Principles of Costing: Summary of corrections and improvements to course materials

These changes affect version V004 of the materials.

Inventory control policy

We recently found out that you do not need to know the formulas for calculating reorder level, minimum inventory level or maximum inventory level. You will not need to calculate these levels, but you may need to report on whether a business has complied with its inventory control policies. E.g. have they allowed their inventory levels to drop below the minimum level that the business has set?

We have re-written page 98-100 of the course notes to reflect this:

Inventory control policy

Running out of inventory (which is known as a 'stock-out') can be a real problem for any business. It will mean turning customers away and not only will the business lose the profit on that possible sale, but the unhappy customer may never return, so many more sales may be lost.

To avoid the chance of suffering stock-outs businesses will often hold a minimum level of inventory, known as **buffer stock**. This is a contingency inventory and helps them cope with unforeseen demand or unexpected delays to supplier deliveries. The amount of buffer inventory will be decided by the organisation.

Businesses won't want to have too few units of inventory (in case they run out) and they won't want to have too many (as this will significantly increase costs such as storage and insurance). In order to control the number of units that they hold a business may set 'control levels' for inventory. These control levels will generally involve:

A **minimum level of inventory** below which we do not wish to fall. This will ensure that we do not have to turn disappointed customers away empty-handed.

A **maximum level of inventory** above which we do not want to rise. This will ensure we are not suffering excessive costs of holding units of inventory.

A **reorder level**, which is the level that inventory will have fallen to which will prompt us to place an order with our suppliers for another delivery.

A 're-order quantity' is the amount of inventory which should be ordered each time an order is placed. This will be calculated based on the average usage or the material.

Businesses tend to experience a '**lead time**' with their suppliers. The 'lead time' is the delay between when we place an order for supplies of material and the supplier actually arriving to deliver it. It will take them a period of time to sort out the order, produce the units and to transport them to us. This is why we would not wait until we completely ran out of inventory before placing our next order.

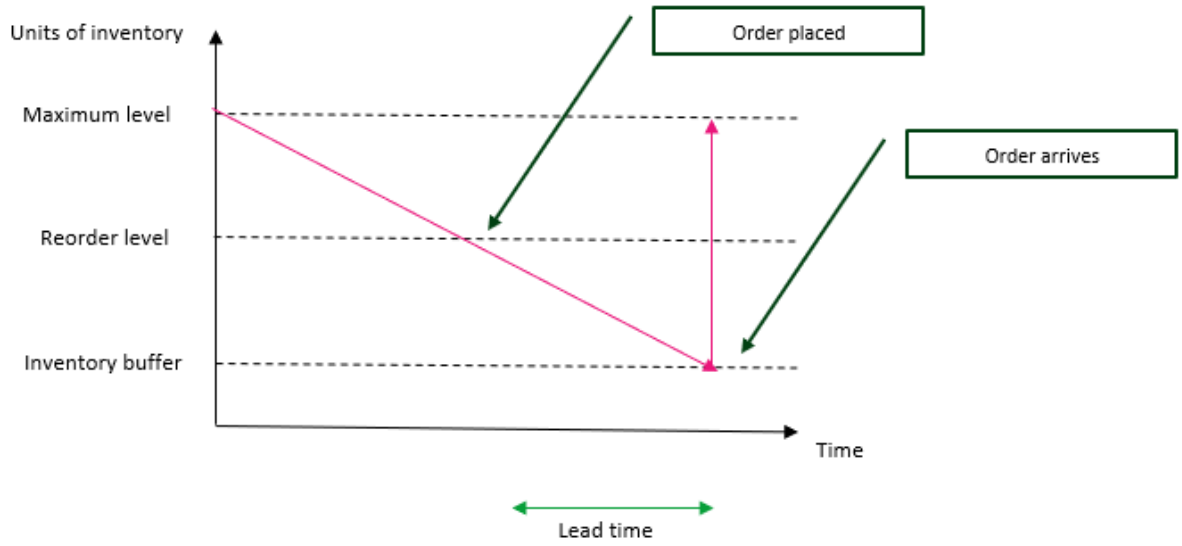

ILLUSTRATION - CALCULATING INVENTORY CONTROL LEVELS

Information related to a particular line of inventory:

Inventory buffer	10,000 units
Lead time	12 days
Re-order level	16,000 units
Re-order quantity	30,000 units
Average usage per day	500 units
Maximum inventory level	40,000 units

(a) What would be the impact of an order being placed 4 days late?

(b) If an order is correctly placed at the re-order level, what is the impact of the goods being received 2 days earlier?

(a) If the order is placed 4 days late there will have been a further 4 days worth of inventory used before the new order arrives. At a daily usage of 500 units this will mean 2,000 units more will have been used before it is received.

The quantity will have fallen 2,000 below the inventory buffer to 8,000 units.

(b) If the goods are received two days early:

Reordered at 16,000 units less 10 days x 500 units usage = 11,000 units inventory level when received. This is 1,000 units above the buffer. 30,000 units are received so the inventory level will be 41,000 units which is 1,000 units above the maximum inventory level.

LECTURE EXAMPLE 1 – CALCULATING INVENTORY CONTROL LEVELS

Information related to a particular line of inventory:

Inventory buffer	22,000 litres
Lead time	6 days
Re-order level	29,200 litres
Re-order quantity	60,000 litres
Average usage per day	1,200 litres
Maximum inventory level	82,000 litres

(a) What would be the impact of an order being placed 5 days early?

(b) If an order is correctly placed at the re-order level, what is the impact of the goods received being 10% less than expected?

Solution to Lecture Example 1:

(a) What would be the impact of an order being placed 5 days early?

5 days early will mean the re-order level has not yet been reached. The inventory level will be at 29,200 + (1,200 x 5) = 35,200 litres when the order is placed. The inventory level will exceed the maximum as 60,000 litres will be received when the inventory level reaches (35,200 – (6 x 1,200)) = 28,000 litres.

(b) If an order is correctly placed at the re-order level, what is the impact of the goods received being 10% less than expected?

The quantity received will be 60,000 x 90% = 54,000. This will mean the inventory total will reach 22,000 + 54,000 = 76,000 litres when received.

Practice example 4 has also been replaced with the following question:

PRACTICE EXAMPLE 4 – CALCULATING INVENTORY CONTROL LEVELS

Explain the following inventory terms:

- Inventory buffer
- Re-order level
- Lead time

Solution to Practice Example 4:

- Inventory buffer

This is a contingency inventory and helps them cope with unforeseen demand or unexpected delays to supplier deliveries.

- Re-order level

A reorder level is the level that inventory will have fallen to which will prompt us to place an order with our suppliers for another delivery.

- Lead time

The lead time is the delay between when we place an order for supplies of material and the supplier actually arriving to deliver it.