EXIN Lean IT

Preparation Guide

Edition 202111

Content

1. Overview

EXIN Lean IT Kaizen (LEANITK.EN)

Scope

The EXIN Lean IT Kaizen certification validates a candidate's knowledge on:

- Introduction of Kaizen
- Organizing Kaizen
- A3 Method
- Define
- Measure
- Analyze
- Improve
- Control

Summary

EXIN Lean IT Kaizen focuses on building on the learning objectives from the EXIN Lean IT Foundation to provide specific skills-based training to IT professionals responsible for facilitating Kaizen improvement events.

EXIN Lean IT Kaizen uses the Six Sigma DMAIC improvement model leveraging the Lean A3 tool as the basis for progressively completing a full improvement proposal.

Context

The EXIN Lean IT Kaizen certification is part of the EXIN Lean IT qualification program.

Target Group

The Lean IT Kaizen is someone who is involved with a Lean improvement project that could be at any level of the IT organization, in any department.

Requirements for Certification

- Successful completion of the EXIN Lean IT Kaizen exam.

Examination Details

Examination type:	Multiple-choice Questions
Number of questions:	40
Pass mark:	65% (26/40 questions)
Open book:	No
Notes:	No
Electronic equipment/aides permitted:	No
Exam duration:	90 minutes

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

Bloom Level

The EXIN Lean IT Kaizen certification tests candidates at Bloom Level 2 and 3 according to Bloom's Revised Taxonomy:

- 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.
- Bloom Level 3: Application – shows that candidates have the ability to make use of information in a context different from the one in which it was learned. This type of questions aims to demonstrate that the candidate is able to solve problems in new situations by applying acquired knowledge, facts, techniques and rules in a different, or new way. These questions usually contains a short scenario.

Training

Contact Hours

The recommended number of contact hours for this training course is 16. 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

84 hours (3 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. Introduction of Kaizen		**15%**
	1.1 Know the Most Important Concepts Regarding Kaizen	7.5%
	1.2 Understand the Following Aspects Dealt with in the Introduction	5%
	1.3 Apply the Following Aspects Dealt with in the Introduction	2.5%
2. Organizing Kaizen		**10%**
	2.1 Know the Key Components of Organizing Kaizen	5%
	2.2 Understand the Following Aspects Related to Organizing Kaizen	2.5%
	2.3 Apply the Following Aspects Related to Organizing Kaizen	2.5%
3. A3 Method		**10%**
	3.1 Know the Key Components of the A3 Method	5%
	3.2 Understand the Following Aspects Related to the A3 Method	2.5%
	3.3 Apply the Following Aspects Related to the A3 Method	2.5%
4. Define		**10%**
	4.1 Know the Key Aspects of the Define Phase	5%
	4.2 Understand the Following Aspects of the Define Phase	2.5%
	4.3 Applying the Following Aspects of the Define Phase	2.5%
5. Measure		**15%**
	5.1 Know the Key Aspects of the Measure Phase	7.5%
	5.2 Understand the Following Aspects of the Measure Phase	5%
	5.3 Applying the Following Aspects of the Measure Phase	2.5%
6. Analyze		**12.5%**
	6.1 Know the Key Aspects of the Analyze Phase	5%
	6.2 Understand the following aspects of the Analyze phase	2.5%
	6.3 Applying the Following Aspects of the Analyze Phase	5%
7. Improve		**10%**
	7.1 Know the Key Aspects of the Improve Phase	2.5%
	7.2 Understand the Following Aspects of the Improve Phase	5%
	7.3 Applying the Following Aspects of the Improve Phase	2.5%
8. Control		**17.5%**
	8.1 Know the Key Aspects of Control Phase	7.5%
	8.2 Understand the Following Aspects of Control Phase	5%
	8.3 Applying the Following Aspects of the Control Phase	5%
	Total	**100%**

