Mastering Lean Six Sigma: Black Belt Certification Program

2027 □□□□□□□ 4 – □□□□□□□ 24
Jeddah (KSA)



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Ref: 20221575_234640 Date: 24 Location: Jeddah (KSA) Fees: 7600 GBP

Why This Course

Organizations striving for operational excellence need leaders who can move beyond basic improvement tools and drive transformation at scale. A Lean Six Sigma Black Belt is not only a technical expert in data and process analysis, but also a strategic change agent capable of delivering measurable financial impact.

This intensive 2-week Lean Six Sigma Black Belt program is designed for experienced professionals ready to lead complex, cross-functional initiatives. The course combines advanced statistical analysis, structured problem-solving, and leadership strategies to ensure participants can manage high-impact projects and embed a culture of continuous improvement across the organization.

What You'll Learn and Practice

By attending this course, you will:

- Apply advanced statistical tools to analyze complex process challenges.
- Lead large-scale improvement initiatives across multiple departments.
- Strengthen strategic thinking and data-driven decision-making.
- Mentor and coach Green Belts and project teams effectively.
- Align Lean Six Sigma projects with organizational priorities and long-term strategy.

The Program Flow

Day 1: Advanced Lean Six Sigma Concepts

- Advanced application of the DMAIC framework
- Strategic project selection and scoping
- Linking improvement initiatives to business objectives
- Leadership principles and structured change management

Day 2: Advanced Statistical Analysis

- Hypothesis testing and confidence intervals
- Analysis of Variance ANOVA
- Multiple regression analysis
- Non-parametric statistical methods



Day 3: Design of Experiments DOE

- Full and fractional factorial designs
- Response surface methodology
- Taguchi methods for robust design
- Practical experimentation strategies

Day 4: Advanced Process Capability and Control

- Multivariate process capability analysis
- Statistical Process Control SPC for short runs
- Advanced control chart interpretation
- Capability analysis for non-normal data

Day 5: Lean Methods and Tools

- Advanced Value Stream Mapping VSM
- Theory of Constraints TOC applications
- Pull systems and Kanban in complex environments
- Lean principles beyond manufacturing

Day 6: Advanced Root Cause Analysis

- Fault Tree Analysis
- Failure Mode and Effects Analysis FMEA
- Shainin Red X methodology
- Structured, high-level problem-solving frameworks

Day 7: Financial Analysis and Project Management

- Cost-benefit analysis and financial justification
- Risk assessment and mitigation planning
- Advanced project management tools
- Stakeholder communication and executive reporting

Day 8: Data Mining and Predictive Analytics

- Foundations of data mining
- Predictive modeling techniques
- Introduction to machine learning applications in process improvement
- Leveraging big data for operational excellence



Day 9: Design for Six Sigma DFSS

- DMADV methodology
- Quality Function Deployment QFD
- Robust design principles
- Designing for reliability and maintainability

Day 10: Leadership and Deployment Strategies

- Building and sustaining a Lean Six Sigma culture
- Coaching and mentoring Green Belts
- Enterprise-wide deployment strategies
- Sustaining improvements and continuous learning systems

Individual Impact

Participants will gain:

- Confidence to lead complex, high-value improvement initiatives.
- Advanced analytical skills for data-driven decisions.
- Expertise in mentoring project teams and developing internal talent.
- Stronger leadership capabilities in operational excellence environments.

Organizational Impact

Organizations will benefit from:

- High-impact projects delivering measurable financial returns.
- Improved cross-functional collaboration and alignment.
- Stronger internal capability in advanced analytics and process optimization.
- Sustainable improvement systems embedded within the organization.

Training Methodology

- Instructor-led sessions with advanced statistical applications.
- Hands-on data analysis and experimentation exercises.
- Real-world case studies and project simulations.
- Leadership workshops and strategic deployment discussions.

Beyond the Course

By the end of the program, participants will be prepared to:



- Lead enterprise-level Lean Six Sigma initiatives.
- Deliver sustainable operational improvements backed by data.
- Develop and mentor future improvement leaders.
- Drive a culture of excellence and continuous transformation across the organization.

