

Lean Six Sigma Green Belt Course Syllabus

Class Dates: 4 sessions, Monday - Thursday 9 am – 4 pm*

Textbook(s): None – workbook provided

Course Description

Class will present tools and concepts of Lean Six Sigma while stressing the development of team facilitation abilities. Class is 80% Lean and 20% Six Sigma divided into nine instructional blocks of three hours each. Instructor will lead a brief review each morning of the previous day's lessons.

Learning Outcomes

At the end of this course, students will:

- Increase their ability to solve problems, improve processes and facilitate teams
- Be able to guide teams through a structured problem-solving methodology
- Be able to map, analyze and improve work process
- Be able to facilitate process improvement (Kaizen) teams
- Be able to communicate impact Lean Six Sigma has on organizational objectives

Course Prerequisites

- None

Exam Criteria

- American Association for Lean Six Sigma Certification
- Certification requires a minimum score of 75%
- 60 questions, online, multiple choice, open book test
- 1.5 hour time limit

COURSE STRUCTURE

Module 1: Lean Six Sigma Intro

Description:

This introductory module provides an overview of Lean Six Sigma, its history, and its impact on modern industry. Students will explore foundational quality systems and understand how Lean Six Sigma aligns with broader efforts to improve quality and performance.

Lessons:

1. History and Concepts of Six Sigma
2. History and Concepts of Lean
3. Impact of Lean and Six Sigma

Module 2: Foundations of Lean

Description:

This foundational module introduces students to Lean principles and the philosophy of continuous improvement. Participants will learn how Lean focuses on creating value by eliminating waste and driving efficiency in processes. This module establishes the mindset and framework students will apply throughout the course.

Lessons:

1. Principles of Lean
2. Eight Wastes of Lean

Module 3: Define Phase

Description:

In this module, students learn to clarify the problem, define the project scope, and align on goals. Emphasis is placed on group leadership, understanding team dynamics, identifying key stakeholders, and setting a strong foundation for success.

Lessons:

1. Improvement Events and Team Make up
2. Facilitation
3. Stages of Team Development
4. Project Documentation
5. Problem Statement
6. SMART Goals and SWOT
7. Project Scope and SIPOC
8. Stakeholder Analysis
9. Project Metrics

Module 4: Measure Phase

Description:

This module focuses on collecting data and understanding the current state of the process. Students will validate measurement systems, create visualizations, and calculate process capability to uncover inefficiencies and opportunities for improvement.

Lessons:

1. Process Walk
2. Spaghetti Diagram
3. Process Mapping
4. Value Stream Mapping
5. Gage R&R
6. Data Collection
7. Descriptive Statistics
8. Graphical Representations
9. Process Capability
10. Run Chart
11. Pareto Analysis

Module 5: Analyze Phase

Description:

In the Analyze module, students will use data-driven techniques to identify root causes of problems. Tools for structured brainstorming, risk assessment, and process analysis will enable participants to pinpoint critical issues effectively.

Lessons:

1. VSM Analysis & Ideal State Mapping
2. Hypothesis Testing
3. Scatter Plots
4. Principles of Root Cause Analysis
5. Fishbone Diagram
6. Five Why Analysis
7. FMEA

Module 6: Improve Phase

Description:

Students will learn to develop, test, and implement solutions that address root causes of inefficiencies. This module emphasizes creativity and practicality in driving meaningful process improvements.

Lessons:

1. 5S
2. Quick Changeover
3. Load Leveling
4. Cell Design
5. Standard Work
6. Mistake Proofing
7. Action Planning

Module 7: Control Phase

Description:

The final module focuses on sustaining improvements and ensuring processes remain stable over time. Students will learn techniques to standardize practices, monitor performance, and replicate successes across other areas.

Lessons:

1. Visual Management
2. Sustainment and Replication
3. Control Charts
4. Process Audits

General Rules:

Students are expected to complete homework assignments, give in-class presentations, conduct themselves in a professional manner and engage in classroom discussion.