



COURSE OVERVIEW



This is an advance level certification course in Lean Six Sigma and is considered one of the most sought-after international courses for managing and improving company-wide operational excellence. This program imparts a thorough in-depth knowledge and understanding of all aspects of Lean and Six Sigma. Being used extensively by Fortune 500 companies, Lean Six Sigma applies instruments and techniques with the aim of eliminating wastes and reducing the process variation. It is a proven pathway for enterprise-wide productivity, quality, and efficiency improvement.

Lean Six Sigma uses the analogy of belt colors (often associated with martial arts) to designate competence in applying lean six sigma tools to problem solving and process improvement. The advance level is called 'Six Sigma Black Belt'. A Black Belt leads complex problem-solving projects, trains and coaches project teams and understands all aspects of the DMAIC model in accordance with Six Sigma principles.

The Lean Six Sigma Black Belt (LSSBB®) course is specially designed to provide practical exposure to the participants with practical business improvement projects assigned to them by their management sponsor along with hands-on learning experience with advance Minitab statistical software so that they can boost their company's bottom line and can build the company to a world-class level. The body of knowledge of this course is compatible to the one defined by the American Society of Quality – ASQ®.

LEARNING OUTCOMES

Upon successful completion of this course, participants will be able to:

- ✓ UNDERSTAND the advance Lean Six Sigma tools that a Black Belt would be expected to use when on a project team
- ✓ LEARN how to manage Lean Six Sigma projects relevant to their organizational growth
- ✓ APPLY Lean Six Sigma in organizations to solve complex quality problems and removal of wastage
- ✓ BUILD a foundation for breakthrough performance
- ✓ FUNCTION as the steppingstone towards Master Black Belt Certification

COURSE CONTENT

The body of knowledge of this course comprise of following topics:

- Basics of Quality
- Introduction and History of Lean & Six Sigma
- Lean Manufacturing Fundamentals
- Difference between Lean & Six Sigma
- Eight Deadly Lean Wastes
- Understanding of DMAIC Methodology & Advance Statistical Tools
- Case Studies & Success Stories
- Individual & Group Exercises
- Phase-Wise Quizzes & Mock Exam
- Lean Six Sigma Black Belt Project Discussion

Six Sigma & Lean Tools Covered (Phase-Wise):

PHASE I		PHASE II		PHASE III
Define	Measure	Analyze	Improve	Control
<ul style="list-style-type: none"> • Project Selection & Prioritization • SWOT Analysis • DPMO Calculations & Baseline Sigma • Project Charter • Communication Plan • Stakeholder Analysis • Voice of Customer • Critical-To-Quality (CTQ) Tree • SIPOC: High Level Process Map • Six Sigma Team Dynamics & Management • Development of Key Performance Indicators (KPIs) • KANO Model of Quality • Value Stream Mapping (VSM) 	<ul style="list-style-type: none"> • Introduction to Minitab Software • Collecting & Summarizing Data • Rolled Throughput Yield (RTY) • Takt Time • Data Collection • Descriptive Statistics Measures • Sources of Variation • Graphical Analysis (Histogram, Interval, Box Plot) • Cost of Quality • X-Y Matrix • Cause & Effect Diagram • Pareto Chart • Measurement System Analysis • Process Capability Studies (Cpk/Ppk) 	<ul style="list-style-type: none"> • 5 Whys Analysis • Basic Probability • Probability Distribution Types • Inferential Statistics • Confidence Interval • Sampling Technique • Central Limit Theorem • Introduction to Hypothesis Testing • Hypothesis Tests for Normal & Non-Normal Data • Hypothesis Tests for Proportions • Analysis of Variance (ANOVA) • Correlation • Scatter Plot • Simple & Multiple Linear Regression Analysis • Best Subsets Regression 	<ul style="list-style-type: none"> • Piloting & Implementation • Principles & Components of Experimental Design • Main Effects & Interaction Plots • Optimization Method • Solution Selection Matrix • Impact-Effort Matrix • Generate and Validate Solutions • To-Be Process Flow • Revised DPMO & Sigma Calculations • Lean Tools: <ul style="list-style-type: none"> ○ Kaizen ○ Gemba ○ Push Vs Pull System ○ Poke-Yoke ○ 5S: Industrial Housekeeping 	<ul style="list-style-type: none"> • Failure Mode & Effect Analysis (FMEA) • Basics of Statistical Process Control • Evolution of Control Charts • Attribute & Variable Control Charts • Control Plan • SOP / Work Instructions

