



General Physics Corporation  
www.gpworldwide.com

# Education and Development for Transformation Lean/Six Sigma Curriculum

*Curriculum Syllabus Version 3.0 – June 2011*



*Leading the world to  
better performance*

# Education and Development for Transformation: Lean/Six Sigma Curriculum


General Physics Corporation's (GP's) Operational Excellence Practice offers consulting, training, coaching, and hands-on implementation, helping your organization and supply chain design and deploy an initiative with the right mix of Lean, Six Sigma, Reliability Excellence/Total Productive Maintenance (TPM), and Management Systems to help achieve dramatic results and sustain change.

## GP's Operational Excellence Services

When you select us for your training, you receive:

- Training from practitioners and implementers who are also skilled trainers.
- Courses designed with your learning objectives in mind, using professional instructional system design combined with our subject-matter expertise.

You can select a course in any Operational Excellence discipline: Lean, Six Sigma, Lean Sigma, and Reliability Excellence. Each course includes key points about philosophy and management systems that will help you understand how to integrate the disciplines into your operations to ensure sustainability.



You can obtain most of the courses in a format that works best for you:

- **Off-the-Shelf**  
Select our standard training if a generic course suits your needs.
- **Customized**  
GP can make minor modifications to better fit your organization's existing terminology and culture (which we can do quickly and cost effectively), or you can ask us to develop a truly custom curriculum.
- **On-site or public format**  
Arrange for an on-site instructor or visit our website to review our schedule of events.
- **e-Learning**  
For certain courses, you can select e-Learning or a blended solution of e-Learning, instructor-led training, and coaching.

What sets GP apart is our drive to help you create the business operating system that sustains your continuous improvement culture. We start by helping you select the right mix of disciplines, including Lean, Six Sigma, and Reliability Excellence/TPM to improve operations. Many organizations develop pockets of excellence that focus only on learner capabilities or areas of application. GP reaches for the entire organization by defining the system, processes, and support mechanisms that go beyond short-term or project-based return on investment to achieve world-class operational excellence. GP courses weave sustainability factors into the training.

GP is an international performance improvement company and a global leader in training, engineering, performance improvement, and technical services. We provide strategies and solutions designed to help customers optimize technical and workforce performance. GP has provided services in many countries and is well positioned to serve clients throughout the world.

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# Introduction to Lean (LEAN501)

## Curriculum Description

Recognized as one of the most effective operating system in business, the Toyota Production System (TPS) is the origin of what has become known as Lean. Incorporating an introduction to all aspects of Lean, this course is designed to transfer knowledge in planning and implementation through interactive learning and examples to anyone who is leading or is on a Lean implementation team for an enterprise.

## Curriculum Prerequisites

None.

## Module Objectives

At the completion of this course, participants will be able to:

- Describe the concept of each of the Lean tools
- Describe how Lean can improve the performance of an enterprise
- Understand the rollout process
- Define the tools supporting the Lean Temple
- Explain how Lean tools work together to create a Lean environment
- Recognize areas of improvement within a facility, and identify the correct tool to use
- Understand how Lean needs to be launched/implemented in an enterprise and why “cherry picking” often fails

## Recommended Audience

Executive – Shop Floor. Anyone who is expecting to be involved in the planning, leading, or implementation of Lean systems processes and tools.

## Duration

2 days.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Value Stream Mapping (LEAN502)

## Curriculum Description

Often cited as the key reason for short lead times, understanding the complete value chain of a product or service is a fundamental part of a Lean enterprise and the first step in beginning a Lean implementation program. Value Stream Mapping allows enterprises to understand where their resources and finances are tied up in attempting to deliver a product or service to their customers, and to then develop and implement future-state maps to improve on their key performance indicators.

## Curriculum Prerequisites

General understanding of Lean.

## Module Objectives

At the completion of this course, participants will be able to:

- Create a value stream map for both current and future states
- Collect and collate data
- Devise an Action Plan
- Set measurables and objectives
- Devise spaghetti diagrams

## Recommended Audience

Executive – Shop Floor. Important for anyone who will be linked to the implementation of a “Lean cell” or pilot area and who will need to understand the impact on key performance indicators.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Blue Sky and Master Schedule (LEAN503)

## Curriculum Description

Essential to the successful implementation of any project is having a clear, yet commonly understood, vision of where you are going. GP's Blue Sky provides an enterprise with a common, measurable vision that is easily communicated throughout the company. This course develops the methods for creating this vision. It also shows how to develop, from the Blue Sky, a Master Schedule, ensuring timely and minimum delay in implementation, and a policy deployment cascade through all levels of the organization, of detailed schedules aligned to achieving the common vision.

## Curriculum Prerequisites

Lean Overview.

