CHAPTER 4

Inventories and costs

After purchasing the materials used in production it is not necessarily that it will be directed entirely to the production process due to the limits of production capacity of the company or workshops, some of which is directed to the production process and the remaining part is kept in warehouses, these warehouses have costs that must be integrated into the cost of purchase, also in the calculation of costs that are included in the calculation of the final cost of products.

Orders or activities must go through the process of arranging and monitoring of stocks. Follow-up or control of the stock is to record all the inputs and outputs of the stocks in a way that allows the calculation of the part of the costs and the final cost that we want to calculate. Inventories can either go out for use in production or sale, and in both cases the cost of inventories should be calculated when they are out of stock

DEFINITION OF STOCKS:

The quantities of goods that are involved in the process of exploitation in the enterprise in order to be either sold without any conversion process or later entered into the production process or under implementation or consumed when used.

TYPES OF STOCKS:

The following types of stocks can be distinguished:

Merchandise: Items purchased for resale in the same state.

Raw Materials and supplies: Raw materials plus means to assist in production and commercial packaging and office supplies and pharmaceuticals.

Semi-finished products: These are goods that have reached a certain stage of production and have been stored to be completed later.

TYPES OF STOCKS:

Products and works in process: are products that are still under implementation at the workshops at the end of the session (in order to maintain accounts) pursuant to the principle of the independence of the courses.

Finished products: They are ready-for-sale products.

Waste and scrap: residues and recovery materials that resulted from the manufacture process.

THE CONCEPT OF CONTINUOUS INVENTORY:

A continuous accounting inventory is an organization of inventory accounts that allows by recording the movements of stocks to know assets in quantities and values on a regular basis during the period through the following calculation:

Stock= inputs - outputs

Beginning Inventory + Inputs = Outputs + Ending Inventory

Internal Inventory uses internal records for inventory movements: receipts, or delivery notes.

1 RAW MATERIALS (RM)

- The distribution department prepares the necessary documents for the quantities received according to the formula:

Beg Stock + Purchase = Used + End Stock

- The inventory card for raw materials is according to the following form:

Detail	Quantity	Price / unit	Amount	Detail	Quantity	Price / unit	Amount
Beginning Stock				Cost of RM Used			
Cost of RM Purchased				Ending Stock			

2 FINISHED GOODS (FG)

- The distribution department prepares the necessary documents for the quantities received according to the formula:

  Beg Stock + Production = Sales + End Stock

- The inventory card for raw materials is according to the following form:

Detail	Quantity	Price / unit	Amount	Detail	Quantity	Price / unit	Amount
Beginning Stock				Cost of FG Sold			
Cost of FG Produced				Ending Stock			

3 WORK IN PROCESS (WIP)

- The distribution department prepares the necessary documents for the quantities received according to the formula:

Beg Stock + Total Manufacturing costs = Production + End Stock

- The inventory card for raw materials is according to the following form:

Detail	Quantity	Price / unit	Amount	Detail	Quantity	Price / unit	Amount
Beginning Stock				Cost of FG Produced			
Total Manufacturing costs				Ending Stock			

COMPREHENSIVE PROBLEM

A company produces a single product A using two raw materials M and N @1 Direct costs:

- Purchase: 9,600 DZD, including 5,760 DZD for material M
- Production: 5,000 direct working hours at 98 DZD per hour.
- Distribution: 8 DZD per unit sold.

@2 Indirect costs: summarized in the following table:

Dep / Ind Costs		Departments				
		Supporting		Main		
		Administration	Maintenance	Purchase	Production	Distribution
Total Prim Dist		35,100	90,000	.....	136,800	33,600
Sec Dist	Admi	A	4	4	6	6
	Main	2	M	6	6	6
Work Units				Kg units purchased	Units produced	1,000 dzd of sales

- Continuous inventory of the two raw materials M and N at the end of the month according to the following two tables were:

Detail	Q	P/unit	Amount	Detail	Q	P/unit	Amount
M Beg Stock	1,000	86.4	……..	Cost of M Used	…….	…….	…….
M Cost of Purchase	3,600	……	……..	M End Stock	700	…….	…….
Total	…..	90	……..	Total	…….	…….	…….

Detail	Q	P/unit	Amount	Detail	Q	P/unit	Amount
N Beg Stock	600	118	…….	Cost of N Used	2,800	……	…….
N Cost of Purchase	…….	…….	…….	MNEnd Stock	…….	110	…….
Total	3,000	…….	…….	Total	…….	…..	…….

@Monthly production: 2,500 units of product A

@Monthly sales: 2,000 units of product A at 750 DZD/unit.

Required:

- Complete the indirect costs distribution table with the secondary distribution account for the purchasing department, knowing that the purchase price of one kilogram of M and N is: 75 DZD and 92 DZD respectively.
- Prepare the perpetual inventory accounts for each of the materials M and N
- Calculate the various costs and the analytical result

Exercise:

Renka's Heaters selected data for October 2014 are presented here in millions

Direct materials inventory 10/1/2014	$ 105
Direct materials purchased	365
Direct materials used	385
Total manufacturing overhead costs	450
Variable manufacturing overhead costs	265
Total manufacturing costs incurred during October 2014	1,610
Work-in-process inventory 10/1/2014	230
Cost of goods manufactured	1,660
Finished goods inventory 10/1/2014	130
Cost of goods sold	1,770

Calculate the following costs:

1. Direct materials inventory 10/31/2014
2. Fixed manufacturing overhead costs for October 2014
3. Direct manufacturing labor costs for October 2014
4. Work-in-process inventory 10/31/2014
5. Cost of finished goods available for sale in October 2014
6. Finished goods inventory 10/31/2014

VALUATION OF INPUTS AND OUTPUTS:

Inputs:

Stocks of raw materials: valued at purchase cost.

