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Six Sigma Black belt Training and Certification

Introduction

Qualimations would be conducting the Lean six sigma Black belt program from 15th Aug to 15th Oct 2021. Six sigma is a problem solving methodology with worldwide reach and helps the participants to focus on developing and delivering near-perfect products and services. To achieve Six Sigma Quality, a process must produce no more than 3.4 defects per million opportunities. This certification supports organisations in raising their level and continuously innovates for growth.

Qualimations has implemented six sigma companywide in many organisations over the last 15 years. The skills gained will help in maximizing productivity, understand competitiveness, supporting quality initiatives, improve market share and strengthen the continuous improvement functions in an integrated manner. This Quality system is developed by professionals with over 20 years of expertise in the field. This certification provides the human talent to measure performance on job tasks and get encouraged in their professional development, both within the organization and across value chains and stakeholders.

Objective: Six sigma started in manufacturing and is applied in almost every domain or field now. Some of them have gained critical in the last few years especially in IT and service sectors. Qualimations has experts who have applied and demonstrated it effectively in the following domains.

- Manufacturing, Aviation and Automobile Sectors
- Oil &Gas and Logistics
- IT and software development
- Health Care and Medical
- Hotels and Service industry
- Financial and Banking
- Publishing and Support services

Lean Six Sigma Black Belt Training

Online Sessions starting Aug 15th to 15th Oct

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This training supports the participants in improving their understanding about the process and how to effectively move towards zero defects. The participants shall improve their problem solving skills by understanding the following key concepts.

- **Critical to Quality:** Attributes most important to the customer,
- **Defect:** Failing to deliver what the customer wants
- **Process Capability:** What the process can deliver
- **Variation:** What the customer sees and feels
- **Stable Operations:** Ensuring consistent, predictable processes to improve what the customer sees and feels
- **Design for Six Sigma:** Designing to meet customer needs and process capability..."

Benefits: Becoming certified as a Six Sigma Black Belt confirms your commitment to quality and the positive impact it will have on your organization**.** Based on Qualimations expertise in multiple domains the following is a direct shift for improvement that the participants who get trained and certified shall gain once they are a black belt.

- ✓ Understand and mentor the concepts of Quality planning to green belts.
- ✓ Can demonstrate and drive various leadership roles and responsibilities, organizational dynamics, customer expectations, and satisfaction.
- ✓ Learn how to plan and execute quality into the design and process.
- ✓ How to induce revenue impacting projects and identify threats and opportunities?
- ✓ Improve operational efficacy and build performance analysis models.
- ✓ How to analyse failure mode effect analysis that finds potential couse before it accours?.
- ✓ Risk & Reliability Analysis for negotiating price and cost with customer and optimising optimal pricing based on costing, risk and market share.

What is included in the training?

1. Six sigma Online training and certification.
2. Six sigma training material/work book
3. FMEA software for updating and studying failure modes.
4. Problem solving metric test for testing problem solving skills.
5. Feedback on project and review sessions after completing of project.

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Training Date:

To be decided based on mutual agreed dates between August and September 2021.

- The black belt training takes 2 months online, 25 sessions each of 2.5 hrs duration with real-time case and analysis.
- There are around 14 cases (5 of lean as well) of actual implementation that will be discussed in total and each topic will cover examples and application.

Trainer: Consultant with 20 years six sigma expertise from Industry.

Six Sigma Black Belt Training Outline and Objectives

Topics	Outline	Objectives
Enterprise-wide Deployment of Six Sigma and Leadership		
Leadership and Policy deployment	Organization- Planning, Deployment and process management. Communication and operational change management techniques. Evaluate financial results and impact due to projects. Roles and Responsibility, strategy and direction. Describe the responsibilities of executive leaders and how they affect the deployment of six sigma in terms of providing resources, managing change, communicating ideas.	❖ Define and understand Benchmarking ❖ Strategy for growth ❖ Planning and targets ❖ Business processes and systems.
Techniques for facilitating and managing organisational change	Organizational roadblocks. Describe the impact an organization's culture and inherent structure can have on the success of six sigma, and how deployment failure can result from the lack of resources, management support. Identify and apply various techniques to overcome these barriers. Describe and use various techniques for facilitating and managing organizational change. Describe the impact six sigma projects can have on customers, suppliers, and other stakeholders. Define and describe various CTx requirements, (critical to quality (CTQ), cost (CTC), process (CTP), safety (CTS), delivery (CTD),and the importance of aligning projects with those Requirements. Financial measures: Define and use financial measures, including revenue growth, market share, margin, cost of quality (COQ), net present value (NPV), return on investment (ROI), cost-benefit analysis.	❖ Impact on stakeholders ❖ Measures and KPI ❖ Critical to x (CTx) requirements. ❖ Benchmarking ❖ Business performance measures ❖ Financial Analysis

