Lecture Outline

I. Value Stream Mapping
II. Present State Map
III. Process Improvement Strategies
IV. Takt Time
V. Future State Value Stream Map

Value Stream Mapping

- Lean Manufacturing is “A systematic approach to identifying and eliminating waste.”
- Lean Manufacturing “emphasizes flowing the product at the pull of the customer”.

Value Stream Mapping Icons and Terms

- Developed by product family.
- Shows flow of both material and information.
- Present State Map. A value stream map of the current (existing) state of the manufacturing process.
- Future State Map. A value stream map of the goal state.
- Icons and Terms:
  - Process Box. Each process group, where inventory exist before and after.
  - Data Box. Accompanies process box and give relevant process data.
  - Inventory Triangle. Records/indicates locations and amount of inventory.
  - Push Arrow. A striped arrow indicating material flow via a push.
  - Lead Time Bar. Gives the lead times and value-added times for each process.

- Strategies for Process Improvement:
  - Establish a Takt time. Takt time is the demand rate (work time available/number of units sold).
  - Develop Continuous flow wherever possible. Continuous flow refers to producing one piece at a time, with each item passed immediately from on process step to the next without stagnation.
  - Use supermarkets if continuous flow is not possible. Supermarkets control production at supplying process without scheduling. Typically, a “production” Kanban triggers production of parts, while a “withdrawal” Kanban is a shopping list that instructs the material handler to get and transfer parts.
  - Try to send customer schedule to only one production process. A pacemaker process is is a single process point in the value stream that sets the production pace for the entire process. Downstream processes thus follow a pull system (typically with Kanban cards) rather than produce to a schedule.
  - Load-level production. Load-leveling means distributing the production of different products evenly over a time period, creating a product “mix”.
  - Release/withdraw a small, consistent increment of work to the pacemaker process. This work increment is called the “Pitch”.
