NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF MANAGEMENT SCIENCES

COURSE CODE: ACC305

COURSE TITLE: COST ACCOUNTING

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MODULE 1

UNIT 1 BASIC CONCEPT OF COST ACCOUNTING

CONTENTS

1.0 INTRODUCTION

When cost accountants speak of cost accounting, they have in mind the ascertainment of:

a. The cost of manufacturing a product; or
b. The cost of giving a service; or
c. The way in which cost can be controlled.

In view of the cost of that is involved in manufacturing, the conversion of raw materials to finished goods through the utilization of labour and overhead support, the three basic elements of manufacturing costs are direct materials, direct labour and manufacturing overhead.

Cost Accounting is defined as the process of collecting, summarizing, analyzing and reporting in monetary terms tailor made information to management showing the costs and benefits of pursuing each alternative course of action open to management.

This first unit of this course will highlight, the purpose of cost accounting, differences between cost accounting and financial Accounting, Essential elements of effective cost Accounting information, cost classification, importance of contribution in Decision Making Relationship between contribution and profit, Relevant and irrelevant costs. **Eddy (2004:3)**

2.0 OBJECTIVES

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

Define cost accounting
State the purposes of cost Accounting
Distinguish between cost accounting and financial accounting.
Discuss the essential elements of effective cost Accounting information
Explain the nature of cost classification
Explain the importance of contribution in Decision Making
Describe the relationship between contribution and profit
Define Relevant and irrelevant costs

3.0 MAIN CONTENT

3.1 Basic concept of cost Accounting

3.1.1 Meaning of Cost Accounting

If the objective of an organization is to close down a branch, then cost accounting should guide management by bringing out the cost and benefits of such management's action. Cost accounting, therefore, is the process of collecting, summarizing, analyzing and reporting in monetary terms tailor made information to management showing the costs and benefits of pursuing each alternative course of action open to management. The cost figures that will be useful to management in

deciding on long-term pricing strategy will be different from the ones for short-term pricing, especially, when the firm is operating at capacity.

SELF-ASSESSMENT EXERCISE

Define Cost Accounting?

3.1.2 Define Cost Accounting

1. Cost Accounting Information is meant for the use of internal decision makers of the business (ie. Management) while financial Accounting Information is for both Internal and External users.

2. They main objectives of preparing financial Accounting Information is to enable Management to render accounts of its stewardship in terms of the profit generated in relation to the assets invested in the business. On the other hand, the primary purpose of preparing cost accounting information is to aid internal decision making in the organization.

3. The preparation of financial Accounting must conform with what is known as Generally Acceptable Accounting principles **(GAAP)** and government regulation.

   In Nigeria, the Nigerian Accounting Standard Board **(NASB)** issued statements of accounting standards to guide the preparation of published financial statement of companies operating in Nigeria. This is in addition to the operating in Nigeria. This is in addition to the relevant provisions of the 1990 companies and Allied Matter Act **(CAMA)**. Such standardized rules are necessary to facilitate communication between the business and the outside world between the business and the outside world that may wish to compare the information from the business with that of an entirely different business. There is no such laid down rule for the preparation of Cost Accounting Information besides the unwritten rule that the information is useful enough for the decision that needs to be taken.

4. The primary emphasis of Cost Accounting is segment reporting. This means that the costs and sales of individual products or parts of the business are prepared for management in order to know the profitability of each product or part. In Financial Accounting, the focus of reporting is on the totality of the business rather than individual parts.

5. Information gathering on Financial Accounting is on what happened (historical) rather than what is going to happen. While Cost Accounting Information gathering is both historical basis and future basis. Historical basis is used for example in ascertaining cost of material issues to a production department, the future information aid in decision making.

6. Financial Accounting Information is prepared at a specified period of time (usually quarterly or yearly) whereas Cost Accounting Information is prepared only when needed by management.

SELF-ASSESSMENT EXERCISE

Distinguish between Cost Accounting and Financial Accounting

3.1.4 Essential Elements of Effective Cost Accounting Information

For Cost Accounting Information provided for management to serve its role effectively, it should have some essential elements among which are:

1. The statement containing the information should have appropriate heading so that the management can know at a glance what the statement is all about.

2. The officer receiving the report must be the appropriate person for the decision on hand.

3. The information must be prepared timely if it is to be useful.

4. The cost information sent should be sufficiently accurate if wrong decision is not to be taken.

5. The information should be clear and concise for easier understanding.

3.1.5 Cost Classification, Methods and Technique

3.1.5.1 Cost Classification

Cost can be classified in accordance with the purpose for which the cost is needed. Some of the possible classification includes.

1. Behaviour of the cost in terms of whether it is fixed or variable.

2. The relevant or irrelevance of the cost to the decision on hand.

3. Direct or indirect.

3.1.4.2 Costing Method

Is a method of cost as certainment that centres on the business. For a business that deals with a standardized product made under mass production methods or through a series of production steps called processes the appropriate costing method to use in process costing. On the other hand, where the product made or service rendered is non-standardized costing method to use in job costing or contract costing.

3.1.4.3 Cost Technique

Costing technique refers to the method used to determine the value of finished goods. Among these techniques that give different valuation are:

1. Standard costing
2. Marginal costing
3. Absorption costing.

3.1.4.4 Fixed and Variable Costs

A fixed cost is a cost that remains the same regardless of changes in level of activity while a variable cost is a cost that increases in direct proportion to the increase in level of activity. For example, in producing a one-page handout for a group of students, the cost of the stencil used for typing the one page is an example of a fixed cost while the cost of duplicating paper used is a variable cost.

Such goods are sole. The ₦400 is the contribution per unit rather than profit per unit. If 1000 units of the article are bought and sold during an accounting period.

Contribution= 1000 x ₦400=₦400, 000.
If the total fixed cost for the same period is ₦100, 000 then
Profit=contribution-fixed cost
₦400, 000-₦100, 000=₦300,000

3.1.4.5 Relationship Between Contribution and Profit

The relationship between contribution and profit can be stated as:
Profit = contribution – fixed cost
So that contribution = profit = fixed cost

This means that there are two ways of looking at contribution

(i) Contribution = sales – variable cost
(ii) Contribution = profit + fixed cost.

3.1.5 The Importance of Contribution in Decision Making

Contribution can be defined as the difference between sales and variable cost of the sales. The more the number of units sold, the greater the contribution towards the recovery of fixed cost for the period. After the recovery of fixed cost, any additional contribution made (above the fixed cost) is known as profit.

The importance of contribution is derived from the fact that it is useful in a variety of decision like acceptance or rejection of special order, pricing, addition or deletion of a product line, make or buy and in the use of scare resource.

To any average business man who is not familiar with accounting, anytime he acquire an article for say ₦600 and then sells it for ₦1000, his 'profit' per unit is ₦400. Such notion of profit does take into consideration of transportation fare rent and electricity for the shop. Where Exercise 1.1 Discuss briefly the matters you would consider in planning a costing estimate for a manufacturing company.

A costing estimate must show clearly all the elements of cost involved, material, labour and overheads, distinguishing between those costs which are fixed and those which are variable. Marginal technique, showing contributions to fixed costs are most useful.

If on the other hand, the factory is working at full capacity, extra costs may be incurred by undertaking additional work, overtime, extra labour or additional machinery. This must be reflected in the estimates. Material cost should be entered at current market price. Material in stock may have cost more or less than this, but any resultant profit or loss is the result of good or bad buying and should not be reflected in the estimate.

SELF-ASSESSMENT EXERCISE

i. Discuss briefly the matters you would consider in planning a costing estimate for a manufacturing company
ii. Why do many firms find it advantageous to introduce a system of cost accounts in addition to the financial accounts?

4.0 CONCLUSION

In this unit, we have discussed generally the basic concept of cost accounting. We highlighted that cost accounting is the application of accounting and costing principles, methods and techniques in the ascertainment of costs and the analysis of savings and/or excess as compared with previous experience or with standards.