Exam Specifications

1. **Introduction of Kaizen**
   - 1.1 Know the Most Important Concepts Regarding Kaizen
     - 1.1.1 Recall and understand definitions of Kaizen (continuous improvement), Kakushin (innovation) and Kaikaku (revolutionary change/'transformation of mind') as the three forms of change for the better within Lean
     - 1.1.2 Recall the phases in the DMAIC method
     - 1.1.3 Understand DMEDI: (Define, Measure, Explore, Develop, Implement) the innovation cycle as compared to DMAIC
     - 1.1.4 Recall Continuous Improvement models, specifically ITIL Continual Service Improvement and Plan-Do-Check-Act
     - 1.1.5 Difference between daily kaizen and improvement kaizen
     - 1.1.6 Kaizen mindset in relation to daily kaizen and improvement kaizen
   - 1.2 Understand the Following Aspects Dealt with in the Introduction
     - 1.2.1 Describe the Kaizen Mindset
     - 1.2.2 Identify the core elements of the Kaizen Mindset
     - 1.2.3 Identify the difference between Improvement Kaizen and Daily Kaizen; identify benefits and drawbacks of each
     - 1.2.4 Understand the difference between a problem and the IT Service Management definition of a problem
     - 1.2.5 Identify Muri, Mura and Muda as elements that can be removed using Kaizen
   - 1.3 Apply the Following Aspects Dealt with in the Introduction
     - 1.3.1 Differentiate between situations where DMAIC is used as opposed to DMEDI
     - 1.3.2 Identify how Lean looks at problems

2. **Organizing Kaizen**
   - 2.1 Know the Key Components of Organizing Kaizen
     - 2.1.1 Recall the sources of improvement initiatives – Voice of the Customer, Voice of the Process, Voice of the Business, Voice of the regulator
     - 2.1.2 Kaizen team roles: kaizen sponsor, kaizen lead, kaizen team member
   - 2.2 Understand the Following Aspects Related to Organizing Kaizen
     - 2.2.1 Identify the correct team members for a kaizen team
     - 2.2.2 Identify the way to select kaizen initiatives
     - 2.2.3 Identify the activities for which each of the kaizen roles is responsible
   - 2.3 Apply the Following Aspects Related to Organizing Kaizen
     - 2.3.1 Gain support for the kaizen event
     - 2.3.2 Plan and prepare a kaizen event
     - 2.3.3 Select the correct team members for a kaizen team
     - 2.3.4 Select kaizen initiatives

3. **A3 Method**
   - 3.1 Know the Key Components of the A3 Method
     - 3.1.1 Recall the origins and goals of the A3 Method and specific use of A3 Problem-solving report
     - 3.1.2 Recall the role of the key sections on an A3 Problem Solving Report: Background, Current Condition, Future State goals/setting targets, Analysis, Proposed options, Plan/Improvement and Follow-Up
     - 3.1.3 Identify the aim of A3 Problem-solving report, A3 Status report and A3 Proposal report
     - 3.1.4 Understand the MECE concept "mutually exclusive and collectively exhaustive"

- 3.2 Understand the Following Aspects Related to the A3 Method
  - 3.2.1 Explain the difference between Summarizing, Analyzing and Synthesizing
  - 3.2.2 Identify whether information is "mutually exclusive and collectively exhaustive" (MECE)
  - 3.2.3 Identify the situation, complication and key question of a situation
  - 3.2.4 Difference between A3 Problem-solving report, A3 Status report and A3 Proposal report
- 3.3 Apply the Following Aspects Related to the A3 Method
  - 3.3.1 Summarize information into the A3 format
  - 3.3.2 Structure communication according to the Pyramid principle

4. Define

- 4.1 Know the Key Aspects of the Define Phase
  - 4.1.1 Recall the Key Steps of the Define Stage
    1. Select Problem and identify owner
    2. Create Problem statement and select kaizen team
    3. Validate the scope of the problem
    4. Collect VoC information

