

CHAPTER TWO : COSTING FOR MATERIALS

1. Procedures for Ordering, Receiving, Storing and Issuing Materials

- a) Planning requirements
 - b) Selecting suppliers, placing and progressing orders
 - c) Receiving deliveries
 - d) Inspecting deliveries and approving invoices for payments
 - e) Storing prior to use
 - f) Issuing to users
 - g) Controlling levels of stock
- a) Planning Material Requirements
- For material and components that are needed to manufacture the company's products, it would be too risky to seek supplier each time that stock levels are low
 - Failing to obtain materials when the company needed them, would cause production delays and the company would be unable to satisfy customer requirements
 - The normal practice for key raw materials and components, is to plan ahead to identify needs and to enter into long term arrangements with suppliers.
 - This is called **Material Requirements Planning (MRP)**. This only can be done if production plans are prepared as a basis for purchases
- b) Selecting Suppliers, Placing and Progressing Orders
- The choice of supplier for materials will be made after price, quality, delivery reliability and payment terms have been considered
 - Where scheduled deliveries are in use, an order is placed with the supplier, maybe for one year, and materials are then delivered regularly to the agreed schedule
 - If don't use scheduled deliveries, then materials will be order by buying department, each time the materials are needed
 - So, a **request to purchase or a purchase requisition** must be sent to the buying department
 - **Definition of purchase requisition:** " An internal instruction from office to purchase goods and services, stating their quantity and description and generating a purchase order."
 - The purchase requisition must be clear and precise as to what is to be purchased
 - The buying department then has the choice of placing order with the supplier (the usual one) or asking a number of potential supplier for a quotation
 - The buyer would not necessarily place the order with the supplier who quotes the lowest price
 - Other factors such as delivery, quality and reputation will also be considered
 - For important materials, some companies like to have multiple-sourcing (more than one supplier for material)
 - This reduces the risk of delivery failure and gives a continuing comparison of price and quality in particular
 - When a supplier has been selected, an official **purchase order** should be carefully controlled because of the contract being created between the purchasing company and the supplier
 - **Definition of purchase order:** "A written order for goods and services specifying quantities, prices, delivery dates and contract terms."
 - Once the order has been placed, nothing more needs to be done
 - The delivery should be made by the supplier
 - The delivery should be of the ordered quantity, the ordered quality and should be made to the location agreed

- c) Receiving Deliveries
- ☞ The supplier should deliver the goods to the agreed delivery point at the agreed time
 - ☞ The carrier of the goods, whether the supplier's own employee and vehicle, or a separate transport firm, will hand over a **delivery note** with the goods.
 - ☞ **Definition of delivery notes:** " A document containing details of the quantity and specifications of accompanying goods. A signed copy of the delivery note often acts as proof of delivery."
 - ☞ The delivery note may also be referred to as a despatch note, a carrier's note or a consignment note
 - ☞ An advice note contains similar information, but is sent to inform a third party of delivery
 - ☞ The copy, signed by the receiving company's employee and retained by the carrier, is proof of the delivery from the supplier's point of view
 - ☞ The copy retained by the receiving company is proof of the arrival of the ordered goods on the premises and an initial justification for the later payment of the supplier's invoice
- d) Inspecting Deliveries and Approving Invoices for Payment
- It may not be possible to check incoming goods while the carrier is still on the premises
 - Remember that the signature on the delivery note is simply the acceptance of a delivery
 - The correctness of the delivery will be checked later
 - The delivery needs to be checked to see:
 1. The quantity delivered matches the delivery note
 2. The specification, type and quality matches the delivery note
 3. There are no damaged goods
 - Now, company will issue **goods received note (GRN)**
 - **Definition of goods received notes (GRN):** "A record of goods at the point of receipt."
 - GRN is the receiving company's first record of the delivery
 - GRN should record any problems with the delivery like shortages, breakage etc.
 - One copy of the GRN will go to the buying department to confirm the receipt of the goods
 - Another copy will go to the stores with the goods and third copy will go to the cost department for recording the receipt in the stock account
 - If any goods are unsatisfactory or there is an under-delivery, then the whole or part of the supplier's invoice must be cancelled
 - Company will issue a **debit note**
 - **Definition of debit note:** "A document prepared by a purchaser notifying the seller that the account is being reduced by a stated amount, e.g. because of an allowance, return of goods & cancellation."
 - The debit note is the basis for a debit on the supplier's account
 - The supplier in turn will issue a credit note for the same amount
 - If the supplier then sends replacement goods, they will be re-invoiced
- e) Storing Prior to Use
- Storing materials are applicable to all materials, direct or indirect, carried in stock prior to use.
 - They also apply to finished and part finished products carried in stock prior to sale
- f) Issuing to Users
- It is important to note that the price at which issues are charged to production also affects the valuation of the remaining stock
 - Any pricing method should be seen therefore as apportioning (dividing) the balance on the stock account between issues to work-in-progress and the remaining stock balance
 - Pricing methods fall into 3 main categories: cost prices, prices derived from cost and notional prices

