

Study Unit 2: Manufacturing Accounts

Learning objectives

- To understand the different types of costs.
- To understand how costs are allocated.

Introduction

Manufacturing firms/organizations transform raw-material input into finished goods/products. They add value to the raw-material. After manufacture; finished goods are then sold to wholesalers for delivery to customers though some manufacturing companies retail goods to customers through their own outlets.

The accounts maintained by manufacturing firms are quite different from those for merely retailing firms-those which buy finished goods and sell them in that very form without any value added. Manufacturing firms incur manufacturing costs and therefore must cost accounts.

Manufacturing costs are broadly divided into two - Direct costs and indirect (overhead) costs.

Direct Costs

Are traceable or can be directly linked to a particular cost centre e.g. a department, process etc.

Direct costs consist of Direct material (raw-material) cost, direct labour cost (direct wages) and direct expenses

Direct Material (Raw Material)

This material that can be traced to a particular product (cost unit) and cost centre and becomes part of the finished product. Raw material is what is

converted to finished goods. In most products direct (raw material) can be physically seen in the finished product.

According to surveys on cost structures of manufacturing organizations, raw-material costs account for more than 50% of total business Costs.

Direct Labour Cost (Direct Wages)

Direct labour is traceable to a particular cost centre. Wages paid to workers who are directly involved in the manufacturing process are called direct wages. If a worker's wage can be associated with only one cost centre say a department, process, machine etc., then it is a direct wage. Those wages are paid to "blue color" workers who are directly involved in the transformation process like personnel running production machines.

Direct expenses

They are expenses that are traceable or can be linked to a specific centre. If an expense like electricity, rent etc. can be associated or directly linked with only one cost centre then such expense becomes direct. However, most expenses are indirect, it is only in contracts that most expenses become direct because they can be traced or linked with a specific to a specific contract.

Overhead costs

They are indirect costs that cannot easily be traced to a particular cost centre or cost unit.

Indirect costs, or overhead costs are composed of indirect material costs, indirect labour costs and indirect expenses. Since overhead costs cannot be linked to the one particular cost centre e.g. department, process, program etc., they must be apportioned to those cost centres and thereafter to cost units by use of suitable bases. In manufacturing firms' overheads are less substantial when compared with direct costs.

Note: Traceability of a cost to cost centres is an important parameter for judging whether a cost is direct or indirect (overhead). Those which are traceable are direct and those that are not traceable are indirect or overheads.

Examples of direct costs and overhead costs

Activity	Direct cost	Indirect (overhead cost)
Furniture making	Timber	Glue, varnish, nails etc.
Labour remuneration in a factory	Wages of staff in fabrication or machining department	Salaries of administrative and clerical staff e.g. salary of a manager, supervisor, account clerk etc.

Manufacturing Statement Account

Costs related to the manufacture are collected in a manufacturing account/statement during a specified period. It shows the cost of the manufactured goods.

Construction of a Manufacturing Account/Statement

The manufacturing account/statement is constructed from the following:

i) Cost of raw-materials consumed/used

Cost of raw-materials used or consumed in the production process is determined by adding purchases of raw-materials to opening stock and subtracting closing stock of raw-materials. Like in the trading account

carriage in (transport in) of raw-materials should be added to the cost of raw-material purchase while raw-material returns and discounts received on raw-materials purchases are subtracted (discounts received could also be added to the gross profit instead of being subtracted from purchases).

ii) Direct Labour Cost/Wages

As noted earlier direct wages are paid to workers directly concerned with production and these wages are traceable to a Cost Centre. Direct labour cost/wages is added to the cost of raw-material consumed.

iii) **Direct expenses** concerned with production including royalties on production are added to cost of raw material consumed and direct labour cost (direct wages)

The total of direct costs is called **PRIME COST** This is the total of (i), (ii) and (iii) above.

Factory Overheads already defined as indirect costs or expenses connected with production or manufacture are added to the prime cost. Factory overheads include but are not limited to the following:

- a) Power
- b) Maintenance costs
- c) factory rent, insurance, rates etc.
- d) depreciation of plant and machinery
- e) supervisors' wages and salaries

v) Opening Work-In-Progress

These are partly finished goods at the beginning of the accounting period. These units or goods were not completed in the previous period. The value

of opening Work-In- Progress is added to costs already collected as described above.

vi) Closing Work-In-Progress

These are the partly finished goods or units at the end of the current period. These goods or units could not be completed or fully manufactured in the current period but will be completed in the forthcoming period. The cost of closing work-in-progress is subtracted in arriving at the cost of goods completed or fully manufactured.

