Preparation Guide

Edition 202204

Content

1. Overview

EXIN LSSA Lean Six Sigma Yellow Belt (LSSYB.EN)

Scope

EXIN LSSA Lean Six Sigma Yellow Belt is a certification that validates a professional's knowledge and understanding of the Lean Six Sigma principles and the most important Lean Six Sigma instruments.

More specifically, knowledge and understanding of the following topics is validated:

- world-class performance
- policy development and deployment
- project management
- creating a solid foundation
- creating a continuous improvement culture
- creating stable and efficient processes
- creating capable processes

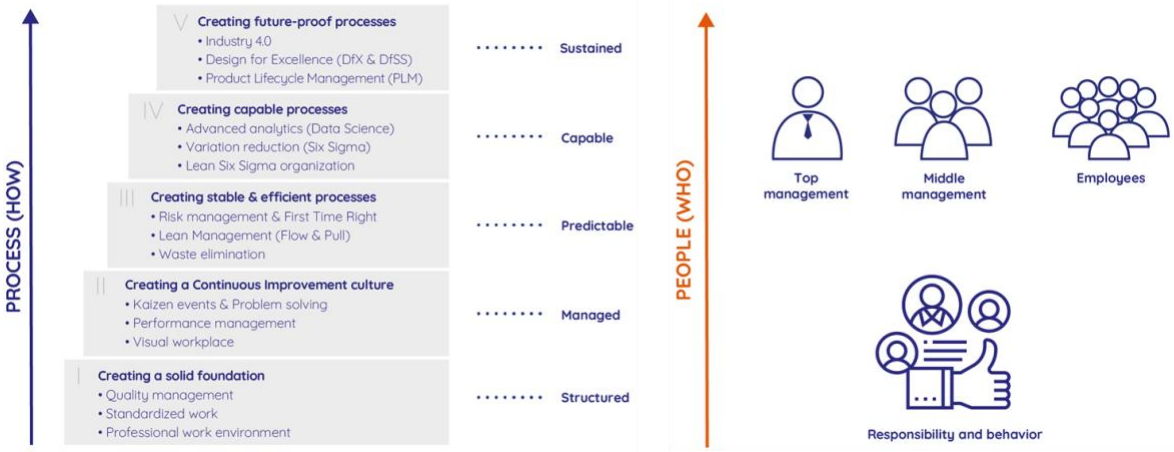
Summary

The LSSA - Lean Six Sigma Academy® was established in September 2009 with the objective to develop an international recognized certification scheme for all Lean and Six Sigma Belt levels. For each level the LSSA Exam Board has developed preparation guides with clear criteria for skills and competences. These Skill sets specify which of the overall Lean and Six Sigma techniques are expected to be included within certain Belt level competencies.

The Continuous Improvement Maturity Model (CIMM) summarizes best practices and techniques of different methodologies in one framework, for different stages of maturity. The CIMM framework describes five consecutive stages:

- creating a solid foundation,
- creating a continuous improvement culture,
- creating stable and predictable processes,
- creating capable processes and
- creating future-proof processes.

For Lean Six Sigma all five levels apply.



For each instrumental technique in the CIMM framework, it is possible to indicate the associated desired behavior. The CIMM framework identifies a number of behaviors for each improvement technique, which helps determine whether or not the implementation of the technology in question will be a success and results in a lasting impact.

Context

The EXIN LSSA Lean Six Sigma Yellow Belt certification is part of the EXIN LSSA Lean Six Sigma qualification program.

Target group

The Yellow Belt level is suitable for anyone who wishes to learn the basic Lean Six Sigma principles and the most important Lean Six Sigma instruments. Lean Six Sigma Yellow Belts have experience in the processes in daily practice and are therefore the ideal team members of Kaizen projects, or Green and Black Belt projects.

Lean Six Sigma Yellow Belts are also responsible for enhancing operational performance within a certain department or factory line. This may refer to shortening lead times, problem solving or improving quality. Activities can be related to 5S, implementing visual management techniques, contributing to the development of standards or participating in brainstorm sessions.

Requirements for certification

- Successful completion of the EXIN LSSA Lean Six Sigma Yellow Belt.

Examination details

Examination type:	Multiple-choice questions
Number of questions:	50
Pass mark:	63% (32/50 questions)
Open book:	Literature source A and the Preparation Guide may be consulted throughout the exam. Candidates are required to bring their own copy for both the online and the paper-based exams. The exercise books are not allowed during the exam.
Notes:	No
Electronic equipment/aides permitted:	A calculator is permitted. Only for paper-based exams candidates are allowed to bring their own, simple calculator (no smartphone). For online exams an online calculator is provided to the candidates.
Exam duration:	60 minutes

The Rules and Regulations for EXIN's examinations apply to this exam.

