

Lean Silver Certification Blueprint



LEAN[™]
certification

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The Lean Certification Blueprint provides additional useful information beyond the Body of Knowledge. The Body of Knowledge specifies the competencies, topics, and subtopics required by different types of lean professionals. The Blueprint goes one step further by specifying the segments of the relevant Body of Knowledge covered by the specific professional certification, and provides detail on the level of proficiency expected for each certification. The Blueprint codifies the content that lean certification addresses in terms of terminal learning objectives (TLOs) and enabling learning/certification objectives (ELOs).

Lean Silver Certification Blueprint

TLO1: A Lean Silver professional will be able to use and apply principles of cultural enablers within a complete value stream.

- 1.1.1 Demonstrate the importance of respect for the individual in lean cultures.
- 1.1.2 Adopt the principle of humility in enabling personal and organizational learning and improvement.

TLO2: A Lean Silver professional will be able to demonstrate and apply the processes for cultural enablers within a complete value stream.

- 1.2.1 Demonstrate the value of planning and deployment in a lean implementation.
- 1.2.2 Demonstrate creating a sense of urgency in an organization.
- 1.2.3 Demonstrate the lean principles, values, and philosophies through action and dialogue.
- 1.2.4 Demonstrate the purpose and function of message deployment, including establishing a vision and direction.
- 1.2.5 Demonstrate the integration of learning and coaching into the value stream's everyday work.
- 1.2.6 Implement various types of people development in a lean culture, including education, training, and coaching.
- 1.2.7 Apply the principles of motivation, empowerment, and involvement processes in a lean implementation and/or in leading teams.
- 1.2.8 Describe and demonstrate how environmental systems (e.g., area cleanliness, lighting, HVAC) support respect for the individual.
- 1.2.9 Describe and demonstrate how safety systems (e.g., product safety, work safety) support respect for the individual.

TLO3: A Lean Silver professional will be able to construct and implement techniques and practices of cultural enablers within a complete value stream.

- 1.3.1 Utilize cross training of employees in a value stream.
- 1.3.2 Conduct a skills assessment for training and employee advancement.
- 1.3.3 Construct and implement clear instructions and goals in a learning event.
- 1.3.4 Develop and conduct on-the-job training for new and/or experienced employees.
- 1.3.5 Utilize coaching and mentoring skills.
- 1.3.6 Demonstrate the critical elements of leadership development, including motivation, coaching for performance, establishing expectations, and managing change.
- 1.3.7 Lead the formation and management of a work team.
- 1.3.8 Apply methods for increasing information sharing and sharing best practices (Yokoten).
- 1.3.9 Develop and implement suggestion systems.

TLO4: A Lean Silver professional will be able to demonstrate and monitor the basic principles and philosophies of continuous process improvement within a complete value stream.

- 2.1.1 Implement methods to ensure a process focus (e.g., allocate time to the floor, measure the process to highlight misses and glitches).
- 2.1.2 Apply the concept and approaches to identification and elimination of barriers to flow.
 - 2.1.2.1 Analyze the concepts and principles related to flow.
 - 2.1.2.2 Develop methods to reduce the original 7 Wastes (Muda), fluctuation (Mura), and minimize overburden (Muri).
 - 2.1.2.3 Construct and evaluate value added process steps to eliminate waste and maximize value.
 - 2.1.2.4 Select strategies, techniques, and practices to organize processes around flow.
 - 2.1.2.5 Determine processes and share best practices to make end-to-end flow visible.
 - 2.1.2.6 Implement methods to manage the flow visually in order to make process conditions apparent.
- 2.1.3 Demonstrate the purpose and function of matching the rate of production to the level of customer demand (Just-In-Time).
- 2.1.4 Implement scientific thinking as a thought process through experimentation and experimental learning.
 - 2.1.4.1 Implement methods and systems to stabilize processes.
 - 2.1.4.2 Apply elements and key features of work standardization.
 - 2.1.4.3 Implement concepts which support the recognition of abnormalities.
 - 2.1.4.4 Create opportunities to “go and see” in order to identify abnormalities and areas for improvement.

