

Growth Up Consulting & Training Center



**CERTIFIED LEAN SIX SIGMA GREEN BELT
(CLSSGB)**

BODY OF KNOWLEDGE

2021



The Six Sigma Green Belt operates in support or under the supervision of a Six Sigma Black Belt, analyzes and solves quality problems, and is involved in quality improvement projects. A Green Belt wants to demonstrate his or her knowledge of Six Sigma tools and processes.

During the course you will learn

UNIT 1: INTRODUCTION TO SIX SIGMA

CHAPTER 1: WHAT IS SIX SIGMA?

What is six sigma?

Decision making without Vs with six sigma

Calculation of sigma level

Common Six Sigma Principles

Challenges of Six Sigma

CHAPTER 2: SIX SIGMA HISTORY AND APPLICATION

The Development of Statistical Process Control

Continuous Process Improvement: Toyota and Lean

Motorola's Focus on Defects

ABB, Allied Signal, and General Electric

Continued Growth of Six Sigma

Applying Six Sigma Knowledge

CHAPTER 3: OTHER PROCESS IMPROVEMENT AND QUALITY METHODS

Other Formal Quality or Process Improvement Programs

When to Use Six Sigma

CHAPTER 4: LEAN CONCEPTS

The Seven Muda

Other Forms of Waste

Two Types of Muda

5S

Just-in-Time Manufacturing

CHAPTER 5: BASIC SIX SIGMA CONCEPTS

Standard Deviation

The Pareto Principle

Voice of the Customer

Basic Metrics

CHAPTER 6: APPROACHING THE PROBLEM

Problem Functions: $y = f(x)$

The 5 Whys

Creating a Problem Statement

UNIT 2: PROJECTS AND PROCESSES

CHAPTER 7: WHAT IS A PROCESS?

What is a Process?

Major Process Components

Process Owners

Data

Defining Process Components: The SIPOC

Tips for a SIPOC Brainstorming Session

Sample SIPOC Diagrams

CHAPTER 8: QUALITY

Critical to Quality Characteristics

The CoQ and the CoPQ

Quality is Critical to Success

CHAPTER 9: SELECTING THE RIGHT PROJECTS

Juggling the Right Amount of Projects

Enterprise-Level Selection Process

See for Yourself

CHAPTER 10: BASIC SIX SIGMA TEAM MANAGEMENT

Building a Six Sigma Team

Timelines, Scheduling, and Milestones

Budgets

CHAPTER 11: INTRODUCTION TO DMAIC AND DMADV

DMAIC versus DMADV

Define

Measure

Analyze

Improve

Control

Design

Verify

Breaking up the Elephant

UNIT 3: ADVANCED DMAIC

CHAPTER 12: DEFINE

Creating a Project Charter

Project Ground Rules

Define Toolset

Define Tollgate Checklist

CHAPTER 13: MEASURE

Failure Modes and Effect Analysis

Collecting Data

Measure Tollgate Checklist

CHAPTER 14: ANALYZE

Root Cause Analysis
Graphical Analysis
Statistical Analysis
Analyze Tollgate Checklist

CHAPTER 15: IMPROVE

Solutions Selection Matrix
Cost Benefit Analysis
Piloting a Solution
Planning Implementation
Improve Tollgate Checklist

CHAPTER 16: CONTROL

Revise FMEA
Create a Control Plan
Visual Management
SPC Charts
Team Celebration and Reflection
Control Tollgate Checklist

UNIT 4: BEGINNER STATISTICS

CHAPTER 17: INTERMEDIATE GRAPHICAL ANALYSIS

Additional Graphical Analysis Tools
Creating an X-Bar Control Chart without Statistical Software
Adding Free Data Analysis Tools to Excel

CHAPTER 18: NORMAL PROBABILITY DISTRIBUTIONS

Probability distributions
Creating a Histogram in Excel
Normal Distributions
Normal Probabilities

CHAPTER 19: CORRELATION AND REGRESSION

Correlation

Linear Regression Analysis

Using Correlation and Regression in Six Sigma

UNIT 5: INTERMEDIATE STATISTICS

CHAPTER 20: NON-NORMAL PROBABILITY DISTRIBUTIONS

Reviewing Normal Probability Distributions

Non-Normal Continuous Distributions

Non-Normal Discrete Distributions

Applying Data to Real-World Situations

CHAPTER 21: HYPOTHESIS TESTING

Hypothesis Test Basics

Selecting the Right Hypothesis Test

Why Run Hypothesis Tests

Running Hypothesis Tests

CHAPTER 22: SAMPLE SIZE

A Review of Hypothesis Testing Errors

What Information is Required for Choosing Sample Size?

Sample Size Calculations: Choosing the Right Method

Running and Analyzing Sample Size Tests in Minitab

CHAPTER 23: ADVANCED CONTROL CHARTS

Common Control Chart Types and When to Use Them

Creating and Reading Control Charts in Minitab

CHAPTER 24: APPLYING STATISTICS TO BUSINESS APPLICATIONS THROUGH SIX SIGMA

Common Challenges When Presenting Statistical Analysis

Why Include Some Statistics?

Tips for Creating Business-Friendly Presentations