



Continuous Improvement  
Champion Certification



**LEAN MANUFACTURING** is a business strategy focused on improving productivity by maximizing value-added activities while eliminating waste.

**LEAN** allows organizations to be more efficient and customer focused - better able to face the competitive challenges of the future.

# Develop the skills necessary to implement Lean and create positive change within your company.

**This thirteen-week course** provides intensive exposure to the principles and practices needed to develop and sustain the Lean Enterprise. You will receive immediate reinforcement of the classroom learning by applying your training to a real-life project within your organization. Together with on-site mentoring and knowledge assessments, this approach dramatically reduces the time frame from training to bottom-line results.

**CONNSTEP's Lean Specialists** have designed fourteen modules that are essential to your understanding of the principles and practices of Lean.

Upon completion of the program and on-site project, you will receive a Continuous Improvement Champion Certificate awarded by CONNSTEP, Connecticut's Manufacturing Resource.

## **High Caliber Trainers**

The CICC Program is conducted by trainers certified by the US Department of Commerce's National Institute of Standards and Technology Manufacturing Extension Partnership (NIST/MEP).

Our dedicated trainers have over 200 years of combined manufacturing experience and are committed to helping you succeed with Lean and achieve your organizational goals.



“CICC gives you an excellent, well-rounded approach to continuous improvement philosophies, culture and tools. The training is comprehensive and effective.”

Kerry Desmond, Aplicare, Meriden

# On-Site Mentoring & Project Selection

A CONNSTEP Lean Specialist will be assigned to you as your CICC mentor. During the first few weeks of class, your CONNSTEP mentor will schedule an introductory site visit to take a plant tour and discuss possible opportunities for improvement.

During week five, your CONNSTEP mentor will visit your site again to assist you in completing your current state Value Stream Map (VSM), provide guidance in selecting your CICC project team and help you kick-off your CICC project work.

Throughout the CICC program, you will have e-mail and phone access to your CONNSTEP mentor, ensuring successful completion of your on-site project. During week eleven, your CONNSTEP mentor will again visit your company and assist you in completing your CICC project and your final report, which will be presented to the class at the final session, week thirteen.

The last classroom session provides an opportunity for you to present your CICC project - sharing successes and receiving feedback from the class. Your sponsor is encouraged to attend this session when the Continuous Improvement Champion Certificates will be presented.

# CICC Graduate Companies

ABS USA  
Aerospace Alloys, Inc.  
Ambel Precision  
Aplicare  
ASML  
Barnes Aerospace  
BASF Catalysts, LLC  
Beacon Industries, Inc.  
Bechert Brothers Manufacturing Co.  
Birk Manufacturing, Inc.  
BNL Industries  
Canberra Industries, Inc.  
Capewell Horsenails  
CCAT  
CCL Label, Inc.  
Claremont Corporation  
CNC Engineering, Inc.  
Colonial HanDee Spring, LLC  
Connecticut Spring & Stamping  
CooperSurgical, Inc.  
Data Management, Inc.  
Delta Industries  
Delta Ray

DIBA Industries  
DRS Power & Control Technologies  
Dur-A-Flex, Inc.  
Durham Manufacturing Company  
Electri-Cable Assemblies  
EMSAR  
Englehard Corporation  
FLABEG Technical Glass  
Foster Corporation  
FuelCell Energy  
Graphite Die Mold  
GyrusACMI  
Habco, Inc.  
Heise Industries  
HID Global  
Hobson & Motzer, Inc.  
Hygrade Precision Technologies  
Ivy Biomedical Systems, Inc.  
Kaman Precision Products  
Kamatics Corporation  
Kerite Company  
KTI, Inc.  
Latex Foam International, LLC

Lee Spring  
LEX Products  
Liturgical Publications, Inc.  
Logosportswear.com  
Macton  
Magnatech, LP  
Microboard Processing, Inc.  
Modern Metal Finishing, Inc.  
Modern Woodcrafts, LLC  
Morgan AM & T  
Nordex, Inc.  
Northeast Utilities  
OEM Controls, Inc.  
PIC Design  
Pitney Bowes  
Plymouth Spring Company, Inc.  
Prospect Machine Products, Inc.  
PTA Corporation  
Pyramid Technologies, LLC  
Radio Frequency Systems (RFS)  
RBC Aircraft Parts  
RBC Bearings  
R.C. Bigelow, Inc.