- 2.1.5 Evaluate systems and processes to ensure autonomation (jidoka).
 - 2.1.5.1 Apply the concept and elements of quality at the source (e.g., standard work, successive checks, self-checks, visual management, poka-yoke, continuous improvement).
 - 2.1.5.2 Apply the concept of no defects passed forward.
 - 2.1.5.3 Create processes to separate man from machine.
 - 2.1.5.4 Analyze multi-process handling in continuous process improvement.
 - 2.1.5.5 Create methods for self-detection of errors to prevent defects.
 - 2.1.5.6 Ensure the stop and fix principle is applied to prevent a reoccurrence of the defect.
- 2.1.6 Implement improvements with routine work to continually improve the organization.
- 2.1.7 Employ seek perfection principles to help achieve continuous improvement.
 - 2.1.7.1 Demonstrate use of incremental continuous improvement (Kaizen).
 - 2.1.7.2 Demonstrate the use of breakthrough continuous improvement (Kaikaku).

TLO5: A Lean Silver professional will be able to select and demonstrate the continuous process improvement systems within a complete value stream.

- 2.2.1 Implement the concept and function of a visual workplace.
 - 2.2.1.1 Use the process and elements of 5S standards and disciplines.
- 2.2.2 Apply the concept of lot size reduction.
- 2.2.3 Implement the main components (i.e., total volume, model sequence, model volume) of load leveling.
- 2.2.4 Describe the steps needed to conduct a 3P Production Process Preparation.
- 2.2.5 Apply the components and metrics of total productive maintenance (including predictive).
- 2.2.6 Direct the implementation of standard work for a job position, including the three core elements (takt time, work sequence, and standard in-process stock).
- 2.2.7 Utilize built-in feedback systems used to assess process and product quality.
- 2.2.8 Develop how a strategic business assessment enhances reporting and increases control, and accountability.
- 2.2.9 Develop continuous improvement process methodologies used in value streams.
 - 2.2.9.1 Apply the Plan-Do-Check-Act (PDCA) continual improvement methodology.
 - 2.2.9.2 Implement the steps and key components of DMAIC.
 - 2.2.9.3 Conduct a problem solving storyboard session.
- 2.2.10 Implement quality systems to meet customer requirements (e.g., ISO).
 - 2.2.10.1 Understand and the purpose and functions of ISO and other standards.
- 2.2.11 Implement corrective action systems.
 - 2.2.11.1 Design a root cause analysis to analyze a problem and put a solution in place.

- 2.2.12 Apply the core concepts of project management (e.g., project charter, Gantt chart).
- 2.2.13 Implement the components of process design.
- 2.2.14 Implement the purpose, function, and types (i.e., supermarket, sequential, mixed) of pull systems in lean manufacturing.
- 2.2.15 Utilize knowledge transfer and demonstrate the elimination of types of wastes of knowledge (e.g., handoff, useless information, discarded knowledge).

TLO6: A Lean Silver professional will be able to determine and put to use the continuous process improvement techniques, tools, and practices within a complete value stream.

- 2.3.1 Employ different methods of work flow analysis.
 - 2.3.1.1 Construct a flowchart to evaluate work flow and identify areas for process improvements.
 - 2.3.1.2 Complete a flow analysis chart (processing, inspection, transportation, process delay, lot delay).
 - 2.3.1.3 Conduct value stream mapping to identify value added activities/steps and waste producing activities/steps.
 - 2.3.1.4 Conduct a takt time analysis to determine if a value stream or process is meeting customer demand.
- 2.3.2 Conduct data collection and produce presentations using basic statistical tools (e.g., histograms).
 - 2.3.2.1 Create, develop, and use histograms to focus improvement efforts or assist in understanding a problem.
 - 2.3.2.2 Develop a pareto chart to focus improvement efforts or assist in understanding a problem.
 - 2.3.2.3 Utilize a check sheet to collect and record data at the location of the data source.
- 2.3.3 Identify the root cause by using appropriate tools (e.g., fishbone, 5 Whys) (look beyond the symptoms).
 - 2.3.3.1 Demonstrate the use of cause and effect (fishbone) diagram to identify potential causes for an effect/problem.
 - 2.3.3.2 Apply the 5-Whys technique to arrive at the root cause of a problem.
 - 2.3.3.3 Understand and implement a failure mode and effects analysis.
- 2.3.4 Conduct analyses to present variation data.
 - 2.3.4.1 Utilize and interpret statistical process control charts to monitor, study, and understand process behavior over time.
 - 2.3.4.2 Develop scatter and concentration diagrams.
- 2.3.5 Understand the value of Lean product and service design.
 - 2.3.5.1 Determine the purpose, function, and benefits of concurrent engineering.
 - 2.3.5.2 Describe the purpose and components a quality function deployment.
 - 2.3.5.3 Conduct product process benchmarking.