LEAN SIX SIGMA BLACK BELT PROJECT



The participants are required to work on real life projects assigned to them by their management sponsor from their respective organizations. The projects will be of a practical nature to be completed within the stipulated timeframe. A LSSBB Project Report is required to be submitted in accordance with the laid down criteria, format, and course coverage.

COURSE DURATION

Certified Lean Six Sigma Black Belt is a 16-Weeks course spread over four months, with class conducted on Sunday Only and a take-home project to be submitted one month after completion of Phase-III.

PRE-REQUISITES

Participants are expected to have a strong knowledge and understanding of basic statistics, fundamentals of quality management system and six sigma.

WHO IS THIS COURSE FOR?



This course is designed for individuals from diverse organizational functions - Quality, Engineering, HSE, Production, Finance, Healthcare, Aviation, Logistics, Sales, Security who are interested in understanding the concepts, tools, and methodologies of Lean and Six Sigma and wants to ensure a long-term continuous improvement culture and looking to get most out of their career.

Participants are normally process owners or leaders from service or product-based industry and are well versed in technical aspects of their jobs and have worked on project teams with sound knowledge of statistics and quality tools.

AWARD OF CERTIFICATION

Participants will receive internationally recognized Lean Six Sigma Black Belt Certification from SQI International, Singapore upon successful completion of course, as well as qualifying the written exam and Lean Six Sigma Black Belt project.



ABOUT OUR TRAINERS

Internationally experienced and qualified Lean Six Sigma Master Black Belts. All the trainers are approved tutors by SQII and have worked on number of Six Sigma and Operational Excellence Projects for multifarious companies, having hands-on experience in the field of QA, QMS, Process Excellence, Business Process Management and familiar with the industrial environment.

ABOUT PIQC

PIQC Institute of Quality was established in 1991 by a group of Quality professionals dedicated to the field of Quality. Over the past three decades, the Institute has earned the national and international credibility and is considered Pakistan's leading and most authentic institute for professional development in the field of Quality.

WHY TRAIN WITH PIQC ?

We have provided corporate advisory, training, and consultancy services to more than 500 companies and trained more than 50,000 personnel in Pakistan and abroad in the areas ranging from Quality Control to Quality Assurance, TQM, Lean Six Sigma, Lean Manufacturing, Total Productive Maintenance, HSE, HR Management, Project Management, Labor Laws, and Healthcare Quality to mention few.

OUR LEAN SIX SIGMA EXPERIENCE

Since 2005, PIQC Institute of Quality is the pioneer and most authentic source for International Lean Six Sigma certifications and training programs in Pakistan, including Lean Six Sigma Yellow Belt (LSSYB®), Lean Six Sigma Green Belt (LSSGB®), Lean Six Sigma Black Belt (LSSBB®) and Lean Six Sigma Champion (LSSC®).

86

Lean Six Sigma
Green Belt (LSSGB®)
Batches Conducted

63

Lean Six Sigma
Black Belt (LSSBB®)
Batches Conducted

1000+

Professionals trained working
in different industrial sectors
nationally and internationally

For **Lean Six Sigma** Certifications, PIQC is the preferred choice of notable companies such as:



FOR REGISTRATION AND FURTHER DETAILS:

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Group discount on nominations from the same organization

Fee includes:

- ✓ Course Material, Support Files & Templates
- ✓ Certificate of Participation
- ✓ Lunch & Refreshments
- ✓ Business Networking Opportunity
- ✓ Post-Training Counselling Services