

MATERIAL REQUIREMENT PLANNING

Material Requirement Planning (MRP) is a production planning and inventory control system used to manage manufacturing processes. It ensures that materials and components are available for production at the right time while maintaining minimal inventory levels.



Objectives of MRP:

1. Ensure materials and components are available for production.
2. Maintain the lowest possible inventory levels.
3. Plan manufacturing, delivery schedules, and purchasing activities.

Key Components of MRP:

1. **Master Production Schedule (MPS)** – Specifies what is to be produced and when.
2. **Bill of Materials (BOM)** – Lists the components and materials required for production.
3. **Inventory Records** – Tracks the availability of raw materials and components.

MRP Process Steps:

1. Identify demand based on MPS.
2. Determine required materials using BOM.
3. Check inventory status.
4. Calculate net material requirements.

5. Generate purchase and production orders.
6. Monitor and update plans as needed.

Benefits of MRP:

- Reduces inventory costs.
- Improves production efficiency.
- Minimizes stock-outs and delays.
- Enhances customer satisfaction by ensuring timely delivery.