

Lean Certification Body of Knowledge



LEANTM
certification

ASQ • AME • SHINGO INSTITUTE • SME

LEAN CERTIFICATION

BODY OF KNOWLEDGE RUBRIC VERSION 3.0

| | WEIGHTINGS PER EXAM | | |
|--|---------------------------|------------------------------|--------------------------|
| | LEAN BRONZE (TACTICAL) | LEAN SILVER (INTEGRATIVE) | LEAN GOLD (STRATEGIC) |
| MODULE 1 | | | |
| 1. Cultural Enablers | 15% | 20% | 25% |
| 1.1. Principles of Cultural Enablers | 3% | 4% | 5% |
| 1.1.1. Respect for the individual | | | |
| 1.1.2. Humility | | | |
| 1.2. Processes for Cultural Enablers | 4% | 8% | 12% |
| 1.2.1. Planning and deployment | | | |
| 1.2.2. Create a sense of urgency | | | |
| 1.2.3. Modeling the lean principles, values, philosophies | | | |
| 1.2.4. Message deployment – establishing vision and direction | | | |
| 1.2.5. Integrating learning and coaching | | | |
| 1.2.6. People development – education, training, and coaching | | | |
| 1.2.7. Motivation, empowerment, and involvement | | | |
| 1.2.8. Environmental systems | | | |
| 1.2.9. Safety systems | | | |
| 1.3. Cultural Enabler Techniques and Practices | 8% | 8% | 8% |
| 1.3.1. Cross training | | | |
| 1.3.2. Skills assessment | | | |
| 1.3.3. Instructional goals | | | |
| 1.3.4. On-the-job training | | | |
| 1.3.5. Coaching and mentoring | | | |
| 1.3.6. Leadership development | | | |
| 1.3.7. Teamwork | | | |
| 1.3.8. Information sharing (Yokoten) | | | |
| 1.3.9. Suggestion systems | | | |
| MODULE 2 | | | |
| 2. Continuous Process Improvement | 60% | 30% | 15% |
| 2.1. Principles of Continuous Process Improvement | 15% | 10% | 6% |
| 2.1.1. Process focus | | | |
| 2.1.2. Identification and elimination of barriers to flow | | | |
| 2.1.2.1. Flow and the economies of flow | | | |
| 2.1.2.2. 7 Wastes (Muda), Fluctuation (Mura), and Overburden (Muri) | | | |
| 2.1.2.3. Connect and align value added work fragments | | | |
| 2.1.2.4. Organize around flow | | | |
| 2.1.2.5. Make end-to-end flow visible | | | |
| 2.1.2.6. Manage the flow visually | | | |
| 2.1.3. Match rate of production to level of customer demand – just-in-time | | | |

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| | | | | LEAN BRONZE (TACTICAL) | LEAN SILVER (INTEGRATIVE) | LEAN GOLD (STRATEGIC) |
| 2.1.4. Scientific thinking | | | | | | |
| 2.1.4.1. Stability | | | | | | |
| 2.1.4.2. Standardization | | | | | | |
| 2.1.4.3. Recognize Abnormality | | | | | | |
| 2.1.4.4. Go and See | | | | | | |
| 2.1.5. Jidoka | | | | | | |
| 2.1.5.1. Quality at the source | | | | | | |
| 2.1.5.2. No defects passed forward | | | | | | |
| 2.1.5.3. Separate man from machine | | | | | | |
| 2.1.5.4. Multi-process handling | | | | | | |
| 2.1.5.5. Self detection of errors to prevent defects | | | | | | |
| 2.1.5.6. Stop and fix | | | | | | |
| 2.1.6. Integrate Improvement with Work | | | | | | |
| 2.1.7. Seek Perfection | | | | | | |
| 2.1.7.1. Incremental continuous improvement (Kaizen) | | | | | | |
| 2.1.7.2. Breakthrough continuous improvement (Kaikaku) | | | | | | |
| 2.2. Continuous Process Improvement Systems | | 20% | 10% | 7% | | |
| 2.2.1. Visual Workplace | | | | | | |
| 2.2.1.1. 5S standards and discipline | | | | | | |
| 2.2.2. Lot size reduction | | | | | | |
| 2.2.3. Load leveling | | | | | | |
| 2.2.4. 3P (production, process, preparation) | | | | | | |
| 2.2.5. Total productive maintenance (including predictive) | | | | | | |
| 2.2.6. Standard work | | | | | | |
| 2.2.7. Built-in feedback | | | | | | |
| 2.2.8. Strategic business assessment | | | | | | |
| 2.2.9. Continuous improvement process methodology | | | | | | |
| 2.2.9.1. PDCA | | | | | | |
| 2.2.9.2. DMAIC | | | | | | |
| 2.2.9.3. Problems solving storyboards | | | | | | |
| 2.2.10 Quality systems | | | | | | |
| 2.2.10.1 ISO and other standards | | | | | | |
| 2.2.11 Corrective action system | | | | | | |
| 2.2.11.1. Root cause analysis | | | | | | |
| 2.2.12. Project management | | | | | | |
| 2.2.13 Process design | | | | | | |
| 2.2.14 Pull system | | | | | | |
| 2.2.15 Knowledge transfer | | | | | | |
| 2.3. Continuous Process Improvement Techniques and Practices | | 25% | 10% | 2% | | |
| 2.3.1. Work flow analysis | | | | | | |
| 2.3.1.1. Flowcharting | | | | | | |
| 2.3.1.2. Flow analysis charts | | | | | | |