## Module Objectives

At the completion of this course, participants will be able to:

- Understand the prerequisites for Blue Sky
- Create a Blue Sky common measurable vision
- Create a Master Schedule
- Align divisions and departments to Blue Sky
- Measure and monitor the implementation of Blue Sky

## Recommended Audience

Executive – Shop Floor. Important for anyone who will be linked to the implementation of a “Lean-cell” or pilot area and who will need to understand the impact on key performance indicators.

## Duration

3 days.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Lean Launch (LEAN504)

## Curriculum Description

In the increasingly demanding marketplace, conceiving, developing, and launching new products or services to the market is becoming critical to maintaining competitive advantage. Delivering on time with high quality, yet reducing cost, can be beneficial to any enterprise. GP's Lean launch concept will lead organizations through a proven methodology for the introduction of products and services to the market. From the early planning stages, through pre-launch, up to and including the ramp-up to full implementation, these processes will support the efficient launch of any product or service.

## Curriculum Prerequisites

Lean Overview.

## Module Objectives

At the completion of this course, participants will be able to:

- Understand the requirements of a Lean launch
- Understand the requirements for successful prototype development
- Acquire knowledge to develop your own Lean launch system

## Recommended Audience

Anyone.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Lean Layout and Design (LEAN505)

## Curriculum Description

The basis for an efficient process is to start with a layout and equipment that is capable of delivering it. Information processes, product handling, environmental impact, and human interaction are factors that can impact process outputs both positively and negatively. During this course, GP will give an insight into how Lean principles, applied to layout and design, can give not only immediate returns, but can also continue to deliver throughout their life cycle.

## Curriculum Prerequisites

Lean Overview, Standardized Work, 5S Visual Factory, Just-in-Time (JIT).

## Module Objectives

At the completion of this course, participants will be able to:

- Understand and calculate Takt-time
- Brainstorm and simulate alternative layouts
- Discuss benefits and disadvantages of each layout
- Select the most appropriate Lean layout
- Calculate number of operators required
- Develop preliminary Standardized Work concepts

## Recommended Audience

Anyone.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Six Sigma Green Belt (LEAN506)

## Curriculum Description

This course prepares the participant to perform simple to moderately complex Six Sigma projects and to support Black Belts on projects. Covering a recognized body of knowledge of Green Belts, it covers the purpose, tools, and expected outcomes for each Define/Measure/Analyze/Improve/Control (DMAIC) phase and includes how to manage a Six Sigma project. It is designed to provide Green Belts with a roadmap for working through a project rather than a tools-focused approach to training. This course follows the typical format of two 4.5-day training classes (one session per month for two months) and prepares the participant to take the Black Belt Upgrade course (LEAN506 is a prerequisite for the Black Belt Upgrade).

## Curriculum Prerequisites

Lean Overview.

## Module Objectives

At the completion of this course, participants will be able to:

- Explain how Six Sigma improves business performance
- Describe the Six Sigma approach
- Describe sources of variability and process sigma level
- Describe the DMAIC improvement methodology, and use it to perform Green Belt-level projects
- Use Six Sigma tools, including charters Voice of Customer,  $Y=f(x)$ , basic QC tools, process mapping, measurement systems analysis, use of statistics, sampling, confidence intervals, ANOVA, process capability, graphical analysis, correlation and regression, cost-benefit analysis, error proofing, standards, and others
- Use project plans and issues lists to manage Six Sigma projects within your department
- Report on project progress during toll gate reviews

## Recommended Audience

Green Belt Candidates.

## Duration

Two 4.5-day blocks, taken in consecutive months.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Six Sigma Black Belt Upgrade (LEAN507)

## Curriculum Description

This course prepares the participant to perform and lead simple-to-complex Six Sigma projects and lead Green Belts and Yellow Belts on projects. Covering a recognized body of knowledge for Black Belts, it briefly reviews and reinforces the content of the Green Belt course, and then dives more deeply into Six Sigma tools and change management. This course follows a format of two 4.5-day training classes (one session per month for two months), once the prerequisite Green Belt Course is complete.

## Curriculum Prerequisites

Six Sigma Green Belt.

## Module Objectives

At the completion of this course, participants will be able to:

- Be an articulate proponent of how Six Sigma improves business performance
- Perform Green Belt and Black Belt level projects
- Use advanced Six Sigma tools including customer surveys, Quality Function Deployment (QFD), Design of Experiments, analysis of paired and two-sided T-tests, non-normal data, multiple regression, advanced control charts, and others
- Use project plans, work breakdown structure, project reviews, and issues lists to manage Six Sigma projects crossing multiple departments
- Facilitate project teams
- Coach process owners after project hand-off

## Recommended Audience

Green Belt Candidates.

