



Designing the Perfect Material Delivery System

Lean Material Management Workshop

November 15-17, 2016

This Workshop is graciously hosted by **Toyota Material Handling USA**, and is a rare opportunity to tour a Toyota factory!

Developing Your Lean Team

Designing the Optimum Material Flow System

“A major component of a Mixed Model line is the design of the material flow system. An even flow of materials to the line is the key to high operator productivity, optimum inventory investment, floor space reduction, and on-time delivery.”

Gerard Leone, Co-Author of *The Complete Guide to Mixed-Model Line Design*

You can be a Material Delivery expert in your organization.

The methods presented in the workshop reflect the best material handling practices known today, and the actual methods in use at many leading Lean companies.

The future of manufacturing belongs to mixed model manufacturing, and an essential aspect of this strategy is the optimization of material delivery. Kanban, one of the methods of choice, includes many different techniques, each appropriate for specific conditions. The focus of this workshop is to present all of the main material delivery methods and practices, with the goal of creating an optimized material delivery system.

You will:

- **Learn the Lean Material Management Roadmap, the step-by-step method for designing a material delivery system.**
- **Learn and apply the material delivery strategy used by industry leaders to achieve zero shortages and high inventory turnover.**
- **Use Excel-based tools and templates to calculate Kanban quantities, and build a Plan For Every Part database.**
- **Gain exposure to simulation modeling for material flow, for use in optimizing your delivery route design.**
- **Enhance your professional development, with skills that you will use for the rest of your career.**

Learning Objectives

- Understand the history behind Lean Material Flow, including the Kanban system
- How to apply the Material Management Roadmap, and use it to build a comprehensive Master Plan
- How to calculate inventory quantities for a Mixed Model Line correctly
- How to design a material delivery route, based on the “water strider” strategy
- What *Standard Work* for material management means, and how to collect and document process tasks and times for material handlers
- Build a Plan For Every Part database, and use it in a series of hands-on exercises
- Select the optimum material transport methodologies, from hand-delivery to the use of AGVs



Program Day-by-Day Agenda

The Lean Material Management Workshop is a three-day program consisting of short topic-specific modules combined with knowledge checks and hands-on exercises.

Day 1

- **Lesson 1: Material Flow Strategy.** For most manufacturing companies, the opportunities for material management improvements are large. The workshop starts with an overview of this important topic.
- **Lesson 2: Material Flow History.** The surprising source of modern material flow systems.
- **Lesson 3: Principles of Lean Material Flow.** In this lesson you will develop a deep understanding of the optimum material delivery workflow and strategy.
- **Lesson 4: Kanban Basics.** Your job as the designer of a material delivery system is to know which tool to use. Kanban is a general term that refers to a variety of different pull signals, which will be examined one-by-one.
- **Lesson 5: Kanban Signals.** Kanban means “signal”, and the supermarket strategy for managing inventory and overcoming imbalances is an essential element of a Lean material management strategy.
- **Lesson 6: Additional Signals.** Kanban is not the only signaling method that will be used, and this lesson reviews to options available to a Material Flow designer.
- **Lesson 7: Planned Material Quantities.** One of the goals of Lean Material Flow is to balance material coverage (no shortages) with high inventory turns. In this lesson you will calculate optimum inventory levels for a variety of different items.

Day 2

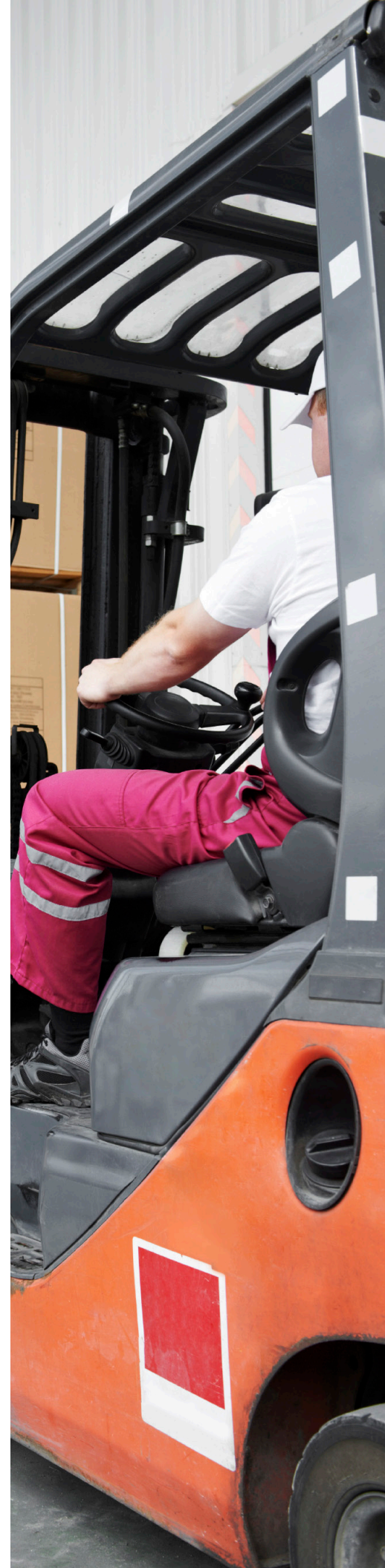
- **Lesson 8: Workstation Design.** Material presentation is a integral part of optimum workstation design. In this lesson you will review basic objectives and examples, as well as look at some provocative new ways to deliver and present materials to an operator.
- **Lesson 9: Storage Solutions.** Physical storage of items, in a warehouse or supermarket, is a major consumer of space, working capital, and time. Physical stored needs to be design for optimum and efficient put-away and retrieval.

