# MCP361 : Industrial Engineering Lab: Assignment 1

Siddharth Dixit

2018ME20727

Assumptions made:

- Deterministic demand is there.
- Production can be done at ones own wish.
- The cost of rent, cost of electricity & cost of maintenance is given. Hence

Inventory cost = cost of rent + cost of electricity + cost of maintenance

= 500* ₹ 2 + ₹ 100 + ₹ 100

= ₹ 1200

Cost of inventory/unit = ₹ 1200 / 500

= ₹ 2.4

- Usually, the cost to set up does not increase uniformly with the production lot size. The cost of set up remains unaffected and is independent of production lot size.
- Delivery is instant.
- Production is uniform.
- Shortage → **Demand > Production + Inventory**
- Shortage is not carried forward to next month.
- Overage → **Demand < Production + Inventory**
- Overage is stored in inventory and is to be used in case of shortage in future months.

= > Overage cost = Units in inventory in last month * 2 {2 is the overage cost per unit}

- Shortage cost = (Σ shortages) * 5 {5 is the shortage cost per unit}

Input Parameters :

- Set-up time - 75 minutes
- Tool wear out rate - 0.005 per hr
- Tool replace cost - ₹2,500
- Oil per set-up - 0.4 litres
- Cost of oil - ₹100/litre
- Salary of operator - ₹50/hour
- Area of warehouse - 500 sq ft.
- Rent of warehouse - ₹2 per sq ft per month
- Cost of electricity - ₹100/month

- Cost of maintenance - ₹100/month
- Amount stored each month - 500 units
- Production cost per unit - ₹15
- Shortage Cost per unit - ₹5
- Overage Cost per unit - ₹2