Bloom level

The EXIN LSSA Lean Six Sigma Yellow Belt certification tests candidates at Bloom level 1 and 2 according to Bloom's Revised Taxonomy:

- Bloom level 1: Remembering – relies on recall of information. Candidates will need to absorb, remember, recognize and recall.
- Bloom level 2: Understanding – a step beyond remembering. Understanding shows that candidates comprehend what is presented and can evaluate how the learning material may be applied in their own environment. This type of questions aims to demonstrate that the candidate is able to organize, compare, interpret and choose the correct description of facts and ideas.

Training

Contact hours

The recommended number of contact hours for this training course is 14. This includes group assignments, exam preparation and short breaks. This number of hours does not include lunch breaks, homework and the exam.

Indication study effort

56 hours (2 ECTS), depending on existing knowledge.

Training organization

You can find a list of our Accredited Training Organizations at www.exin.com.

2. Exam requirements

The exam requirements are specified in the exam specifications. The following table lists the topics of the module (exam requirements) and the subtopics (exam specifications).

Exam requirements	Exam specifications	Weight
1. World-class performance		**16%**
	1.1 Continuous improvement	
	1.2 Customer value	
2. Policy development and deployment		**5.3%**
	2.1 Policy development	
	2.2 Policy deployment	
3. Project management		**11.3%**
	3.1 Managing a project	
	3.2 Process improvement roadmaps	
4. Creating a solid foundation		**7.3%**
	4.1 Professional work environment	
	4.2 Standardized work	
	4.3 Quality management	
5. Creating a continuous improvement culture		**16%**
	5.1 Visual management	
	5.2 Performance management	
	5.3 Basic quality tools	
6. Creating stable and efficient processes		**26.8%**
	6.1 Process mapping	
	6.2 Performance metrics	
	6.3 Basic statistics	
	6.4 Value stream analysis	
	6.5 Reducing Muda (Waste)	
	6.6 Reducing Muri (Overburden)	
	6.7 Reducing Mura (Unevenness)	
	6.8 Process and quality control	
7. Creating capable processes		**17.3%**
	7.1 Statistical techniques	
	7.2 Distributions	
	7.3 Measurement systems	
	7.4 Hypothesis testing and confidence intervals	
	7.5 Tests for means, variances and proportions	
	7.6 Correlation and regression	
	Total	**100%**

Exam specifications

1 World-class performance

The unit 'world-class performance' reviews the general philosophy of continuous improvement. It discusses the overview of different process improvement methods and the history of the most important methodologies. It also explains why continuous improvement is important.

1.1 Continuous improvement

The learning element 'continuous improvement' reviews the history, values and principles of the most common process improvement methodologies. Also, the culture within a continuous improvement organization as well as roles and responsibilities are reviewed.

The candidate can...

1.1.1 recall the origins of quality management, Kaizen and Lean.

1.1.2 understand that Lean philosophy and principles realize improvements in process lead times and efficiencies.

1.1.3 recall the difference between Top-Down and Bottom-Up approaches.

1.1.4 understand the different maturity levels of process management as described in the Continuous Improvement Maturity Model (CIMM).

1.1.5 recall the various continuous improvement roles and responsibilities.

1.2 Customer value

The learning element 'customer value' reviews customer identification (internal/external), customer requirements and the CTQ-measure.

The candidate can…

1.2.1 understand the Voice of the Customer (VOC).

1.2.2 understand that different customers have different needs, expectations, requirements, and desires.

1.2.3 understand that VOC requirements need to be translated into Critical to Quality (CTQ) targets and specifications.

2 Policy development and deployment

The unit 'policy development and deployment' reviews how policy development and deployment help organizations in defining a continuous improvement strategy and to run efficiently in achieving their objectives.

2.1 Policy development

The learning element 'policy development' explains the importance of a so-called True North and how to develop an operational excellence strategy.

The candidate can…

2.1.1 understand the meaning and importance of the organization's True North.

2.1.2 understand the meaning of Operational Excellence.

2.2 Policy deployment

The learning element 'policy deployment' is focusing on the execution process of the improvement strategy. Within this element financial and performance metrics will be reviewed.

The candidate can…

2.2.1 recall that an organization's culture can influence the success of Lean Six Sigma deployment.

3 Project management

The unit 'project management' outlines the way improvement projects should be executed. A number of process improvement roadmaps is reviewed. The unit also reviews project selection.

