



Lean Manufacturing

A quality process driven organization has a consistent standardized process in planning to deliver projects to stated quality standards. Having this system established, understood and utilized creates a real differentiating factor in the marketplace which delivers projects efficiently with comprehensive quality based documentation, tools and techniques.

These Lean Manufacturing processes, tools and techniques have been developed and continually improved by the Toyota Production System (TPS) to outline a standard methodology and philosophy to identify and eliminate waste in the production system. It is widely utilized in the automotive industry and has expanded into the heavy truck and transportation segments and finding its way into other product development markets.

Participants will bring information on specific company projects to be worked on during this training for real application of these concepts, tools and techniques.

- First, the basics of Lean Manufacturing are discussed to gain a common understanding of the standard practices, tools and techniques that are utilized in multiple industries.
- Next, participants will focus on gaining an understanding the standard practices, tools and techniques that are applied. The Toyota Production System (TPS) is examined and understood as the way to effectively implement Lean Manufacturing in the automotive industry.
- Lastly, participants will apply these tools on specific company projects utilizing Lean Manufacturing methodologies and techniques.



Course Syllabus

I IDENTIFYING INFORMATION

Course:	Lean Manufacturing
Prerequisite:	Understanding of the vehicle product development process Understanding of basic product and manufacturing engineering
Time Frame:	40 total contact hours
Instructor:	Daryl Patrishkoff, PMP Chief Executive Officer, CPS BS in Vocational Industrial Education MA in Business Management 30 years in the product design engineering profession 20 years managing sales, operations & plant business units
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II REFERENCE MATERIALS

1. Machine That Changed the World, by James Womack, Daniel Jones & Dan Roos
2. Lean Thinking, by James Womack & Daniel Jones
3. Hitchhiker's Guide to Lean, by Jamie Flinchbaugh & Andy Carlino
4. The Toyota Way, by Jeffrey Liker
5. The Toyota Way Fieldbook, by Jeffrey Liker & David Meier

III COURSE GOALS AND OBJECTIVES

1. Understanding of the Lean Manufacturing philosophy
2. Understanding of the Toyota Production System (TPS) philosophy
3. Application of the Lean Manufacturing process in practice
4. Application of the Toyota Production System (TPS) process in practice
5. Development of Lean Manufacturing documentation on a real project
6. Development of Toyota Production System (TPS) documentation on a real project



IV METHODOLOGY

This course is a micro view of the Lean Manufacturing and Toyota Production System (TPS) processes, tools and techniques. We will be dealing with a detailed interpretation of meanings and applications as applied to executing company projects. Each module will introduce new material that will prepare the student for the projects to be completed.

Lectures

Each detailed subject will be presented in a lecture format outlining the theory and standardized accepted methodology. A PDF file of the lecture material will be provided for the student's personal use as reference material. Lecture note outlines will be distributed to the students for each lecture to help the student capture personal notes. A short video showing the concept covered and a discussion regarding application.

Specific Industry Examples

Real life industry examples will be covered that detail out the application of the theory to demonstrate how different companies apply these tools and techniques. This will give the students a clear understanding of how and why these techniques are utilized at different companies and industries in different manners.

In-Class Assignments

Using the theory and industry examples the student will conduct several projects that outline each key principal on in-class projects. These projects will increase in complexity as the students further develop their skills in applying these tools and techniques. The students will present their work to the group for review and discussion.

Specific Company Application

As a summary of the training we will apply these tools and techniques on a specific company project that is currently in development by the students. This will build a standard methodology on how to appropriately apply the Lean Manufacturing processes and principals at your company.



V COURSE OUTLINE & ASSIGNMENTS

Module 1

Introduction to Lean Manufacturing
Industry Examples
In-Class Assignment, Lean Manufacturing
Group Project

PowerPoint lecture
PowerPoint lecture
Complete & present
PowerPoint lecture

Module 2

Lean Manufacturing Tools and Techniques
Overview of the Toyota Production System (TPS)
Lean Manufacturing Tools & Techniques Examples
In-Class Assignment, tools & techniques

PowerPoint lecture
PowerPoint lecture
PowerPoint lecture
Complete & present

Module 3

Toyota Production System (TPS) Tools & Techniques
In-Class Assignment, TPS tools & techniques

PowerPoint lecture
Complete & present

Module 4

Lean Manufacturing Company Application
In-Class Assignment, lean manufacturing
Lean Manufacturing Tools & Techniques application
In-Class Assignment, tools & techniques application

PowerPoint lecture
Complete & present
PowerPoint lecture
Complete & present

Module 5

Toyota Production System (TPS) Company Application
In-Class Assignment, TPS tools & techniques application
Company Specific Group Projects

PowerPoint lecture
Complete & present
Complete & present