Lean Six Sigma Green Belt in Manufacturing Training Course

Professional Development Training Course Outline

Category	Manufacturing	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Lean Six Sigma Green Belt in Manufacturing Training Course is designed to equip participants with advanced process improvement, waste reduction, defect elimination, and operational excellence skills. This training integrates Lean methodologies with Six Sigma DMAIC (Define, Measure, Analyze, Improve, Control) framework to enhance manufacturing productivity, quality management, cost optimization, and continuous improvement culture. It empowers professionals to solve real-world production challenges using statistical tools, lean principles, and root cause analysis techniques.

In today's highly competitive manufacturing landscape, organizations demand experts in lean manufacturing, Six Sigma tools, process optimization, Kaizen, value stream mapping, and quality control systems. This course prepares candidates to lead medium-scale improvement projects, reduce variation in processes, improve throughput, and ensure customer satisfaction through measurable performance metrics like Sigma Level, OEE (Overall Equipment Effectiveness), cycle time reduction, and defect rate minimization. It is ideal for professionals seeking career advancement in quality engineering, industrial engineering, and operational excellence roles.

Programme Curriculum

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Course Duration

5 days

Course Objectives

1. Master DMAIC methodology for structured problem-solving
2. Apply Lean Manufacturing principles for waste elimination
3. Conduct Root Cause Analysis using Fishbone & 5 Whys techniques
4. Implement Statistical Process Control (SPC) in production systems
5. Improve Overall Equipment Effectiveness (OEE) in manufacturing lines
6. Use Value Stream Mapping for process visualization and optimization
7. Reduce Defects Per Million Opportunities (DPMO) using Six Sigma tools
8. Enhance Cycle Time Reduction strategies in production workflows
9. Apply Kaizen continuous improvement philosophy in operations
10. Develop process capability analysis (Cp, Cpk) for quality assurance
11. Optimize supply chain and inventory management efficiency
12. Lead Lean Six Sigma Green Belt improvement projects
13. Drive operational excellence through data-driven decision-making

Target Audience

1. Manufacturing Engineers
2. Quality Assurance / Quality Control Professionals
3. Industrial Engineers
4. Production Supervisors & Managers
5. Process Improvement Specialists
6. Supply Chain & Operations Professionals
7. Fresh Engineering Graduates (Mechanical, Industrial, Production)
8. Aspiring Lean Six Sigma Practitioners

Course Modules

Module 1: Introduction to Lean Six Sigma & DMAIC

- Overview of Lean & Six Sigma integration
- Understanding DMAIC phases
- Roles of Green Belt in organizations
- Introduction to process improvement lifecycle
- Key performance metrics in manufacturing
- **Case Study:** Reduction of assembly line defects in an automotive plant using DMAIC framework

Module 2: Lean Manufacturing Principles

- Types of manufacturing waste (TIMWOOD)
- Value-added vs non-value-added activities
- 5S workplace organization system
- Just-In-Time (JIT) production strategy
- Continuous flow manufacturing
- **Case Study:** Implementation of 5S in a textile manufacturing unit to improve productivity

Module 3: Statistical Process Control (SPC)

- Control charts (X-bar, R chart)
- Process variation analysis
- Common vs special cause variation
- Capability studies (Cp, Cpk)
- Data collection techniques
- **Case Study:** SPC application in reducing bottlenecks in FMCG packaging line

Module 4: Root Cause Analysis Tools

- 5 Whys technique
- Fishbone (Ishikawa) diagram
- Pareto analysis (80/20 rule)
- Failure Mode and Effects Analysis (FMEA)
- Problem identification frameworks
- **Case Study:** Eliminating recurring machine downtime in a food processing plant

Module 5: Measure Phase – Data Collection & Baseline

- Process mapping and flowcharting
- Data types and sampling methods
- Measurement System Analysis (MSA)
- Defining CTQs (Critical to Quality)
- Baseline performance measurement
- **Case Study:** Establishing baseline defect rates in electronics manufacturing

Module 6: Analyze Phase – Data Interpretation

- Hypothesis testing basics
- Regression analysis introduction
- Correlation analysis in production data
- Identifying process bottlenecks
- Cause-effect validation techniques
- **Case Study:** Analysis of production delays in an automotive parts plant

Module 7: Improve Phase – Lean Solutions

- Kaizen implementation techniques
- Poka-Yoke (error proofing)
- Process redesign strategies
- Waste elimination initiatives
- Pilot testing of solutions

- **Case Study:** Improving throughput in a beverage bottling facility using Kaizen events

Module 8: Control Phase – Sustaining Improvements

- Control plans and documentation
- Visual management systems
- Standard operating procedures (SOPs)
- Performance dashboards and KPIs
- Sustainability of improvements
- **Case Study:** Sustaining defect reduction in a pharmaceutical manufacturing unit

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

Ready to enroll or request a customized program? Book online or contact us:

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