5.0 SUMMARY

This unit introduced cost accounting as a conscious and rational procedure by accountants for accumulating cost and relating such costs to specific products or departments for effective management action. Cost accounting is a set of procedures used in refining raw data into usable information for management decision making, for ascertainment of cost of products and services and its profitability.

6.0 TUTOR-MARKED ASSIGNMENT

You have been appointed to install a suitable system of cost accounting in a small, privately owned factory. State the main criteria which your system should satisfy, and draft a programme listing the points which you would consider in your investigation.

7.0 REFERENCES/FURTHER READINGS

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UNIT 2 ELEMENTS OF COST

CONTENTS

1.0 INTRODUCTION

In unit 1, we saw that the subject of cost accounting was intimately concerned with analyzing the expenditure of a business in great detail. But in arriving at the cost of production, it is necessary to realize at the outset that:

(a) not all materials purchased become part of the product;
(b) not all wages incurred related to actual manufacturing operations;
(c) very few expenses indeed can be regarded as being directly part of the product cost.

In this unit, we shall look at the analysis and classification of expenditure.

2.0 OBJECTIVES

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

Explain the classification of costs
Distinguish the different methods of treating cost between financial accountant and cost accountant
Explain how cost are analyzed

3.0 MAIN CONTENT

3.1 Element of Cost

3.1.1 The analysis and classification of expenditure.

The main classifications of business expenditure are:

(a) Materials
(b) Wages
(c) Expenses

However there are, two broad divisions to be noted, namely:

Direct Expenditure and Indirect Expenditure

The terms direct and indirect are to be understood as follows:

Direct materials means the cost of materials which enter into and become part of the product, e.g. the flour in bread, the clay in bricks, the leather in shoes and the wood in furniture. In some cases, however, it is not so easy to determine whether a material is to be regarded as direct or not, and the custom of the trade has to be taken into account or a decision which appears fair and reasonable in the circumstances has to be made.

Direct wages means the cost of wages paid to operatives who are immediately concerned with the manufacture of a product. That is to say, who "does" something to the raw material? If the concern is not a manufacturing business, but instead renders a service, then the term is related to those employees who directly carry out that service. Example of direct wages would be those paid to bakers, clay getters, shoemakers, cabinet-makers, and in the second category, to bus drivers and conductors and to postmen.

Direct expenses means those expenses incurred which without doubt are as much a cost of the product as are direct materials. Such might be the provision of special drawings or the cost of a special pattern. The amount of such expenses is likely to be relatively small, and the heading is often ignored with no great disadvantage. The sum of direct materials, direct wages and direct expenses is known as the prime cost.

Indirect materials, wages, and expenses may be simply be defined as all expenditure other than that regarded as direct. Although in accountancy the term "Indirect" expenses" is a common one, and is used in a general sense. Cost accountants have sought for a term which would definitely

be understood to be embracive of indirect materials, wages and expenses. This they have found in the word "overhead"

Subdivision of overhead

For the sake of classifying overhead suitably, it is sub-divided into:

(a) Production overhead;
(b) Administrative overhead;
(c) Selling overhead;
(d) Distribution overhead;

Production Overhead

This refers to the indirect works expenditure incurred, and it consists of the three elements i.e indirect materials, indirect labour and indirect expenses.

(a) Indirect materials

Any materials used in the course of manufacture which either cannot be traced as part of the product or which are too small in value to be conveniently measured. Examples of indirect materials are:

- Dustbins
- Soap
- Oil and grease.

In the category of direct materials of minor value which are treated as indirect, we have for instance; thread used in shoe manufacture; glue used in the furniture trade;

(b) Indirect labour

The cost of labour employed in the works or factory which is ancillary to production. Examples are:

- Inspectors;
- Supervisors;
- Workshop cleaners;
- Internal transport staff

(c) Indirect expenses

Expenses incurred by the undertaking which may be either allocated to the factory or partially apportioned to it. Examples are;

- Power, lighting and heating
- Rent and rates
- Water
- Insurance
- Depreciation

It will also include services such as:

- Work canteen;
- Industrial nurse;
- Fire precautions;
- Research.

ADMINISTRATION OVERHEAD

This refers to the expense incurred in the direction, control, and administration of an undertaking. The same elements of material, labour, and expenses permeate the headings under this and the remaining two classifications, but it is not usually necessary to consider them in those separate categories. Examples of administration overhead are:

Salaries and wages of executives and clerks on the administrative staff, rent and rates.
Lighting and heating.
Insurance.
Office printing and stationery.

Selling Overhead

This classification comprises the costs incurred in securing orders from customers for the products dealt in by the concern. Examples are:

- Staff,
- Advertising
- Sales department expenses,
- Samples displays,
- Catalogues.

Distribution Overhead

This consists of all expenditure incurred in handling the product from the time it is completed in the works until it reaches its destination. Examples of such expenditure are:

Warehouse wage and salaries
Packing cases

Loading expenses
Upkeep and running charges of delivery vans.

Illustration

ABC Company, manufacture children toys. Below is there account for the year ended 31st December, 2004.

MANUFACTURING, TRADING, PROFIT AND LOSS ACCOUNT FOR THE YEAR 31ST DECEMBER, 2004

	₦		₦
Raw Material consumed	10,000	Manufacturing cost	
Wages direct	15,000	of 11,000 units of	
Prime cost	25,000	product transferred	
Factory overhead		to stock	
Expenses	8,000		33,000
	33,000		33,000
Balance brought forward		Sales	
5,000 unit at ₦3	15,000	10,000 Units at ₦5	50,000
Transfer from			
Manufacturing account			
11,000 units @₦3	33,000		
	48,000		
Less closing stock			
6,000 @ ₦3	18,000		
	30,000		
Gross profit c/d	20,000		
	50,000		50,000

Administration	₦		₦
Expenses (detailed)	5,000	Gross profit b/d	20,000
Selling expenses			
(detailed)	3,000		
Distribution expenses			
(detailed)	2,000		
Net profit	10,000		
	20,000		20,000

You are required to show the same figures but using the layout and nomenclature commonly adopted by cost accountants.

ANSWER TO SELF-ASSESSMENT EXERCISE

Production cost statement year ended December 31st

		Production Total cost	11,000 units cost per unit
Prime cost			
Direct material	₦10,000		
Direct wages	₦15,000		
Direct expenses	-	₦25,000	₦2.27
Production overhead			
Indirect material	-		
Indirect wages	-		
Indirect expenses	₦8,000	₦,000	₦.73
		₦,000	₦.00

Cost of Sales

Year ended December 31	Sales 10,000 units ₦
Production cost of sales	30,000
Administration overhead	5,000
Selling overhead	3,000
Distribution overhead	2,000
Total cost of sales	₦,000

Cost Accounting Profit and Loss Account

	₦		₦
Cost of Sales	40,000	Sales	50,000
Profit	10,000		
	50,000		50,000

SELF-ASSESSMENT EXERCISE

i. What do you understand by the term "Integrated accounting" and what advantages does it present compared to other systems of cost and financial accounting?

ii. What is the prime purpose of a cost statement, and what rules should be borne in mind in its preparation?

ANSWER TO SELF-ASSESSMENT EXERCISE

1 Integrated accounting means that the cost accounting system is integrated with the normal financial accounts. The financial accounts of a business are kept to record the firm's position in relation to third parties, and to meet statutory requirements imposed by the companies. Acts and the Income Tax Acts. etc.

Cost accounts are maintained to analyze in detail the statistics shown in the financial accounts, so as to reveal expense and profit by products and sections of the firm. The cost accounts are seldom the concern of third parties, but are intended to assist management in their day-to-day running of the business.

Integration of the two systems into the financial accounts is sometimes found to be convenient. This has the merit of saving clerical cost and avoids the need for reconciliation, but in the design of integrated accounts, it must be ensured that figures are available under the conventional financial headings, for purposes of published accounts, tax return etc.