Cost of goods completed (fully manufactured)

It is the ending figure in a manufacturing account. The purpose of preparing a manufacturing statement/account is to establish the cost of production or Cost of goods completed and it is equal to (i) + (ii) + (iii) + (iv) + (v) - (vi) above.

Format of a manufacturing account/statement

Raw-material (direct material cost)

Opening stock	xxx	
<u>Add: Purchases</u>	<u>xxx</u>	
	xxx	
<u>Less: Closing stock</u>	<u>xxx</u>	
Cost of raw-materials consumed		xxxx
<u>Add: Direct labour cost (Direct wages)</u>		xxxx
Direct expenses		<u>xxxx</u>
PRIME COST		xxxx

Add: Factory overhead costs:

Rent	xxx	
Insurance	xxx	
Depreciation	xxx	
etc	<u>xxx</u>	<u>xxx</u>
		xxx

Add: Opening W.I.P	<u>xx</u>
	xxx
Less: Closing W.I.PU	<u>xx</u>
Cost of goods completed (fully manufactured)	<u>xxx</u>

The figure for cost of goods completed or fully manufactured is transferred to the trading account to constitute cost of goods sold.

Trading and Profit and Loss Account

Since manufacturing companies sell whatever they produce, they prepare Trading and Profit and Loss accounts (Income Statements) to show whether they made profits or losses.

The trading account of a manufacturing company is like that of exclusively retailing firm except that the figure of cost of goods completed replaces the purchases figure.

In the Profit and Loss account, manufacturing firms categorize their expenses as office and administration expenses selling and distribution expenses and financial charges

Examples of office and Administration expenses

- (a) Office salaries
- (b) Administrative allowances
- (c) Postage and stationery
- (d) Telephone
- (e) General expenses

Examples of Selling and Distribution Expenses

- (a) Advertising
- (b) sales commission
- (c) Showroom expenses
- (d) Carriage and outwards
- (e) Delivery expenses
- (f) Salaries of salesmen
- (g) Depreciation of delivery vans

Examples of financial charges

- (a) Bad debts
- (b) Bank charges
- (c) Interest on loans
- (d) Debenture interest
- (e) Mortgage interest
- (f) Audit and accountancy fees

(g) Legal fees

(h) Discount allowed

Format of Trading and Profit and Loss Account of a Manufacturing firm

Sales		XXXX
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Less: Cost of goods sold:

Finished goods opening stock		XXXX
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<u>Add: Cost of goods completed (fully manufactured)</u>		<u>XXXX</u>
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<u>Less: Finished goods closing stock</u>		XXXX
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Cost of goods sold		<u>XXXX</u>
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Gross profit		XXXX
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Less: Office and administration expenses

Office Salaries	XXX	
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Administrative allowances	XXX	
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Postage and stationery	XXX	
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General expenses	<u>XXX</u>	<u>XXXX</u>
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Selling and distribution expenses:

Advertising	XXX	
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Sales commission	XXX	
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Carriage outwards	XXX	
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Delivery expenses, etc	<u>XXX</u>	XXXX
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Financial charges

Interest on loans	XXX	
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Bank charges	XXX	
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Bad debts	XXX	
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Discount allowed	XXX	
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NET PROFIT/INCOME	<u>XXX</u>	<u>XXXX</u> <u>XXXX</u> <u>XXXX</u>
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FACTORY PROFIT AND PROVISION FOR UNREALISED PROFIT

some cases, finished goods are transferred from the manufacturing account to the trading account at an inflated price i.e. the production cost plus a mark up to cater for factory profit. The factory staff examine the current market value of the goods that they have produced by referring to competitors prices. The difference between the current market price or value and the factory cost of production is factory profit. Some firms transfer market value of goods rather than cost of production so that the profit made due to producing or manufacturing rather than purchasing finished goods from some other source is disclosed.

