GAQM®
Global Association for Quality Management

Certified Lean Six Sigma Black Belt (CLSSBB)™

Course Outline & Module Information

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What Modules are covered?

Section I – Organizational Roadblocks

1) Organizational roadblocks
2) Resistance Analysis
3) Overview of all Continuous Improvement approaches
4) Overview of Lean
5) Overview of Six Sigma
6) Lean Management explained
7) Lean Tools explained — 5S, Kaizen, SMED, Heijunka

Section II – Pre-define DMAIC and Define

Pre-define

1) DMAIC versus DFSS
2) Pre-define Pre-requisites and Qualifications
3) Project Prioritization Matrix
4) Introduction to Enterprise Wide view versus LOB view
5) NPV and IRR

Define

1) Champion's transfer of project
2) Team dynamics and facilitation
3) Project Charter's role
4) SIPOC/COPIS map
5) VOC/VOB/VOP
6) CTQ, CTC, CTS
7) VOC – CTQ Tree
8) Kano Model
9) Quality Function Deployment
10) Baseline performance of Y
11) Business Metrics for Y
12) Rolled Throughput Yield (RTY)
13) Statistical Definition of Six Sigma

Section III – Measure

1) Objectives of Measure Phase
2) Types of Data and Data Distribution models
3) Scales of Data
4) Measures of Central Tendency
5) Measures of Dispersion
6) Measurement Systems Analysis
7) Variables GAGE RR
8) Attribute RR
9) Stability Check — Importance of Stability
10) Capability Check — Cp, Cpk, Cpkm explained
11) Variations, Variability and Capability
12) Graphical tools to understand Data distribution
13) Understanding Weibull
14) Correlating Calculations to Business Measures
15) Checking Normality of Data

Section IV – Analyze

1) Objectives of Analyze
2) Simple Linear Regression
3) Multiple Linear Regression
4) Curvilinear Regression
5) Fishbone Diagram
6) Pareto Charts
7) Demarcating Common Causes
8) Hypothesis Tests
9) Statistical Validation Smirnov)

1.5 Section V – Improve

1) Objectives of Improve
2) Cost Benefit Analysis
3) Solutions Prioritization Matrix
4) Pugh Matrix
5) Design of Experiments
6) Introduction to DOE
7) Basics of DOE
8) Replication, Randomization and Blocking
9) Main Effects and Interaction effects
10) Full factorial experiments
11) Fractional factorial experiments
12) Screened Designs
13) Response Surface Designs
14) DOE with Regression
15) DOE with example

Section VI – Control

1) Taguchi's Loss Function
2) Control Charts (Variable Control Charts and Attribute Control Charts)
3) Measurement System Re-analysis
4) Control Plan and Project Storyboard Transfer
5) Project Closure
6) Introduction to Total Productive Maintenance

Lean Process Improvement

1) Understanding Lean
2) The Toyota Production System
3) The Toyota Production System House
4) The Five Critical Improvement Concepts
5) Understanding Value with the Kano Model
6) Types of Waste
7) Creating a Lean Enterprise
8) Understanding Lean
9) The Plan, Do, Study, Act (PDSA) Cycle
10) Using the R-DMAIC-S Model
11) Lean Thinking Tools
12) Kaizen Events
13) Data Gathering and Mapping

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What Modules are covered in the E-Course?

1) Pre-define DMAIC and Define
2) Organizational roadblocks
3) Resistance Analysis
4) Overview of all Continuous Improvement approaches
5) Lean Management explained . TAKT Time, Cycle Time, PCE, Lead Time, SWIP, Setup time, Changeover time
6) Lean Tools explained . 5S, Kaizen, SMED, Heijunka
7) DMAIC versus DFSS
8) Pre-define Pre-requisites and Qualifications
9) Project Prioritization Matrix
10) Introduction to Enterprise Wide view versus LOB view
11) NPV and IRR
12) Objectives of Measure Phase
13) Types of Data and Data Distribution models (Normal, Binomial and Poisson Distribution discussed)
14) Scales of Data
15) Measures of Central Tendency
16) Measures of Dispersion
17) Measurement Systems Analysis
18) Variables GAGE RR
19) Attribute RR
20) Stability Check . Importance of Stability
21) Capability Check . Cp, Cpk, Cpkm explained, How to understand Attribute Capability
22) Variations, Variability and Capability
23) Graphical tools to understand Data distribution
24) Understanding Weibull (2 Parameter, 3 Parameter and Rayleigh) Distribution
25) Correlating Calculations to Business Measures
26) Checking Normality of Data (Anderson Darling, Ryan Joiner and Kolmogorov Smirnov)
27) Objectives of Analyze
28) Simple Linear Regression
29) Multiple Linear Regression
30) Curvilinear Regression
31) Fishbone Diagram
32) Pareto Charts
33) Demarcating Common Causes and Special Causes
34) Hypothesis Tests (Parametric and Non-Parametric tests)
35) Statistical Validation
36) Objectives of Improve
37) Cost Benefit Analysis
38) Solutions Prioritization Matrix
39) Pugh Matrix
40) Design of Experiments
41) Introduction to DOE
42) Basics of DOE
43) Replication, Randomization and Blocking
44) Main Effects and Interaction effects
45) Full factorial experiments
46) Fractional factorial experiments
47) Screened Designs
48) Response Surface Designs
49) DOE with Regression
50) DOE with example
51) Taguchi.s Loss Function
52) Control Charts (Variable Control Charts and Attribute Control Charts)
53) Measurement System Re-analysis
54) Control Plan and Project Storyboard Transfer
55) Project Closure
56) Introduction to Total Productive Maintenance
57) Understanding Lean
58) The Toyota Production System
59) The Toyota Production System House
60) The Five Critical Improvement Concepts
61) Understanding Value with the Kano Model
62) Types of Waste
63) Creating a Lean Enterprise
64) Understanding Lean
65) The Plan, Do, Study, Act (PDSA) Cycle
66) Using the R-DMAIC-S Model

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