2 The prime purpose of a cost statement is to inform management, quickly and clearly of events upon which they may have to take action. Rules to be borne in mind in preparing such statements are the following:

(i) It must be clearly headed so as to show at a glance what it is about
(ii) It must be dated and show clearly the period it covers
(iii) Presentation should be clear and kept to minimum, detailed figures being given in appendixes
(iv) Approximations may make the statement clearer, i.e by rounding off to the nearest naira or hundred naira and speed up preparation.
(v) The unit cost is often more informative whenever appropriate
(vi) Show clearly to whom the report is rendered and the name of the person or persons making it. Reports should preferably be signed.

4.0 CONCLUSION

The primary emphasis of cost accounting is segment reporting. This means that the costs and sales of individual products or parts of the business are prepared for management in order to know the profitability of each product or part.

5.0 SUMMARY

The elements of cost can be studied under the classification: Direct and Indirect costs. If the object of interest for identifying and measuring cost is to determine how much sacrifice is involved in manufacturing a particular product, then initially one can define the three elements of total costs, Materials, labour and Expenses. The concepts of direct and indirect costs are meaningless without identification of the relevant cost unit or cost centre.

6.0 TUTOR-MARKED ASSIGNMENT

S. Babas Ltd manufactures a single product. Below is a summary of the manufacturing and other records for the three months ended 30th September.

	June 30 (₦)	Sept 30 (₦)
Sales		29,000
Raw material consumed		8,300
Factory wages		5,500
Factory heat, power and light		1,500
Factory expenses		2,000
Stocks:		
Raw materials	900	700
Finished product	7,820	-
	(1,200 tonnes)	(800 tonnes)

Production for the three months was 2,000 tonnes. Stock of finished product on 30th September is to be valued at a prime cost of output for the three months to that date. Prepare an operating Account for the three months to show:

1. Factory cost per tonne of output for each item of cost given above
2. Per cost manufacturing profit to sales
3. Average selling price per tonne of sales (to nearest ₦)

7.0 REFERENCES/FURTHER READINGS

Owler, L.W.J. and Brown, J.L. (1990). *Costing Simplified*, Pitman Ltd. London

Walker, C. (1982). *Principles of Cost Accounting* Pitman Press, Bath Great Britain.

UNIT 3 THE METHODS OF COST ACCOUNTING

CONTENTS

1.0 INTRODUCTION

The general principles of cost accounting are the same in every system but the methods of collating and presenting costs may vary with the type of production to be costed.

Basically, there are two types of cost accounting methods and these are:

(a) Job cost or production order cost;
(b) Process cost or unit cost.

In this unit, we shall look at the various methods of ascertaining actual cost, special systems and "cost plus" costing.

2.0 OBJECTIVES

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

Understand the various methods of ascertaining systems
Explain the nature of special costing systems
Describe the method of cost accounting which is very infrequently used in industry.

3.0 MAIN CONTENT

3.1 The Methods of Cost Accounting

3.1.1 Methods of Ascertaining Actual costs

From the two types of cost accounting methods, eight methods of ascertaining actual cost may be identified. These methods have emerged because peculiarities of certain kinds of production have resulted in the adoption of variations in procedure. They are briefly defined below;

(a) Job costing

This is sometimes referred to as terminal costing; it also includes contract costing. This method is used to cost jobs or contracts that are kept separate during manufacture or construction. It is applicable, for instance, to job order work in factories and work by contractors, builders, constructional engineers, shipbuilders, printers, municipal engineers, garages, film studies etc. The unit of cost is the job, order, or contract, and the accounts show the cost of each order.

(b) Batch Costing

This is a form of job costing, a convenient batch of production being treated as a job. Each batch is separately costed from which unit costs are determined for the units produced. It is useful for biscuit factories, bakeries e.t.c

(c) Unit Costing

This was formerly known as output or single costing. It is a method of costing by unit of production where manufacture is continuous and the units are identical, or may be made so by means of ratios. It may be employed in conjunction with batch, operation, or process costing, and is suitable for such undertakings as collieries, quarries, flour-mills, steel-works, paper-mills, breweries etc. in all of which there is a standard or natural unit of production. It is also used in municipal costing.

Examples of suggested units of cost in certain industries are as follows:

Industry	Unit of cost	Industry	Unit of cost
Steel-works	Tonne if steel	Copper-mines	Tonne of copper
Quarries	Tonne of stonne	Paper-Mill	Tonne (or per kilogram)
Collieries	Tonne of coal	Textile factory	Metre of material
Milling	Sack of flour	Brick-making	Thousand bricks
Breweries	Barrel of beer	Spinning-mill	Kilogram of yarn

In effect, when all the units produced are identical, the cost per unit is ascertained by finding the total expenditure and dividing by the number of units produced in a given period.

(d) Operating Costing

This is unit costing as applied to the costing of services, such as those afforded by railways, motor-coaches, carriers, electricity supply and water undertakings. For example, in the case of the transport services mentioned, it may be desired to know the cost per kilometre, per tonne, per passenger, or the cost per tonne/km, per passenger/km, per parcel/km etc.

(e) Operating Costing

This is method of unit costing by operations in connection with mass production and repetitive production. It is particularly useful where the production is put in large quantities of standardized units, as is usually necessary to ensure working at minimum cost. There is usually an uninterrupted flow of production, and the work is dividend up into as many operations as are convenient, thus obtaining the fullest advantage of division of labour to ensure maximum output at each operation. In this method, the cost per unit is found for each operation and at also for the finished unit. It is used in industries such as motor cars, radio and aero planes.

(f) Process Costing

This is sometimes referred to as continuous or average costing. This is a method of costing production by processes in which:

(a) The product of the process becomes the material of a subsequent process;
(b) The different products and by-product (if any, are produced simultaneously at the same process;
(c) The products, differing only in shape or form on completion, are not separately distinguishable from one another during one or more process of manufacture. Typical industries for which the method is suitably are concerned with chemicals, textiles, foods, paints and varnishes, etc. The cost of each process, and the cost per unit at each stage are usually shown by the accounts. In simple process accounts the findings of the cost per unit at each process is similar to the procedure used in unit costing referred to above. This is discussed further in Module 4 unit 2.

7. Multiple costing

This is sometimes referred to as composite costing. It is used when there are a variety of component parts separately produced.

8. Departmental Costing

This is a method of ascertaining the cost of operating a department or cost centre. This is frequently necessary because of the need of control of expenditure in a department, e.g. the cost of running a research department, or because of the desire to allocate the costs of a department to another department or cost unit, e.g. the allocation of the inspection department costs to production departments or the allocation of costs the stores to various contracts.

3.1.2 Special Systems

The nature of the product will determine which of the eight methods will be adopted in any business. However, in addition to these methods, mention should be made of three other systems which are not alternatives to those discussed already, but are techniques which may be adopted for special purposes of control and policy.

1. Uniform Costing

This term refers to the use of a common method of costing for different undertakings or producers in the same industry. When used in a number of factories operated under a central control, detailed costs can be compared and considered with the assurance that the figures under each heading have been built up on the same basis.

A uniform system may also be adopted by an association or federation of manufacturers in an industry, not usually for purposes of cost comparisons, but for guidance of the members and sometimes for joint action for the benefit of the industry.

2. Marginal Costing

This is concerned particularly with the effect which fixed overhead has on the running of a business. It is a method interpreting costs of a product at given volumes of output. It will be apparent that certain items of cost are, within limits, fixed or constant for each unit produced, whatever the quantity, but other costs vary according to the output quantity. A marginal cost is the amount of change in aggregate cost resulting f5rom an increase or decrease in the volume of output by one unit of production.

3. Standard Costing

This includes the term predetermined costing. Under this method the actual performance is compared with the predetermined performance, thus revealing any variance between the two. These variance can then be investigated, so that, where necessary, management can take the required action.

3.1.3 Cost plus Costing

Reference may now be made to a method of cost accounting which is very infrequently used in industry in modern times, except, perhaps, in the building trade and in firms engaged on Government contracts during war-time. However, this method was used widely before the introduction of the more modern techniques which have been outlined above. Such contracts originated in the building trade, and were costed by what is known as the cost plus method of costing.

