

CERTIFIED SIX SIGMA GREEN BELT

8 days' full time

Overview: Six Sigma and the Organization

A. Six Sigma and Organizational Goals

1. Value of Six Sigma
2. Organizational goals and Six Sigma projects
3. Organizational drivers and metrics

A. Lean Principles in the Organization

1. Lean concepts
2. Value stream mapping

B. Design for Six Sigma (DfSS) Methodologies

1. Road maps for DfSS
2. Basic failure mode and effects analysis (FMEA)
3. Design FMEA and process FMEA

II. Define Phase (23 Questions)

A. Project Identification

1. Project selection
2. Process elements
3. Benchmarking
4. Process inputs and outputs
5. Owners and stakeholders

B. Voice of the Customer (VoC)

1. Customer identification
2. Customer data
3. Customer requirements

C. Project Management Basics

1. Project charter
2. Project scope
3. Project metrics
4. Project planning tools
5. Project documentation
6. Project risk analysis
7. Project closure

D. Management and Planning Tools

E. Business Results for Projects

1. Process performance
2. Communication

F. Team Dynamics and Performance

1. Team stages and dynamics
2. Team roles and responsibilities
3. Team tools
4. Team Communication

III. Measure Phase

A. Process Analysis and Documentation

B. Probability and Statistics

1. Basic probability concepts
2. Central limit theorem

C. Statistical Distributions

D. Collecting and Summarizing Data

1. Types of data and measurement scales
2. Sampling and data collection methods
3. Descriptive statistics
4. Graphical methods

E. Measurement System Analysis (MSA)

F. Process and Performance Capability

1. Process performance vs. process specifications
2. Process capability studies
3. Process capability (C_p , C_{pk}) and process performance (P_p , P_{pk}) indices
4. Short-term vs. long-term capability and sigma shift

IV. Analyze Phase

A. Exploratory Data Analysis

1. Multi-vari studies

2. Correlation and linear regression

B. Hypothesis Testing

1. Basics

2. Tests for means, variances, and proportions

V. Improve Phase

A. Design of Experiments (DoE)

1. DoE graphs and plots

B. Root Cause Analysis

C. Lean Tools

1. Waste elimination

2. Cycle-time reduction

3. Kaizen and kaizen blitz

VI Control Phase

A. Statistical Process Control (SPC)

1. SPC Basics

2. Rational subgrouping

3. Control charts

B. Control Plan

C. Lean Tools for Process Control

1. Total productive maintenance (TPM)

2. Visual factory