysis—finding the root cause of variation
- Measuring and tracking improvement; Establishing Process Baseline
- Hold the line... standardization/optimization
- Tools to prioritize improvement opportunities
- Successful ways to define and mitigate failure modes
- FMEA Diagrams in Action—how to identify process trouble spots
- Project Closure; Control plans that WORK!
- Continued workplace training...SOP for succession planning for success;
- Innovative Six-Sigma deployment opportunities
- SPC; Monitoring Systems, Locking the Learning
- Control Chart Utilization; Juran, Deming, & Shewhart