The manufacturing profit or factory profit is carried to the profit and loss account and is added to the gross profit. However the factory profit on unsold goods must not find its way to the Overall profit for the period because this would not accord with the historical cost and realisation conventions or principles. A provision account is used to eliminate the unrealised profit on unsold goods. Provision for unrealised profit account works exactly like provision for bad debts account. The balance on the provision for unrealised profit account is the factory profit on the unsold items. If the provision for unrealised profit on closing stock increases beyond the provision on opening stock then the profit and loss account will be debited (subtracted from profits) if on the other hand the provision on closing stock decreases below the provision in opening stock, then the profit and loss account is credited (added to profits).

Example;

A manufacturing company had the following finished goods stock balances at cost.

	1/1/1999	31/12/1999
	(shs)	(shs)
Finished goods	5,000,000	8,000,000

During the period the cost of goods completed or manufactured amounted to Shs. 60,000,000. The company transfers goods at cost plus a mark-up of 10% to cater for factory profits.

Solution

When the cost of goods manufactured inflated, stocks must also be inflated by the same percentage.

$$\begin{aligned} \text{Provision for unrealized Profit on opening stock} &= 5,000,000 \times 110\% - 5,000,000 \\ &= \text{shs } 500,000 \end{aligned}$$

$$\begin{aligned} \text{Provision for unrealized Profit on opening stock} &= 8,000,000 \times 110\% - 8,000,000 \\ &= \text{shs } 800,000 \end{aligned}$$

Provision for Unrealized Profit A/C		
	Bal b/d	500,000
	P & L A/C	300,000
Bal c/d	<u>800,000</u>	<u>380,000</u>
	<u>800,000</u>	

$$\begin{aligned} \text{Transfer Value of Finished Goods} &= 60,000,000 \times 110\% \\ &= \text{shs } 66,000,000 \end{aligned}$$

Trading and Profit and Loss Account (Extract)

Sales	XXXXXXXXXX
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Less: Cost of goods sold

Finished goods opening stock	5,500,000
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Add: Value of goods completed or

Manufactured (transfer price or value)	<u>66,000,000</u>
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71,500,000

Less: finished goods closing stock 8,800,000

Cost of goods sold	62,7000
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Gross profit	xxxxxxx
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Add: factory profit	6,000,000
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Less: increase in provision for unrealized profit 300,000

Note: if there has been a decrease in provision for unrealized profit, then it would have been added to the gross profit.

Illustrative examples

ABC Ltd is in the business of manufacturing and retailing plastic products. The following balances were extracted from its ledger on 31/12/1999.

(shs. 000)

Sales	40,000
Purchases of raw-materials	100,000
Factory direct wages	50,000
Manufacturing expenses	20,000
Depreciation of factory assets	1,000
Repairs of production machines	2,000
Factory insurance	3,000

Advertising	500
Discount allowed	1,600
Salesmen commission	4,500
Head office salaries	100,000
Carriage outwards	1,500
Electricity -Factory	4,500
-Office	500
Ground rent (Factory)	2,500
Insurance (office buildings)	5,000
Bad debts	2,000
Bank charges	500

The following balances were extracted from stock records

Stock at cost	1/1/1999	31/12/1999
	(Shs.000)	(Shs.000)
Raw-materials	6,000	5,000
Work-in-progress (W.I.P)	3,000	4,000
Finished goods	10,000	15,000

Required:

Prepared the company's manufacturing, trading and profit and loss account for the year ended 31/12/1999.

Solution

ABC ltd

Manufacturing, Trading and profit and loss account for the year ended 31/12/1999.

	(Shs.000)	(Shs.000)	(Shs.000)
<u>Raw-materials</u>			
Opening stock (1/1/1999)		6,000	
<u>Add: Purchases</u>		<u>100,000</u>	
		106,000	
<u>Less: Closing stock (31/12/1999)</u>		<u>3,000</u>	
Cost of raw materials consumed			101,000
<u>Add: Other direct costs</u>			
Factory direct wages			50,000
Prime cost			151,000
<u>Add: Factory (manufacturing) overhead costs</u>			
Manufacturing expenses	20,000		
Depreciation of factory assets	1,000		
Repairs of production machines	2,000		
Factory insurance	3,000		
Electricity (factory)	4,500		
Ground rent (Factory)	<u>2,500</u>		
<u>Add: Opening W.I.P (1/1/1999)</u>			3,000
			187,000
<u>Less: Closing</u>			4,000
Cost of goods completed			<u>183,000</u>
(Fully manufactured c/d)			
Sales			40,000