This is a form of costing in connection with contracts placed with manufacturers or builders on the basis of cost plus an agreed percentage of profits. The cost refers to direct material, direct labour, and admissible direct expenses, such as plant hire, transport of plant and materials, etc. To the cost is added an agreed sum or percentage to cover overhead expenses and profit.

The method was much used before and during the First World War and to a lesser extent during the Second World War. Surprisingly enough, it is still used frequently in the building trade even in the U.S.A. It is normally used only when there is need for rapid execution of contracts without waiting for the fixing of definite contract prices. The method is not regarded as satisfactory in normal circumstance owing to the possibility of abuse. When the method is used, the accounts are scrutinized by accountants appointed by the authority which placed the contracts. The reason for avoiding the use of this system whenever possible will be obvious after considering the following points.

(a) It is in the contractor's interest to run the cost as high as possible, so that the percentage profit which is calculated on the total cost will be high.
(b) There is a great possibility of collusion between the contractors and any sub-contractors or merchants supplying materials or services.
(c) Inefficiency may be encouraged, resulting in overtime being necessary to complete the contract in time. This is beneficial to the employees, who receive larger pay packets, and to the

employers, who receive larger profit. Ironically, the contract may even be happy because the job is completed in time.

However, expedient this method may be, and in some circumstances it may be the only possible method, it cannot be considered scientific costing.

SELF-ASSESSMENT EXERCISE

i. Discuss briefly the matters you would consider in planning a costing estimate for a manufacturing company.
ii. Describe briefly the different methods of costing known to you and the type of product to which they are respectively applicable.

4.0 CONCLUSION

The job cost method necessitates a very detailed cost analysis, but the resulting cost information is relatively accurate. On the other hand, the process cost method is not nearly so detailed, the cost per unit being ascertained by averaging the actual costs incurred over the period in question.

5.0 SUMMARY

This unit treated the methods of ascertaining Actual cost in detail. We also discussed the special system and cost plus costing.

6.0 TUTOR MARKED ASSIGNMENT

An existing cost system lacks the essential aspects of cost control. List the main matters to be introduced to make good the system's deficiencies.

7.0 REFERENCES/FURTHER READINGS

Owler, L.W.J and Brown, J.L (1990). *Costing Simplified*, pitman Ltd London

Walker, C.J. (1982). *Principles of Cost Accounting*, pitman Bath London.

UNIT 4 PURCHASING PROCEDURE

CONTENTS

1.0 INTRODUCTION

In practically all business organizations large sums of money are invested in raw materials, parts, supplies, finished goods, and equipment. In many large companies the cost of materials is more than 50% of the sales value, which follows, therefore, that the profitability of a company may be determined to a considerable extent by the efficient operation of the purchasing department.

In this unit, attention will be directed towards the procedure of purchases and maintaining an efficient purchasing department.

2.0 OBJECTIVES

By the end this unit, you should be able to:

Describe the organization of a purchasing department.
Explain the various procedures in the purchasing department.
Explain the use of purchase requisition and purchase order.
Describe the use of core numbers for purchase of materials.
Describe the use of goods received note.

3.0 MAIN CONTENT

3.1 Purchasing Procedure

By the introduction of proved purchasing procedures, the high cost of investment in purchases can be reduced and savings effected in such items as obsolescence, pilfering and stock shortages.

Briefly, the objectives of the purchasing department are to procure goods and services of the right quality, in the right quantity, at the right time, in the right place, and at the right price.

3.1.1 Organization in the Purchasing Department

In each industry and in different works within an industry the detailed organization will vary according to particular conditions and ideas, but the general procedure and principles outlined in this unit may be regarded as typical, although particularly suitable for an engineering or similar factory. The forms used as illustrations are based on some actually in use, but again will vary in ruling and wording to suit particular needs.

A large engineering firm will require an efficient purchasing department, while, on the other hand, a small concern may have all functions, including purchasing, carried out by the owner. However, it is essential that in any company, whether large or small, only one person or one department should be authorized to place orders with suppliers, otherwise purchase orders may be duplicated.

The head of the department is usually designated as chief buyer or purchasing agent. In a large manufacturing business he has considerable responsibility, because much money can be lost or saved by his department. He requires a good technical knowledge of the industry and a large measure of administrative and organizing ability; he must keep in constant touch with market prices, reports, and market tendencies, and have a working knowledge of contract law and procedure, together with a practical understanding of the principles of economic laws.

In some large businesses buying has been decentralized; in other words, each department is responsible for its own purchasing. However, most businesses operate one buying department, which is usually a very satisfactory arrangement.

3.1.1.1 Centralized Buying

The advantages of centralized buying are:

(a) a firm policy can be initiated with regard to conditions of purchasing, e.g. terms of payment;
(b) standardization of articles is facilitated;
(c) expert buying staff is concentrated in one department;
(d) the number of people authorized to make purchase commitments is reduced;
(e) combined purchasing power may result in reduced prices of commodities.

The disadvantages are:

(a) the creation of a special department may lead to high administration costs;
(b) the purchasing procedure is much less flexible than that geared to special departments.

3.1.1.2 Procedure in the Purchasing Department

The buyer should be provided with a schedule of technical specifications of the materials usually required, each item having a code number which will be quoted by those issuing purchase requisitions.

The department should keep files suitably indexed, both under the names of suppliers and materials. Records of prices and quantities for all materials should be kept in schedule form, arranged to show the seasonal and other movements of prices.

No purchase should be permitted except of duly authorized purchase requisitions, but in the case of materials largely and regularly used, forward contracts may be made after consultation with management. Where purchase contracts are placed, a record of orders issued against them and deliveries made should be kept.

3.1.2 The Purchase of Materials

The buyer acts upon requisitions received from the storekeeper for all stores materials and, in some instances, other requisitions may come from the engineer, drawing office, or other responsible sources for new kinds of material not previously stocked, e.g. special materials for a particular order or new design. Consideration must be given to factors other than price, viz. to specifications, conditions of delivery, various charges, times of delivery, terms of payment, and discount.

The purchase requisition (Fig.1) may be routed as follows:

(a) to the purchasing department
(b) to the production control department;
(c) retained in the issuing department.

After the buyer has decided which quotation is most acceptable, a purchase order (fig. 2) is prepared, which is evidence of the contract between the buyer and the supplier. The number of copies of the purchase order which is prepared depends on the organization of the

business: a large concern may use five copies while a small concern may use only three copies. These may be routed as follows:

(a) to the supplier;
(b) to the receiving department;
(c) to the accounting department;
(d) to the department which initiated the purchase requisition;
(e) retained in the purchasing department.

PURCHASE REQUISITION

Date: 23rd Feb.20… No: 3208
Date Required: 1st March, 20… Department: central stores

Quantity	Description	Stock Code No.	Purchase Order No.	Supplier
3,000	50mm x 10mm steel carriage Bolts	S.B.23	9790	Universal supply
Requisitioned by: **P.J. Sam**		Approved by: **Sani**		

Figure 1 Purchase requisition

Requisitions for materials regularly kept in stock might be initiated by the storekeeper, for other types of materials by the department requiring them.

Note: The last two columns are completed by the buyer.

The important work of following up deliveries by due date is the duty of the buyer. For this purpose, the copy purchase order, which is retained in the department, may be filed in delivery date order as stated on each copy by the buyer, so that probable daily deliveries may be checked. Any delays must be followed up by writing to the supplier.

PURCHASE ORDER

No: 9790

From:
M. Sani
Kaduna

To: Universal Supply
Zaira

Our Ref: 3208
Date: 24th Feb. 20…

Please supply, in accordance with the instruction herein, the following.

Quantity	Description	Price	Unit	Delivery
3,000	50mm x 10mm steel Carriage Bolts	₦0.10	each	28th Feb.20….
Delivery Free Buyer	**Ship to:** Central Stores	**Terms:** 5% Monthly Account	**Account** No: 57	**Signed by:** C. Graeme

Figure 2 Purchase order

Care should be taken to ensure that the purchase order specifies the date and terms of delivery, and the cash discount available if payment is made within the stipulated period.

