LEAN SIX SIGMA GREEN BELT

(for Operational Excellence with International Certification)

Professional Certification: Lean Six Sigma Green Belt

Course Code: M048/25

Duration: 5 Days

Delivery Format: Hybrid

Target Audience:

- Professionals from any industry, including operations, quality, logistics, finance, production, and engineering.
- Process owners and team leaders responsible for driving improvements.
- Individuals with or without prior Lean Six Sigma knowledge.
- Anyone looking to apply Lean Six Sigma to improve processes and efficiency.
- Those seeking to lead or contribute to Lean Six Sigma transformation projects.

Program Outcomes:

Upon completion of this program, participants will be able to:

- Understand Lean principles, manage teams effectively, and create a culture of continuous improvement.
- Use Six Sigma Green Belt tools and the DMAIC methodology to drive rapid process improvements.
- Observe, map, and remove inefficiencies while understanding variations and their causes.

Detailed Syllabus

Module 1: Foundation of Lean Six Sigma

Outcome: Participants will understand the core principles of Lean Six Sigma, the fundamentals of Lean methodology, common Lean tools, and how to identify and eliminate waste. They will also grasp the basics of Value Stream Mapping and implementing Lean in a business context.

Topics:

- Fundamental Session - Lean Six Sigma Concepts
    - Why Lean Six Sigma?
- Lean Terminology – Terms, Tools and Techniques
    - Eliminate Waste with Lean
    - Components of Lean
    - Lean Thinking
- Lean Practices
    - Value Stream Mapping
- Implementing Lean Six Sigma in Business
    - Lean Starts with People
    - Data Drives Lean
    - Road Map for Lean

Activities:

- Introduction to Value Stream Mapping and its creation.
- Brainstorming sessions on applying Lean in different business scenarios.

Assessments:

- Quiz on Lean Six Sigma and Lean fundamentals.
- Identifying waste in a given scenario.

Module 2: Lean Thinking management

Outcome: Participants will understand the principles of Lean Thinking, how to define value from a customer perspective, analyze value streams, implement flow and pull systems, and the importance of perfection.

Topics:

- Introduction of Lean Management
- Principle of Lean Thinking
- The principle that the customer defines value – beginning of lean improvement activity
- The importance of delivering customer value without waste using Value Stream Thinking, Flow in the workplace and delivering the value.
- Standard work in order
- Personal commitment and change our action, habits, values and belief.
- Power of A3 Thinking for process improvement
- A3 Thinking for root cause analysis and practical solution
- A3 Thinking for visual process which can reduce the very common of waste and rework
- Moving forward in our organization.

Activities:

- Discussions on the principles of Lean Thinking and customer value.
- Exercises in Value Stream Analysis and identifying value-added activities.

Assessments:

- Case study on applying Lean Thinking principles.
- Identifying opportunities for Visual Workplace.

Module 3: Base Line Analysis - Identifying Critical Success Factor

Outcome: Participants will be able to analyze basic production lines, identify barriers to flow and the "8 Wastes," understand the concepts of Muda, Mura, and Muri, and learn how to align processes with customer demand using Just-in-Time principles.

Topics:

- Process focus
- Identification and elimination of barriers to flow
- Flow and the economies of flow
- Understanding of variation
- Wastes (Muda), Fluctuation (Mura) and Overburden (Muri)
- Connect and align value added work fragments
- Match rate of production to level of customer demand – just-in-time
- Scientific Thinking – stability, standardization, recognize abnormality, go and see

- Jidoka
    - Quality at the source
    - No defects passed forward
    - Separate man from machine
    - Multi process handling
    - Self detection of error
    - Stop and fix
- Seek Perfection
    - Incremental continuous improvement
    - Breakthrough continuous improvement

Activities:

- Process walk-through simulations and analysis.
- Exercises in identifying and categorizing the 8 Wastes.

Assessments:

- Identifying flow barriers and wastes in a process.
- Calculating Takt Time and Cycle Time.

Module 4: Root Cause Analysis (RCA)

Outcome: Participants will be able to apply Root Cause Analysis techniques to identify the fundamental causes of problems and wastes.

Topics:

- Total System Value Stream Mapping to analyse the problems and wastes
- Visual workplace - to analyse waste in the process
- 5S standards and discipline
- Production, Process and Preparation (3P) to identify the wastes
- Total productive maintenance – 16 manufacturing losses, OEE, MTTR, MTBF
- Standard work – Time study in the process
- Strategic Business Assessment – Productivity indicators analysis
- Rapid breakthrough improvement process methodology
- Lean Six Sigma Approach
- Project Management Application

Activities:

- Understanding and calculating OEE, MTBF, and MTTR.

- Applying Lean Six Sigma and project management frameworks to RCA.

Assessments:

- Applying RCA tools to a given problem.

Module 5: Rapid Breakthrough Improvement Techniques (RBI Techniques) using Lean Six Sigma Green Belt

Outcome: Participants will gain an understanding of how Six Sigma tools and the DMAIC (Define, Measure, Analyze, Improve) methodology can be used for rapid process improvement.

Topics:

- Define Phase
    - Overview of Six Sigma
    - Fundamentals of Six Sigma
    - Lean Six Sigma Projects
- Measure Phase
    - Process Definition
    - Six Sigma Statistics
    - Measurement Systems
    - Process Capability
- Analyze Phase
    - Inferential Statistics
    - Hypothesis Testing
    - Hypothesis Tests: Normal
    - Hypo Tests: Non-Normal
- Improvement Phase
    - Simple Linear Regression
    - Lean Controls
    - SPC
    - Control Plans

Activities:

- Review of the DMAIC methodology and its application to rapid improvement.
- Short exercises and case studies focusing on quick problem-solving using Six Sigma.

Assessments:

- Applying basic Six Sigma tools to a rapid improvement scenario.
- Identifying the appropriate DMAIC phase for different improvement activities.

Module 6: Lean Six Sigma (GB) Business Result

Outcome: Participants will understand how Lean Six Sigma initiatives drive business results, the importance of measuring and managing related metrics, and reflect on their personal development and the certification process.

Topics:

- Principles of Business Results
- Measurement System
- Key Lean Indicators Related Measures
- Reflection, Personal Development and Certification

Activities:

- Discussions on the link between Lean Six Sigma projects and financial/business outcomes.
- Identifying key metrics for measuring the success of Lean Six Sigma projects.

Assessments:

- Identifying relevant business metrics for a Lean Six Sigma project.
- Developing a plan for leading and managing a Lean Six Sigma team.