Feature:

The Lean Six Sigma Black Belt program is designed for someone who wishes to solve a business problem by data approach. The course helps participants analyze and drive business goals in a structured manner. Gives an overview of how to initiate six sigma in an organization a wide range of lean manufacturing/ management tools. The DMAIC phases have been explained in detail with a special focus on statistical competency improvement. All statistical calculations including the test of the hypothesis are done manually as well as using Minitab. The course covers topics as per lean six sigma black belt body of knowledge. Can be done by a participant with not much exposure to statistics. Also, support would be provided during training to complete the project by the coach.

Course Objective:

1) Enable participants to initiate six sigma journey in organization and drive business KPIs.
2) Select relevant improvement project
3) Use a wide range of lean tools effectively to get quick benefit in operation
4) Learn a bunch of analytical tool required in Define, Measure, Analyse, Improve, and Control phases
5) Make participant competent with statistical concept required for analysis
6) Reduce variation and achieve six sigma level by applying DMAIC methodology
7) Assist in project completion so that the participants can handle projects independently

Who Should Attend?

People from operation both manufacturing and service sectors, person in quality, business excellence, process engineering, consultants, operation managers, etc.

Course Duration:

12 Days (Including 2 days for project review and examination)

Course Content:

Introduction and Lean Tools

A. Introduction to six sigma

1) History of Six Sigma
2) Six Sigma as business transformational strategy
3) Six Sigma Organization
4) Balanced Score card
5) Structuring a six-sigma project
6) Types of projects
7) Introduction to DMAIC
8) 12 step methodology for DMAIC

B. Introduction to lean Concepts

1) The lean concept
2) The 5 Lean principles
3) House of Lean
4) 5S and standardization
5) The 8 major wastes
6) Takt Time
7) Overall Equipment effectiveness
8) Single Minute Exchange of Dies
9) Linkage of Lean Concepts and DMAIC

Define and Measure Phase

C. Define Phase

1) Voice of customer & Voice of Voice of process
2) Project charter
3) CTQ Drill Down Tree
4) Team formation – ARMI tool
5) SIPOC
6) Value stream mapping
7) Estimation of Benefit
8) Gantt Chart
9) CTQ present state
10) Define toll gate checklist

D. Measure

1) Process Map
2) Fundamental of statistics
3) DPMO, DPU and sigma level
4) Central limit theorem
5) Process capability
6) Process capability and performance
7) Attribute Capability Study
8) Measurement System analysis
9) Linearity, Bias, Stability
10) Accuracy, Precision, Discrimination, GRR for variable data
11) Effectiveness, Miss Rate, False Alarm for discrete data
12) Cause & Effect Diagram
13) Measure Toll Gate checklist

Analysis Phase	
E. Analyse Phase	
1) Correlation and Regression 2) Non-Linear Regression 3) Multiple Regression 4) Logistic Regression 5) Forecasting Methods 6) Test of Hypothesis 7) Concept of P-Value 8) Z test – I sample and 2 samples 9) T test – 1 sample 10) 2 sample t test – Paired 11) 2 sample t-test unpaired	12) F Test, 13) Analysis of Variance (ANOVA) 14) Concept of Chi square distribution 15) Chi Square Test for association 16) Chi square test for Goodness of Fit 17) Non parametric test- Mann Whitney Rank Test 18) Wilcoxon Sign Rank Test 19) Design of Experiment 20) Full factorial Taguchi method 21) Sampling Methods 22) 5 Why Analysis 23) Analyse Toll Gate Checklist

Improve, Control and Final Test	
F. Improve Phase	**G. Control Phase**
1) Brainstorming 2) Action Planning 3) Cost benefit analysis 4) Piloting a solution 5) Action Implementation 6) Action effectiveness 7) Horizontal Deployment 8) Improve Toll gate review	1) Basic of FMEA 2) Control Plan 3) Kaizen and Poka Yoke 4) Visual management 5) Statistical Process Control 6) Human Error and Mistake Proofing 7) Control Toll Gate Review 8) Financial Benefit Calculation 9) Q&A, Feedback and closure

Certification:

Two criteria for certifications:

1) 100% attendance
2) 70% mark scoring in final exam of 120 min., and
3) At least one six sigma DMAIC Project completion demonstrating the tools application.