    Create high level kaizen plan
  - 4.1.2 Recall the definition of a Hypothesis and a Problem Statement
  - 4.1.3 Understand the basic types of problems: simple, complicated, complex, chaotic, disorder, based on Cynefin model
  - 4.1.4 Recall the perspectives required to validate a problem statement
- 4.2 Understand the Following Aspects of the Define Phase
  - 4.2.1 Identify the types of problems: simple, complicated, complex, chaotic disorder, according to the Cynefin model
  - 4.2.2 Validate a problem based on business benefits, impact and feasibility
  - 4.2.3 Which tools to use to define and scope a problem statement (SIPOC, CTQ)
  - 4.2.4 Explain the difference between a Hypothesis and a Problem Statement
- 4.3 Applying the Following Aspects of the Define Phase
  - 4.3.1 How to write a problem definition
  - 4.3.2 Complete an A3 “Background Section”
  - 4.3.3 Map the key stakeholder for the Kaizen activity; carry out a stakeholder analysis
  - 4.3.4 Identify typical problems in an IT context

5. Measure

- 5.1 Know the Key Aspects of the Measure Phase
  - 5.1.1 Recall Key Steps in Measure
    1. Identify the outputs and inputs of the process in which the problem occurs
    2. Create Validate Value Stream Map of the process
    3. Create and execute data collection plan
    4. Validate the measurement system
    5. Assess the capability and performance of the process
    6. Identify Quick Wins improvements
  - 5.1.2 Recall IT units of work: incident, Service Request, Problem, Standard Change, Operational activity, Non-standard Change, Advice, Plan
  - 5.1.3 Recall three types of variable: dependent, independent and control
  - 5.1.4 Explain the definitions of Baseline and Benchmark
  - 5.1.5 Explain the three generic types of units of work: runners, repeaters and strangers
  - 5.1.6 Recall VSM metrics (Lead time, Takt rate, Changeover time, Queue time, Work-in-process, Capacity, Throughput, VA/NNVA/NVA time) and calculations (PCE, Little’s Law)

- 5.2 Understand the Following Aspects of the Measure Phase
  - 5.2.1 Identify the difference between Qualitative and Quantitative Measurement systems
  - 5.2.2 Identify the difference between a Baseline and a Benchmark
  - 5.2.3 Identify the relationship between IT units of work and the three generic types of units of work
  - 5.2.4 Identify types of Qualitative and Quantitative Measurement systems
- 5.3 Applying the Following Aspects of the Measure Phase
  - 5.3.1 Create a Value Stream map with metrics and calculations (Exercise)
  - 5.3.2 Complete Current Conditions section of A3
  - 5.3.3 Set up measurement systems

6. Analyze

- 6.1 Know the Key Aspects of the Analyze Phase
  - 6.1.1 Recall Key Steps for Analyze Phase
    1. Determine the critical independent variables
    2. Perform the data analysis
    3. Perform the process analysis
    4. Determine the root causes
    5. Prioritize the root causes
  - 6.1.2 Seven basic tools of Quality: histogram, pareto chart, scatter diagram, flow chart, control chart, fishbone (Ishikawa) diagram, check sheet
  - 6.1.3 Recall common cause variation and special cause variation
  - 6.1.4 Recall Time Trap and Capacity Constraint
  - 6.1.5 Recall the tools for investigating root cause: 5 whys, Cause & Effect matrix, Failure Mode Effects Analysis
- 6.2 Understand the following aspects of the Analyze phase
  - 6.2.1 Identify each of the seven basic tools of Quality
  - 6.2.2 Visualize and analyze root cause
    1. 5 whys
    2. Cause & Effects matrix
    3. Failure Mode Effects Analysis (FMEA)
  - 6.2.3 Identify the difference between Time Trap and Capacity Constraint
  - 6.2.4 Identify the difference between common cause variation and special cause variation
- 6.3 Applying the Following Aspects of the Analyze Phase
  - 6.3.1 Identify ways for dealing with common cause variation and special cause variation
  - 6.3.2 Use all tools described in this section
  - 6.3.3 Complete the Analyze section of A3
  - 6.3.4 Analyze a Value Stream Map
  - 6.3.5 Identify whether a process is in control or out of control

7. Improve

- 7.1 Know the Key Aspects of the Improve Phase
  - 7.1.1 Recall Key Steps for Improve Phase
    1. Generate potential solutions
    2. Select and prioritize solutions
    3. Apply best and good practices
    4. Develop “Future State” VSM
    5. Pilot the solution and confirm improvement outcomes
    6. Create implementation plan for full-scale roll-out of solution(s)
  - 7.1.2 Recall idea generation techniques: brainstorming, reverse thinking, SCAMPER
  - 7.1.3 Recall solution prioritization techniques: affinity mapping, solution matrix, multi-voting, business case development

