

Lean Six Sigma Black Belt Training

Module 1: Introduction to Lean Six Sigma & Black Belt Role

- Evolution of Lean and Six Sigma
- Integration of Lean and Six Sigma methodologies
- Roles and responsibilities of Black Belt professionals
- Organizational goals and strategic alignment
- Overview of DMAIC framework

Module 2: Define Phase Project identification and selection

- Voice of Customer (VOC) analysis
- Critical to Quality (CTQ) identification
- Stakeholder analysis and project charter development
- SIPOC (Supplier-Input-Process-Output-Customer) mapping

Module 3: Measure Phase Process mapping and data collection planning

- Measurement system analysis (MSA)
- Data types and measurement scales
- Descriptive statistics
- Process capability analysis (Cp, Cpk)
- Baseline performance measurement

Module 4: Analyze Phase Root cause analysis techniques

- Fishbone Diagram
- 5 Whys
- Hypothesis testing (t-test, chi-square, ANOVA)
- Correlation and regression analysis
- Failure Mode and Effects Analysis (FMEA)
- Identifying critical input variables (X's)

Module 5: Improve Phase Solution generation and selection techniques

- Design of Experiments (DOE)
- Lean tools application:
- Kaizen
- 5S
- Value Stream Mapping (VSM)
- Risk analysis and pilot testing
- Cost-benefit analysis

Module 6: Control Phase Control plan development

- Statistical Process Control (SPC)
- Control charts (X-bar, R, p, np, c, u charts)
- Standard Operating Procedures (SOPs)
- Sustaining improvements and documentation
- Handover and project closure

Module 7: Lean Concepts & Waste Elimination Lean principles and philosophy

- Types of waste (TIMWOODS)
- Just-in-Time (JIT)
- Continuous flow and pull systems
- Kanban systems
- Poka-Yoke (Error Proofing)

Module 8: Advanced Statistical Tools Advanced regression models

- Non-parametric tests
- Multivariate analysis
- Time series analysis
- Simulation techniques

Module 9: Change Management & Leadership Leading cross-functional teams

- Change management models
- Communication and stakeholder engagement
- Conflict resolution
- Coaching and mentoring Green Belts

Module 10: Project Management Integration Project planning and scheduling

- Risk management
- Resource allocation
- Integration with Agile and traditional project management frameworks