Richard Manufacturing Company  
Rosco Laboratories  
Rostra Vernatherm  
Smiths Aerospace  
Somma Tool Company  
Specialty Cable  
Stowe Machine Company  
Styron, LLC  
Technical Industries, Inc.  
The Keeney Manufacturing Company  
THEIS Precision Steel  
Thule, Inc.  
Timbercraft, LLC  
Triple Stitch Sportswear  
Tri-Town Precision Plastics  
Ulbrich Stainless Steels  
Unicorr/Connecticut Container  
US Button  
Web Industries  
Wood Group CRS

## WEEK 1

Principles of Lean Manufacturing

## WEEK 2

Value Stream Mapping (VSM)

## WEEK 3

Kaizen, Teams & Change Management

## WEEK 4

The 6S System/Visual Management  
Green Manufacturing

## WEEK 5

No classroom session; mentoring visit

## WEEK 6

Project Review  
Problem Solving & Mistake Proofing

## WEEK 7

Lean Supply Chain  
Kanban/Pull Systems

## WEEK 8

Total Productive Maintenance (TPM)  
Set-Up Reduction

## WEEK 9

TWI: Training Within Industry  
Standard Work

## WEEK 10

No classroom session; holiday break

## WEEK 11

No classroom session; mentoring visit

## WEEK 12

Cellular Design  
Lean Office

## WEEK 13

Project Presentation  
Certification

# Principles of Lean Manufacturing

A Lean Enterprise produces more with existing resources by eliminating non-value added activities and aligning production to meet customer demand. At its simplest, Lean is a set of tools that helps manufacturers produce the right amount at the right time. At its richest, Lean forms the basis of an integrated enterprise-wide strategy focused on excellence through continuous improvement and the relentless elimination of waste.

During this session, you will learn the principles of Lean Manufacturing and how to apply them. During a simulation exercise, you'll apply Lean concepts such as standardized work, visual signals, batch-size reduction, pull systems and more. Experience firsthand how Lean improves quality, reduces cycle time, improves daily performance, reduces WIP and enables profitability.

# Value Stream Mapping (VSM)

Value Stream Mapping (VSM) is a tool used to create a material and information flow map of a product or process. This powerful tool allows companies to map the flow of products and information from order to cash as well as throughout the supply chain. VSM forms the foundation for streamlining work processes, cutting lead time and reducing operating costs.

During this session, you will use the powerful VSM tool to create a current state map for ACME Stamping, a firm featured in a detailed case study. Use the VSM icons and learn the common language of Lean as you draw your current state map. Next, you analyze ACME's current state, find the non-value added activities and then draw a future state map for ACME that eliminates those activities. You will then develop an implementation plan for attacking those non-value added activities.

week

3

# Kaizen, Team Building & Change Management

A kaizen is a focused approach to process improvement. This continuous improvement methodology combines Lean Manufacturing tools with team empowerment, brainstorming and problem solving to rapidly make improvements to a specific product or process, resulting in positive changes within the organization.

In this session, you will learn to facilitate a kaizen utilizing a team-based approach to process improvement. In order to increase the effectiveness of organizational improvement initiatives, you will develop an understanding of people's reactions to change and transition. You will be given the framework, tools, disciplines and techniques of facilitating cross-functional teams to enable the successful achievement of outcome-based goals.

# CICC Program Project Results

Since the program began in the Spring of 2005, the CICC course has produced impressive financial impacts for the participating companies.

**\$150,000 in annual savings** through implementation of set-up reduction and batch-size reduction in the order entry process.

(paint & coating manufacturer; 75 employees)

**74% reduction in lead time** leading to a **\$30,000 annual savings** by developing a kanban system and implementing cellular manufacturing.

(manufacturer of electronic power distribution products; 50 employees)

**\$82,000 in inventory reduction** through batch-size reduction, 6S, kanban and layout changes.

(surgical and medical device manufacturer; 220 employees)

Project implementing 6S, kanban and cellular manufacturing resulting in an **inventory reduction of \$350,000.**

(machine tool manufacturer; 50 employees)

# The 6S System & Visual Management

The 6S System improves workplace organization and standardization. The 6S's include:

- SORT through and remove all unneeded items;
- SET in order, set limits and create location indicators;
- SHINE and clean - use cleaning as inspection;
- STANDARDIZE the first three, implement visual controls;
- SUSTAIN gains;
- SAFETY

In this session, you will learn the concepts of the 6S System and then apply them to transform a cluttered, disorganized area into a clean, organized and orderly workplace. The benefits of utilizing the 6S System are improved quality, safety, work standardization, storage costs, reduction in cycle time and decreased changeover time. A pleasant side effect of the 6S System is increased employee morale.

week

4

## Green Manufacturing

Green Manufacturing seeks to continuously improve processes and products to increase a company's productivity and lessen their impact on the environment. It is a discipline that embraces the idea of efficient utilization of raw materials and the reduction of waste at its source.

In this session, you will learn how to take Lean one step further to ensure that you identify and eliminate materials that could negatively impact the environment. You will learn methods to map your inputs and outputs, your processes and your system variables. Using this map, you will be able to analyze system performance and identify causes of waste in your operations.



“I found the class to be 100% worthwhile and I would certainly recommend it. I believe the site visits and application to our company's current situation was an invaluable learning tool.”

Michael Howarth, Wood Group Fuel Systems, East Windsor

week

6

# Problem Solving & Mistake Proofing

The Problem Solving process uses a structured and systematic approach to utilizing the PDCA (Plan, Do, Check, Act) model. This process is geared at improving quality, exposing waste, improving operational efficiency and establishing metrics that promote the right behaviors. Mistake proofing is the use of process or design features to prevent errors and their negative impact using a team approach and follows a kaizen process.

