Management and Strategy Institute, LLC.
Six Sigma Lean Black Belt in Education (LBBE)™
Course of Study

Introduction

The Six Sigma Lean Black Belt Certification with Education concentration is designed for those who work in the education sector. Public and private schools, administrators for school districts and colleges. You'll learn how the Lean model can be applied to the education system to identify value and eliminate waste. You'll work to identify waste and understand how waste in the education sector is different from other industries.

Just like Lean Six Sigma, education is focused on obtaining the voice of the customer. These customers can be students, parents, taxpayers, or even state & federal regulators. Lean Six Sigma is about improving the processes within the education sector to meet customer needs. Many school districts around the world face the difficult decision of cutting programs or freeing up their budgets. Applying Lean Six Sigma allows schools to reduce waste and inefficiencies, freeing up some of that money for other uses.

The LBBE exam is a timed, online exam. It consists of approximately 85 - 100 questions and has a required passing score of 70%.

Competencies

This course of study covers the following competencies:

What is Lean

- Lean focuses on eliminating waste in processes or systems
    - Learning Outcome: Have a general understanding of Lean

Value & Value Streams

- How do you define “value”?
    - Learning Outcome: Gain a general understanding of “value” and a value stream.

What is Education

- Define the meaning of education.
    - Learning Outcome: Education is just another “process”. Have an understanding of the process of education.

Lean Education

- Putting Lean and Education together.
    - Learning Outcome: Understand how Lean creates value for different segments of education. Value for Students, value for the organization. Understanding the transfer of knowledge.

Applying Lean to Education

- Lean Six Sigma looks at all aspects of a process, from identifying and quantifying problems, to analyzing, improving and finally controlling a process.
    - Learning Outcome: Have a general understanding of tools being used in the education section. A3 Problem Solving, Kaizen Events.

History of Six Sigma

- Why is Six Sigma used in business, and where did it come from.
    - Learning Outcome: The Student will be able to define Six Sigma

y = f(x)

- It all begins with a simple equation. Although Six Sigma talks a lot about statistical analysis and measurements and various other mathematical applications, at the core of the process is one simple equation.
    - Learning Outcome: Understand the basic function of y=f(x)

Process Variances

- Identify where variances are occurring in a function
    - Learning Outcome: Basic understanding of Identifying where variances are occurring in a function.

TQM & others

- Discuss other process improvement methodologies
    - Learning Outcome: Have an understanding of the other process improvement methodologies and how they differ from Six Sigma.

Recognizing opportunities

- Fundamentally, the training and use of Six Sigma philosophies and principles will allow employees and project teams to understand how systems interrelate and how to use the application of quality improvement methodologies which complement Six Sigma, such as Lean.
    - Learning Outcome: Understand Six Sigma philosophies and how to recognize opportunity.

Managing Quality

- Quality is not about what you produce being accurate as you see it, but rather as the customer sees it.
    - Learning Outcome: Understand how to frame quality into what is important to the customer.

Deciding to start a Six Sigma project

- Six Sigma is a top-down methodology – that means that the decision to implement comes from the top – whether that is the top of the business, your division of the business, or some other production unit.
    - Learning Outcome: The student understands the "how and why" regarding a company launching a quality improvement initiative like Six Sigma.

Organizational Roles and Responsibilities

- How Six Sigma team are organized and understanding the role of each "belt"
    - Learning Outcome: Understand how team are formed and the role of each belt level within the Six Sigma project.

The DMAIC Method

- Every Six Sigma project will follow the same process in a systematic and uniform method known as DMAIC, an acronym made up from the first letters of each element – Define, Measure, Analyze, Improve, Control.
    - Learning Outcome: Understand and define DMAIC

Why is DMAIC used

- DMAIC is a formalized problem-solving method which is designed to improve the effectiveness and ultimate efficiency of the organization.
    - Learning Outcome: Understand why the DMAIC process is utilized.

DMADV variation

- DMADV is an acronym for Define, Measure, Analyze, Design and Verify.
    - Learning Outcome: Understand the basis of DMADV when you do not have an existing system or process to improve upon.

Project Communication

- Maintaining regular communications throughout the process from the outset of the project.
    - Learning Outcome: Understand why continual communication is critical to the success of the project.

Supporting Delivery

- The role of the Yellow Belt.
    - Learning Outcome: Understand the critical role that a Yellow Belt, or "Subject Matter Expert" plays within the Six Sigma team.

Defining a process

- Defining a process can be difficult at times, but it is important to determine which parts of a work task or tasks you are trying to measure.
    - Learning Outcome: Determine how to define a process. Process owners, scope and boundaries.

Critical to Quality Characteristics

- There may be several Critical to Quality characteristics for a Six Sigma project team.
    - Learning Outcome: Understand Critical to Quality (CTQ) measures.

Cost of Poor Quality (COPQ)

- The Cost of Poor Quality is the sum of internal and external failures.
    - Learning Outcome: Understand the cost of poor quality.

Six Sigma Metrics

- For Six Sigma projects, the goal is to maintain statistical process control.
    - Learning Outcome: Understand the Sigma level, RTY, DPU, DPMO, FPY. Consequential metrics, Quality Metrics, Cost Metrics, Scheduling Metrics.

Estimating the Baseline

- It's important to do this to provide an accurate metric to measure the analyzed and agreed upon improvements against.
    - Learning Outcome: Understand the process to estimate the baseline.

The Define Stage

- This unit provides information on the activities that would normally be expected at the initial Define stage of a Six Sigma Project.
    - Learning Outcome: The Project Definition and scoping of goals and objectives are discussed, how the process is defined in terms of stakeholders, and the functionalities of the process.

