



Time Wise™ for Shipbuilders

Sponsored by the NSRP Crosscut Initiatives Panel

Lean Techniques For Shipbuilders: Train-The-Trainer

Jeffersonville, IN
Tuesday, May 20, 8:00 am - 5:00 pm
Wednesday, May 21, 8:00 am - 3:00 pm

The principles of Lean Manufacturing are just as applicable in large shipbuilding enterprises, which specialize in relatively low volume production of a wide variety of specialized items as they are in high volume assembly line operations. Now there is a new way to experience the impact of undergoing a transformation into a Lean Enterprise, specifically in an environment like shipbuilding.

Course Overview

Using a live simulation, participants begin by experiencing the frustrations inherent in traditional construction operations. Participants face difficulties in creating *flow* in a multi-facility environment as well as Engineering Change Orders, hot jobs, and poorly sequenced work scheduling. As they transition from a traditional to a Lean enterprise -- eliminating waste, increasing productivity along their internal supply chain, establishing effective pull systems and streamlining front office operations, participants experience for themselves the gratifying results of becoming a Lean enterprise.

Train-the-Trainer Session

Attendance at this session also includes a Train-the-Trainer component. Here, trainers are taught how to orchestrate the four successive rounds of the simulation successfully and what teaching points must be emphasized throughout both the lecture and simulation.

Additionally, trainers are reminded of the latest Adult Learning Model techniques and provided with tips for engaging participants in an interactive discovery learning approach.

What You Will Take Away

As participants and trainers, you will leave this session with a thorough understanding of the Lean techniques that are special and unique for the shipbuilding industry and how to successfully teach these techniques in both lecture and simulation. Moreover, you will be given a certificate enabling you to facilitate and train groups in the Time Wise™ for Shipbuilders course, given the appropriate licensing arrangements.

“... highlights the challenges specific to shipbuilders ...

... participants experience significant and rapid improvements in a fun learning environment”

Licensing

MEP MSI will license the Time Wise™ for Shipbuilders kit and materials to shipbuilding enterprises directly. For additional information, please contact Mr. Terry Shehata at the address listed below. (Email: TerryS@mepmsi.org)

There is no registration fee for this training. Attendance is limited to 22 and is on a first come, first served basis. Meeting location and accommodation information will be provided upon registration. Please contact Don Bewley (dwbewley@jeffboat.com) for additional registration information.

Notice: Attendance at this session is in no way viewed as an obligation to purchase a license for or use the *Time Wise™ for Shipbuilders* materials.



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Lean Techniques For Shipbuilders: Train-The-Trainer

Electric Boat, Groton, CT
Tuesday, June 17, 8:00 am - 5:00 pm
Wednesday, June 18, 8:00 am - 3:00 pm

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Time Wise™ for Ships
Course Description -- 10/30/02

Purpose

The purpose of this course is to show applicability of Lean principles to ship building – that is, low volume, high variety construction operations.

Aside from the ‘standard’ Lean concepts, key areas of focus include:

- The importance of the Proposal, Engineering Design, and Change-control processes to reducing uncertainty and streamlining overall cycle time.
- The importance of Setup Reduction to the organization’s ability to improve capacity and hence throughput and cycle time.
- The importance of a Scheduling function driven both by pull signals and priority sequencing.

Executive Summary of Changes

I. Simulation Design

Following is a summary of the changes to the simulation portion of the course:

