

# GOVERNMENT POLYTECHNIC FOR GIRL'S

**CIVIL ENGINEERING DEPARTMENT**

**“CONSTRUCTION PROJECT MANAGEMENT”**  
( 3360603 )

**“MATERIAL MANAGEMENT”**

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# MATERIAL MANAGEMENT

- Materials management can deal with campus planning and building design for the movement of materials, or with logistics that deal with the tangible components of a supply chain.
- Materials management is the function responsible for the coordination of planning, sourcing, purchasing, moving, storing and controlling materials in an optimum manner in order to provide a pre decided service to the customer at a minimum cost.

# GOALS

- The goal of materials management is to provide an unbroken chain of components for production to manufacture goods on time for the customer base.
- In some companies materials management is also charged with the procurement of materials by establishing and managing a supply base.

# STANDARDS

- There are no standards for materials management that are practiced from company to company.
- Materials management is not a science and depending upon the relevance and importance that company officials place upon controlling material flow, the level of expertise changes.

## OVERVIEW

- Materials management plans and designs for the delivery, distribution, storage, collection, and removal of occupant-generated streams of materials and services.
- It is usually an additional service that is offered as part of a campus planning process or a building design project.
- It is most beneficial for university, health care, and corporate environments.

## **BENEFITS**

- The effective materials management plan builds from and enhances an institutional master plan by filling in the gaps and producing an environmentally responsible and efficient outcome.
- An institutional campus, office, or housing complex can expect a myriad of benefits from an effective materials management plan.
- For starters, there are long-term cost savings, as consolidating, re-configuring, and better managing a campus' core infrastructure reduces annual operating costs.

# FUNCTIONS OF MATERIAL MANAGEMENT

- Material estimation, budgeting , planning and programming
- Scheduling , purchase
- Receiving and inspection
- Storage
- Material handling and transport
- Despatch to site
- Disposal of surplus materials

# OBJECTIVES OF MATERIAL MANAGEMENT

- Lower Inventories
- Low Prices
- Reduction in Real Cost
- Regular Supply
- Procurement of Quality Materials
- Efficient handling of Materials
- Enhancement of firm's goodwill
- Locating and developing future Executives



# MATERIAL HANDLING

- Material handling involves short-distance movement within the confines of a building or between a building and a transportation vehicle.
- It uses a wide range of manual, semi-automated, and automated equipment and includes consideration of the protection, storage, and control of materials throughout their manufacturing, warehousing, distribution, consumption, and disposal.

# PRINCIPLES OF MATERIAL HANDLING

- Orientation Principle
- Planning Principle
- Systems Principle
- Unit Load Principle
- Space Utilization Principle
- Standardization Principle
- Ergonomic Principle
- Energy Principle
- Ecology Principle

## MATERIAL HANDLING

- Mechanization Principle
- Flexibility Principle
- Simplification Principle
- Gravity Principle
- Safety Principle
- Computerization Principle
- System Flow Principle
- Layout Principle
- Cost Principle

## MATERIAL HANDLING

- Maintenance Principle
- Obsolescence Principle

# Job layout

A job layout is a scaled drawing of the proposed construction site showing all the relevant features such as,

- Entry point
- Exit point
- Storage areas of materials – bricks, cement, sand , aggregate
- Temporary services – washing, toilets
- Contractor's site office
- Areas for keeping equipments such as mixers
- Bar bending area
- Labour housing

## **Essential requirements for the preparation of job layout:**

- Plan and specification review
- Stacking and storage of materials at side
- Placement of equipment

# Factors affecting job layout

- Nature and type of work
- Location of project site
- Methods of construction
- Availability of construction
- Availability of material and equipment
- Miscellaneous factors

# Principles of job layout preparation

- Administrative block
- Warehouses / godowns
- Entry and exit
- Locations of workshop
- Temporary roads
- Staff accommodation



## when moving materials manually?

- When moving materials manually, workers should attach handles or holders to loads.
- In addition, workers should always wear appropriate personal protective equipment and use proper lifting techniques.
- When a load is so bulky that employees cannot properly grasp or lift it,
- Hand and forearm protection, such as gloves, for loads with sharp or rough edges.
- Eye protection.
- Steel-toed safety shoes or boots.

# When moving material mechanically

- Using mechanical equipment to move and store materials increases the potential for employee injuries.
- Workers must be aware of both manual handling safety concerns and safe equipment operating techniques.
- Employees should avoid overloading equipment when moving materials mechanically by letting the weight, size, and shape of the material being moved dictate the type of equipment used.
- All materials handling equipment has rated capacities that determine the maximum weight the equipment can safely handle and the conditions under which it can handle that weight.

# STACKING AND STORAGE

- Stacking materials can be dangerous if workers do not follow safety guidelines.
- Falling materials and collapsing loads can crush or pin workers, causing injuries or death.