<u>Less: Cost of goods sold</u>			
Finished goods opening stock	10,000		
<u>Add: Cost of goods completed b/d</u>	<u>183,000</u>		
	193,000		
<u>Less: Finished goods closing stock</u>	<u>15,000</u>		
Cost of goods sold			<u>178,000</u>
Gross profit			222,000
<u>Less: Office and administration expenses</u>			
Head office salaries	10,000		
Electricity (office)	500		
Insurance (office buildings)	<u>5,000</u>	15,500	
<u>Selling and distribution expenses</u>			
Advertising	500		
Salesmen commission	4,500		
Carriage outwards	<u>1,500</u>	6,500	
<u>Financial charges</u>			
Discount allowed	1,600		
Bad debts	2,000		
Bank charges	<u>500</u>	<u>4,100</u>	<u>26,100</u>
Net profit			<u>195,900</u>

Note: manufacturing expenses are always taken to be overheads unless stated otherwise.

The following stock balances were obtained from the records of Giant Manufacturing Company.

Stocks at cost	1/7/1998 (shs)	30/6/1999 (shs)
Raw materials	10,000,000	15,000,000
W.I.P	3,000,000	2,000,000
Finished Goods	30,000,000	40,000,000

The financial year's transactions extracted from the cash book and ledger were as follows;

	(shs)
Sales	300,000,000
Raw material purchases	50,000,000
Transport for raw materials	2,000,000
Factory direct wages	20,000,000
Royalty costs	5,000,000
Indirect material cost	4,000,000
Salaries	10,000,000
Power	8,000,000
Insurance	1,500,000
Advertising	2,500,000
Office stationery	500,000
Delivery expenses	2,500,000
Administrative allowances	4,500,000
Depreciation of plant	2,000,000
Interest on loans	500,000
Bad debts	200,000
Discount allowed	100,000

Additional information

i) Appointment of some overhead costs

	Factory	Office	Distribution
Salaries	50%	20%	25%
Power	60%	25%	
Insurance	50%	30%	20%

ii) Delivery expenses of 500,000 were prepaid while interest on loans of 200,000 accrued at the year end.

Required:

Prepare the company's manufacturing, trading and profit and loss account for the year ended 30/6/1999.

Solution

Giant Manufacturing Company

Manufacturing, Trading and Profit and Loss Account

For the Year Ended 30/6/1999

	(Shs.000)	(Shs.000)	(Shs.000)
<u>Raw-materials:</u>			
Opening stock		10,000	
<u>Add: Purchases</u>	50,000		
<u>Add: Transport</u>	<u>2,000</u>	<u>52,000</u>	
		62,000	
<u>Less: Closing stock</u>		<u>15,000</u>	
Cost of raw-materials consumed			47,000

Add: Other direct costs

Factory direct wages	20,000	
Royalty costs	<u>5,000</u>	<u>25,000</u>
PRIME COST		72,000

Add: Factory overheads

Indirect material cost	4,000	
Salaries (50%)	5,000	
Power (60%)	4,800	
Insurance (50%)	750	
Depreciation of plant	<u>2,000</u>	<u>16,550</u>
		88,550

Add: Opening W.I.P 3,000

91,550

Less: Closing W.I.P 2,000

Cost of goods completed/fully Manufactured c/d 89,550

Sales 300,000

Less: Cost of goods sold:

Finished goods for sale 30,000

Add: cost of goods completed/manufactured b/d 89,550

Cost of goods available for sale 119,550

Less: Closing finished goods stock 40,000

Cost of goods sold 79,550

Gross profit 220,450

Less: Office and administrative costs

Salaries (25%)	2,500		
Power (25%)	1,200		
Insurance (30%)	450		
Office stationery	500		
Administrative allowances	<u>4,500</u>	9,950	
<u>Selling and distribution costs</u>			
Salaries (25%)	2,500		
Power	1,200		
Insurance	300		
Advertising	2,500		
Delivery expenses (2,500-500)	<u>2,000</u>	8,500	
<u>Financial charges</u>			
Interest on loans (500+200)	700		
Bad debts	200		
Discount allowed	<u>100</u>	<u>1,000</u>	<u>19,450</u>
Net profit			<u>201,000</u>