

## Lean Six Sigma Green Belt (LSSGB™)

Lean Six Sigma Green Belt (LSSGB™) course focuses on providing students with an understanding of the various Six Sigma and Lean tools and techniques useful to improve the production process and minimize defects in the end product with a greater focus on the practical implementation of these tool and techniques in the organization..

Upon passing the exam, you will be accredited as "Lean Six Sigma Green Belt."

## Syllabus

### Introduction to Six Sigma

1. History of Quality (Deming, Juran, JIT, Ishikawa, Taguchi, etc.)
2. Evolution of Six Sigma
3. Defining Six Sigma – philosophy and objectives
4. Overview of Six Sigma DMAIC process

### Stakeholders & Setting up a Six Sigma Project

1. Identifying and Documenting stakeholder requirements
    - a. Identifying stakeholders and customers
    - b. Data collection and analysis
    - c. Determining critical requirements
  2. Project Selection Criteria
    - a. Identifying performance metrics
    - b. Using Financial criteria to evaluate project benefits
    - c. Maximizing project benefits for the organization
  3. Project Planning
    - a. Creating Project Charter
    - b. Charter Negotiation
  4. Managing Team Dynamics
    - a. Initiating teams
    - b. Stages of team evolution
    - c. Maslow's hierarchy of needs
    - d. Motivation Techniques
    - e. Conflict Resolution Techniques
    - f. Management / Leadership styles
    - g. Roles played by people in a project
  5. Important project management & planning tools
- ### Six Sigma Methodology – Define
1. Inputs – Need for six sigma project, Executive management sponsorship, core team identified
  2. Tools
    - a. Organization hierarchy
    - b. High level process maps
    - c. High level Pareto charts
    - d. Idea generation and categorization tools
  3. Outputs

- a. Project charter
- b. Established metrics
- c. Problem statement
- d. Roles & responsibilities

**Six Sigma Methodology – Measure**

- 1. Objectives of Measure Phase
- 2. Inputs – the outputs of the Define phase
- 3. Tools

- a. Data collection tools and techniques
- b. Measurement scales
- c. Validation techniques (Gauge R & R)
- d. Statistical distributions
- e. Data mining
- f. Run charts
- g. Process map
- h. Stakeholder tools
- i. Process costs

#### 4. Outputs

- a. Well defined processes
- b. Baseline process capability
- c. Process parameters affecting CTQs
- d. Cost of poor quality (COPQ)
- e. Measurement system

#### **Six Sigma Methodology – Analyze**

1. Objectives of Analyze Phase
2. Inputs – outputs of the Measure phase
3. Tools
  - a. Ishikawa diagram
  - b. Failure mode and effects analysis
  - c. Hypothesis testing
  - d. Process capability study

#### 4. Outputs

- a. Important causes of defects
- b. Special and common causes of variation
- c. DPMO and sigma level

#### **Six Sigma Methodology – Improve**

1. Objectives of Improve Phase
2. Inputs – outputs of the Analyze phase
3. Tools
  - a. Returns on investment
  - b. Solution design matrix
  - c. Design of experiment
  - d. Taguchi robustness concepts
  - e. Response surface methodology
  - f. Project planning and management tools
  - g. Prototypes

#### 4. Outputs

- a. Cost / benefit for different solution
- b. Selection of solutions for implementation
- c. Implementation plan

#### **☒ Six Sigma Methodology – Control**

1. Objectives of Control Phase

## 2. Inputs – outputs of the Improve phase

### 3. Tools

- a. Control plan
  - b. Statistical process control
  - c. Lean enterprise
  - d. 5S
  - e. Kaizen
  - f. Kanban
  - g. Total productive maintenance
  - h. Measurement system reanalysis
- ### 4. Outputs
- a. Implemented solutions
  - b. Revised measurement system
  - c. Control plan for sustaining benefits
  - d. Improves process capability
  - e. Lessons learned

### **Lean**

1. A Value Stream Map
2. Lean is Speed
3. Total Supply Chain
4. Lean Six Sigma Logistics

### **Case Study**

1. Case Study Part 1
2. Case Study Part 2
3. Case Study Part 3

### **Exam Format**

- Multiple Choice
- 100 questions per exam
- One mark awarded for every right answer
- No negative marks for wrong answers
- Duration of 120 minutes
- Online proctored exam

### **Prerequisites**

Preferably Six Sigma Yellow Belt (SSYB™) certified, but not mandatory.

### **Maintaining Certification**

Take SSGB™ Recertification exam every 3 years or earn any 6sigmastudy™ Certification.

### **Audience Profile**

This course is highly recommended for employees and organizations requiring a standardized approach to problem solving for the purpose of continuous improvement in Quality Management.