The Measure Phase

- This unit provides information on the activities that would normally be expected at the measure stage of a Six Sigma Project.
    - Learning Outcome: Getting more detail into the process, what metrics and measurements are involved as well as estimating the baseline of the current "as is" process.

Six Sigma Tools

- This unit provides information on a number of different tools that may be useful throughout the many parts of the Six Sigma project.
    - Learning Outcome: This unit has a slightly different look than others in that it does not necessarily flow from one page to the next but is a series of factually presented pieces of information.

The Analyze Phase

- This unit provides information on the activities that would normally be expected at the Analyze stage of a Six Sigma project.
    - Learning Outcome: The value stream proposition and analysis are examined as well as determination of the factors that influence the process output.

The Improve Stage

- This unit provides information on the activities that would normally be expected at the Improve stage of a Six Sigma project.
    - Learning Outcome: The new process is defined, potential benefits examined and verification of the new process determined.

The Control Stage

- This unit provides information on the activities that would normally be expected at the final control stage of a Six Sigma project.
    - Learning Outcome: We discuss the standardization of new practice, verifying the impacts /savings, and how to document lessons learned.

Valuing Six Sigma

- This unit concludes the overview understanding to the level of a Six Sigma Green Belt.
    - Learning Outcome: The unit covers some more detail about the role, like activities of a Green Belt and how that differs from a Black Belt. It also covers the communications project task that a Green Belt will likely be asked to undertake.

What is Lean

- Throughout this course, we have made several references to Lean tools, Lean processes, and how Six Sigma has borrowed from Lean. But, what is lean?
    - Learning Outcome: Learn the history of Lean and how it is used in conjunction with Six Sigma. You will also learn about lean tools such as 5S, Kaiban, TIMWOOD, 5 Why, 7S, and others.

Selecting Lean Six Sigma Projects

- This unit looks at selecting Six Sigma Lean projects, how to build the project charter, and how to build the necessary business case.
    - Learning Outcome: Learn to create a project charter and build the business case.

Six Sigma Statistics

- This unit goes through the statistical knowledge required for Six Sigma Projects as well as how to use them most effectively. There is also some discussion around software usage in Six Sigma.
    - Learning Outcome: Gain an understanding of Six Sigma Statistics.

Measurement Systems Analysis

- This unit explains when to use a Measurement Systems Analysis when the apparent variation of a process is caused by variations in the measuring system.
    - Learning Outcome: Have a basic understanding of Measurement Systems Analysis. This includes Gage R&R, Bias Linearity, & Stability.

Process Capability

- This unit explains process capability. Process Capability Studies are used to determine whether a process is capable of consistently achieving specifications using system design, parameter design, and tolerances.
    - Learning Outcome: Have a basic understanding of process capability. System design, Parameter design, and tolerances.

Inferential Statistics

- This unit provides information on statistical theories which involve inference.
    - Learning Outcome: Have a basic understanding of statistical theories which involve inference.

Hypothesis Testing

- This unit provides information on hypothesis testing to see if a potential solution will work.
    - Learning Outcome: Have a basic understanding of Hypothesis Testing.

Simple Linear and Multiple Regression Analysis

- This unit provides information on performing regression analysis.
    - Learning Outcome: Have a basic understanding of regression analysis.

Designed Experiments

- This unit will show the design of experiments and factorial experiments to determine the x and y variables that affect a response.
    - Learning Outcome: Have a basic understanding of design of experiments and factorial experiments.

Statistical Process Control

- This unit describes control tools and statistical process control tool usage.
    - Learning Outcome: Have a basic understanding of design of control tools and statistical process control tool usage.

Leading Six Sigma Teams

- This unit goes through the very basic principles of project management, project teams, and the role of the Black Belt leading the team. It also looks at the communications of the project leader and Black Belt.
    - Learning Outcome: Have an understanding of Project Management and the role it plays in Six Sigma for a Black Belt.

Ending Six Sigma Projects

- This unit provides information on how and when to end a Six Sigma project, how to monitor benefits, and the responsibilities being passed on to the business.
    - Learning Outcome: Understand when and how to end a Six Sigma project.

Making the Change

- This unit gives an overview of change management within the context of Six Sigma projects, how to assess the organizational culture, and how to gain buy in from those experiencing the change.
    - Learning Outcome: Understand change management principles. Understand the Black Belt role in facilitating change.

Learning Resources

Recommended:
Material included with your purchase is recommended reading.

- Free online training material provided by MSI. The material includes everything you will need to learn to pass the exam. This material is included for free with the purchase of your exam. It is in digital form, and available immediately after payment.

Optional:
This material is not required, however it will assist you in becoming a Six Sigma Professional.

- The Black Belt Core Concepts Guide, available exclusively through The Management and Strategy Institute: Order Here
- T.M. Kubiak and Donald W. Benbow (2009) The Certified Six Sigma Black Belt Handbook, Second Edition, ISBN-13: 978-0873897327
- McGraw-Hill; 1 edition (2004) The Six Sigma Black Belt Handbook (Six SIGMA Operational Methods), ISBN-13: 978-0071443296

Preparing for Success

In order to successfully complete the LBBE exam, you will need to make sure you have the appropriate resources to support your learning.

- A quiet location, free from distraction.
- Internet access.
- Current (newest) version of Internet Explorer, Firefox, or Chrome browser.
- Take study notes while going through the training.
- When you are ready to take the exam, you should allot 3-hours of time.

Frequently Asked Questions

What happens if I fail the exam?

- You are given two additional attempts to pass the exam at no additional cost.