3.1.2.1 Use of Code Numbers for Materials

The use of code numbers for identifying each item carried in the stores is an advantage, not only to the purchasing department and production control department but also to the stores ledger clerk, in that ambiguity in description of articles is eliminated and much time and writing is saved. The code may consist of symbols and numbers, or numbers only. For example, the symbols B and S could be given to represent brass and steel; the number following the symbol to identify the size, quality, etc.: thus, B.0640 for brass screws of the same size.

All standard articles will have identifying symbols and numbers, so the system will require careful compilation. In practice, storemen, clerks and draughtsmen find these codes easy to work with, since the code numbers of the more frequently used materials are readily memorized. In the cost department the pricing of issued material is facilitated, and uncertainty as to size and kind of material is avoided.

3.1.2.2 Procedure on Receipt of Materials

Delivery notes or advices of dispatch usually accompany deliveries from suppliers, so these should be directed to the receiving clerk or storekeeper. Invoices received are passed direct to the accounts department to be checked for payment.

Materials entering the factory should be unloaded at special receiving centres. These should be situated as near to the road, railway siding, canal, or wharf as possible, yet at the same time be accessible from any part of the factory, so as to minimize handling charges.

The receiving department should receive a copy of the purchase order, so that, if necessary, arrangement can be made to unload the materials-special apparatus may be necessary to handle heavy or bulky materials. However, it is often advisable that this copy should not show quantities ordered, but only indicate that a shipment of certain materials is expected; this results in the receiving clerk being obliged to check the goods physically rather than to rely on data shown on the purchase order as a guide to quantities received.

Goods should be inspected for quality to ensure that they comply with any specification which may have been stated on the purchase order. In may large firms an inspection department is attached to the receiving department, while in small firms the storekeeper is responsible for inspection. If any goods are rejected the inspector will enter the reason for rejection on a special rejection report, so that the buyer is immediately informed and can contact the supplier.

3.1.2.3 The Goods Received Note

Full particulars of goods received are entered on a goods received note (Fig. 3). Routing of the goods received note will depend on the organization.

A suggested routing is:

a) to the purchasing department;
b) to the accounts department;
c) to the department which initiated the purchase requisition;
d) to the stores;
e) Retained in the receiving department.

The completed goods received note is then passed to the official responsible for approving the goods, who signs the notes and sends them, with the goods, to the storekeeper. Where the storekeeper is

responsible for receiving and approving goods, he will prepare the goods received note.

When the purchasing department receives a copy of the goods received note, together with the receiving clerk's copy of the purchasing order, the order can be marked off in the order book.

GOODS RECEIVED NOTE

From: S. Garwa & Co. G.R. No. 59
Kaduna **Date:** 5th March 2000

Goods	Quantity	Packages	Order No.	For office use		
				Rate		₦
			4721			
Carrier BR	Received by P.Maman	Goods Inspection Report Correct. J. G				
Purchase Requisition No.	**Noted on Progress Chart**	**Bin No.**	**Stores Ledger**	**Invoice No.**	**A/cs. Ref**	
284	5/621	72	212	360	P.J.84	

Figure 3 Goods received note

This note is made out by the receiving department when goods are received, and is priced by the cost department from copy orders. It forms the basis of entries in the stores ledger made in advance of receipt of invoices, with which they are later agreed.

Checking Inward Invoices

Invoices received are numbered consecutively on entry into the invoice register. The purchasing department clerk enters on it the order number, goods received note number, and signs for the accuracy of the particulars ascertained from the copy order and the goods received note. The copy order retained should be marked with the invoice number and goods received note number, to preclude the passing of a possible duplicate invoice. If the invoice is in order, the buyer will sign and pass it to the accounts department for payment. There, it will be checked to ensure that any calculations are correct.

The invoice is entered in the purchase day book, from which the supplier's account is credited in the creditor's ledger. The total purchases day book is debited to purchases account in the general ledger and credited to creditors control account.

SELF-ASSESSMENT EXERCISE

i. Some factories have a main store and a number of departmental sub-stores. What are the advantages and disadvantages of this arrangement? How may the level of goods in a sub-store be maintained and what documents would be required for such maintenance?
ii. What factors should be taken into account in determining whether or not to buy increased quantities of materials for stock with discounts given for large quantities?

4.0 CONCLUSION

The quality required for each purchase is determined by the official making the purchase requisition and not by the purchasing department. The importance of buying the right quality lies in the fact that failure to do so may lead to conflict within the different departments and overall higher costs to the firm as a whole if the wrong quality is bought.

5.0 SUMMARY

The purchaser is interested basically in four things. These are quality, quantity, price and delivery date. The best strategy for the purchaser is to balance these four factors to obtain the exact combination needed at the most advantageous costs to his firm.

6.0 TUTOR-MARKED ASSIGNMENT

Design (a) a materials requisition; (b) a purchase requisition

7.0 REFERENCES/FURTHER READINGS

Eddy, O.O. (2002). *Coping with Cost Accounting* Pumark Nigeria Limited, Lagos.

Owler, L.W.S. and Brown, J.L (1985) Costing simplified, pitman London

UNIT 5 STORES ROUTINE

CONTENTS

1.0 INTRODUCTION

In most manufacturing companies, a large part of money invested is represented by stocks. Serious losses may be suffered in companies with inefficient stores techniques. Insufficient stocks may result in costly production hold-ups, or rush shipments may mean increased costs of production. On the other hand, stocks which are too large result in capital being tied up unnecessarily, and increased costs of storage and obsolescence.

In this unit, we shall discuss on the importance of store routine, and the functions of the storekeeper.

2.0 OBJECTIVES

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

Discuss the importance of store location.
Discuss the functions of the storekeeper.
Describe the importance of store requisition.
Explain the issue of maintaining a stock level.

3.0 MAIN CONTENT

3.1 Stores Routine

3.1.1 Importance and Location of the Stores

The stores in many small firms is often neglected, and it is not realized that materials represent an equivalent amount of cash. Material pilferage, deterioration of materials, and careless handling of stores lead to reduced profits, or even losses, so it is essential that to obtain the maximum advantage of a cost accounting system, an efficient, well-equipped stores, be maintained.

3.1.1.1 Location of the Stores

The organization of the stores will depend on the type of industry, size of the firm, and policy of the management. However, in general, we can define two types of stores organization central stores and sub-stores.

The location of the stores should be carefully planned so as to ensure maximum efficiency. It should be as near to the receiving department as possible, so that haulage charges are at a minimum. At the same time, there should be easy access to all departments especially to those in which heavy or bulky materials are to be delivered.

In large factories where there are many departments it is possible that the stores cannot be situated where it is convenient to deliver to all departments and at the same time be near to the receiving department, so it is often necessary to set up sub-stores to serve a particular part of the organization. The central stores will then issue to the sub-stores the materials specially required for the department or departments serviced by the sub-store. It is strongly recommended that the storekeeper of each sub-store should be responsible to the chief storekeeper. This will ensure that a uniform policy of buying, storing, and issuing is followed.

Centralized storage

The advantages of operating central stores as compared with sub-stores are as follows:

(a) economy in staff and concentration of experts in one department;
(b) reduced clerical costs and economy in records and stationery;
(c) better supervision is possible;
(d) staff become acquainted with different types of stores, which is very useful if anyone is absent from work;
(e) better layout to stores;

(f) inventory checks facilitated;
(g) stocks are kept to a minimum, thus reducing storage space;
(h) fewer obsolete articles;
(i) the amount of capital invested in stock is minimized.

The disadvantages are likely to be:

a) increased transportation costs;
b) the stores may be situated at some distance fro may departments, thus causing inconvenience and delay;
c) breakdowns in transport or hold-ups in central stores may cause production stoppages in departments.

3.1.2.1 Layout of the stores

Shelves, racks, bins, etc, should be situated in clearly defined lanes, so that easy access is possible. In many cases it may be necessary to allow enough room for the passage of trucks, so white lines should be painted on the floor, determining the position of storage containers.

