COMPUTER INTEGRATED MANUFACTURING SYSTEMS
Unit — 2 / Topic :9
TOPICS TO BE DISCUSSED

Recall:
Inventory Control

To Discuss:
Manufacturing Resource Planning (MRP-II)
Inventory Control

Control over the stock-in-hand in a firm
Scientific method of determining what to order, when to order and how much to order and how much to stock
Optimize the cost associated with buying and storing without interrupting production and sales
Costs associated with Inventory

Also termed as Inventory Costs
Ordering Costs
Carrying (or Holding) Costs
Shortage (or stock out) Costs
Purchase Costs
Economic Order Quantity

- Annual cost ($)
- Minimum total cost
- Total cost
- Carrying cost
- Ordering cost
- Optimal order, $Q_{opt}$
- Order quantity, $Q$

Slope = 0

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**EOQ Model Formula**

\[ TC = DC + \frac{D}{Q}S + \frac{Q}{2}H \]

**EOQ Formula**

\[ EOQ = \sqrt{\frac{2 \times D \times S}{H}} \]

- **TC** = Total annual cost
- **D** = Demand
- **C** = Cost per unit
- **Q** = Order quantity
- **S** = Cost of placing an order or setup cost
- **R** = Reorder point
- **L** = Lead time
- **H** = Annual holding and storage cost per unit of inventory
Manufacturing Resource Planning

MRP-II is a computer based system for planning, scheduling and controlling the materials, resources and supporting activities needed to meet the MPS.

It is an integrated information system that synchronize all aspects of the business.

It coordinates sales, purchasing, manufacturing, finance and engineering by using one unified database.
Functions of MRP - II

Management Planning: Business strategy, APP, MPS, CP and budget planning
Customer Service: Sales forecasting, order entry, sales analysis and finished goods inventory
Operations Planning: Purchase order and work order release
Operations Execution: Purchasing, product scheduling, WIP inventory control, SFC and labor hour tracking
Financial functions: Cost accounting, accounts payable, receivable, ledger and payroll
Overview of MRP II

- Finance
- Market Demand
- Manufacturing
- Master production schedule

- Marketing
- Production plan
- Rough-cut capacity planning

Adjust production plan

- Problems?
  - Yes
  - No

Adjust master schedule

- MRP
- Capacity planning

- Requirements schedules
  - No
  - Yes

- Problems?
MRP — II Structure

Includes linking of financial and marketing functions to manufacturing function

Composed of wide range of integrated functions to plan and control all the resources of a manufacturing firm

Implementation of MRP-II depends on effective management-information system including timely and accurate status reporting
Software incorporating MRP II

Enterprise Resource Planning (ERP)
Customer Oriented Manufacturing Management system (COMMS)
Manufacturing Execution System (MES)
Customer Oriented Management System (COMS)
Thank You