Day 2 Continued

- **Lesson 10: Overcoming Changeovers.** A Material Flow Designer will need to partner with Manufacturing Engineering to design supermarkets and item quantities to overcome time lost through changeovers on machine parts.
- **Lesson 11: Material Conveyance.** The Material Flow designer will choose from a variety of Material Conveyance methods, from hand delivery to Automated Guidance Vehicles (AGVs).
- **Lesson 12: Designing Delivery Routes.** The philosophy of “frequent trips and light loads” will be accomplished through the design of your delivery routes. The establishment of Standard Work for material delivery is also applied in this step.
- **Lesson 13: Part Profile.** Every individual item that will be managed, both purchased and manufactured, will be documented in detail in the PFEP database.

Day 3

- **Lesson 14: Containerization.** The Lean Material Flow strategy puts a strong emphasis on container standardization. The integration of containerization strategies with internal Kanban systems and outside supplies will be understood.
- **Lesson 15: Design Principles.** Material Flow designers use a “roadmap” or checklist, for consistency and completeness. In this lesson you will learn the 10 Key Design Principles.
- **Lesson 16: Inventory Record Accuracy.** A Lean Material Flow system will continue to use computer systems for planning and inventory control, and high inventory accuracy is a must.
- **Lesson 17: Material Flow Leadership.** The material delivery system needs continuous vigilance and management. In this important lesson we will review the methods and practices needed to ensure that your system is on a path of continual improvement.
- **Lesson 18: Next Steps and Action Items.** In this final lesson we will return to the Lean Material Management roadmap, and offer some final suggestions for productive next steps.



Hands-On Exercises

Students learn best by doing, and this Lean Material Management Workshop will include the actual implementation of all of the material management tools and methods in a simulation environment. Participants will design a material delivery system, including Kanban supermarkets, a Plan For Every Part, and delivery route design, and then bring the material delivery system live in the classroom.

Take Home Resources

Attendees will receive a copy of the Lean Material Management workbook, a copy of the Lean Material Management Roadmap, and a CD with all necessary forms, spreadsheets and checklists.

Who Should Participate?

This workshop has been designed for anyone responsible for designing, implementing, or managing the material delivery system or supply chain for a Mixed Model production line based on Lean principles. Participants should include material managers, material delivery specialists, manufacturing engineers, and supply-chain professionals.

The Memory Jogger Program

You have heard about the Learning Curve, but what about the Forgetting Curve? Unless your training is reinforced with application or review, knowledge fades. The Memory Jogger program is a 50-week reinforcement program, of weekly short on-line lessons on the topics covered in the live workshop.

Additional Support

If additional help is desired after the workshop, on actual in-house projects, the Leonardo Group can provide both remote coaching support as well as on-site consulting as a part of your implementation team.

About Leonardo Group Americas

Leonardo Group Americas (LGA) is a Lean training and consulting company with offices in the US and Germany. LGA has worked on Lean projects with many of the world's leading companies, including John Deere, Boeing, and Toyota.

Workshop Details

Date: November 15-17, 2016
Three-Day Workshop

Time: 8:00 AM to 5:00 PM

Location: Toyota Material Handling USA
National Customer Center
5559 Inwood Drive
Columbus, IN 47202

Cost: \$1,995/Person, Lunch included
\$300 Early Bird discount available
until November 15, 2016.
Discount code: earlybird
Enrollment limited to 32 participants.

Registration

Register on-line at:

www.leonardogroupamericas.com