- 7.2 Understand the Following Aspects of the Improve Phase
  - 7.2.1 How to test a solution depending on the type of problem (Cynefin) to which it is related
  - 7.2.2 Identify idea generation techniques, specifically: brainstorming, reverse thinking, SCAMPER
  - 7.2.3 Identify solution selection and prioritization techniques, specifically affinity mapping, solution matrix, multi-voting, business case development
  - 7.2.4 Best practice solutions within IT: ITIL, Cobit, Scrum, Prince2/PMI
  - 7.2.5 Good practice (principle-based) solutions within IT: Lean IT, Agile, DevOps
- 7.3 Applying the Following Aspects of the Improve Phase
  - 7.3.1 Apply idea generation and solution selection techniques
  - 7.3.2 Complete A3 Section Future State/Targets & Proposed Options

8. Control

- 8.1 Know the Key Aspects of Control Phase
  - 8.1.1 Recall the definition of a control
  - 8.1.2 Recall Measurement of improvement
    1. Critical Success Factor/Key Performance Indicator
    2. Consistent and Coherent measurements
    3. Lead and Lag Measures
    4. Creation of Management Dashboards
  - 8.1.3 Recall the components of a Control plan: documentation, monitoring, response, training
  - 8.1.4 Recall types of documentation: policy, process, standard operating procedure
  - 8.1.5 Recall types of monitoring: metrics, visual management, performance dialogue, cascade
  - 8.1.6 Recall Key steps in the Control Phase
    1. Create measurement system
    2. Create documentation
    3. Create Control plan
    4. Communicate to stakeholders
    5. Present the results as described on the A3
    6. Transition ownership
- 8.2 Understand the Following Aspects of Control Phase
  - 8.2.1 Identify a Standard Operating Procedure
  - 8.2.2 Level of documentation, based on risk/value
  - 8.2.3 Capture the lessons learned (of failure and success)
  - 8.2.4 Replicating improvements to other areas
  - 8.2.5 Identify the components of a communication plan
- 8.3 Applying the Following Aspects of the Control Phase
  - 8.3.1 Create a measurement system to control the improvement, present in a dashboard
  - 8.3.2 Complete follow-up section on A3 and finalize all items on the A3
  - 8.3.3 Create a communication plan tailored to the stakeholders

3. List of Basic Concepts

This chapter contains the terms and abbreviations with which candidates should be familiar.

Please note that knowledge of these terms alone does not suffice for the exam; the candidate must understand the concepts and be able to provide examples.

A3
A3 Proposal
A3 Status Report
Affinity Mapping
Agile
Andon
Analysis
Analyze (Phase)
Annotated Observation
Baseline
Benchmark
Capacity
Cause and Effect Diagram
Cause and Effect Matrix
Change Over Time
Check sheet
Common cause variation
Continuous Improvement
Control Chart
Control (Phase)
Control Plan
Control Variable
Customer
Customer Value
Cynefin (Model)
Daily Kaizen
Define (Phase)
Dependent Variable
DevOps
DMAIC
DMEDI
Fishbone diagram
Five “Whys”
Flow
Flowchart
Failure Mode and Effect Analysis (FMEA)
Gemba
Histogram
Hypothesis
Improve (Phase)
Improvement Board
Incident
Independent Variable
Ishikawa diagram
Jidoka
Kaikaku
Kaizen
Kaizen board
Kaizen charter
Kaizen Event
Kaizen lead
Kaizen Mindset
Kaizen sponsor
Kaizen team member
Kakushin
Known Error
Lead Time
Little’s Law
Machine Time
Measure (Phase)
MECE
Muda
Multi-Voting
Mura
Muri
Pareto chart or diagram
PDCA Cycle
Performance Dialogue
Poka Yoke
Problem
Problem Board
Problem Management
Problem Statement
Process Cycle Efficiency (PCE)
Pyramid Principle
Queue Time
Repeater
Root cause
Root cause analysis
Runner
SCAMPER
Scatter diagram
Shewhart Cycle
SIPOC
SMART
Solution Matrix
Special Cause Variation
Standard Operating Procedure (SOP)
Stranger
Summarize
Synthesis
System Thinking
Takt Time
Tally sheet