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|---|---------------------------|------------------------------|--------------------------|
| 2.3.1.3. Value stream mapping | | | |
| 2.3.1.4. Takt time analysis | | | |
| 2.3.2. Data collection and presentation | | | |
| 2.3.2.1. Histograms | | | |
| 2.3.2.2. Pareto charts | | | |
| 2.3.2.3. Check sheets | | | |
| 2.3.3. Identify root cause | | | |
| 2.3.3.1. Cause and effect diagrams (Fishbone) | | | |
| 2.3.3.2. Five whys | | | |
| 2.3.3.3. Failure mode and effects analysis | | | |
| 2.3.4. Presenting variation data | | | |
| 2.3.4.1. Statistical process control charts | | | |
| 2.3.4.2. Scatter and concentration diagrams | | | |
| 2.3.5. Product and service design (make sure to include engineering changes (capabilities)) | | | |
| 2.3.5.1. Concurrent engineering | | | |
| 2.3.5.2. Quality function deployment | | | |
| 2.3.5.3. Product or process benchmarking | | | |
| 2.3.5.4. Design for product life cycle (DFx) – cradle to cradle | | | |
| 2.3.5.5. Variety reduction - product and component | | | |
| 2.3.5.6. Design for manufacturability | | | |
| 2.3.6. Organizing for improvement | | | |
| 2.3.6.1. Kaizen blitz events | | | |
| 2.3.7. Countermeasure activities | | | |
| 2.3.7.1. Mistake and error proofing (Poka Yoke) | | | |
| 2.3.7.2. Quick changeover/setup reduction (SMED) | | | |
| 2.3.7.3. One piece flow | | | |
| 2.3.7.4. Right sized equipment | | | |
| 2.3.7.5. Cellular flow | | | |
| 2.3.7.6. Sensible automation | | | |
| 2.3.7.7. Material signals (Kanban) | | | |
| 2.3.7.8. Source inspection | | | |
| 2.3.8. Supply processes external | | | |
| 2.3.8.1. Supplier managed inventory | | | |
| 2.3.8.2. Cross-docking | | | |
| 2.3.8.3. Supplier assessment and feedback | | | |
| 2.3.8.4. Supplier development | | | |
| 2.3.8.5. Supplier benchmarking | | | |
| 2.3.8.6. Logistics | | | |
| 2.3.9. Supply processes internal | | | |
| 2.3.9.1. Material handling | | | |
| 2.3.9.2. Warehousing | | | |
| 2.3.9.3. Planning and scheduling | | | |