## Duration

Two 4.5-day blocks, taken in consecutive months.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Total Productive Maintenance (TPM) (LEAN508)

## Curriculum Description

A foundation of the manufacturing environment that delivers consistently is effective equipment managed through a strong maintenance process. Total Productive Maintenance (TPM) is such a process. In this one-day course, participants will build their knowledge and create a common language as they gain an understanding of what TPM is and how it works. Participants will learn what needs to be in place to support a TPM system and how it integrates with the overall Lean system.

## Curriculum Prerequisites

Lean Overview.

## Module Objectives

At the completion of this course, participants will be able to:

- List and define the basic philosophies, principles, and tools of TPM
- Explain how TPM fits into the Lean system
- List the five pillars of TPM
- Explain how TPM can help in daily job performance

## Recommended Audience

Maintenance and management.

## Duration

1 day

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Standardized Work (LEAN509)

## Curriculum Description

Controlling quality and safety, while minimizing cost, is a requirement of all processes but often becomes troublesome to management of all levels where human interaction with process is involved. Standardized Work is a method of controlling and linking the day-to-day activities of a process. It is a method for the organization, at all levels, to document a standard for performing their tasks centered around human movement in a way that will provide for continuous improvement through the elimination of waste.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Define Standardized Work and how it is the basis for continuous improvement
- State the reasons and benefits for implementing Standardized Work
- Compare and contrast current work performance to Standardized Work performance
- Understand how Standardized Work drives quality
- Understand how Standardized Work highlights waste in a process
- Be able to calculate Takt time/Standard in Process Stock/Work Sequence
- Identify barriers to implementing Standardized Work and develop ways to remove them
- Be able to create Standardized Work

## Recommended Audience

Management and staff.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# 5S/Visual Management (LEAN510)

## Curriculum Description

Visual Management is the use of controls that enable an individual to immediately recognize the standard and any deviation from it. In Visual Management, the workplace is transparent, waste and abnormalities can be recognized at a single glance, and the trail of any activity can be followed. The 5S process and method is used for creating and maintaining an organized, Lean, high performance workplace. It is also a conditioning discipline for continuous improvement. This course provides a practical understanding of how 5S/Visual Management enables effective production.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Define 5S/Visual Management and its goals
- Explain the reason for implementing Visual Management
- Summarize how 5S relates to the Lean process and can instigate continuous improvement
- Differentiate normal and abnormal conditions
- Develop an implementation plan of how to apply Visual Management
- Identify and implement necessary visual displays and visual controls

## Recommended Audience

Management and staff.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Process Problem Solving (LEAN511)

## Curriculum Description

Effective organizations recognize problems as an opportunity to improve and, for this reason, are focused in the identification of those issues and their quick and conclusive resolution. Identifying the problems only becomes a management burden when the solution process is slow and inadequate. Process Problem Solving is a methodology that delivers the required solution success participants will use to build their knowledge and create a common language as they gain an understanding of Process Problem Solving and how it works.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Understand different levels of problem solving
- Define the Process Problem Solving methodology
- Apply, in a practical environment, the Process Problem Solving methodology
- State the reasons and benefits for implementing Process Problem Solving
- Identify barriers to implementing Process Problem Solving and develop ways to remove them

## Recommended Audience

Anyone who needs to know more about Process Problem Solving.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Just-in-Time (JIT) (LEAN512)

## Curriculum Description

Being one of the two main supporting principles of Lean, Just-in-Time (JIT) can be defined as the “on-demand” supply of both products and services. In this instance, supply should be seen as both the production and delivery of that service or product. This course will give an insight into the prerequisites that need to be in place to support implementation of JIT, as well as the practical tools required to maintain a continual drive to absolute JIT. Level scheduling, Kanban, and production instruction are just some of the aspects covered.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Understand the benefits of minimum stock
- Describe the role of Kanban in JIT
- Realize the need to reduce the lead time of a product
- Realize the need for continuous flow
- Understand how JIT affects the supply chain

## Recommended Audience

Middle management and staff.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Quick Changeover (LEAN513)

## Curriculum Description

The benefit of producing or processing in smaller batches is clear, lower inventory. The ability to do this is often restrained by the economical sense, changeover cost. Quick Changeover, often referred to as SMED, is a practical tool to reduce changeover time and cost, allowing processes to run in smaller batches. In this one-day course, participants will build their knowledge and create a common language as they gain an understanding of Quick Changeover and how it works. The course also provides a practical guide to implementation.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Define Quick Changeover
- Describe the steps to reducing changeover time
- Identify and implement improvements in changeover activity
- Determine how changeover time impacts key operating system principles
- Understand the importance of teamwork
- Understand parallel processing
- Identify the seven wastes
- Recognize the benefits gained from reduced changeover time