Throughput
Value Stream Map (VSM)
Visual Management
Visualize
Voice of the Business
Voice of the Customer
Voice of the Process
Voice of the Regulator
VSM
Work in Progress

4. Literature

Exam Literature

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

A. EXIN Handbook Lean IT Kaizen
Niels Loader
EXIN (2021)
ISBN: 9789076531113
Freely available from www.exin.com. Click on 'Certifications' to find the exam. The download can be found under 'Required reading'.

Additional Literature

B. Lean Six Sigma Pocket Toolbook
Michael L. George et al
McGraw Hill (2004)
ISBN: 978-0071441193 (hardcopy)
ISBN: 978-0071505734 (eBook)

C. Understanding A3 Thinking
Durward K. Sobek & Art Smalley
Taylor & Francis Inc (2008)
ISBN: 978-1563273605

D. A Leader's Framework for Decision Making
David Snowdon & Mary Boone
Harvard Business Review (2007)

Comment

Additional literature is for reference and depth of knowledge only.

Literature Matrix

Exam Requirements	Exam Specifications	Reference
1. Introduction of Kaizen		
	1.1 Know the Most Important Concepts Regarding Kaizen	Chapters 1.1-1.4, 2.1, 2.2
	1.2 Understand the Following Aspects Dealt with in the Introduction	Chapters 1.2, 1.6
	1.3 Apply the Following Aspects Dealt with in the Introduction	Chapters 1.2, 1.4, 1.5
2. Organizing Kaizen		
	2.1 Know the Key Components of Organizing Kaizen	Chapters 2.2
	2.2 Understand the Following Aspects Related to Organizing Kaizen	Chapters 2.2
	2.3 Apply the Following Aspects Related to Organizing Kaizen	Chapters 2.2, 4.5
3. A3 Method		
	3.1 Know the Key Components of the A3 Method	Chapters 3
	3.2 Understand the Following Aspects Related to the A3 Method	Chapters 3
	3.3 Apply the Following Aspects Related to the A3 Method	Chapters 3.2, 3.5
4. Define		
	4.1 Know the Key Aspects of the Define Phase	Chapters 4.1-4.3, 4.8
	4.2 Understand the Following Aspects of the Define Phase	Chapters 4.1, 4.3, 4.4, 4.8
	4.3 Applying the Following Aspects of the Define Phase	Chapters 4.1, 4.4-4.7
5. Measure		
	5.1 Know the Key Aspects of the Measure Phase	Chapters 5.1, 5.3, 5.4, 5.6, 5.7
	5.2 Understand the Following Aspects of the Measure Phase	Chapters 5.1-5.3
	5.3 Applying the Following Aspects of the Measure Phase	Chapters 5.2, 5.4, 5.5
6. Analyze		
	6.1 Know the Key Aspects of the Analyze Phase	Chapters 6.1-6.3, 6.6, 6.7
	6.2 Understand the following aspects of the Analyze phase	Chapters 6.15, 6.2, 6.3
	6.3 Applying the Following Aspects of the Analyze Phase	Chapters 6.1-6.5
7. Improve		
	7.1 Know the Key Aspects of the Improve Phase	Chapters 7.1, 7.2, 7.7
	7.2 Understand the Following Aspects of the Improve Phase	Chapters 7.1-7.5
	7.3 Applying the Following Aspects of the Improve Phase	Chapters 7.1, 7.2, 7.6
8. Control		
	8.1 Know the Key Aspects of Control Phase	Chapters 8.1-8.3, 8.6, 8.7
	8.2 Understand the Following Aspects of Control Phase	Chapters 8.2.1, 8.3-8.5
	8.3 Applying the Following Aspects of the Control Phase	Chapters 8.3, 8.5

Contact EXIN

www.exin.com