



CERTIFICATION SYLLABUS

Certified Lean Six Sigma Green Belt

Exam Code: CLGB™



A complete preparation guide covering exam objectives, core competencies, domain weightage, and topics to prepare.

Table of Contents

1. Exam Name & Code.....	1
2. Table of Contents.....	2
3. Objective of the Certification.....	3
4. Core Competencies.....	4-5
➤ <i>DMAIC Methodology Execution</i>	
➤ <i>Lean Operations & Flow Optimization</i>	
➤ <i>Project Leadership & Soft Skills</i>	
5. Who Should Take This Certification.....	6
6. Exam Information.....	6
7. Examination Domain & Weightage.....	7
8. Topics to Prepare.....	8-9
➤ <i>Organizational Foundations & Lean Core</i>	
➤ <i>Define Phase</i>	
➤ <i>Measure Phase</i>	
➤ <i>Analyze Phase</i>	
➤ <i>Improve Phase</i>	
➤ <i>Control Phase</i>	

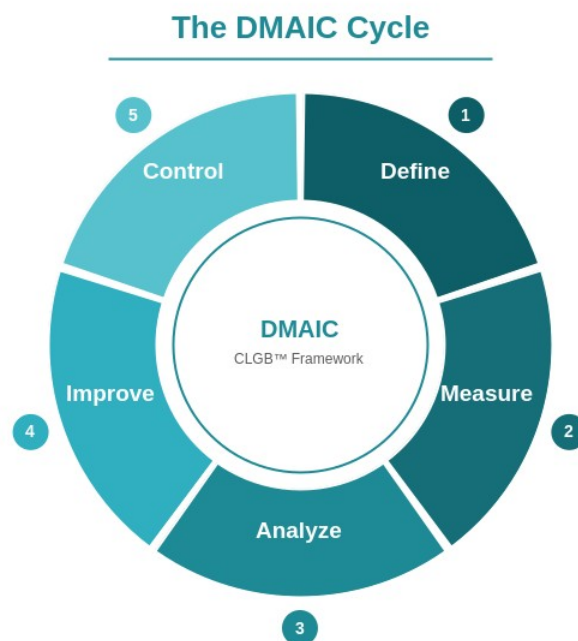
Objective of the Certification

- Build a solid understanding of the DMAIC problem-solving framework (Define, Measure, Analyze, Improve, Control).
- Demonstrate mastery of Lean Six Sigma principles, tools, and methodologies.
- Equip professionals to identify, quantify, and eliminate process defects and waste.
- Enable data-driven decision-making using statistical tools.
- Prepare candidates to lead or support process-improvement projects within their organization.
- Establish a common, standardized vocabulary and toolset for continuous improvement work.

Core Competencies — CLGB™ (Lean Six Sigma Green Belt)

DMAIC Methodology Execution

- **Define:** Formulate project charters, construct high-level process maps (SIPOC), establish Critical-to-Quality (CTQ) metrics, and translate the Voice of the Customer (VOC) into measurable targets.
- **Measure:** Develop structured data collection plans, perform Measurement System Analysis (MSA), establish process baselines, and evaluate process capability.
- **Analyze:** Conduct root-cause analysis, perform exploratory data analysis, and apply statistical hypothesis testing to validate cause-and-effect relationships.
- **Improve:** Design, pilot, and deploy targeted solutions, implement Kaizen events, and apply mistake-proofing techniques.
- **Control:** Deploy Statistical Process Control (SPC) tools, establish standard operating procedures (SOPs), and build process control plans to sustain long-term gains.



Lean Operations & Flow Optimization

- **Value Stream Mapping (VSM):** Map current-state processes, identify operational bottlenecks, and design future-state workflows.
- **Waste Elimination:** Locate and reduce non-value-added activities across the traditional 8 Wastes (TIMWOODS: Transportation, Inventory, Motion, Waiting, Over-processing, Over-production, Defects, Unutilized Talent).
- **Workplace Systems:** Execute 5S methodology, calculate TAKT time, and set up continuous flow or pull systems using Kanban.

Project Leadership & Soft Skills

- **Cross-Functional Collaboration:** Bridge theoretical frameworks with practical workplace execution alongside Black Belts and operational teams.
- **Data Storytelling:** Interpret complex statistical outputs into actionable visual charts for executive leaders and project sponsors.
- **Stakeholder & Change Management:** Facilitate team engagement, reduce resistance to new processes, and foster a culture of continuous improvement.