## Recommended Audience

Engineers, Designers, Maintenance, Group/Team members, Tool & Die.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Kanban (LEAN514)

## Curriculum Description

Kanban is a tool used to facilitate Just-in-Time (JIT). It means “Signal Card” and helps operators to make what is needed, when it is needed, in the quantity it is needed. Participants will build their knowledge and create a common language as they gain an understanding of what a Kanban system is and how it works. They will learn what needs to be in place to support a Kanban system and how it integrates within an overall Lean system.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Describe how Kanban supports JIT in a Lean system
- Explain how a Kanban system works
- Identify the different types of Kanban and flows for each
- Describe five rules and four types of Kanban
- List the preconditions needed prior to Kanban implementation
- Describe how Kanban controls production and material flow
- Identify the factors to consider when calculating Kanban

## Recommended Audience

Anyone who needs to know more about Kanban systems and how they operate; decision makers, champions, and project leaders for Kanban preparation and implementation. Typical attendees include Production Planning and Control personnel, Manufacturing Supervisors, and Plant Managers.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Error Proofing (LEAN515)

## Curriculum Description

Error proofing is about the prevention of mistakes or zero defects. It is fundamental to one of the two supporting principles of Lean and has its origins in the first Lean enterprise, Toyota. Participants will build their knowledge and create a common language as they gain an understanding of Error Proofing. They will learn what needs to be in place to support an Error Proofing system and how it integrates within an overall Lean system.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Learn how Error Proofing benefits enterprise
- Discover the Error Proofing process
- Understand how to identify potential improvement opportunities and next steps
- Learn how to deal with, and eliminate, errors and defects
- Determine when and how to use Error Proofing devices, that is, Poka-Yoke
- Discover how and when to implement Error Proofing in your enterprise

## Recommended Audience

Anyone who needs to know more about Error Proofing and how it operates; decision makers, champions, and project leaders for Error Proofing preparation and implementation. Typical attendees include Product and Facility Design Engineers, Personnel, Manufacturing Supervisors, and Plant Managers.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Kaizen (LEAN516)

## Curriculum Description

The competitive advantage that all Lean enterprises hold over traditional organizations is the inbred drive to improve every day. Continuous improvement is based on small step improvement changes. Kaizen is the Japanese word for Continual Improvement meaning “kai” (change) and “zen” (for the better). Kaizen is to seek out and eliminate waste at the lowest cost in the shortest time without being detrimental to quality and safety. During this five-day event, participants will build their knowledge and create a common language as they gain an understanding of what Kaizen is, how it works, and how to conduct a Kaizen event.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Define Kaizen
- Explain the purpose of Kaizen
- Identify the different types of Kaizen
- List the preconditions needed prior to Kaizen implementation
- Describe the Kaizen process
- Plan and host a Kaizen event

## Recommended Audience

Anyone who needs to know about Kaizen.

## Duration

5 days.

## Delivery Method

Instructor-led classroom instruction, demonstrations, and hands-on exercises.

# Boot Camp (LEAN517)

## Curriculum Description

GP's Lean Boot Camp is an intensive, short duration program dedicated to bringing the participant quickly up to speed in preparation for his/her role as a Lean implementation leader. The Boot Camp provides a unique learning environment and uses a proven curriculum in a short duration format to equip participants with the basic disciplines of Lean, as well as the knowledge and tools to create an effective Lean strategy, develop personal Lean leadership skills, and gain broad support among colleagues for the Lean transformation.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Champion the processes around support of the holistic system
- Lead in driving the physical, operational, and cultural changes needed
- Create and communicate a vision of the future for their processes
- Recognize the need for and support the structural changes for Lean
- Have courage and conviction to initiate effective Lean plans and organizational culture

## Recommended Audience

Boot Camp is designed to engage the Executives, Managers, Supervisors, and Change agents responsible for introducing Lean within their organization.

## Duration

3 to 5 days.

## Delivery Method

Boot Camp uses various proven methodologies to accelerate learning and improve time-to-competency. Interactive classroom training and experiential learning through participation in a “Lego®” simulation, simulations in virtual world, and case studies that explore real-life situations.

# Lean Learning Academy (LEAN518)

## Curriculum Description

The Lean Learning Academy is a tailored program designed to equip the participants with the knowledge of working practices and implementation skills needed to thoroughly prepare for the transition to a Lean environment. The tutorials provide an introduction to the issues to be addressed and tackle as the enterprise adjusts to change, as well as practical opportunities for individuals to analyze and develop their own leadership values, styles, and behaviors.

## Curriculum Prerequisites

Lean Overview or Lean Boot Camp.

