Lecture 3: Overview

1. Lean Methodology and Building Blocks
2. Kaizen Methodology
3. The 5 Whys
4. Fishbone Diagram
5. Spaghetti Diagram
6. 5S Scorecard
Definition of Lean

“A *systematic* approach to *identifying* and *eliminating waste* (non-value-added activities) in a company’s operations.

Lean emphasizes *flowing* the product at the *pull* of the customer.”

*Lean is implemented through both rapid and continuous improvement.*

*Kaizen*—“kai’ means “little” or “ongoing”. “Zen” means “for the better” or “good.” Small continuous improvements on everyone’s part leads to world class manufacturing.
Lean Building Blocks

- Lean Principles
- Pull/Kanban
- Cellular/Flow
- TPM
- Quality at Source
- POUS
- Quick Changeover
- Standardized Work
- Batch Reduction
- Teams
- 5S System
- Visual
- Plant Layout
- Value Stream Mapping

KAIZEN

Principles for Implementing Lean Manufacturing
Kaizen Methodology

1. Select project/opportunity
2. Study design principles/best practices from previous projects
3. Prepare an analysis of the current state
4. Generate proposed solutions (future state)
5. Develop proposed solution
6. Get feedback on proposed solution
7. Revise and implement solution
8. Measure impact
9. Disseminate
5 Whys

Question asking method used to discover root cause of a problem

- Highlights cause – effect relationship
- Identify problems – not just symptoms
- Have to ask the right why questions
- Could be any number of whys

Example:
- My car will not start. (the problem)
- Why? - The battery is dead. (first why)
- Why? - The alternator is not functioning. (second why)
- Why? - The alternator belt has broken. (third why)
- Why? - The alternator belt was well beyond its useful service life and has never been replaced. (fourth why)
- Why? - I have not been maintaining my car according to the recommended service schedule. (fifth why, root cause)

Excerpt from Wikipedia
Fishbone (Ishikawa) Diagram

A cause and effect diagram that highlights the relationships and types of causes

Spaghetti Diagram

Chart that shows the flow of product – highlights inefficiencies in layout

- Raw Stock QC Rec Ship
- Shear Screw
- Machine QC Stamp
- Assembly Brake Mill Lathe
- Weld
- Grind Parts Stock Drill
- Weld Finish

TECHHELP
5S Scorecard

Checklist to evaluate current status of 5S application and guide future application of 5S

http://www.slideshare.net/bengeck/5saudit
scorecard


php5-16.dfw1-1.websitetestlink.com/wp-
content/uploads/2009/08/5S-
Scorecard.pdf