Team Dynamics	Team types and constraints Define and describe various types of teams, and determine what team model will work best for a given situation. Identify constraining factors including geography, technology, schedules. Team roles: Define and describe various team roles and responsibilities, including leader, facilitator, coach, individual member. Measure team progress in relation to goals, objectives, and other metrics that support team success, and reward and recognize the team for its accomplishments.	❖ Understanding the Forming, Storming, Norming and the performing teams. ❖ Team decision-making tools ❖ Team performance evaluation and reward
Quality function Deployment	Product designing and parameter analysis is key to designing and launching a product in the market. Quality Planning for innovation in the form of DMADV. Convert Voice of customer into company requirements and quality plan development. QDF supports this role for selection of customer expectation and for prioritizing the process/ design parameters in new product.	❖ House of Quality ❖ Deriving critical to Quality characteristics ❖ Design optimisation ❖ Pareto Analysis ❖ Kano Model
Design of Experiments	Design of experiments (DOE) is an approach used in industries for conducting experiments to develop new products and processes faster, and to improve existing products and processes. it can decrease time to market, decrease development and production costs, and improve quality and reliability.	❖ Factors and Causes ❖ Levels and Experiments ❖ Types of designs ❖ Solving the problem ❖ Response surfaces
Problem Solving Cycle and Phases		
Define Phase	Identify or validate the improvement opportunity, Outline the scope of the project. Customer identification Segment customers for each project and show how the project will impact both internal and external customers. Develop the goals and objectives for the project on the basis of the problem statement and scope. Develop the business process and critical customer requirements. Document business opportunity. Estimate project impact. Identify and map related business processes.	❖ Project statement, Project scope and charter. ❖ Customer requirements ❖ SMART (specific, measureable, actionable, relevant and time bound) goals and objectives. ❖ Voice of customer ❖ Goals and objectives
Measure Phase	Developing the methodology by which data will be collected to evaluate success. Identifying input, processes, and output indicators. Analyse processes by developing and using value stream maps, process maps, flowcharts, procedures, work instructions, spaghetti diagrams, circle diagrams Gathering, plotting, Analysing the data for consistency and patterns. Completing and identifying potential failure modes and effects analysis.	❖ Process flow ❖ Data collection and link to QFD. ❖ Sampling and Metrics ❖ Measures and types ❖ Measurement System Analysis. ❖ Probability