- g) Controlling Levels of Stock
- **Stock control is defined** by CIMA as “the systematic regulation of stock levels.”
 - Stock levels should not be the result of carelessness in terms of unrelated purchase and usage decisions
 - Desirable stock levels should be planned, and any departure or variance from those desired levels should be investigated
 - A stock level can be expressed in physical or in value terms

2. Economic Ordering Quantity (EOQ)

- The importance of effective inventory management is directly related to the size of the investment in inventory.
- To control the investment in inventory, management must solve 2 problems:
 - a) The order quantity problem
 - b) The order point problem
- The order quantity problem involves determining the optimal order size for an inventory item given its expected usage, carrying costs and ordering costs. So, we use EOQ.
- **Definition of EOQ:** “The most economic stock replenishment order size, which minimizes the sum of stock ordering costs and stock holding costs.”
- The EOQ model attempts to determine the order size that will minimize total inventory costs.
- Formula for EOQ:

$$Q^* = \sqrt{\frac{2SO}{C}}$$

Where S = total demand in units over the planning period

O = ordering cost per order

C = carrying cost per unit

E.g.: Suppose a firm expects total demand (S) for its product over the planning period to be 5,000 units, whereas the ordering cost per order (O) is RM200 and the carrying cost per unit (C) is RM2. Find the ordering size that can minimize the total costs using EOQ method.

Answer:

$$\begin{aligned}
 Q^* &= \sqrt{\frac{2SO}{C}} \\
 &= \sqrt{\frac{2 \times 5,000 \text{ units} \times \text{RM}200}{\text{RM}2}} \\
 &= \sqrt{1,000,000 \text{ units}} \\
 &= 1,000 \text{ units}
 \end{aligned}$$

Mean, if this firm orders in 1,000 units lot sizes, it will minimize its total inventory costs.

3. Costs of Carrying Stock

Includes:

1. The cost of financing the stock investment
2. Space needed to physically hold the stock
3. Labour & overhead costs for securing & supervising the stock

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4. Lost opportunity to purchase later at a lower price
 5. Losses of stock from deterioration, theft, damage etc.
 6. Losses caused by a change in the specification of material needed by the customer
 7. Special conditions needed for storage e.g. temperature needs for foods storage
 8. Lost opportunity of a better use of the funds invested in stocks
 9. Insurance
 10. Materials handling costs
- For many of these costs, what matters are the incremental costs.
 - For example, does a decision to carry more raw materials stocks increase materials handling?
 - Suppose a company has an opportunity to purchase some raw material stocks at a particularly advantageous price. The company does not have surplus funds and the purchase has to be for immediate cash, RM100,000. An extension of RM100,000 to the bank overdraft is negotiated.
 - The first cost is for financing the purchase. Note that the RM100,000 is not a cost of carrying stock. The cost is the extra bank overdraft interest, e.g. if the rate is 9%, the cost of carrying the stock is first of all RM9,000 for one year.
 - Secondly, where do we put it? The existing store may be full. As this is a special purchase, it may be much more than would normally be purchased. It may be that a special store near the company will have to be rented at RM7,000 for a year. This RM7,000 also the cost of carrying the stock.

4. Cost of Not Carrying Stock

Include..

1. If stock are purchased as required for production, higher average prices may be paid than would be the case if larger order sizes were purchased & materials not immediately needed placed in stock
2. Carrying stocks, particularly raw materials, creates a buffer between the supplier & production needs. If stocks are not carried, for e.g. in a JIT purchasing environment, then a failure of supply causes an almost immediate stop to production. Raw material stocks, on the other hand, can be drawn on whilst supplier problems are resolved @ an alternative supplier quickly found. Production problems and stock-out costs can therefore be a consequence of not carrying stocks
3. Orders may be lost. Materials in hand @ finished stocks carried allow better deliveries to be quoted to prospective customers. Delivery can sometimes be the deciding factor in which a company gets an order.