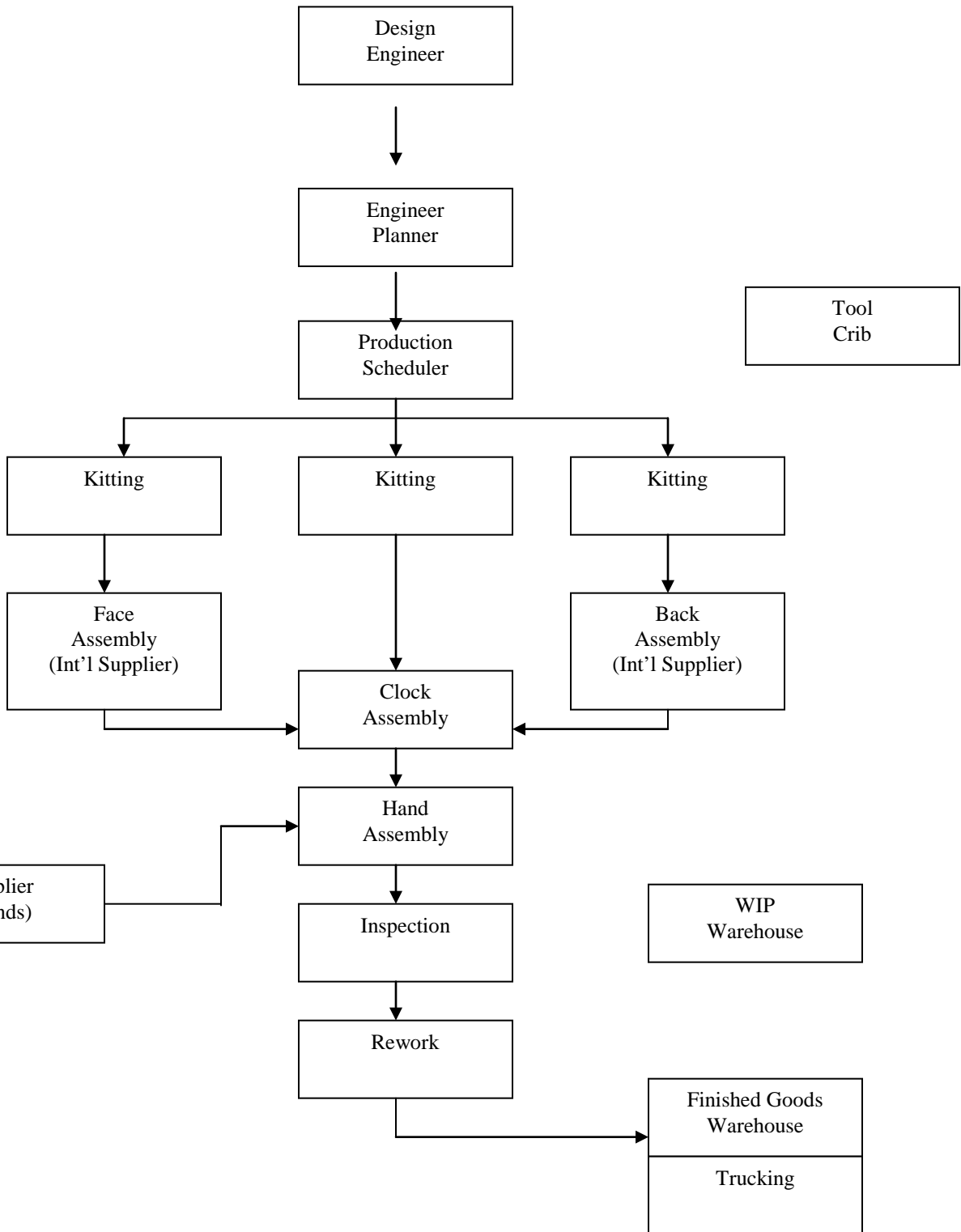
Quadrant Markers will be mixed – this is a metaphor for every product unique
New Design Engineer role – for upfront proposals
New Engineering Planner role – for drawing/blueprint process and engineering changes <ul style="list-style-type: none">➤ All Factory Orders now accompanied by an <i>Engineering Packet/Work Order</i>, paperwork is as much a “product” as the ship is➤ Engineering Change is introduced in Round 2➤ “Hot Job” introduced in Round 3 (e.g. PSA Navy request – custom option from Captain)
New Quadrant Marker/Face Assembly Supplier role – this should be described in the lecture/Work Procedures as an <i>internal</i> supplier -- demonstrate importance of supply chain and use to highlight setup reduction. These sub-assemblies get delivered directly to clock assembly.
No Instruction Crib/Attendant role – tradeoff for new roles.
Redesigned Scoreboard and Performance Measurement – new metrics (eg. Proposal backlog, lost sales, cycle times including Sales and lead times including Engineering, Rework, etc.)
Introduce the concept of <i>monuments</i> , or equipment that cannot move in this environment. Those monuments are: Shipping/Warehouse and Back Assembly. Everything else will be permitted to move as successive rounds apply lean concepts.
<i>A mixed FIFO Lane and Kanban system will be used – demonstrate Scheduling w/ Pull</i>
<i>Obsolete inventory will be demonstrated with product waiting in warehouse that is not re-ordered. (Becomes red-tagged as part of enhanced 5S message)</i>
<i>Both the Face Assembly and Back Assembly are internal suppliers – they send their product (sub-assemblies) to Clock Assembly. In early rounds they are out of sequence and in push mode and in later rounds in sequence and via pull.</i>



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Approximate Flow -- Round 1





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II. Presentation

Following is a summary of changes that will be made to the presentation.

Shipyard look and feel (per 9/27/02 meeting):

- Verbiage consistent with the industry
- “Ship of Lean” to replace House of Lean
- “History of Shipbuilding” to replace History of Manufacturing
- Introductory material about what shipyards are doing about Lean

Other Additions (per 9/27/02 meeting):

- VSM Symbols in glossary
- Additional Kaizen emphasis
- Address engineering changes and equipment breakdowns – variability and uncertainty
- Show large quick-changeover video
- Incorporate scheduling with pull
- Incorporate “handling” hot jobs

After Round 1

- Introduce *monuments* during Plant Layout

After Round 2

- Show setup reduction video of large changeover
- Introduce the concept of FIFO, including paperwork FIFO
- Discuss capacity-based scheduling and priority sequencing
- Discuss ‘above the shop floor’ Lean – including applying 8 wastes to paperwork systems
- Address hot jobs

After Round 3

- Add more slides to emphasize the role of TPM in this environment
- Limit Cellular flow slides in lieu of additional FIFO information
- Move Organizational Culture to here and revise “teamwork” slides
- Introduce the Value Stream Map and how it drives Kaizen events
- Discuss the Kaizen Event process

Other Continuous Improvements:

- Add Learning Objectives
- Make changes to the “what/why” rhythm of the presentation with mini-breakouts or individual exercises