



FUNDAMENTALS OF CONTINUOUS IMPROVEMENT SERIES – WORKSHOP DETAILS

Day 1: Lean Manufacturing 101 with Simulation

This interactive workshop combines comprehensive classroom instruction with simulation of a production facility. The basic concepts of Lean manufacturing and the tools and methodology necessary to implement “lean” on the shop floor are demonstrated. Participants assume the role of production workers, applying lean tools to their individual workspaces and the entire product line. This learn-do technique, over three “shifts”, illustrates cause and effect relationships for each of the lean tools presented. Participants review methodology and lessons learned from previous shifts, deciding what and how to implement while working with realistic constraints such as available resources, cash flow, and resistance to change.

BENEFIT FROM HANDS-ON FACTORY SIMULATION

Following the Lean Manufacturing Overview and Simulation, participants will have learned several new techniques to aid you in the Lean transformation on-site. You’ll be able to:

- Differentiate between a “push” and a “pull” system
- Identify the eight (8) wastes that must be eliminated to make the manufacturing processes Lean
- Explain how those wastes reduce company profits
- Understand the functions of a Kanban system
- Make more effective use of the employee’s time following waste elimination

Day 2: Value Stream Mapping

Value Stream Mapping (VSM) enables a company to identify waste in manufacturing and administrative processes using objective data. VSM often results in reduced costs, improved communication and increased quality. This course shows how to gather the information required to eliminate or reduce non-value added activities and how to use the information to implement Lean projects. Participants will learn the steps necessary for creating a current-state value stream map from customer order back to raw material, and develop a future state vision to act as a blueprint for Lean activities. Participants will create their own current and future state maps based upon data gathered at ACME Stamping, our case study company.

Day 2, continued: 5S / Workplace Organization

Benefits of the 5S system include improved overall quality, work standardization, decreased change over time and improved safety. Among other improvements, manufacturers typically also experience a reduction in storage costs, cycle times and machine downtimes. This workshop provides an in-depth overview of the 5S system (Sort, Set-in-Order, Shine, Standardize, Sustain). Participants apply each “S” to a simulated factory and measure the results of their efforts. Includes photographed case studies of 5S applications in different companies, use of 5-S tracking tools (e.g., checklist, audit forms) that participants can use in their own facilities.

Day 3: Quick Changeover/Set-up Reduction

This workshop and hands-on simulation teaches the fundamental principles of Quick Changeover, or Setup Reduction. Also known as SMED, it eliminates or reduces non-value added activities in the setup and teardown processes of manufacturing, allowing companies to quickly and efficiently change from one product to another - a critical component of lean manufacturing and a common need across industries.

Participants will learn the standard methodology for applying SMED to any type of set-up or industry. The techniques covered demonstrate how to reduce changeover time from hours to minutes and even seconds. Participants will learn to:

- Understand how quick changeover/setup reduction supports lean manufacturing
- Learn key concepts and principles related to quick changeover/setup reduction
- Develop skills to apply SMED using a disciplined, visual process of documentation and improvement
- Experience a team approach to quick changeover/setup reduction
- Recognize how quick changeover/setup reduction can be applied to support functions throughout the value chain

Day 4: Cellular/Flow Manufacturing

Cellular/Flow Manufacturing is the linking of manual and machine operations into the most efficient combination of resources to maximize value-added content while minimizing waste. The most efficient combination implies the concept of process balancing. When processes are balanced, the product flows continuously, parts movement is minimized, wait time between operations is reduced, inventory is reduced, and productivity increases.

Workshop Objectives

This hands-on workshop demonstrates how to link and balance manufacturing operations to reduce lead times, minimize work-in-process, optimize floor space utilization, and improve productivity. Participants are led through a 5-step process for designing and implementing work cells, using a live simulation. This process applies to both assembly and machining applications.

Attendees of the Cellular/Flow Manufacturing Workshop will:

- Understand the characteristics and benefits of cellular manufacturing
- Group manufactured products into product families
- Establish Takt Time for a product family
- Conduct a review of a work sequence
- Combine work to balance a production process
- Design an effective cell layout
- Benefits of Cellular/Flow Manufacturing

An efficient flow-through manufacturing system will eliminate waste, minimize work in process, optimize floor space, reduce lead-time, and improve customer response time, leading to reduced costs and greater production capacity.

Day 5: Lean Leadership/Change Management

This session will provide an understanding of the roles and responsibilities that each level of the organization will face in effectively implementing lean. Focus is on leadership measuring progress, leading in a culture of lean thinking, and engaging every worker in participating in continuous improvement.

The full-day program is focused on the staples of a successful Lean organization: leadership measuring progress, leading in a culture of Lean thinking, and engaging every worker in participating in continuous improvement. Through the Lean Leadership program, IMEC's Manufacturing Specialists can help prepare leadership teams to view Lean as a strategic business management tool, introducing new concepts and re-establishing time-tested leadership principles.

Topics covered include:

- Implementing management systems to develop the organization and drive change
- Developing supervisors whose responsibilities will shift from reactive, to firefighting, to proactive leadership of well-equipped and engaged teams
- Directing, planning, managing, and controlling program implementation
- Establishing support systems – budgeting, communications and promotion, performance measures, recognition and rewards – to support a culture of continuous improvement.

Day 6: Pull / Kanban System

The Pull / Kanban System workshop illustrates how to link manufacturing output to customer demand. Pull systems control the flow of resources in a production process by replacing only what has been consumed. They are customer order-driven production schedules based on actual demand and consumption rather than forecasting. Implementing pull systems can help you eliminate waste in handling, storing, and getting your product to the customer. Pull systems are an excellent tool to use in the areas where cellular or flow manufacturing cannot be achieved. Participants are lead through a six-step process for designing and implementing a pull system, using hands-on exercises. This process applies to both purchased and manufactured products.

Through the Pull/Kanban System workshop, participants will:

- Describe the difference between a pull system and a push system
- Identify opportunities to introduce a pull system
- Decide how to manage demand to meet customer requirements
- Locate and size supermarkets or buffers in the system

- Calculate order points and order quantities
- Select and implement appropriate pull systems
- Recognize ways to monitor and fine-tune a pull system
- Benefits of the Pull/Kanban System

Successful implementation of a Pull/Kanban System will reduce lead times, minimize work-in-process, optimize floor space usage, simplify production signals and improve on-time delivery to your customers.

Day 6, continued: Total Productive Maintenance

Total Productive Maintenance (TPM) is a process to maximize the productivity of your equipment for its entire life and will extend the life of the equipment. The workshop is designed to show that TPM goes far beyond traditional maintenance boundaries to attack equipment-related waste, including: downtime, speed losses, defects, frequent adjustments, changeover, and breakdowns.

TPM fosters an environment where improvement efforts in Safety, Quality, Delivery, Cost and Creativity are encouraged, through the participation of all employees. The goal of TPM is to maximize your Overall Equipment Effectiveness (OEE) and to reduce equipment downtime while improving quality and capacity.

Through the TPM workshop, participants will:

- Understand TPM and its major components, including how to measure and increase overall equipment effectiveness and how TPM can help avoid interruptions to production
- Explain how the TPM process is integrated with other Lean tools to increase productivity
- Gather and analyze Overall Equipment Effectiveness (OEE) data to determine equipment constraints
- Identify the six major equipment-related losses and how to minimize them in order to increase OEE
- Learn how implementation of the TPM process fosters improvement efforts in safety, quality, delivery, cost, and creativity by all employees