## Module Objectives

At the completion of this course, participants will be able to:

- Have increased awareness and understanding of Lean leadership styles and behaviors
- Understand how to develop the strategy, performance, and culture necessary for a Lean implementation to take hold
- Understand how to make and implement significant business improvements and a return on investment through Lean techniques in their enterprise

## Recommended Audience

Executives, managers, supervisors, and others who want to take on leadership responsibilities. This course is of particular interest to those seeking: a) a clear comprehension of the role they will play and the Lean implementation process and b) a better understanding of the leadership skills required to begin to influence, inspire, and motivate others to excel.

## Duration

Usually run over a three-week period, but flexible and dependent on company needs and requirements.

## Delivery Method

Instructor-led classroom instruction, practical implementations, demonstrations, and hands-on exercises.

# Productivity Modeling (LEAN519)

## Curriculum Description

GP's Productivity Modeling® Program is a systematic and comprehensive methodology to improve manufacturing efficiency, resulting in lower production cost and improved profitability. The participants will learn methodology of the three-phase systematic approach and unique tools, such as a Moving Line chart and a Yamazumi chart, and how to integrate the overall Lean system. This program is designed for Direct Labor (for example, assembly-line workers, cell workers, etc.).

## Curriculum Prerequisites

None.

## Module Objectives

At the completion of this course, participants will be able to:

- Describe how Productivity Modeling supports the overall Lean system
- Explain how to apply and use the Moving Line and Yamazumi charts
- Identify the different types of wastes from current state
- Explain how to facilitate a Productivity Modeling Program
- Identify the factors and prerequisites to consider when a Productivity Modeling Program is implemented

## Recommended Audience

Executives, managers, supervisors, and engineers who want to take on leadership responsibilities to design the most efficient manufacturing process.

## Duration

Usually run over a three-week period: one-week for classroom/floor exercise and two weeks for smaller area actual implementation, but flexible and dependent on company needs and requirements.

## Delivery Method

Instructor-led classroom instruction, practical implementations, demonstrations, and hands-on exercises.

# PFMEA (LEAN520)

## Curriculum Description

This course provides an overview of the Failure Modes Effects Analysis Methodologies. Participants will build knowledge and create a common language as they gain an understanding of Process Failure Mode Effects Analysis (PFMEA) and how it works. This course will define what a Failure Mode Effects Analysis is, explain the 11-step process, and explain how a building block template is applied. Effective organizations recognize problems as an opportunity to improve and, for this reason, are focused on the identification of those issues and their quick and conclusive resolution. Effective problem solving not only isolates its occurrence and impact, but also clearly identifies root cause, containment, countermeasure, and validation.

## Curriculum Prerequisites

None.

## Module Objectives

At the completion of this course, participants will be able to:

- Understand different levels of problem solving
- Define what a FMEA is and how it is used
- Describe the 11-step process
- Explain the elements of a building block template
- Identify common violations of OSHA standards and propose abatement actions
- Describe appropriate abatement procedures for selected safety and health hazards

## Recommended Audience

Operators, team leaders, and supervisors who are tasked with process, quality, delivery, cost, morale, or safety improvements should attend this course.

## Duration

2 days.

## Delivery Method

Instructor-led classroom instruction, practical implementations, demonstrations, and hands-on exercises.

# Autonomous Maintenance (LEAN521)

## Curriculum Description

This course teaches the elements of routine equipment care and facilitates participants in workshop fashion to identify routine equipment checks, visual controls, and equipment restoration activities. This workshop can be taught generically or with the goal of establishing the routine care system for a specific equipment system.

## Curriculum Prerequisites

None.

## Module Objectives

At the completion of this course, participants will be able to:

- Explain the goals and benefits of routine equipment care
- Describe the maintenance-operators partnership and the roles of each
- List and explain the seven steps of equipment wellness
- Develop a routine equipment care activity board
- Identify visual controls and inspection routes

## Recommended Audience

Maintenance and management.

## Duration

1 day (with a 2-day option available to allow more time for implementation).

## Delivery Method

Instructor-led classroom instruction, practical implementations, demonstrations, and hands-on exercises.

# Hoshin Kanri (LEAN522)

## Curriculum Description

To successfully implement a Lean continuous improvement culture, alignment of an organization's strategic initiatives and vision is a prerequisite. This workshop ensures that executives within an organization gain a higher degree of alignment, common understanding, and commitment to those initiatives. Our visioning process is designed to drive unity of understanding and executive commitments to those initiatives that senior executives agree are critical.

## Curriculum Prerequisites

None.

## Module Objectives

At the completion of this course, participants will be able to:

- Outline Lean foundational principles
- Determine speed and areas of focus for the system
- Select specific champions, governance model, and roll-out schedule
- Prioritize projects based on the preceding items
- Create a transformational roadmap that will complete documentation of journey and internal website development
- Convert strategy into action

## Recommended Audience

Executive management.