3.1.2 The Imprest System

It is sometimes the practice of large organizations to use the imprest system of stores control, which operates in rather a similar way to a petty-cash system. For each item in stock a quantity will be determined, which represents the number of articles which should be on hand at the beginning of any period. At the end of a period the storekeeper of each sub-store will requisition from the central stores the number of articles required to bring the stock up to the predetermined quantity.

For example, let us assume that the imprest amount which has been set for a material is 1,000 units. During the week ending 28th July, issues of the material have reduced the stock to 280 units. The sub-storekeeper would issue a requisition from the central storekeeper for 720 units to ensure that at the beginning of the next week 1,000 units are in stock.

3.1.3 The Storekeeper

The stores should be under the control of one person, who may be known as the storekeeper, chief storekeeper, or stores superintendent. He should be a man of wide experience in stores routine, able to organize the operation of the stores, of undoubted integrity, and capable of controlling men under his authority.

His duties and responsibilities may be as follows:

a) maintaining the stores in a tidy manner;
b) accepting materials into the stores, after having ascertained that the delivery complies with specifications detailed on the purchase order, goods received note, or stores debit note;
c) correct positioning of all materials in store;
d) checking the bin card balance with the physical quantities in the bins;
e) requisitioning further supplies from the purchasing department when the recorder level is reached on any materials;
f) preventing unauthorized persons entering the stores;
g) issuing materials against authorized stores requisition notes;
h) advising management of obsolete or slow moving stocks.

Requisitioning for stores

The storekeeper is guided when requisitioning for stores, by the maximum and minimum quantity which he is authorized to store in respect of each kind of material, and the recorder level.

The maximum stock is fixed by taking into account such aspects as:

a) rate of consumption of the materials;
b) time necessary to obtain new supplies;
c) finance-if stocks are unnecessarily high, capital is locked up which could probably be otherwise employed;
d) storage space-the provision of, and cost of, maintaining the necessary storage room must be considered;
e) possibility of loss by evaporation, deterioration, etc.;
f) extent to which price fluctuation may be important;
g) risks of changing specifications and obsolescence;
h) Seasonal considerations as to both price and availability of supplies, e.g. market shortages;
i) Economic ordering quantities

The minimum stock is fixed by taking into account:

a) rate of consumption of the material;
b) time necessary to obtain delivery of supplies.

The reordering level is the quantity fixed between the maximum and minimum stock figures, at which time it is essential to initiate purchase requisitions for new supplies of the material. This level will usually be slightly higher than the minimum stock figure, so as to cover such emergencies as abnormal usage of the materials or unexpected delay in delivery of new supplies.

It is fixed by taking into account:

a) rate of consumption of the material;
b) time necessary to obtain new supplies.

Example of the Calculation of Stock Levels

The materials analyst has forecast the following data in respect of material MS6:

Maximum consumption of material per week:	400 units
Normal consumption of material per week:	300 units
Minimum consumption of material per week:	200 units
Reorder quantity:	2,000 units
Reorder period:	4-6 weeks

Reorder level

Max.C x Max. Rp	
400 units x 6 weeks	2,400 units

This level is calculated first, because the maximum and minimum stock levels both include the reorder level in their formulae. It considers the longest period of time and the maximum usage of materials which could be expected.

Minimum stock level

RL – (NC x NRP)	
2,400 – (300 units x 5 weeks)	900 units

This level considers the average or normal consumption expected. Stocks should not normally fall below this level, but the buffer stock is maintained in case of emergencies.

Maximum stock level

RL – (Min. C x Min. RP) + RQ	
2,400 – (200 units x 4 weeks) + 2,000,	3,600 units

This level considers the lowest rate of consumption which could be expected if delivery was received in the shortest possible time. The addition of the reorder quantity shows the highest point in inventory which would be allowed. Stocks should never be allowed to rise above this point without special authority.

Average Stock Level

This measure the average level of stock held during an accounting period. One simple formula which may be used for calculating this level is as follows:

$$\frac{\text{Max.stock + Min.stock}}{2}$$

If we use the figures given in the previous example, it is found that the average stock level is:

$$\frac{3{,}600 + 900}{2} \qquad 2{,}250 \text{ units}$$

The average stock level is a useful measurement when considering stores turnover.

3.1.4 Turnover of Stores Materials

It is useful to compare the turnover of different grades and kinds of materials as a means of detecting stock which does not move regularly, thus enabling management to avoid keeping capital locked up in undesirable stocks. It is not an infrequent occurrence for a particular item of stock to be overlooked for long periods unless means are taken to prevent such accumulations. The balance of stores, compared with the total withdrawals, indicates how many times a year the stock is renewed.

The formula is:

$$\frac{\text{Consumption of materials}}{\text{Average stock of materials}}$$

Examples

A simple trading account of J. Stuart Plc is as follows:

Trading account for the period ending 31st March

Opening stock	₦8,000	Sales	₦100,000
Purchases	64,000	Closing stock	12,000
Gross profit	40,000		
	₦,000		₦112,000

Stores turnover: $\frac{\text{₦,000}}{\text{₦10,000}}$ 6 times per annum

The stores turnover is once every two months, which is quite a satisfactory rate. It is difficult to generalize, but a turnover of once

every two to three months would be considered satisfactory in most industries.

Note:

1. Average stock calculation. In this example, there is no mention of stock levels being maintained, so it is not possible to use the formula given earlier for average stock. It is therefore necessary to use another simple formula which is used in situations such as this:

$$\frac{\text{Opening stock + Closing stock}}{2}$$

$$\frac{₦,000 + ₦12,000}{2}$$

2. Consumption of materials: Opening stock + Purchases – Closing stock.

SELF-ASSESSMENT EXERCISE

i. Use the following figures to calculate each of the levels of:

a) Reorder level
b) Minimum stock level
c) Maximum stock level
d) Average stock level

Normal usage	60 per week
Minimum Usage	20 per week
Maximum usage	100 per week
Recorder period	3 -7 weeks
Recorder quantity	400 per week

ii. Explain why it is frequently found useful in the control of finished stocks to establish:

Maximum stock levels;
Recorder stock levels; and
Minimum stock levels.

4.0 CONCLUSION

Stores maintenance consists of all costs associated with keeping stock. The largest component of carrying cost is money tied up in the inventory. Investing on the stock can has cost the earnings it could have made, for example, by lending the money out to someone who is willing

to use it for something else and pay interest on it. This is usually referred to as cost of capital.

5.0 SUMMARY

Materials should not be issued out of store unless materials requisitions duly signed by authorized persons are presented to the store which can then be exchanged for the materials requested.

6.0 TUTOR-MARKED ASSIGNMENT

Two components, A and B, are used as follows:

Normal usage	50 per week each
Maximum usage	75 per week each
Minimum usage	25 per week each
Re-order quantity	A: 300 B: 500
Re-order period	A: 4 to 6 weeks
	B: 2 to 4 weeks

Calculate for each component:

1. Re-order level;
2. Minimum level;
3. Maximum level;
4. Average stock level.

7.0 REFERENCES/FURTHER READINGS

Eddy, O. O. (2002). *Coping with Cost Accounting,* Pumark Nig. Ltd Lagos.

Owler, L. W. J. and Brown, J. L. (1985). *Costing Simplified*, Pitman London.

MODULE 2

UNIT 1 RECEIPT AND ISSUE OF MATERIALS

CONTENTS

1.0 INTRODUCTION

Materials management is concerned basically with planning and control of material. Control is a process by which events are made to conform with a plan. Therefore, to control materials, there must be a plan of actions. Planning focuses on such issues as what to store, where to buy, when to buy and how much to buy. The items to be stored will be dictated by the basic functions of the train and the customers it serves.

In this unit, we shall discuss the issues relating to receipt and issue of material.

2.0 OBJECTIVES

By the end of this unit, you shall be able to:

Explain the basic mechanism of receipt and issue of materials in an organization.
Discuss the methods of keeping stores record.
Describe the methods of stores control and its importance.

