Version 4

ILSSI.org

ILSSI Body of Knowledge for Black Belt

1 Fundamentals of Process Improvement
2. General History of Lean Six Sigma
3. Principles of Lean and Six Sigma
4. Voice of the Customer, and Business
5. Lean Six Sigma Belt Roles
6. Defining a Process
7. Inputs and Outputs
8. The 8 Elements of Waste
9. Sustainable Processes
10. 5S
11. Critical to Quality (CTQs)
12. SIPOC
13. Process Mapping
14. Value Stream Mapping
15. Flow and Bottle-necks
16. Single-Piece-Flow
17. Poka-Yoke (Mistake Proofing)
18. SMED (Quick Change Over)
19. PULL and Just-in-Time
20. Kanban
21. Visual Management
22. Standardised Work
23. Kaizen and Kaizen Events
24. PDCA
25. Root Cause Analysis
26. Cause & Effect / Fishbone Diagrams
27. Pareto Principle / Pareto Charts
28. Industry 4.0 (Introduction)
29. Lean Six Sigma Projects
30. DMAIC basics
31. Define Phase of DMAIC
32. A3 Reports
33. Measure Phase of DMAIC
34. Failure Mode & Effects Analysis (FMEA)
35. Six Sigma Statistics
36. Use of Excel, Minitab or SigmaXL
37. Descriptive Statistics
38. Different Types of Data
39. Normal Distributions & Normality
40. Graphical Analysis
41. Histograms
42. Box Plots
43. Run Charts
42. Measurement System Analysis
44. Precision & Accuracy
45. Bias, Linearity & Stability
46. Gage Repeatability & Reproducibility
47. Variable & Attribute MSA
48. Process Capability
49. Capability Analysis, Cp, Cpk, Pp, Ppk
50. Long term vs Short term Variation
51. Analyze Phase of DMAIC
52. Y=f(x)
53. Scatter Plots and Correlation
54. Correlation Coefficients
55. Simple Linear Regression
56. Regression Equations
57. Digital Transformation (Introduction)
58. Smart Technology (Introduction)
59. Hypothesis Testing basics
60. Hypothesis Testing Uses
61. Practical vs. Statistical Significance
62. Alpha & Beta Risk
63. p-values
64. Types of Hypothesis Test
65. T-Tests
66. Designed Experiments
67. OFAT
68. Full Factorial Experiments
69. Full Factorial Designs
70. Improve Phase of DMAIC
71. Implementation Plans
72. Control Phase of DMAIC
73. Control Plans
74. Statistical Process Control (SPC)
75. Data Collection for SPC
76. Types of Control Charts
77. Tests for Special Cause Variation

78. Roles and Responsibilities of a Black Belt
79. Portfolio Management - Programme Management
80. Process Mining
81. Design for Six Sigma (DFSS)
82. Hoshin Kanri / Strategic Planning
83. Inferential Statistics
84. Central Limit Theorem
85. Standard Error of the Mean
86. Sampling Techniques
87. Sample Size calculation
88. Confidence & Prediction Intervals
89. Hypothesis Testing with Attribute Data
90. One and Two Sample Proportion
91. Chi-Squared (Contingency Tables)
92. Non- Linear Regression
93. Multiple Linear Regression
94. Use of Stats Software (such as Minitab, SigmaXL)
95. DOE Design Choices
96. Full Factorial Experiments
97. Fractional Factorial / Screening Experiments
98 Binomial and Poisson Distribution and Calculations