



## Lean Manufacturing Principles

**Overview:** Provide class participants with the skill sets needed to support a lean implementation. Ideally, the training is done in a cross-functional team environment.

**Audience:** All team members (supervision and engineering through to operators as well as non-manufacturing personnel). Cross-functional representation is preferred.

### **Course Outline:**

- Module 1 –Lean Manufacturing Overview
  - Lean defined (What it is and is not)
  - A brief history of Lean (From Henry Ford at the turn of the century to Toyota today)
  - Waste elimination process
- Module 2 –Process Mapping
  - Flow charting the process
  - Utilizing the SIPOC model (Supplier-Input-Process-Output-Customer)
  - Determining Value vs. Non-Value added
  - Process mapping (departmental flow)
  - Value Stream Mapping
- Module 3 –The Seven Wastes
  - De-constructing waste
  - Overproduction waste
  - Waiting waste
  - Transportation waste
  - Inventory waste
  - Motion waste
  - Defect waste
- Module 4 –Implementing 5S
  - The 5 S Philosophy
  - Seiri –Sort and Discard
  - Seiton –Organize and Arrange
  - Seiso –Clean, Tidy and Inspect
  - Seiketsu –Maintain the system
  - Shitsuke –Establishing the Belief and Culture
- Module 5 –Kaizen, Pokayoke and Visual Management
  - Kaizen philosophy of Continuous Improvement
  - Poka yoke process of Mistake Proofing
  - Visual Management (Line of sight, performance metrics visible, marking of area)
  - Andon lights (Green/Yellow/Red)
  - Use of silhouettes
  - Dashboards and metric performance
- Module 6 –Line Balancing and Cycle Time Reduction
  - Calculating Total Cycle Time
  - Determining Demand at Capacity
  - Identifying bottlenecks and idle time
  - Calculating takt time
  - Line balancing methods
- Issuance of Final Exam