3.0 MAIN CONTENT

3.1 Receipt and Issue of Material

Purchased materials are passed into the custody of the storekeeper when they have examined and approved. Some articles or parts are not purchased from outside suppliers, but are made in the works. These will be inspected in the usual course and then passed into stores. It is desirable that a goods received note be prepared for these articles in order to keep the accounts uniform. The storekeeper will enter receipt of goods on a bon., any goods which are rejected and entered on a goods rejected note, which is sent to the purchasing department. The supplier will be informed and a debit note will be sent to him.

3.1.1 Issue of Materials

The cost of materials is frequently the largest element of cost in production, so it is imperative that all stores shall be recorded as promptly and as accurately as possible. In most companies, the storekeeper is allowed to issue materials only on presentation of an authorized materials requisition.

3.1.2 Materials requisition

This document (Fig.4), sometimes termed stores requisition, is an authorization to the storekeeper to issue raw material, finished parts, or other types of stock. It is usually signed by the foreman of the department requiring the materials, but in special cases when extra-large quantities or very costly materials are needed for production, the manager's signature may be necessary. Frequently the planning or progress department issues these requisitions to the foreman, who presents them to the storekeeper as and when required.

The storekeeper will enter the details of the materials requisition on to the appropriate bin cards and adjust the balances in the stock column. The note will then be routed to the cost department, where it will be

evaluated from the stores ledger. The stores ledger will be credited in the appropriate stores account and an entry will be made on the materials abstract for posting to the debit of the appropriate account in the cost ledger.

3.1.3 Record

Two records are usually kept of materials received, issued, or transferred-namely on the bin cards and in the stores ledger. The bin cards are written up in the stores, but the stores ledger is usually kept in the cost department or in the stores office. There are three advantages in this procedure:

a) The storekeeper is required to do the minimum amount of clerical work.
b) The accounting records are maintained accurately and in a better condition by an experienced stores clerk than by an assistant in the stores.
c) A check is provided, in that the balances on the bin cards in the stores can be compared with the balances in the stores ledger.

MATERIALS REQUISITION

Department: Assembly shop No. 2 No: 1234
Charge to: Job No. P23 Date: 1st March, 20

Quantity	Details	Stock Code No.	Weight	Rate ₦	Amount ₦	Notes
600	50mm x 10mm steel carriage bolts	S.B. 23	-	0.10	6.00	-

Signed by: J. Paul	Bin No: 241	Cost Department
	Storeman: J. Lewis	Priced by: O. T. Ball
Approved by: G. David	Stores Ledger: 346	Checked By: I. A. Smart

Figure 4: Materials requisition

This note is made out by the department requiring materials from stores or by the production control department. The stores ledger account concerned is credited and the job or process is debited.

3.2 Transfer of Materials

Transfer of materials from one sub-store to another should be recorded by means of a materials transfer note or a materials requisition note marked "transfer". This note can then be used in the cost department for making the necessary debit and credit, where transfers are numerous, it is sometimes the practice to have special columns in the bin cards for recording the details of the transfer.

MATERIALS TRANSFER NOTE

Issuing Department: Assembly shop No. 2 No: 320
Receiving Department: Assembly shop No. 4 Date: 11th March, 20

Quantity	Details	Stock Code No.	Weight	Rate ₦	Amount ₦	Notes
60	50mm x 10mm steel carriage bolts	S.B. 23	-	0.10	6.00	-

Issued by: G. David From Job No: P23	Received by: C. Moore To Job No: R78	Cost department Priced by: O. T. Ball Checked by: I. A. Smart

Figure 5 Materials transfer note

This form is necessary to cover the transfer of material from one job to another and from one department to another.

Note: The cost department is responsible for pricing.

The transfer of material from one job to another in the factory should be strictly prohibited unless the procedure is adequately recorded on a materials transfer note (fig. 5).

Material transfer note

This document records all the necessary data for debiting and crediting the accounts affected in the cost ledger. Transfers may occur when there is not enough material in the stores to meet an urgent order, so materials in another department engaged on less urgent work may be appropriate. In such a case there must be provision for the reissue of material to the job from which the result in incorrect costs of the job concerned.

Material Issued in Excess of Requirements

Frequently bulk materials has to be issued in excess of the needs of a particular job. This is the case with sheet iron or steel bars, which in some instances cannot be cut off to the exact size required in the stores, and which can be more advantageously operated upon when full size in the factory. The procedure is to charge out the full quantity issued, and when the excess is returned to store a materials return note is complete, signed by the foreman, and handed to the storekeeper.

MATERIALS RETURN NOTE

Issuing Department: Assembly shop No. 2 No: 16
Credit to: Job P23 Date: 12th March, 20

Quantity	Details	Stock Code No.	Weight	Rate ₦	Amount ₦	Notes
120	50mm x 10mm steel carriage bolts	S.B. 23	-	0.10	12.00	-

Signed by: J. Paul Approved by: G. David	Bin No: 241 Storeman: J. Lewis Stores Ledger No. 346	Cost department Priced by: O. T. Ball Checked by: I. A. Smart

Figure 6: Material Return Note

When excess material is returned to store a form such as this is used to ensure that the job concerned receives credit for the material, and that the stores can keep its records correctly.

Materials Return Note

This document (fig. 6), sometimes termed a stores debit note, is an authorization to return to the storekeeper raw material, finished parts or other stock no longer required by the factory. These notes may be produced in the same design as a materials requisition, but may be printed in red to distinguish them.

On receipt of the note the storekeeper will enter the details on the bin card and place the goods in the appropriate receptacle; the stores ledger clerk will debit the appropriate stores account; the cost ledger clerk will credit the job account for which the goods were returned.

3.3 Bin Cards

Materials are stored in appropriate bins, drawers, shelves, or other receptacles; some are stacked, others racked. For each kind of material a separate record is kept on a bin card (fig. 7), showing in detail all receipts and issues. The bin cards thus assist the storekeeper in controlling the stock position.

BIN CARD

Description……. **Bin No…….**
……. **Code No…….**
Recorder Quantity……. **Maximum Stock level……**
Stores Ledger Fo…… **Minimum Stock level……**
Recorder level……...

Date	G.R.	Quantity	Date	M.R.	Quantity	Quantity	Goods on Order
	No.						and Audit Notes

Figure 7: Bin Card

The storekeeper records the movement in and out of the materials under his control. He should show in the balance column the actual quantity of the particular material in stock at any time.

Note: G. R. No: Goods received note number.
M. R. No: Materials requisition number.

For each material in store the maximum and minimum quantities to be carried are stated on the card. These limits, which are determined by the production control department, from time to time these maxima and minima will be reviewed and may be altered to suit current requirements.

To facilitate ordering of further supplies, the normal quantity to order is sometimes stated at the head of the card; this quantity will indicate the customary market units to as to avoid requisitions for irregular quantities.

The various receptacles in which materials are stored are numbered, the bin card for each being similarly numbered. Where identifying code numbers are used for materials it is advantageous to attach them to the bin and to quote them on the bin card.

3.4 Stores Ledger

The stores ledger is kept in the cost accounting department. In it is recorded the same information as the storekeeper records on the bin cards, but also the money values are shown. Correct stores accounting is as important as accounting for cash, hence the separation of this clerical work from the actual handling of the materials in store. The ledger is usually of the loose-leaf or card type, each account representing an item of material.

The debit side is prepared from the goods received notes or invoices and from materials return notes: the credit side either directly from the materials requisitions or from the abstract summary complied from them. Additional columns may be shown for materials ordered and for materials reserved for special jobs.

3.5 Stores Control

3.5.1 The Perpetual Inventory System

This is a method of recording stores balances after every receipt and issue of materials, so that the balance of stock at any time can be ascertained immediately. It is often used in conjunction with a system referred to as “continuous inventory”, which is a method of making a physical check on stores balances at frequent, irregular intervals.