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**LEAN BRONZE
(TACTICAL)**

**LEAN SILVER
(INTEGRATIVE)**

**LEAN GOLD
(STRATEGIC)**

| MODULE 3 | | | |
|--|------------|------------|------------|
| 3. Consistent Lean Enterprise Culture | 10% | 20% | 30% |
| 3.1. Principles of Consistent Lean Enterprise Culture | 5% | 7% | 11% |
| 3.1.1. Systemic thinking | | | |
| 3.1.1.1. Part-whole relationships are clear and explicit through holistic thinking | | | |
| 3.1.1.2. The organization evolves as necessary to accommodate future conditions through dynamic thinking | | | |
| 3.1.1.3. Closed-loop thinking to assure effective feedback of organizational learning | | | |
| 3.1.2. Constancy of purpose | | | |
| 3.1.2.1. Focus on results | | | |
| 3.1.2.2. Focus on waste elimination | | | |
| 3.1.2.3. Focus on value to customer | | | |
| 3.1.3. Social responsibility | | | |
| 3.2. Processes for Developing Consistent Lean Enterprise Culture | 3% | 6% | 11% |
| 3.2.1. Enterprise thinking | | | |
| 3.2.1.1. Organize around flow | | | |
| 3.2.1.2. Integrated business system and improvement system | | | |
| 3.2.1.3. Reconcile reporting systems | | | |
| 3.2.1.4. Information management | | | |
| 3.2.2. Policy deployment/strategy deployment | | | |
| 3.2.2.1. Scientific thinking as a strategy process | | | |
| 3.2.2.2. Series of nested experiments | | | |
| 3.2.2.3. Dynamic give and take | | | |
| 3.2.2.4. Forming consensus | | | |
| 3.2.2.5. Align strategies and execution | | | |
| 3.2.2.6. Standard work for strategy communication – how we think and talk | | | |
| 3.2.2.7. Resource deployment and allocation | | | |
| 3.3. Consistent Enterprise Culture Techniques & Practices | 2% | 7% | 8% |
| 3.3.1. A3 | | | |
| 3.3.2. Catchball | | | |
| 3.3.3. Redeployment of resources | | | |
| MODULE 4 | | | |
| 4. Business Results | 15% | 30% | 30% |
| 4.1. Principles of Business Results | 4% | 10% | 12% |
| 4.1.1. Create value first to drive performance | | | |
| 4.1.1.1. Measure what matters to the customer | | | |
| 4.1.1.2. Measure normal versus abnormal conditions (triggers response) | | | |

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| 4.1.1.3. | Guidelines for measurement categories | | | | | |
| | - Customer demand and characteristics | | | | | |
| | - Customer retention | | | | | |
| | - Waste | | | | | |
| | - People development measures | | | | | |
| | - Quality | | | | | |
| | - Cost and productivity | | | | | |
| | - Competitive impact | | | | | |
| 4.2. | Measurement Systems | | | 3% | 10% | 12% |
| 4.2.1. | Measurement | | | | | |
| 4.2.1.1. | Understand interdependencies between measures and measurement categories | | | | | |
| 4.2.1.2. | Align internal measures with what matters to customers | | | | | |
| 4.2.1.3. | Measure the results from the 'whole' system | | | | | |
| 4.2.1.4. | Measure flow and waste | | | | | |
| 4.2.1.5. | Lean accounting | | | | | |
| 4.2.1.6. | Voice of the customer | | | | | |
| 4.2.2. | Goal and objective setting | | | | | |
| 4.2.2.1. | SMART (specific, measurable, achievable, realistic, timely) | | | | | |
| 4.2.2.2. | Tied to the customer | | | | | |
| 4.2.3. | Analysis – understand what moves the dial on measures | | | | | |
| 4.2.4. | Reporting | | | | | |
| 4.2.4.1. | Visible feedback real-time | | | | | |
| 4.3. | Key Lean-Related Measures | | | 8% | 10% | 6% |
| 4.3.1. | Quality | | | | | |
| 4.3.1.1. | Rework | | | | | |
| 4.3.1.2. | First pass yield | | | | | |
| 4.3.2. | Delivery | | | | | |
| 4.3.2.1 | Takt time | | | | | |
| 4.3.2.2 | Cycle time | | | | | |
| 4.3.2.3 | Lead time | | | | | |
| 4.3.3. | Cost | | | | | |
| 4.3.3.1. | Inventory turns | | | | | |
| 4.3.3.2. | Queue time | | | | | |
| 4.3.3.3. | Wait time (delays) | | | | | |
| 4.3.3.4. | Overall equipment effectiveness (OEE) | | | | | |
| 4.3.3.5. | Changeover time | | | | | |
| 4.3.4. | Financial impact | | | | | |
| 4.3.4.1. | Cash flow | | | | | |
| 4.3.5. | Competitive impact | | | | | |
| 4.3.5.1. | Customer satisfaction | | | | | |