## Duration

2 days.

## Delivery Method

Instructor-led classroom instruction, practical implementations, demonstrations, and hands-on exercises.

# Lean Leadership (LEAN523)

## Curriculum Description

This course prepares senior and middle managers to lead their Lean system. It provides a thorough understanding of the Lean approach with an emphasis on the action that managers should take to select, sponsor, guide, and sustain a Lean system.

## Curriculum Prerequisites

None.

## Module Objectives

At the completion of this course, participants will be able to:

- Lead Lean by example
- Explain how Lean improves business performance
- Describe the Lean philosophy and approach to continuous improvement
- Identify and select high-impact Lean projects
- Sponsor Lean projects effectively
- Define Lean tools and their purpose
- Explain how goal deployment and daily management focus resources on critical improvements and sustain gains from process improvement

## Recommended Audience

Middle and senior management.

## Duration

1 day.

## Delivery Method

Instructor-led classroom instruction, practical implementations, demonstrations, and hands-on exercises.

# Lean Learning Academy e-Learning (LEAN524)

## Curriculum Introduction

To maximize and sustain the effectiveness of a Lean transformation, organizations must:

- Develop a broad understanding and awareness of Lean concepts across the entire staff
- Mentor personnel to assume the role of internal Lean experts

The Lean Learning Academy (LLA) helps organizations achieve these goals by:

- Teaching the concepts and skills needed to improve and maintain processes and systems within the organization
- Cultivating participants' abilities to make improvements through practical application of the Lean methodologies
- Providing support to uncover and act on opportunities for continuous improvement

## Curriculum Content

The LLA includes the following modules:

- Module 1: Overview
- Module 2: Lean Core Skills Information
- Module 3: Core Leadership Skills
- Module 4: Lean Applications
- Module 5: Systemic Change
- Board Certification

These modules include on-line courses and practical workshops, which are described in detail on the following pages.

# Lean Learning Academy e-Learning (LEAN524)

## Module 1: Overview

### Module Purpose

This introductory module provides an overview of the LLA curriculum and introduces Lean concepts. Within the context of the Driver License Simulation, participants will apply Lean principles to improve a business process.

### Recommended Audience

The training is designed for new LLA participants with limited or beginner-level exposure to Lean concepts.

### Prerequisites

There are no learning prerequisites for this module. Students will require access to the Internet via a computer and an account on the learning management system.

### Module Courses

The following computer-based training (CBT) courses comprise the didactic elements of this module:

- LLA001: Lean Overview Part I
- LLA002: Lean Overview Part II
- LLA003: Lean Overview Part III
- LLA004: Lean Overview Part IV
- LLA005: “Decoding the DNA of the Toyota Production System” Article

These CBT courses will be reviewed and the key points emphasized in the Driver License Simulation and LLA kick-off instructor-led workshop:

- WSKP 1: Lean Learning Academy Kick-Off

### Module Objectives

After completing the courses and workshop in this module, the participants will be able to:

- Describe the benefits of Lean
- Identify the seven “+1” forms of waste
- Apply Lean tools to improve a simple business process
- Identify opportunities to apply Lean tools to improve their own work area

### Workshop Description

The WSKP 1: Lean Learning Academy Kick-Off workshop will provide an overview of the LLA curriculum and a review of the Lean concepts introduced in the CBT courses.

Within the context of the Driver License Simulation, participants will apply Lean principles to improve a business process.

# Lean Learning Academy e-Learning (LEAN524)

## Module 2: Lean Core Skills Information

### Module Purpose

This module introduces and explores the key Lean concepts of waste, standardization, Value Stream Mapping, Kaizen, and problem solving. Participants will begin applying these key Lean elements to complete an improvement project.

### Recommended Audience

The training is designed for new LLA participants with limited or beginner-level exposure to Lean concepts.

### Prerequisites

Students should have completed the LLA introduction CBT courses and LLA Kick-Off Workshop in Module 1: Overview. Participants will require an opportunity to work in an area to apply the Lean concepts in an improvement project.