Who Should Take This Certification

- Professionals involved in quality improvement, process engineering, operations, supply chain, manufacturing, or project management.
- Project Managers, Department Heads, and Scrum Masters seeking structured root-cause analysis frameworks.
- Team members who will support or lead DMAIC-based improvement projects.
- QA/QC Analysts, Quality Managers, Process Improvement Specialists.
- Industrial Engineers, Manufacturing Engineers, Business Analysts, System Engineers.
- Individuals preparing to pursue Black Belt certifications later.

Prerequisite: Lean Six Sigma Yellow Belt certification (Mandatory)

Exam Information

Exam Name	Lean Six Sigma Green Belt
Exam Code	CLGB™
Exam Format	Multiple Choice Questions (MCQ)
Duration	180 minutes
Number of Questions	100
Passing Score	70%
Mode of Exam	Test Center Based Testing / Online Testing
Language	English
Validity	Lifetime
Open Book	No

Examination Domain & Weightage

Domain	Core Competencies Tested	Weightage
Define Phase	Project Charters, SIPOC Maps, VOC to CTQ translation, Stakeholder Analysis	16%
Measure Phase	Data Collection Plans, Gage R&R / MSA, Process Capability, Descriptive Statistics	20%
Analyze Phase	Fishbone Diagrams, Pareto Analysis, Hypothesis Testing (t-tests, ANOVA, Chi-Square), Regression	24%
Improve Phase	Kaizen Events, Poka-Yoke (Mistake-Proofing), FMEA, Solution Selection Matrices, Flow Optimization	24%
Control Phase	Statistical Process Control (SPC Charts), Control Plans, SOPs, Standardization	16%
Total		100%

Topics to Prepare

The topics below represent the core areas candidates should focus on for each domain. This syllabus is intended as a preparation guide and does not include advanced statistical tools, which are covered in Black Belt certifications.

1. Organizational Foundations & Lean Core

- **Six Sigma Fundamentals:** Belt roles, project selection criteria, and calculating the Cost of Poor Quality (COPQ).
- **Lean Waste Elimination:** The 8 Wastes (TIMWOODS: Transportation, Inventory, Motion, Waiting, Over-processing, Over-production, Defects, Unutilized Talent), Value-Add vs. Non-Value-Add analysis, and TAKT time calculation.
- **Value Stream Mapping (VSM):** Current state process mapping, identifying operational bottlenecks, and future state design.

2. Define Phase

- **Project Charter Development:** Constructing problem statements, business cases, project scope boundaries, and milestones.
- **Voice of Customer (VOC):** VOC gathering techniques, Kano Model classification, and translating VOC into Critical-to-Quality (CTQ) trees.
- **SIPOC Diagram:** Structuring Suppliers, Inputs, Process, Outputs, and Customers.

3. Measure Phase

- **Process Mapping:** Detailed flowcharts, swimlane diagrams, and value-add flow analysis.
- **Data & Descriptive Statistics:** Continuous vs. Discrete data types, sampling plans, measures of central tendency (mean, median, mode), and measures of dispersion (standard deviation, variance).
- **Measurement System Analysis (MSA):** Precision vs. accuracy, Gage Repeatability & Reproducibility (Gage R&R), and attribute agreement analysis.
- **Process Capability:** Calculating capability indices (Cp, Cpk, Pp, Ppk) and converting metrics to Sigma level.

4. Analyze Phase

- **Root Cause Analysis:** Fishbone (Ishikawa) diagrams, 5 Whys, Cause & Effect matrices, and Pareto Charts (80/20 rule).
- **Exploratory Data Analysis:** Histograms, box plots, scatter plots, and run charts.
- **Hypothesis Testing:** Formulating Null (H0) and Alternative (Ha) hypotheses, Type I/Type II errors, p-value interpretation, 1-sample/2-sample t-tests, ANOVA, and Chi-Square tests.

- **Correlation & Regression:** Pearson correlation coefficient (r) and simple linear regression analysis.

5. Improve Phase

- **Solution Development:** Brainstorming techniques, Solution Selection Matrix, and basic concepts of Design of Experiments (DOE).
- **Failure Mode & Effects Analysis (FMEA):** Risk Priority Number (RPN) calculation, evaluating severity, occurrence, and detection ratings.
- **Implementation & Flow:** Poka-Yoke (mistake-proofing), 5S methodology, visual controls, Kanban pull systems, solution piloting, and Kaizen event execution.

6. Control Phase

- **Statistical Process Control (SPC):** Common cause vs. special cause variation, chart selection rules, and reading control charts (I-MR, X-bar-R, p, c, u, np).
- **Standardization:** Developing Control Plans, updating Standard Operating Procedures (SOPs), and training documentation.
- **Project Closure:** Financial gain validation, project hand-off to process owners, and post-implementation reviews.