bakkah

# Lean Six Sigma

## **Black Belt** Training Course

Certification provided by

PeopleCert
All talents, certified.

IASSC
LEAN SIX SIGMA CERTIFICATION

# Why Bakkah?

**Is a Saudi management consulting and education company that offers a wide range of products and services. We develop solutions tailored to our customer's needs.**

Our team of highly experienced, certified professionals help your reach the best decisions that ensure you realize optimum business profits by delivering projects on time, cost, and quality. We pride ourselves in having the skills and knowledge based on best industry practices that enable us to provide a myriad of solutions for business strategy to the most functional and operative areas.

## Course Objective

**By successfully completing this program, you'll be able to:**

- Participate in the development of a successful Six Sigma program.
- Contribute to the definition of project selection criteria and develop project proposals to meet those criteria.
- Lead a Six Sigma project team using the DMAIC problem-solving methodology and team-building skills.
- Apply and interpret basic and advanced Six Sigma tools, as necessary, for project definition, process baseline analysis, process improvement, and process control.
- Demonstrate your skills in an industry-recognized certification exam.

## Course Methodology


### Online Training

- 8 Days - Online Training
- Exam Simulation
- Group Activities after each lesson.
- Access to additional References – Glossary/ Recommended Reading/ Syllabus.
- Material language will be in English.
- Discussion language will be in both English and Arabic.

## Targeted Audience

- Senior Management
- Team leaders
- Software Professionals
- Project Managers
- Quality Assurance Managers and Engineers
- Software Quality Assurance team members
- Delivery Method

## Course Outline

### Introduction

- What is Six Sigma?
- Six Sigma Approach
- Why Six Sigma?
- History of Six Sigma and Continuous Process Improvement
- DMAIC Approach
- What is Lean?
- Lean Principles
- Lean & Six Sigma
- Lean Six Sigma Projects
- Problem solving strategy
- Six Sigma Roles & responsibilities

### Tools to Define

- Voice of the customer
- CTQ
- VOC to CTQ
- Decision Tree
- Kano Analysis
- COPQ
- Basic Six Sigma metrics – COPQ, DPU, DPMO
- Pareto Analysis (80:20 rule)
- Gantt Chart
- Project Charter
- 7 Project Charter Elements Six Sigma
- Business Case
- Problem Statement
- Goal Statement
- Project Scope
- Financial Evaluation and Benefits
- Stakeholder Analysis
- Communication Plan Matrix

## Tools to Measure

- Define a Process
- Process Mapping
- Top Down Charting
- Value Stream Mapping
- Idenify Quick Win
- Cause and Effect Diagrams
- FMEA
- Basic statistics – Defects, Defective
- Data Types, Sampling techniques
- Data Collection Plan
- Explain Measurement System Analysis
- Classification of Measurement System Error
- Accuracy, Precision
- Bias, Linearity & Stability
- Variable – Gage R&R
- Attribute – AAA
- Measures of central Tendency
- Measures of Dispersion
- Variance
- Standard Deviation
- Process Capability – Attribute & Discrete
- Process Capability Vs Process Performance
- Steps for Process Capability Study
- Steps for Process Performance Study
- Process Capability – Sixpack Report
- Cpk Vs Ppk
- Six Sigma Metrics
- DPMO Method

## Tools to Analyze

- Multi-Vari Analysis
- Probability Distributions
- Binominal Distribution
- Poisson Distribution
- Hypergeometric Distribution
- Normal Distribution
- Lognormal Distribution
- F-Distribution
- Normality Test
- Understanding Inferene
- Sampling Techniques
- Simple Random Sampling Vs Stratified Sampling
- Central Limit Theorem
- General concepts and goals of Hypothesis Testing
- Types of Hypothesis Testing
- Type I and Type II Errors
- Confidence Interval
- Approaches for Comparative Methods/ Statistical Tests
- Steps involved in Statistical Testing
- 1 sample t-tests
- Paired T-Test
- 2 sample t-tests
- ANOVA
- One Way ANOVA
- Two Way ANOVA
- One Sample Variance Test
- Two Variance Test
- Levene's Test
- 1 Proportion
- 2 Proportion
- Chi-squared Test
- Mann-Whitney
- Kruskal-Wallis
- Mood's Median
- Friedman's Test
- 1 Sample Sign
- 1 Sample Wilcoxon

## Tools to Improve

- Scatter Diagram
- Correlation Co-efficient Analysis
- Regression Analysis
- Regression Equation
- Residuals Analysis
- Simple Linear Regression
- Non-Linear Regression
- Multiple Linear Regression
- Box-Cox
- Designed Experiments
- Full Factorial Experiments
- Fractional Factorial Experiments

## Tools to Control

- 5s Control methods
- Kanban
- Poka-Yoke
- Data collection for SPC
- Control Charts
- Source of Variation
- Selecting a Control Chart
- I-MR Chart
- Xbar – R Chart
- Xbar – S Chart
- P Chart
- NP Chart
- C Chart
- U Chart
- CumSum Chart
- EWMA Chart
- Cost/Benefit Analysis
- Elements of Control Plan
- Standard Operating Procedure
- Response Plan

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