- 2.3.5.4 Understand the components, function, methodologies, and benefits of design for product life cycle (DFx).
- 2.3.5.5 Utilize variety reduction for products and components (e.g., capability study, quality loss function).
- 2.3.5.6 Apply strategies to achieve design for manufacturability.
- 2.3.6 Apply various lean tools to prepare for improvement efforts (e.g., individual, work teams, kaizen blitz).
 - 2.3.6.1 Lead, direct, or facilitate a kaizen blitz (e.g., kaizen event, rapid improvement event).
- 2.3.7 Develop countermeasure activities (e.g., mistake-and error-proofing) to reduce or eliminate root causes of problems.
 - 2.3.7.1 Implement mistake and error proofing (Poka Yoke).
 - 2.3.7.2 Apply the quick changeover/setup reduction (SMED) technique.
 - 2.3.7.3 Apply the technique of one piece flow.
 - 2.3.7.4 Utilize the concept of right sized equipment.
 - 2.3.7.5 Drive the cellular flow process.
 - 2.3.7.6 Implement sensible automation.
 - 2.3.7.7 Implement material signals (Kanban).
 - 2.3.7.8 Employ the concept of source inspection.
- 2.3.8 Understand the concept and importance of external supply processes.
 - 2.3.8.1 Use supplier managed inventory to benefit external suppliers, the internal processes, and the value stream.
 - 2.3.8.2 Implement cross-docking where appropriate.
 - 2.3.8.3 Demonstrate the purpose and benefit to the value stream of supplier assessment and feedback.
 - 2.3.8.4 Demonstrate the value of supplier development to the overall value stream.
 - 2.3.8.5 Utilize various types of supplier benchmarking (e.g., internal, competitive, functional).
 - 2.3.8.6 Understand the concept and act upon challenges of logistics within the supply chain.
- 2.3.9 Apply the concept of internal supply processes.
 - 2.3.9.1 Apply methods and rules to minimize waste during material handling.
 - 2.3.9.2 Demonstrate the methods and benefits of minimizing warehousing.
 - 2.3.9.3 Apply the concept of planning and scheduling.

TLO7: A Lean Silver professional will be able to evaluate and implement the principles of consistent lean enterprise culture within a complete value stream.

- 3.1.1 Drive systemic thinking to build a culture that is value stream focused.
 - 3.1.1.1 Apply part-whole relationships which are clear and explicit through holistic thinking.
 - 3.1.1.2 Understand how the value stream evolves as necessary to accommodate future conditions through dynamic thinking.
 - 3.1.1.3 Apply closed-loop thinking to assure effective feedback of organizational learning (e.g., Deming's PDCA cycle).
- 3.1.2 Ensure constancy of purpose within the lean enterprise culture.
 - 3.1.2.1 Ensure a focus on results.
 - 3.1.2.2 Ensure a focus on waste elimination to a project.
 - 3.1.2.3 Create and maintain a focus on value to the customer during work groups and projects.
- 3.1.3 Understand and demonstrate some of the key concepts of the importance of social responsibility (e.g., environmental impact) to the organization's success.

TLO8: A Lean Silver professional will be able to determine the processes or systems for developing and maintaining a consistent lean enterprise culture within a complete value stream.