5. Perpetual Inventory vs. Periodic Inventory

- **Definition of Perpetual Inventory Records:** “ The recording process as they occur of receipts, issues and the resulting balances of individual items of stock in either quantity @ quantity and value.”
- Perpetual record system can be hand recorded or computer based
- Advantage of a computerized material recording and control system is that it should be easier to have a constantly updated record
- **Definition of Periodic Inventory Records:** “ An annual physical stock-taking. Normally at the end of the year, all materials, components, parts, general stores items, work-in-progress (WIP) and finished goods are to be counted, measured, weighted and valued.”
- We will always need to record in **value** terms only. There are:
 1. Invoices from suppliers
 2. Credit notes for return to suppliers
 3. Losses of material from stock
 4. Charges to cost units & cost centres
 5. Value of saleable scrap & its sale
 6. Transfers to finished stock & to cost of sales

6. Reasons for Discrepancies Between the Inventory Record and Physical Stock

- Reasons are:

- a) A miscount by the stock checker
- b) Misallocation of parts or inventories in the store
- c) Receipts from suppliers were short. This should have been picked up at the inward inspection stage
- d) Excess issued to production. E.g. requisition form material was issued in error.
- e) An issue has not yet been recorded
- f) Theft of parts or inventories
- g) An arithmetic error has been made in calculating the balance after a transaction. This should not happen in a computerized system where balances are automatic
- h) Parts or inventories have been issued without documentation.

7. Stock Valuation – FIFO, LIFO and AVCO**FIFO**

- First-In First Out
- The FIFO method assumes that the **earliest goods purchased are the first to be sold**
- Under this method, the costs of the earliest goods purchased are the first to be recognized as **cost of goods sold**
- Ending inventory is based on the latest units purchased
- So, under FIFO, the cost of ending inventory is found by taking the unit costs of the most recent purchase and working backward until all units of inventory are cost

LIFO

- Last In First Out
- The LIFO method assumes that **the latest goods purchased are the first to be sold**
- Under the LIFO method, the cost of the latest goods purchased are the first to be assigned to **cost of goods sold**
- So, the cost of ending inventory is found by taking the unit cost of the oldest goods and working forward until all units of inventory are cost

Average Cost

- The average cost method assumes that the goods available for sale have the same (average) cost per unit
- Under this method, the cost of goods available for sale is allocated on the basis of the **weighted average unit cost**

- Formula :
$$\frac{\text{Cost of Goods Available for Sale}}{\text{Total Units Available for Sale}}$$

Learning Outcomes

- Explain importance of planning material requirement
- Explain and calculate for Economic Ordering Quantity, EOQ
- Discuss the various documents used in the process of ordering and receiving materials
- Discuss the reasons for discrepancies between the inventory record and physical stock
- Calculate of stock valuation using FIFO, LIFO and AVCO method

Basic Reading

1. T Lucey (2001) Costing; 5th ed. London: Continuum
2. C Drury (2000) Management & Cost Accounting; 5th ed. London: International Business Press

Revision Questions

1. Briefly explain SEVEN procedures regarding on ordering, receiving, storing and issuing materials.
2. List 4 reasons of discrepancies between physical inventory and inventory record
3. What is the difference between periodic and perpetual inventory system?
4. List 4 examples of cost carrying stocks
5. Jenny Limited started using components AA in Year 2007. During the 2 months ended 30 March 2007, the following took place:

Purchases	Units	Unit Price, RM	Issues	Units
1 Feb	350	10.00	2 Feb	300
8 Feb	300	10.50	11 Feb	300
15 Feb	320	10.80	18 Feb	200
22 Feb	400	11.20	25 Feb	300
8 March	200	11.50	5 March	250
17 March	300	11.80	12 March	150
25 March	250	12.10	28 March	400

Required :

- (a) Calculate closing stocks for Feb and March using FIFO, LIFO and Average Cost method
- (b) Calculate cost of issuing materials for Feb and March using FIFO, LIFO and Average Cost method