### Module Courses

The following CBT courses comprise the didactic elements of this module:

- LLA006: Numbers Game
- LLA007: 5S
- LLA008: 5S Application
- LLA009: Selected Reading: Lean in Practice
- LLA010: Standardization & Standardized Work
- LLA011: Standardized Work Tools
- LLA012: Standardized Work Post-Assessment
- LLA013: Selected Reading: “The Checklist”
- LLA014: Wastes Pre-Assessment
- LLA015: Waste Definitions
- LLA016: Waste Examples
- LLA017: Waste Identification Exercise
- LLA018: Process and Value Stream Mapping
- LLA019: Current State Maps
- LLA020: Future State Maps
- LLA021: Supporting the Value Adder
- LLA022: Kaizen Introduction
- LLA023: How Kaizen Works
- LLA024: Kaizen Review and Post-Assessment
- LLA025: Selected Reading: “How Toyota Turns Workers Into Problem Solvers”
- LLA026: Problem Solving Part I
- LLA027: Problem Solving Part II
- LLA028: Problem Solving Part III

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## Module 2: Lean Core Skills Information

### Module Courses *(continued)*

- LLA029: Problem Solving Part IV
- LLA030: Problem Solving Part V
- LLA031: Problem Solving Part VI
- LLA032: Problem Solving Part VII
- LLA033: Problem Solving Part VIII

These CBT courses will be reviewed and the key points emphasized in the Waste Walk Workshop and Problem Solving and Kaizen Debrief Workshop:

- Job Aid 1: Waste Walk Preview
- Job Aid 2: Problem Solving Application
- WKSP 2: Waste Walk Workshop
- WKSP 3: Problem Solving and Kaizen Debrief

### Module Objectives

After completing the courses and workshops in this module, the participants will be able to:

- Identify the seven “+1” forms of waste and implement efforts to reduce waste in the work environment
- Document a process flow in a value stream map
- Document problem-solving efforts on an A3/Problem Solving Report

### Workshop Descriptions

Two workshops are included in the Module 2 curriculum.

After a large group discussion of the waste types, the Waste Walk Workshop will provide participants an opportunity to visit work areas to see how waste is evident when the focus becomes the relentless pursuit and elimination of waste.

The Problem Solving and Kaizen Debrief workshop will highlight and review key learning points of the Module 2 CBT courses. Participants will have opportunity to share their lessons learned and discuss answers to questions that may have surfaced during the didactic learning experiences.

### Module Project

In addition to the didactic experiences, participants will explore, define, and then implement a continuous improvement project to reduce waste, analyze root causes of a problem, and implement countermeasures to solve a problem in the work environment.

## Module 3: Core Leadership Skills

### Module Purpose

Leadership is critical in creating a Lean culture. In Module 3: Core Leadership Skills, participants will review some of the key leadership skills needed in a Lean environment.

### Recommended Audience

The training is designed for new LLA participants with limited or beginner-level exposure to Lean concepts and leadership experience.

### Prerequisites

Students should have completed the CBT courses in Module 1: Overview and Module 2: Lean Core Skills Information.

### Module Courses

The following CBT courses comprise the didactic elements of this module:

- LLA034: Core Leadership Skills Introduction
- LLA035: Leadership Behaviors
- LLA036: Goals and Goal Setting
- LLA037: Meeting Facilitation
- LLA038: Conflict Management
- LLA039: Managing for Commitment
- LLA040: Communication Skills for Workplace
- LLA041: Communication Skills for Leaders
- LLA042: Selected Reading: Essential Elements of Communication
- LLA043: A Just Culture

These CBT courses will be reviewed and the key points emphasized in the Leadership skills workshop. Participants will also receive additional guidance on their Lean Projects:

- WKSP 4: Project Mentoring/Leadership Skills Review

### Module Objectives

After completing the courses and workshop in this module, the participants will be able to:

- Demonstrate key Lean leadership behaviors
- Set appropriate improvement goals
- Use key communication methods to share progress on improvement projects

### Workshop Description

The purpose of the Project Mentoring/Leadership Skills Review workshop is to assist participants in completing their Lean Projects and to discuss lessons learned and questions that may have surfaced during the didactic learning experiences.

# Lean Learning Academy e-Learning (LEAN524)

## Module 4: Lean Applications

### Module Purpose

This module provides participants additional tools and methodologies in Supply Chain (SC) Management and/or Operations Leadership (OL). Participants will extend their Lean toolset to apply key Lean elements to complete a Lean application improvement project.

### Recommended Audience

The training is designed for new LLA participants with limited or beginner-level exposure to Lean concepts.

### Prerequisites

Students should have completed the following LLA modules:

- Module 1: Overview
- Module 2: Lean Core Skills Information
- Module 3: Core Leadership Skills

Participants will require an opportunity to work in an area to implement a Lean application improvement project.