## **When stacking material workers and must do the following:**

- Stack lumber no more than 16 feet high if it is handled manually, and no more than 20 feet if using a forklift;
- Remove all nails from used lumber before stacking;
- Stack and level lumber on solidly supported bracing;
- Ensure that stacks are stable and self-supporting;
- Do not store pipes and bars in racks that face main aisles to avoid creating a hazard to passersby when removing supplies;
- Stack bags and bundles in interlocking rows to keep them secure;
- Observe height limitations when stacking materials;

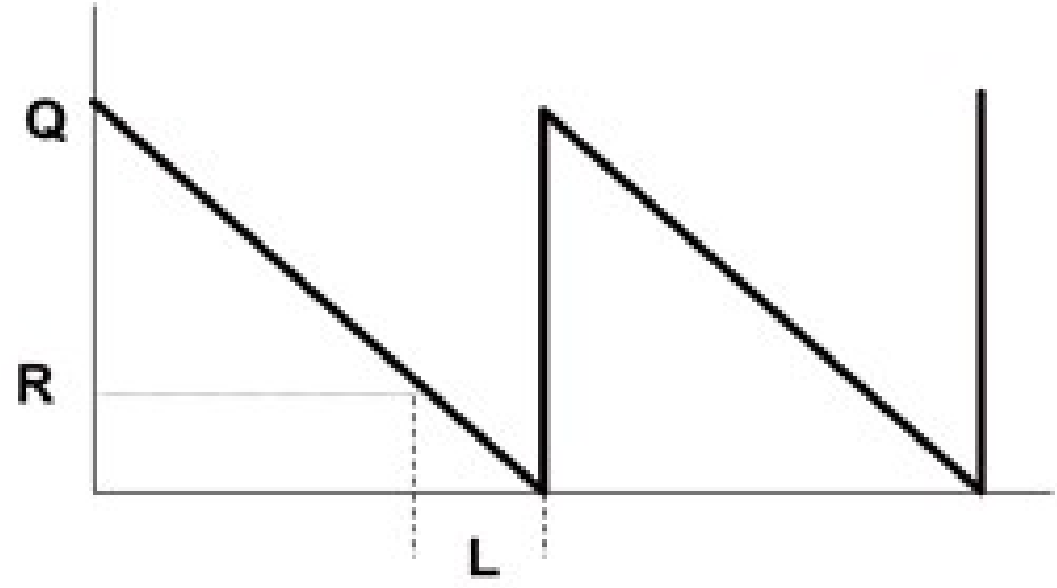
# PURCHASE PROCEDURE:

- Recognition of the need
- Selection of source of supply
- Inviting quotations / Tenders
- Analysis of quotations
- Placing the order and follow-up
- Receipt and inspection
- Approval of payment

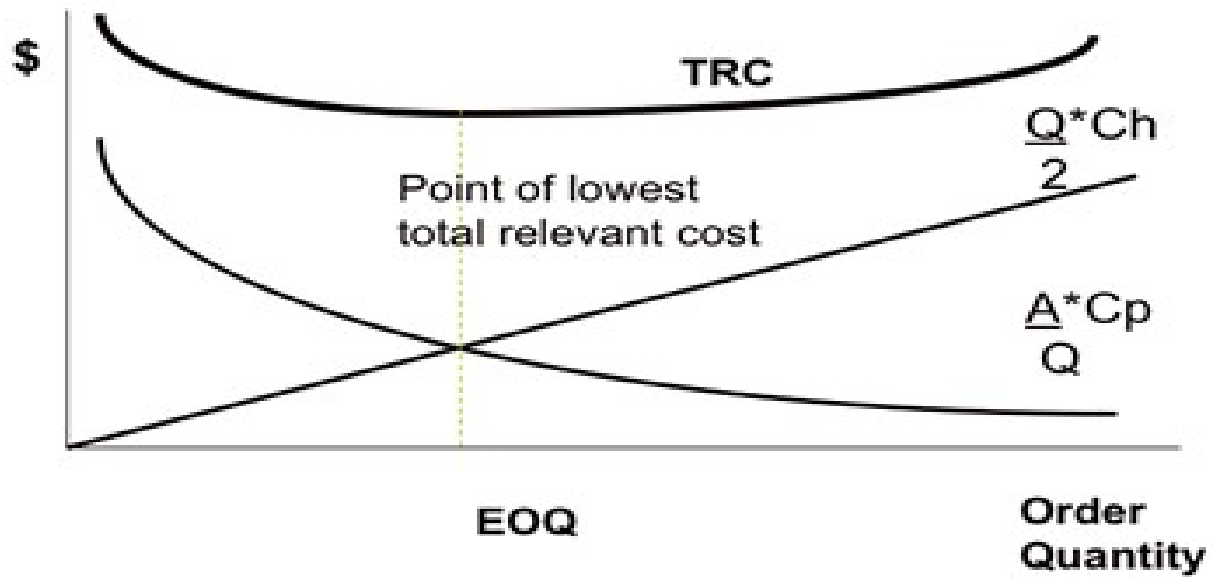
## ECONOMIC ORDER QUANTITY (EOQ):

- The economic order quantity (EOQ) is the order quantity that minimizes total holding and ordering costs for the year.
- Even if all the assumptions don't hold exactly, the EOQ gives us a good indication of whether or not current order quantities are reasonable.

$$Q = \sqrt{\frac{2 \times N \times A}{C \times I}}$$



# Total Relevant\* Cost (TRC)





**THANK YOU**