Course ID: PS-04 Course duration: 10 days

German Rheinland PersCert Registration Six Sigma Black Belt Course and Qualification Certification

Course benefits:

- Master the basic concepts of Six Sigma
- Learn how to implement Six Sigma
- Master the methodology of Six Sigma (DMAIC & DFSS)
- Know how to select and manage Six Sigma projects
- Learn to use the various tools required for a Six Sigma project
- Learn to use Minitab software for project data analysis
- Master the skills of implementing a Six Sigma project by completing at least one Six Sigma Black Belt project

Participant:

- Department manager
- Senior Manager
- project manager,
- Anyone working to improve quality or reduce costs

Course Outline:

Day 1 _	
Introduction to Six Sigma	• Black Belt Course Introduction • Six Sigma Green Belt Review ➢ Green Belt Tool and Road Map Review ➢ Project case sharing
Day 2	
Advanced Measurement System Analysis	• Bias, Linearity, Stability • repeatability, reproducibility • Destructive Measurement System Analysis • KAPPA value
Advanced Process Capability Analysis	• Within standard deviation and overall standard deviation • CP,CPK,PP,PPK

Day 3	
Process Capability Analysis for Nonnormal Data	• Individual distribution identification • Box-Cox transformation
The central limit theorem and its applications	• Central Limit Theorem and Verification • Applications of the Central Limit Theorem
Train the trainer	• Lecturer's role • How to prepare, start, teach, and conclude? • Interactive approach to Six Sigma courses • student trial lecture
Day 4	
Review of Confidence Intervals and Hypothesis Testing	• Where to Use Confidence Intervals and Hypothesis Testing • Review of Three Confidence Intervals • Ten Hypothesis Testing Review
Day 5	
Confidence Interval Higher Order	• Statistical context for confidence intervals for the population mean • Statistical context for confidence intervals for population standard deviations • Statistical context for confidence intervals for population proportions
Hypothesis testing advanced	• Review of Important Concepts of Hypothesis Testing • 1 - Statistical background for hypothesis testing of the Sample Z test • 1 - Statistical background for hypothesis testing of the Sample T test • 2 - Statistical background for hypothesis testing of the Sample T test • Statistical background for ANOVA analysis of variance • Statistical Background for Unary Regression Analysis • Statistical Background of Chi-Square Test
Day 6	
5 Methods for Nonparametric Tests	• One-Sample Sign Test • One-Sample Wilcoxon Signed Rank Test • Mann-Whitney test • Kruskal-Wallis test • Mood's Median Test
logistic regression	• Applications of logistic regression • Logistic regression analysis method
Multiple Regression	• Multiple regression applications • Multiple regression analysis method

Day 7	
Review of Trial Design Concepts	• What is the experimental design? • Terminology and role of experimental design • Commonly used test methods • Fisher 's experiment • helicopter test • 2K Experiment Design Method Design and Analysis • Projector test
Day 8	
Response Surface Test	• Advantages of the center point test • Test method when the center point is not significant • Test method when the center point is significant ➢ Center compound test ➢ surface center test • Response Surface Experimental Design and Analysis • Case exercise • Projector test (center point test)
Partially implemented experiments	• When is a partial implementation test method required? • Resolution and Hybrid • How to Design and Analyze Partial Implementation Experiments • Case 1 & 2 Walkthrough • Plackett Burman design
Day 9	
Reduced Variation DOE	• Reduced Variation DOE • The mean and standard deviation are optimized simultaneously
EVOP test method	• EVOP test applications • EVOP test case
full factorial test	• Full factorial test method with more than 2 levels
Day 10	
experiment method	• Summary of the application of various test methods • Comprehensive application of DOE in complex situations
Control Phase	• Advanced SPC ➢ Statistical principles of SPC ➢ SPC Control Limits ➢ Misunderstandings of SPC Application • Introduction to Six Sigma Design ➢ Tools for Six Sigma Design ➢ Roadmap for Six Sigma Design • Six Sigma Black Belt Review • Six Sigma Black Belt Certification Exam

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