### Module Courses

The following CBT courses comprise the didactic elements of this module:

- LLA044: Visual Management (SC)
- LLA045: Lean Measurables (OL)
- LLA046: 1 Piece Flow (SC)
- LLA047: TPM (OL)
- LLA048: Supply Chain Simulation (SC)
- LLA049: Work Team (OL)
- LLA050: Material Conveyance (SC)
- LLA051: Quick Changeover (OL)
- LLA052: Inventory Management (SC)
- LLA053: Productivity Modeling/Yamazumi (OL)
- LLA054: Demand Instruction (SC)
- LLA055: Kamishibai (OL)
- LLA056: Kanban (SC)
- LLA057: Leader Daily Management (OL)
- LLA058: Heijunka (SC)
- LLA059: Management Centers (OL)
- LLA060: External Logistics (SC)
- LLA061: Lean Layout Design (OL)
- LLA062: Andon (SC/OL)
- LLA063: Built in Quality (SC/OL)
- LLA064: Error Proofing (SC/OL)
- LLA065: Standard Inspection (SC/OL)

### Module Courses (*continued*)

Two workshops in this module serve as an introduction and conclusion to the application concepts, and the third is an opportunity to present and highlight the changes being made in the work environment:

- WKSP 5: Lean Application – Introduction to Supply Chain/Operations Leadership
- WKSP 6: Supply Chain/Operations Leadership Module Summary
- WKSP 8: Application Project Presentations

### Module Objectives

After completing the courses and workshops in this module, the participants will be able to:

- Interpret the results communicated by visual controls
- Improve the work area by incorporating Lean application techniques and methodologies

### Workshop Descriptions

The WKSP 5: Lean Application – Introduction to Supply Chain/Operations Leadership workshop introduces the concepts that are presented in the module's CBT courses, setting the framework and scope for the material to be covered.

The WKSP 6: Supply Chain/Operations Leadership Module Summary workshop provides an opportunity to discuss lessons learned and any content-based questions.

Participants will present the results of their application projects during WKSP 8: Application Project Presentations workshop.

### Module Project

In addition to the didactic experiences, participants will explore, define, and then implement a Lean application improvement project in either Supply Chain Management or Operations Leadership.

# Lean Learning Academy e-Learning (LEAN524)

## Module 5: Systemic Change

### Module Purpose

This module introduces and explores the key Lean concepts of waste, standardization, Value Stream Mapping, Kaizen, and problem solving. Participants will continue introducing Lean concepts into their work environment by applying these Lean elements to complete an improvement project.

### Recommended Audience

The training is designed for LLA participants who have completed Lean and continuous improvement implementations under the guidance of mentors and coaches.

### Prerequisites

Students should have completed the following LLA modules:

- Module 1: Overview
- Module 2: Lean Core Skills Information
- Module 3: Core Leadership Skills
- Module 4: Lean Applications

Participants will require an opportunity to work in an area to implement a Lean application improvement project.

### Module Courses

The following CBT courses comprise the didactic elements of this module:

- LLA066: Strategic Planning
- LLA067: Hoshin Kanri
- LLA068: Selected Reading: ARTICLE TBD
- LLA069: 5 Phase Implementation
- LLA070: Project Planning and Management
- LLA071: Lean Systems Thinking and Leadership Part I
- LLA072: Lean Systems Thinking and Leadership Part II
- LLA073: Kaizen Level II
- LLA074: Enterprise Assessment
- LLA075: Deep Dive Assessments
- LLA076: Blue Sky Vision
- LLA077: Managing Audit Systems

### Module Courses *(continued)*

Two workshops in this module serve as an introduction and conclusion to the Systemic Change concepts, and the third will present the results of the participants' change projects:

- WKSP 7: Systemic Change Introduction
- WKSP 9: Systemic Change Summary
- WKSP 10: Change Project Presentations

### Module Objectives

After completing the courses and workshops in this module, the participants will be able to:

- Support leadership roles in creating a Lean culture
- Adapt organization improvement goals for an individual unit
- Manage a continuous improvement project

### Workshop Descriptions

The WKSP 7: Systemic Change Introduction workshop introduces the concepts that are presented in the module's CBT courses, setting the framework and scope for the material to be covered.

The WKSP 9: Systemic Change Summary workshop provides participants an opportunity to discuss lessons learned and questions that may have surfaced during the didactic learning experiences.

Participants will present the results of their change projects during the WKSP 10: Change Project Presentations workshop.

### Module Project

In addition to the didactic experiences, participants will define, implement, and manage a Lean change improvement project.

# Lean Learning Academy e-Learning (LEAN524)

## Board Certification

### Purpose

This Board Certification will provide participants an opportunity to demonstrate their knowledge, skills, and abilities. The certification process illustrates participants' competency and mastery of the Lean concepts, skills, tools, and methodologies.

### Recommended Audience

Certification is designed for LLA participants who have completed Lean and continuous improvement implementations under the guidance of mentors and coaches.

### Prerequisites

Students should have completed the following LLA modules:

- Module 1: Overview
- Module 2: Lean Core Skills Information
- Module 3: Core Leadership Skills
- Module 4: Lean Applications
- Module 5: Systemic Change

Participants will need manager approval to prepare for and participate in the Certification Board.



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