Course Name - Certified Six Sigma Green Belt (CSSGB)

Duration – 05 Days

About the Course

The **Certified Six Sigma Green Belt (CSSGB)** program equips professionals with the knowledge and skills to participate effectively in Six Sigma projects. Based on ASQ's **DMAIC methodology (Define–Measure–Analyze–Improve–Control)**, the course covers Lean tools, statistical analysis, process improvement, and project management essentials.
Learners gain the ability to identify root causes of problems, apply data-driven decision-making, and sustain improvements that align with organizational goals.
This intensive **5-day course** provides comprehensive preparation for the **ASQ CSSGB certification exam**.

Target Audience

This course is designed for:

- Professionals involved in **quality improvement, process management, and operations**.
- Team members and project leaders working on **Six Sigma / Lean Six Sigma projects**.
- Engineers, analysts, supervisors, or managers seeking **structured problem-solving skills**.
- Individuals preparing for the **ASQ Certified Six Sigma Green Belt exam**.
- Organizations aiming to build internal Six Sigma capability at the **project team level**.

5-Day Training Plan

Day 1: Fundamentals & Introduction

- **Module 1: Overview – Six Sigma and the Organization**
    - Value and evolution of Six Sigma (Deming, Juran, Ishikawa, Shewhart) (Understand)
    - Aligning Six Sigma projects with organizational goals and SMART objectives (Understand)

    - Business drivers: KPIs, customer satisfaction, efficiency, profitability (Understand)
- **Module 2: Lean Principles & Design for Six Sigma (DfSS)**
    - Lean tools: Theory of Constraints, value chain, takt time, JIT, Gemba, spaghetti diagrams (Apply)
    - Value Stream Mapping (VSM) (Understand)
    - DfSS roadmaps: DMADV vs. IDOV and their fit with DMAIC (Understand)
    - Basics of FMEA: calculate RPN, distinguish between design and process FMEA (Apply/Analyze)

Day 2: Define Phase

- **Module 3: Define Phase**
    - Project selection criteria and choosing DMAIC path (Understand)
    - Process mapping, boundaries & cross-functional challenges (Analyze)
    - Voice of the Customer (VOC), CTQs, Kano Model, and requirement tools (Understand/Apply)
    - Project charters: purpose, selection, SMART goals, SWOT, stakeholder identification (Apply)
    - Tools: SIPOC, Project Charter, Scope, SIPOC (Apply/Analyze)

Day 3: Measure Phase

- **Module 4: Measure Phase**
    - Data collection planning: methods, sampling, and quality checks (Understand/Apply)
    - Descriptive statistics, process capability concepts (Cp, Cpk), sigma level (Apply/Analyze)
    - Measurement system analysis: Gage R&R, accuracy, precision (Analyze)
    - Basic hypothesis testing, sample size estimation (Understand/Apply)
    - Visualization tools: histograms, Pareto charts, run charts, scatter diagrams (Apply)

Day 4: Analyze & Improve Phases

- **Module 5: Analyze Phase**
    - Root cause analysis: Fishbone (Ishikawa), 5 Whys (Apply)
    - Formal hypothesis testing: t-test, chi-square, ANOVA (Analyze)
    - Regression and correlation (Understand)
    - FMEA (revisit), risk prioritization (Analyze)
- **Module 6: Improve Phase**
    - Brainstorming and solution generation (Apply)
    - Design of Experiments (DOE) – basics for process optimization (Apply)
    - Waste reduction: SMED, 5S, poka-yoke, Kaizen (Apply)

    - Work Breakdown Structure (WBS), pilot runs, verification & validation (Understand/Apply)
    - Change management tools: RACI matrix, tollgate reviews (Apply)

Day 5: Control Phase & Final Review

- **Module 7: Control Phase**
    - Control plans, statistical process control (SPC), control charts (Apply/Analyze)
    - Sustaining improvements, monitoring metrics (ROC curves, dashboards)
    - Andon systems, Jidoka, predictive maintenance (Apply)
- **Module 8: Comprehensive Review**
    - Practice questions covering all DMAIC phases, with emphasis on knowledge gaps
    - Open-book techniques: quick reference strategies, using CSSGB Handbook efficiently
    - Exam tips: time management, question interpretation, resource use during exam

Learning Outcomes

By the end of this training, participants will be able to:

1. **Understand Six Sigma & Lean Principles**
    - Explain Six Sigma concepts, methodologies, and their role in organizational improvement.
    - Apply Lean tools such as Value Stream Mapping, 5S, and poka-yoke.
2. **Define Business Problems Clearly**
    - Develop project charters, identify stakeholders, and translate the **Voice of the Customer (VOC)** into **Critical to Quality (CTQ)** requirements.
3. **Measure and Analyze Processes**
    - Collect and interpret process data, assess measurement systems, and calculate process capability (Cp, Cpk, Sigma Level).
    - Use hypothesis testing, regression, and root cause analysis to identify process inefficiencies.
4. **Improve Processes Effectively**
    - Generate solutions using brainstorming, FMEA, and Design of Experiments (DOE).
    - Implement waste reduction and continuous improvement initiatives.
5. **Control and Sustain Improvements**
    - Develop **control plans**, apply **SPC control charts**, and implement monitoring systems.
    - Standardize improved processes and ensure long-term sustainability.
6. **Prepare for the ASQ CSSGB Exam**

- Gain familiarity with exam structure, question types, and effective open-book exam strategies.
- Build confidence through review sessions and practice questions.