3.1 Managing a project

The learning element 'managing a project' reviews how to set up, plan and execute a project.

The candidate can…

3.1.1 understand the process of project selection.

3.1.2 describe a proper problem statement in relation to customer requirements or complaints.

3.2 Process improvement roadmaps

The learning element 'process improvement roadmaps' reviews a number of roadmaps, including PDCA and DMAIC.

The candidate can…

3.2.1 understand project management methods that are used at the shop floor for Kaizen initiatives (e.g. PDCA, A3-report).

3.2.2 understand and follow the DMAIC roadmap.

4 Creating a solid foundation

The unit 'creating a solid foundation' reviews how to achieve a solid foundation for further process improvement programs. This foundation consists of a proper and organized work environment and standardized work.

4.1 Professional work environment

The learning element 'professional work environment' is about good housekeeping and how to set up a proper and safe work environment in a structured manner.

The candidate can…

4.1.1 understand how organizing the work environment, by applying 5S (Sort, Straighten, Shine, Standardize, Sustain), will improve safety and moral.

4.2 Standardized work

The learning element 'standardized work' is about implementing and improving standards and protocols.

The candidate can…

4.2.1 understand that standardized tasks are the foundation for continuous improvement.

4.2.2 interpret standard operating procedures (SOPs) and one-point-lessons.

4.3 Quality management

The learning element 'quality management' is about developing procedures to identify and detect defects. Also preventing mistakes and avoiding problems is part of this element.

The candidate can…

4.3.1 understand quality procedures, the need to be disciplined and to work according to procedures.

5 Creating a continuous improvement culture

The unit 'creating a continuous improvement culture' reviews how to create a continuous improvement culture at the shop floor. This unit reviews setting up Kaizen teams. It also reviews a number of problem-solving techniques and tools.

5.1 Visual management

The learning element 'visual management' reviews how to set up a workplace that is organized and self-explaining.

The candidate can…

5.1.1 apply elements of Visual Workplace and understand how these can help to control the improved process.

5.2 Performance management
The learning element 'performance management' reviews how to set targets, and how to organize the work to be done. The learning element also reviews how to facilitate improvement teams at the shopfloor that work on Kaizen improvement initiatives and Problem Solving.
The candidate can…
5.2.1 participate in stand-up meetings and Scrum sessions.
5.2.2 describe and understand the importance of the Kaizen principles.
5.2.3 participate in Kaizen events and continuous improvement initiatives.
5.2.4 apply root cause analysis and understand the issues involved in identifying a root cause.

5.3 Basic quality tools
The learning element 'basic quality tools' reviews techniques to visualize data and guidelines how to facilitate and participate in brainstorm sessions.
The candidate can…
5.3.1 understand brainstorm techniques: Affinity diagram, 5-Whys and Ishikawa.
5.3.2 participate in brainstorm sessions.
5.3.3 understand basic quality tools to visualize data: Scatter plot, Pareto chart, Bar chart, Pie chart, Time series plot and Histogram.

6 Creating stable and efficient processes

The unit 'creating stable and efficient processes' reviews how the logistical flow of processes can be improved and made more stable, predictable and efficient. This Unit reviews tools which can be used to visualize and analyze the process flow as well as a number of tools and techniques that can be used to improve efficiency, effectiveness, productivity and agility of processes. All learning elements and performance criteria follow the DMAIC structure.

6.1 Process mapping
The learning element 'process mapping' reviews a number of tools to map and analyze the flow of a process.
The candidate can…
6.1.1 understand the Spaghetti diagram and SIPOC.
6.1.2 understand the importance of process mapping to visualize the flow of activities and decisions within a process.

6.2 Performance metrics
The learning element 'performance metrics' reviews performance metrics for both logistics as for quality.
The candidate can…
6.2.1 recall performance metrics related to time (e.g. takt time, cycle time and lead time).
6.2.2 recall performance metrics related to quality (e.g. Yield and RTY).

6.3 Basic statistics
The learning element 'basic statistics' reviews different types of data, measurement scales and data collection tools. Also, a set of measures (statistics) that characterizes a given set of data are reviewed.
The candidate can…
6.3.1 recall the different types of data and that there is a difference between counting and measuring.
6.3.2 understand tools for collecting data such as data sheets and check sheets.

6.4 Value stream analysis
The learning element 'value stream analysis' reviews how to create a Value Stream Map of the current situation.
The candidate can…
6.4.1 understand the difference between value adding and non-value adding activities.