Stocks of products: assessed at cost of production.

Outputs:

Are valued for the purpose of calculating costs of production and final costs by one of the following ways:

EXAMPLE

Inputs are valued at purchase cost for the raw material (m) in this company as follow:

Jan 1st: beg stock = 200kg (12$)

Jan 3rd: output = 40kg

Jan 12th: output = 60kg

Jan 15th: input = 100kg (24$)

Jan 17th: output = 50 kg

Jan 22nd: output = 80kg

Jan 25th: output = 20kg

Jan 28th: input = 100kg (28.8$)

1. WEIGHTED AVERAGE COST METHOD:

Cost (beginning stock + total inputs) / Quantity (beginning stock + total inputs)

So WAC= (200*$12 + 100*$24 + 100*$28.8)/(200 + 100 + 100) = $19.2

The Inventory table will be like this:

January continuous inventory for raw material (m)									
Date	Detail	Inputs			Outputs			Stock	
		Q	P/u	Amount	Q	P/u	Amount	Q	Amount
01/02	Beg stock	200	12	2,400	-	-	-	200	2,400
01/03	Use	-	-	-	40	19.2	768	160	1,632
01/12	Use	-	-	-	60	19.2	1,152	100	480
01/15	Purchase	100	24	2,400	-	-	-	200	2,880
01/17	Use	-	-	-	50	19.2	960	150	1,920
01/22	Use	-	-	-	80	19.2	1,536	70	384
01/25	Use	-	-	-	20	19.2	384	50	0
01/28	Purchase	100	28.8	2,880	-	-	-	150	2,880
Total		400	19.2	7,680	250	19.2	4,800	150	2,880

2. AVERAGE COST AFTER EACH ENTRY:

One of the advantages of this method is that its evaluation is immediate, and one of the disadvantages is that there are multiple accounts within one month.

So ***Average cost= Stock Amount /Stock quantity*** and it will be calculated after each operation of input or output, and the average cost will be used to compute the amount of the next output.

The Inventory table will be like this:

January continuous inventory for raw material (m)									
Date	Detail	Inputs			Outputs			Stock		Average cost
		Q	P/u	Amount	Q	P/u	Amount	Q	Amount	
01/02	Beg stock	200	12	2,400	-	-	-	200	2,400	12
01/03	Use	-	-	-	40	12	480	160	1,920	12
01/12	Use	-	-	-	60	12	720	100	1,200	12
01/15	Purchase	100	24	2,400	-	-	-	200	3,600	18
01/17	Use	-	-	-	50	18	900	150	2,700	18
01/22	Use	-	-	-	80	18	1,440	70	1,260	18
01/25	Use	-	-	-	20	18	360	50	900	18
01/28	Purchase	100	28.8	2,880	-	-	-	150	3,780	25.2
Total		400	19.2	7,680	250	15.6	3,900	150	3,780	

3. FIRST IN FIRST OUT (FIFO):

We consider that we use materials that come out of the stock in the order in which they entered, that is, the first materials that entered will be the first in the exit and then we proceed out according to the oldest in the entry until we reach the output of the last entries. This method is recommended for materials with rapid time effects.

The Inventory table will be like this:

January continuous inventory for raw material (m)									
Date	Detail	Inputs			Outputs			Stock	
		Q	P/u	Amount	Q	P/u	Amount	Q	Amount
01/02	Beg stock	200	12	2,400	-	-	-	200	2,400
01/03	Use	-	-	-	40	12	480	160	1,920
01/12	Use	-	-	-	60	12	720	100	1,200
01/15	Purchase	100	24	2,400	-	-	-	100 100	1,200 2,400
01/17	Use	-	-	-	50	12	600	50 100	600 2,400
01/22	Use	-	-	-	50 30	12 24	600 720	0 70	0 1,680
01/25	Use	-	-	-	20	24	480	50	1,200
01/28	Purchase	100	28.8	2,880	-	-	-	50 100	1,200 2,880
Total		400	19.2	7,680	250	14.4	3,600	150	4,080

4. LAST IN FIRST OUT (LIFO):

According to this method, stocks come out in reverse order, that is, the newest input is the one that goes out first until we reach the first entry.

The Inventory table will be like this:

January continuous inventory for raw material (m)									
Date	Detail	Inputs			Outputs			Stock	
		Q	P/u	Amount	Q	P/u	Amount	Q	Amount
01/02	Beg stock	200	12	2,400	-	-	-	200	2,400
01/03	Use	-	-	-	40	12	480	160	1,920
01/12	Use	-	-	-	60	12	720	100	1,200
01/15	Purchase	100	24	2,400	-	-	-	100 100	1,200 2,400
01/17	Use	-	-	-	50	24	1,200	100 50	1,200 1,200
01/22	Use	-	-	-	30 50	12 24	360 1,200	70 0	840 0
01/25	Use	-	-	-	20	12	240	50	600
01/28	Purchase	100	28.8	2,880	-	-	-	50 100	600 2,880
Total		400	19.2	7,680	250	16.8	4,200	150	3,480