- 3.2.1 Integrate enterprise thinking within a value stream.
 - 3.2.1.1 Organize around flow to eliminate traditional boundaries between internal customers and suppliers.
 - 3.2.1.2 Integrate business systems and improvement systems.
 - 3.2.1.3 Develop and implement reporting systems (across functions) that track lean improvement activities.
 - 3.2.1.4 Utilize information management techniques to create a common understanding of what is important.
- 3.2.2 Apply different methods of policy deployment/strategy deployment (Hoshin Kanri).
 - 3.2.2.1 Apply the steps involved in scientific thinking as a strategic process.
 - 3.2.2.2 Implement a series of nested experiments to understand the cause and effect.
 - 3.2.2.3 Test the dynamic give-and-take process to receiving feedback.
 - 3.2.2.4 Demonstrate the creation of consensus within the group to move forward.
 - 3.2.2.5 Ensure correct alignment and prioritization of initiatives within the value stream.
 - 3.2.2.6 Implement standard work for strategic planning communication to keep track of progress.
 - 3.2.2.7 Utilize an effort and impact matrix to establish consensus for resource deployment and allocation.

TLO9: A Lean Silver professional will be able to describe and apply the techniques, practices, and tools for developing and maintaining a consistent lean enterprise culture within a complete value stream.

- 3.3.1 Utilize an A3 process to capture knowledge, the process problem analyzed, and learning.
- 3.3.2 Utilize a catchball process to review, discuss, and adjust a strategy or objective.
- 3.3.3 Evaluate and deploy resources where demand is required.

TLO10: A Lean Silver professional will be able to describe and apply the principles of business results within a complete value stream.

- 4.1.1 Promote value in customer loyalty to measure and drive performance.
 - 4.1.1.1 Analyze and understand what matters to the customer in order to align, streamline, and simplify work processes.
 - 4.1.1.2 Diagnose normal conditions from abnormal conditions to trigger the correct response.
 - 4.1.1.3 Create guidelines for measurement categories to achieve better results through alignment, visibility, and feedback.

TLO11: A Lean Silver professional will be able to describe and apply measurement systems within a complete value stream.

- 4.2.1 Apply precision and accuracy in measurement systems to be consistent when determining quantity or capacity.
 - 4.2.1.1 Understand and apply the interdependencies between measures and measurement categories (e.g., attribute measures, variable data, KPIs).
 - 4.2.1.2 Align internal measures that matter to the customer.
 - 4.2.1.3 Design metrics and measure the results from the whole system to maximize value.
 - 4.2.1.4 Implement a measurement system to measure and expel waste and barriers to flow.
 - 4.2.1.5 Utilize a lean accounting system to measure and optimize business practices.
 - 4.2.1.6 Conduct Voice of the Customer measurements.
- 4.2.2 Classify the goals and objectives to improve the organization's vision.
 - 4.2.2.1 Demonstrate the use of the SMART (Specific, Measurable, Achievable, Realistic, Timely) goals to improve the value stream.
 - 4.2.2.2 Analyze customer relations to ensure alignment between the teams' efforts and external customers.
- 4.2.3 Understand the factors from analysis that influence the process.

4.2.4 Address and report to stakeholders any issue of product flow, backlogs, and quality problems.

4.2.4.1 Apply methods of visible feedback in real-time to communicate information.

TLO12: A Lean Silver professional will be able to understand and apply key lean related measures within a complete value stream.

4.3.1 Develop and apply quality measures to establish a value for the product.

4.3.1.1 Produce measures that immediately identify the sources of rework.

4.3.1.2 Implement first pass yield to measure the value stream's ability to produce a quality product.

4.3.2 Drive the lean flow methods of eliminating waste, reduction of fluctuation, and leveling to produce accurate delivery.

4.3.2.1 Analyze takt time to measure the pace of work to meet the customer demand and implement improvements.

4.3.2.2 Calculate cycle time to measure the time required to complete a task.

4.3.2.3 Compute the lead-time to measure the unit's process from start to finish.

4.3.3 Analyze the total cost in the lean process to identify opportunities to eliminate waste.

4.3.3.1 Analyze the cost of goods sold against the average cost of inventory to establish inventory turns.

4.3.3.2 Analyze the queue time a product waits at the next fabrication step.

4.3.3.3 Analyze the wait time in a process to measure the duration of delay in the process.

4.3.3.4 Determine the overall equipment effectiveness of the key processes within the value stream.

4.3.3.5 Calculate the changeover time from one product to another.

4.3.4 Analyze the financial impact that the lean process has on daily operations.

4.3.4.1 Understand how reductions in lead time affect cash flow.

4.3.5 Analyze the competitive impact the lean can have in each respective market.

4.3.5.1 Create customer satisfaction to deliver value to the customer's point of view.