	Sampling methods: Define and apply the concepts related to sampling. Select and use appropriate sampling methods.	
Analyse Phase	Develop a problem statement and Complete the root cause verification analysis. Review factors and levels that impact the output. Implement process control. Define and interpret the significance level, power, type I, and type II errors of statistical tests. Define, compare, and interpret statistical and practical significance. Tests for means, variances, and proportions Use and interpret the results of hypothesis tests for means, variances, and proportions. Select, calculate, and interpret the results of ANOVAs, Select, develop, and use contingency tables to determine statistical significance. Failure mode and effects analysis (FMEA), Describe the purpose and elements of FMEA, including risk priority number (RPN), and evaluate FMEA results for processes, products, and services. Distinguish between design FMEA (DFMEA) and process FMEA (PFMEA), and interpret results from each. (Evaluate)	❖ Hypothesis Testing. ❖ Statistical vs. practical significance. ❖ Goodness-of-fit (chi square) tests ❖ Contingency Tables ❖ Couse and effect. ❖ Failure mode and effects analysis (FMEA). ❖ Update in FMEA Software for criticality analysis and Risk.
Improve Phase	This is the phase to Link to Design of experiments (DOE) for finding potential solutions and to improve. Select and apply tools and techniques for eliminating or preventing waste, including pull systems, kanban, 5S, standard work, poka-yoke, Cycle-time reduction Use various tools and techniques for reducing cycle time, including continuous flow. Kaizen, Define and distinguish between these two methods and apply them in various situations. (Apply) Theory of constraints (TOC), Define and describe this concept and its uses. Use tools such as feasibility studies, SWOT analysis (strengths, weaknesses, opportunities, and threats).	❖ Factors and Causes ❖ Levels and Experiment ❖ Types of designs ❖ Solving the problem ❖ Cycle-time reduction ❖ Response surfaces ❖ Theory of constraints (TOC) ❖ Risk analysis and mitigation
Control Phase	Verify reduction in failures due to the targeted root cause. Identify and document replication and standardization opportunities. Select and use the following control charts in various situations: X – R,moving range, p, np, c, u, short-run SPC, and moving average. Define the elements of TPM and describe how it can be used to control the improved process. Develop Control charts and ensure alerts are set. Update Standard Work documentation and Control plan Develop a control plan for ensuring the ongoing success of the improved process including the transfer of responsibility from the project team to the process owner.	❖ Statistical process control ❖ SOP/alerts and Exceptions ❖ Sustain improvements

DFSS and DMAIC Application	Describe design constraints, including design for cost, design for manufacturability and producibility, design for test, design for maintainability, Describe the elements of robust product design, tolerance design, and statistical tolerance. 14 projects will be discussed based on DMAIC and LEAN approach and application in Industry.	❖ Six Sigma cost reduction and revenue improvement application projects.
Evaluation		
Evaluation	Test to evaluate understanding for six sigma Black belt	❖ Certification

Lead Trainer : Harikrishnan. T. J , E-mail: tjhari@hotmail.com

Profile: Consultant and Trainer

- Six Sigma professional and Master graduate in Quality Engineering with 25 years of diversified Six sigma and Lean expertise application in industry.
- Expert in Agile, Revenue Management, Forecasting/Optimisation/Pricing and companywide implementation expertise.
- End to end business process re-engineering and expertise in Statistics, Market Research/Modelling, Voice of customer/business.
- Quality Engineering, Six Sigma Master black belt and trainer for 22 organisations in India and worldwide.
- Visiting faculty at BIM, Trichy for MBA on operations (Revenue Science, Operations and management).
- Skilled in Process mapping/improvement, Operations management, Project management tools and techniques with specialization in Continuous improvement and Six Sigma projects.
- Excellent interpersonal, analytical and troubleshooting skills with ability to synthesize complex information and develop solutions to problems.

Speaker and lectures:

- ✓ Bid Price controls, Business Analyst Forum, Thought works Chennai.
- ✓ Problem Solving using Deep analysis, IIT Chennai.
- ✓ Analytics for Sports, Move optimality: Chess club.
- ✓ Revenue Management, product bundling, NIT, India.
- ✓ *Design of experiments for problem solving, IIT Chennai*
- ✓ *EMSR models for availability optimisation, PROS, Houston*
- ✓ *Failure Mode and Effect Analysis, Indian Statistical Institute.*
- ✓ *Quality Function Deployment, AUTVS, Chennai*
- ✓ *Airline Hackathon, New distribution capability, IATA, Finland*
- ✓ *Revenue Maximisation and statistical modelling, BIM*
- ✓ *RM- Deriving Expected marginal seat revenue: NIIT, Trichy*
- ✓ *Performance Management, RM Systems, UAE*
- ✓ *Pricing optimization for Retail using six sigma, Harbour freight, LAX*

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Technical skills*:* Process analysis tools, DMAIC methodology, DMADV and Innovation, Lean methodologies, FMEA,QC tools, 8D (TPS), 5S practices, Statistical Process Control, Value stream mapping, Welding processes, Airline Inventory, pricing, production part approval process, Design of experiments, Reliability modelling, Principal Components, revenue science, forecasting, optimisation.

Contact us for more info:

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Feedback from previous six sigma Sessions:

http://www.qualimations.com/green-six-sigma-feedback.php

Qualimations Profile:

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http://www.qualimations.com/nsixsigma_black.php