

# Just-in-time / Toyota Production System

- “ A production system to produce the kind of **units needed**, at the **time needed** and in the **quantities needed**”
- “A Philosophy of manufacturing based on planned **elimination of all waste** and **continues improvement** of productivity”
- JIT was originally developed by Toyota Motor company in Japan
- Producing quantity of units that is **needed, no more, no less**
- Producing them on **the date and time required, not before not after**

# Concept of JIT

- **Three** fundamental concept of JIT
  1. Elimination of waste and variability
  2. Pull versus Push system
  3. Manufacturing cycle time

# 1. Elimination of waste and variability

- “Anything that does not add value” is described as waste in production of G & S.
- Products being stored, inspected or delayed, products waiting in queue and defective product do not add value hence they are 100% waste
- JIT Speeds throughput (converted from raw materials into finished goods) allowing faster delivery and reducing work in process.

## 2) Pull Vs Push system

- The **pull inventory control** system **begins with a customer's order**. With this strategy, companies only make enough product to fulfil customer's orders.
- One advantage to the system is that there will be **no excess of inventory** that needs to be stored, thus **reducing inventory levels** and the cost of carrying and storing goods. **Ex. JIT** (The goal is to keep inventory levels to a minimum by only having enough inventory, not more or less, to meet customer demand)
- The **push system** of inventory control involves forecasting inventory needs to meet customer demand. Companies must predict which products customers will purchase along with determining what quantity of goods will be purchased.
- The company will in turn produce enough product to meet the forecast demand and sell, or push, the goods to the consumer. **Ex. MRP** (it combines the calculations for financial, operations and logistics planning.)

### **3) Manufacturing cycle time**

- It is time between the arrival of raw material and shipping of finished products.
- JIT helps to reduce the manufacturing cycle time.

# Overview of JIT Manufacturing

- **Inventory reduction** : JIT is system for reducing inventory levels at all stages of production
- **Quality Management:** JIT provide procedure for improving both quality within the firm
- **Lead time reduction:** With JIT, lead time components such as Set up and move times are significantly reduced.
- **Continuous Improvement:** JIT system, existing problems are corrected and new problem identifies

# Characteristics of JIT

- JIT system focus on **reducing inefficiency** and **unproductive time** in production process to **improve continuously the process and quality**.
1. Pull method of material flow
  2. Constantly High Quality
  3. Uniform Workstation Loads
  4. Standardized components and work methods
  5. Close Supplier Ties
  6. Flexible workforce
  7. Automated Production

# Elements of JIT

1. Eliminating waste
2. Enforced Problem Solving
3. Continuous Improvement / Kaizen
4. Involvement of People
5. Total Quality Management



# Benefits of JIT

- Lower Warehouse Costs (Storing excess inventory can cost a lot of money)
- Better Customer Satisfaction (model can allow companies to serve their customers faster and more efficiently)
- Reduce Waste
- Improved Supplier Relationships

# Drawback of JIT

- A supplier that does not deliver goods to the company exactly on time
- An investment should be made in information technology to link the computer systems of the company and its suppliers,
- A company may not be able to immediately meet the requirements of a massive and unexpected order
- Risk of running out of stock
- More Planning required