In this session, you will describe a problem through the use of a problem statement and then learn to use the problem solving tools (e.g. check sheets, histograms, Pareto analysis, 5-Whys, fishbone diagrams, etc.) to define the root cause of the problem. You will also learn the principles of mistake proofing and learn how to implement a mistake proofing solution.

# Lean Supply Chain

The supply chain is a series of separate entities (OEMs, customers, manufacturers and suppliers) that combine to form a value stream for a given product. The ability to extend consistent process improvements throughout the supply chain helps companies address many of the critical challenges they face.

In this session, you will be introduced to key concepts and challenges facing supply chains and gain insights into proven methods that extend Lean principles throughout. You will also learn to successfully form collaborative partnerships allowing opportunity to increase market share and profitability while improving supply chain decision making, strategic thinking and teaming skills.

# Kanban/Pull Systems

Pull Systems and Kanban 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 and storage.

In this session, you will explore the process of designing and implementing Pull Systems and Kanban through classroom instruction and hands-on production simulations demonstrating how these tools can be applied to your manufacturing and office operations.

week



# Total Productive Maintenance (TPM)

Total Productive Maintenance (TPM) is a process that maximizes the productivity of equipment for its entire life. 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 to zero while improving quality and capacity.

In this session, you will learn about Overall Equipment Effectiveness (OEE) and how it is related to capacity; the ten-fold effect of the 6S techniques when applied to your equipment; the six major equipment related losses and how to find and eliminate them; and the causes of 75% of equipment breakdowns. Through simulated equipment exercises, you will apply the techniques and experience how TPM achieves dramatic improvements in uptime and increased equipment effectiveness.

week



## Set-Up Reduction

Set-Up Reduction builds on the principles of the Single Minute Exchange of Die (SMED) System developed by Shigeo Shingo to dramatically reduce or eliminate changeover time. The changeover improvement process leads to no or low-cost solutions to reduce changeover time. This, in turn, allows the company to meet customer demands for high-quality, low-cost products, delivered quickly and without the expense of excess inventory.

In this session, you will learn the principles of Set-Up Reduction and the SMED system and then apply the changeover improvement process to achieve Set-Up Reduction in a life-like simulation exercise.

week

9

## Standard Work & TWI: Training Within Industry

Standard work is an agreed-upon set of work procedures that establishes the best and most reliable methods and sequences for each process and each worker. Standard work is a tool used to best utilize people and machines while keeping the rate of production linked to customer demand. In this session, you will learn the five types of standard work, the four steps to developing standard work processes and the many benefits of standardizing work processes within your organization including overall cost decrease, improvement in on-time delivery, reduction in customer complaints and an increase in employee morale.

Training Within Industry (TWI) is a set of standardized programs addressing the essential skills needed by supervisors, team leaders and anyone indirectly leading others. The program includes three primary skill-based components: Job Instruction (JI), Job Relations (JR) and Job Methods (JM). In this session, you will learn the history of TWI, the concepts and fundamentals of the Job Instruction (JI) component and how JI is the critical link to long-term sustainability of Lean implementation.

# week 12

## Cellular Design

When processes are balanced, the product flows continuously and customer demands are easily met. Cellular and 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. Only in a balanced process will the product continually flow. As a result, parts movement is minimized, wait time between operations is reduced, inventory is reduced and productivity increases.

Through a simulation, you'll learn the concepts of Cellular and Flow Manufacturing that transform the traditional batch production areas into a cellular layout. You'll experience dramatic changes in the way the product flows so that customer demand is met on time, every time.

# week 12

## Lean Office

To truly become a Lean Enterprise, Lean methodologies must be applied throughout the organization. The same Lean principles and tools utilized in manufacturing operations can be applied in the office or to the administrative process. Office wastes can manifest in excess paperwork, redundant approvals, inefficient work area design/layout, incomplete or inaccurate information and complex tracking systems. Accurate estimating, efficient order handling and responsive customer service help to protect your profits, maintain your reputation and keep you competitive.

In this session, you will learn how the Lean tools and methodologies are used in office and administrative applications. You will witness how to eliminate the waste in the information value stream and return to your organization with ideas on how to work Lean into other areas of the business.

# CICC Registration

\$4,995.00 per participant;  
\$4,495.00 each for 2+ participants per company.

Register on-line: [www.connstep.org](http://www.connstep.org)  
Register via phone: 800.266.6672

Upcoming course dates available on [www.connstep.org](http://www.connstep.org).

A 30% deposit per participant is required to confirm registration. Registration includes all course materials as well as breakfast & lunch at each classroom session. No refund of the 30% deposit will be given on cancellations received less than one week prior to the start of the program. Registration is transferable; substitutions may be made up to 48 hours prior to the start of the course.

Please note: In order to successfully complete the course and earn certification, it is imperative that all participants attend all classroom sessions and complete the CICC project per specifications. Exceptions to this are subject to the discretion of the CONNSTEP CICC Program trainers.

Additionally, there is a maximum of two participants per company on a single CICC project team in order to provide each participant with the opportunity to fully engage and realize project results. Additional information will be provided on the project parameters at the first CICC classroom session. If you wish to discuss this prior to registration, please contact CONNSTEP at 800.266.6672.



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