Lesson 3:

Introduction to Cost Accounting & Elements of Cost-Material Cost and Inventory Valuations

3.1 Introduction

This lesson introduces the inventory valuation method. Inventory is company's current assets and it is the driving force behind the company's ability to generate revenue and profits. Hence, the company needs to manage inventory in a cost-efficient way to optimize company profit.

3.2 Learning Outcomes

By the end of this lesson, you should be able to:

- explain the materials recording procedure, procurement, and storage and store control
- compute cost material issues using:
    - first in First out (FIFO)
    - Last in Last out (LIFO)
    - Weighted average (AVO);
- explain and compute EOQ, maximum stock level& minimum stock level; and
- discuss the advantages and disadvantages of the above three methods

3.3 Required Readings

Drury, Chapter 24

3.4 Points to Ponder/Takeaways

EOQ	EOQ is the size of the purchase order that achieves the optimum 'trade off between the cost of placing orders and the cost of holding materials in the stores. In other words – EOQ is the order size that minimizes the total of these two costs – holding costs and ordering costs.
The reorder level	The stock level at which a new order should be placed with suppliers and is calculated as (maximum usage x maximum lead time)
Minimum level	Minimum level warms that usage may be higher than expected, with resulting use of safety stock; minimum level is reorder leve – (average usage x averae lead time).

Maximum level	Maximum level warns of lower than expected usage, with resulting stock build up, it is determined as (reorder level + EOQ) – (minimum usage in minimum lead time).
EOQ	$\text{EOQ} = \sqrt{\frac{2C_O D}{C_H}}$
Reorder level	Max usage x Max lead time
Minimum level	Reorder level – (Average usage x Average lead time)
Maximum level	Reorder level + EOQ – (Min usage x Min lead time)

3.5 Learning Materials

1.Elements of cost – materials, labour and Overheads

Materials – For many organisations the expenditure on materials is a large proportion of total cost and it is essential that all aspects of material control are dealt with efficiently.
This involve purchasing, receipt, storage and accounting functions.

2.Managing Material Cost

Where large stocks are held, storekeeper must always ensure that sufficient stock quantity is maintained. This is to avoid under-stock or out of stock situation.

- The cost of under-stock - 'idle time'.
- But when too many stocks are accumulated in the stores/warehouse
- Company will be facing - over-stock situation
- The cost of over-stock
- 'loss of opportunity to invest'.

2.1 Managing Material Cost

Focus on 3 major areas:

- Controls in the Purchasing functions
- Storage controls
- Maintain a consistent stock valuation method.

2.1.1 Controls in the Purchasing functions

Should start at the purchasing department. There should be a mechanism or a purchasing control system in place, to ensure that materials are purchase on time, authorised and in right quantity.

Purchasing control system can be implemented through implementation of proper documentation control.

2.1.2 Storage controls

Proper security measures should also be taken. The following are recommended:

- Security guards at strategic location
- Locked doors, alarm system or closed-circuit TV
- Insurance – against theft and natural disasters
- Stores can implement several stock control levels to ensure that under and overstock is under control. There levels must be plotted to ensure appropriate stock control levels are maintained – minimum level, reorder level and maximum level.
- Stocking taking- Stocks of material or finished goods can be extremely valuable, so it makes sense to exercise effective control – both financial and physical – over them. One way in which this can be done is by stocktaking i.e. physically counting stocks on hand and verifying that this count tallies with what is recorded in the stores ledger.

2.1.3 Stock Valuation

Costing problems can also arise from pricing issues of material when these materials are send to production. The pricing system should be consistent and realistic and should not involve undue administrative complications. Storekeeper must maintain a consistent stock valuation method. Three types of valuation method:

FIFO, LIFO and Weighted Average price

2.1.3.1Method of Stock Valuation

a. First-in, first-out

Assumes that the oldest items in inventory are sold first, so that the remaining items on balance sheet day must come from the most recent purchases.

In a period of inflationary costs, this method will result in higher ending inventory value and lower cost of sales

b. Last-in, first-out

Assumes that the newest items in inventory are sold first, so that the remaining items on balance sheet day must come from the earliest purchases possible

During inflationary periods, this method will cause an increase to cost of sales

c. Average cost

Cost is weighted averaged when there is an acquisition.
Average cost of inventory = Cost of total purchases/Total quantity purchased
The value of closing inventory falls between the values recorded under FIFO and LIFO methods.

Different methods lead to different ending inventory values and hence different costs of sales, which results in different profit figures

Example

1 February : 1000 units purchased at £1 per unit
1 March : 1000 units purchased at £2 per unit

30 March : 1000 units sold at £4 per unit

Three alternative issue prices:
First-in, first-out (FIFO) =£1.00 per unit
Last in ,first out (LIFO) =£2.00 per unit
Average cost =£1.50 per unit

3. Planning and control of stocks

1. Relevant costs required for determining EOQ
    - Holding costs
    - Ordering costs
2. Holding costs
    - Opportunity cost of investment in stocks
    - Incremental insurance costs
    - Incremental warehouse and storage costs
    - Incremental material handling costs
    - Costs of deterioration and obsolete stocks
3. Ordering costs
    - Incremental clerical costs of preparing a purchase order, receiving deliveries and paying invoices.

If more units are ordered at one time, few orders are required in a year. This will reduce order costs. However, when fewer orders are placed, larger average stocks must be maintained, which leads to an increase in holding costs.

EOQ – order quantity that will result in total amount of ordering and holding costs being minimised, it can be determined by tabulating the total costs for various order quantities, by a graphical presentation or by using a formula.

EOQ formula

1. $$Q = \sqrt{\frac{2DO}{H}}$$

where D = total demand for the period
O = cost per order
H = holding cost per unit

2. $$Q = \sqrt{\frac{2 \times 40\,000 \times 2}{1}} = 400 \text{ units}$$

3. Assume H and O are constant per unit and stock is consumed evenly throughout the planning period.

4. Total cost curve tends not to be significantly affected if some of the underlying functions are violated.