6.5 Reducing Muda (Waste)
The learning element ‘reducing Muda’ reviews how to identify and eliminate Waste in the organization and its processes.
The candidate can…
6.5.1 identify and eliminate process Waste (Muda): Overproduction, Waiting, Transport, Overprocessing, Inventory, Movement, Defects and Unused expertise.

6.6 Reducing Muri (Overburden)
The learning element ‘reducing Muri’ reviews how to identify overburden in the organization. This element also reviews how to implement flow and work balancing to reduce overburden.
The candidate can…
6.6.1 understand the meaning of Flow.

6.7 Reducing Mura (Unevenness)
The learning element ‘reducing Mura’ reviews how to identify unevenness in the organization and its processes. This element also reviews a number of techniques to reduce unevenness.
The candidate can…
6.7.1 understand the meaning of Pull.

6.8 Process and quality control
The learning element ‘process and quality control’ looks at how results that have been achieved in process improvement projects can be sustained. This element reviews the following techniques and principles: First Time Right, Jidoka and Poka Yoke.
The candidate can…
6.8.1 understand the importance of First Time Right principles.
6.8.2 understand the work has to be stopped when there is a quality problem (Jidoka).
6.8.3 identify opportunities to apply Poka Yoke to avoid quality problems.

7 Creating capable processes

The unit 'creating capable processes' focuses on reducing variation in a stable process with the objective to create a process capable of meeting customer requirements. This unit reviews the application of Six Sigma and statistical tools used to assure a valid and reliable performance measurement system, to collect data and to analyze the performance of processes. Six Sigma focuses on quality breakthrough improvement projects. All learning elements and performance criteria follow the DMAIC structure.

7.1 Statistical techniques
The learning element ‘statistical techniques’ reviews a number of metrics that are often used in Six Sigma projects. The element also reviews a number of sampling methods for assuring data accuracy and integrity.
The candidate can…
7.1.1 understand the difference between special cause and common cause variation.
7.1.2 understand it is important to follow systematic data collection.
7.1.3 understand the basic terms of statistics e.g. mean and spread.

7.2 Distributions
The learning element ‘distributions’ reviews a number of continuous and discrete distributions. The element also reviews the central limit theorem and a number of probability concepts.
The candidate can…
7.2.1 recall that many processes are normally distributed.

7.3 Measurement systems
The learning element ‘measurement systems’ reviews how to evaluate measurement systems.
The candidate can…
7.3.1 understand the importance of reliable measurement systems.

7.4 Hypothesis testing and confidence intervals

The learning element 'hypothesis testing & confidence intervals' reviews test methods that are used to test a hypothesis. This learning element also discusses Confidence Intervals that indicate the reliability of test conclusions.

The candidate can…

7.4.1 recall the basic principles of hypothesis testing.

7.5 Tests for means, variances and proportions

The learning element 'tests for means, variances and proportions' reviews the basic principles of hypothesis testing.

The candidate can…

7.5.1 recall the basic principles of tests of means.

7.6 Correlation and regression

The learning element 'correlation and regression' describes the predictive models using regression techniques to determine the relation between factors on a response.

The candidate can…

7.6.1 recall the basic principles or correlation.

7.6.2 recall the basic principles of linear regression.

3. Literature

Exam literature

The knowledge required for the exam is covered in the following literature:

A. H.C. Theisens
Climbing the Mountain: Lean Six Sigma Yellow Belt. Mindset, Skill set & Tool set.
LSSA B.V. (fourth edition, January 2022)
ISBN: 9789492240330 (hardcopy)

Additional literature

B. H.C. Theisens
Climbing the Mountain: Lean Six Sigma Yellow & Orange Belt. Exercise book.
LSSA B.V. (second edition, January 2022)
ISBN: 9789492240293 (hardcopy)

C. H.C. Theisens
Climbing the Mountain: Lean Six Sigma Orange Belt. Mindset, Skill set & Tool set.
LSSA B.V. (first edition, March 2021)
ISBN: 9789492240248 (hardcopy)

D. H.C. Theisens
Climbing the Mountain: Lean Six Sigma Green Belt. Mindset, Skill set & Tool set.
LSSA B.V. (fifth edition, April 2021)
ISBN: 9789492240323 (hardcopy)

E. H.C. Theisens
Climbing the Mountain: Lean Six Sigma Black Belt. Mindset, Skill set & Tool set.
LSSA B.V. (third edition, January 2022)
ISBN: 9789492240354 (hardcopy)

Comment

Additional literature is for reference and depth of knowledge only.

Contact EXIN

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