The balances of any account in the stores ledger for a particular item of stock should agree with the balance on the bin card, and a frequent checking of these dual records should be made as well as of the actual quantity in stock.

In large stores a system of continuous checking is instituted, a number of items of materials being counted daily and compared with the bin cards and stores ledger, by a stores audit clerk. Discrepancies are investigated; many may be clerical errors, which will be corrected. When, however, the stock is incorrect an investigation is made, after which any shortage

or surplus is adjusted in the records to make them correspond with the physical stock. This may be done conveniently by making out a credit note or debit note, as the case may be, for the difference and then, after obtaining authority to pass the adjustment through the cost journal, crediting (or debiting) a stock adjustment account. The balance on that account is written off direct to profit and loss account at appropriate times.

The common causes of differences are incorrect entries, breakages, pilferage, evaporation, breaking bulk, short or over issues, absorption of moisture, and placing of stores in the wrong bins.

The advantages of the system are as follows:

a) The long and costly work of stocktaking is avoided, and the value of the stock of materials as shown by the stores ledger can be obtained quickly for the preparation of a profit and loss account and balance sheet.
b) A continual, detailed, reliable check on the stores is obtained.
c) Discrepancies are readily discovered and localized, giving an opportunity for preventing a recurrence in may cases.
d) The moral effect on the staff tends to greater care, and serves as a deterrent to dishonestly.
e) The audit extends to comparison of the actual stock with the authorized maxima and minima, thus ensuring that adequate stocks are maintained within the prescribed limits.
f) The storekeeper's duty of attending to replenishments is facilitated, as he is kept informed of the stock of every kind of material.
g) The stock being kept within the limits decided upon by the management, the working capital sunk in stores materials cannot exceed the amount arranged for.
h) The disadvantages of excessive stocks are avoided, e.g. (i) loss of interest on capital locked up in stock; (ii) loss through deterioration; (iii) danger of depreciation in market values; (iv) risks of obsolescence.
i) It is not necessary to stop production so as to carry out a complete physical stocktaking.
j) Experienced men can be employed to check the stock regular intervals.

3.5.2 Materials Issued at an Inflated Price

Wastage of materials frequently occurs in a store due to evaporation, deterioration in quality, or some similar cause. When this occurs it is

necessary to charge materials issued to production at an inflated price to ensure that the true cost is recovered.

If 100kg of material is bought at ₦0.54 per kg, and it is known fron past experience that the normal wastage of this material is 10%, the charge to production would be $\frac{₦\ 54}{90} = ₦\ 0.60$

3.5.3 Recording Material Notes

Goods received notes are priced from orders or invoices, and materials requisitions are priced from the stores ledger. Materials transfer notes and materials return notes are priced from the cost ledger. A summary of the procedure is shown in Fig. 9.

RECORDING

Materials Notes

Goods received notes are priced from orders or invoices materials requisitions are priced from the stores ledger materials transfer notes are priced from the cost ledger or cost card.

BIN CARD	
IN	OUT
Goods Received Notes Materials Return Notes	Materials Requisitions

STORES LEDGER	
DR	CR
Goods Received Notes Materials Return Notes	Materials Requisitions

COST LEDGER	
DR	CR
Materials Requisitions	Materials Return Notes
MATERIAL TRANSFER NOTES	

Figure 9: Accounting for Material

3.5.4 Categories of Stock

It is usual to keep separate stores for raw materials, finished parts, finished gods, etc. Definitions of the kinds of stock are as follows:

Raw Material

Primary materials purchased or produced either in a natural or manufactured condition. Manufactured materials of one industry are often the raw materials of another, e.g. the finished product of a steel mill may be the raw materials of an engineering factory.

Work in Progress

This is production that has not yet reached the stage of completion.

Finished parts

These are items or sub-assemblies put into store awaiting final assembly or sale as spares.

Small tools

In a general engineering factory such tools form a large and valuable stock, consisting of drills, dies, etc.

3.5.5 Stores Expenses

The expenses involved in operating a store in a large company may be very high. Usually, the expenses are collected into stores overhead and charged to production overhead. However, if it can be ascertained that expenses have been incurred on a specific order or job, then the expenses may be charged there to as an addition to the cost of materials. Carriage inwards and handling costs may be treated in a similar way.

SELF-ASSESSMENT EXERCISE

i. Explain the various circumstances under which the issue price of a stores material may be higher than the last purchase price.
ii. What action would you advise to prevent capital lying idle in obsolete and slow-moving stocks of material?

4.0 CONCLUSION

The re-order level quantity often referred to as the economic order quantity is the quantity ordered in normal circumstances. It is set by considering two major factors:

(i) Carrying costs of the materials which include interest on capital used, cost of deterioration and risk, insurance cost and cost of storage.
(ii) Ordering costs which include costs like transportation, cost of preparing purchase order, cost of receiving and inspecting materials and postage costs.

5.0 SUMMARY

The stores department usually headed by the storekeeper serves management by providing the information requires for the physical control of material. A good store department should minimize wastage arising from deterioration, obsolescence and material handling and should guide against pilferage.

6.0 TUTOR-MARKED ASSIGNMENT

What reports would you submit to top management on the subject of stock?

7.0 REFERENCES AND FOR FURTHER READINGS

Eddy, O. O. (2002). *Copying with Cost Accounting* Pumark Nig. Ltd. Lagos.

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UNIT 2 METHODS OF VALUING MATERIAL ISSUES

CONTENTS

1.0 INTRODUCTION

Materials should not be issued out of store unless materials requisitions duly signed by authorized persons are presented to the store which can then be exchanged for the materials requested.

The authorized persons are usually the production supervisors or foreman. In some cases when extra large quantities are needed for production it may become necessary for the production manager to sign the material requisition. The materials requisition can therefore be defined as the document of authority required for the withdrawal of materials from store.

In this unit, issues relating to valuing materials will be discussed.

2.0 OBJECTIVES

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

Explain the various methods of valuing materials issued.
Explain the difference between FIFO and LIFO.
Described the needs to adopt a particular system based on prevailing conditions.

3.0 MAIN CONTENT

3.1 Methods of Valuing Material Issues

There are many methods of valuing materials issues, but it is proposed to examine only a limited number in this unit. The choice of method depends largely on the policy and the particular conditions of the business.

To illustrate the system of recording materials issues under some of the important methods the following transactions are recorded:

January	1 Received	1,200 units at ₦1.50 per unit.
January	14 Received	300 units at ₦1.40 per unit.
January	30 Issued	700 units at - per unit.
February	21 Received	600 units at ₦1.55 per unit.
March	4 Received	500 units at ₦1.60 per unit.
March	28 Issued	900 units at - per unit.
April	15 Issued	400 units at - per unit.
May	21 Received	800 units at ₦1.45 per unit.
June	4 Issued	1,000 units at - per unit.
June	20 Received	200 units at ₦1.60 per unit.

Note: For simplicity of illustration, the amounts columns in the following accounts have been calculated to the nearest ₦1; in practice, calculations would usually show kobo also.

3.1.1 First in First Out

The stores are deemed, for book keeping purposes, to have been issued from the earliest lot delivered until exhausted, then from the next delivery. In this ways the charge in the accounts is the actual cost price of each lot. The stores ledger clerk can ascertain from the accounts when each consignment is completed. Where market fluctuations are frequent and considerable the method sometimes produces curious and unfair results as between one job and another; e.g. materials purchased at N0.75 per unit may be issued to job B may be from a later supply which cost N1.00 each. If transactions are numerous and the price fluctuates considerably the method is very involved, which may increase the possibility of errors.

STORES LEDGER ACCOUNT

Materials…… Maximum Quantity…….. Recorder level……. Follo……..

Code……...……. Minimum Quantity…… Recorder Quantity….. Location……

	Receipts				Issues					Stock		
Date	G.R.	Quantity	Price ₦	Amount	M.R.	Quantity		Price ₦	Amount	Quantity	Price ₦	Amount
Jan.		1.200	1.50	1.800						1,200	1.50	1,800
4		300	1.40	420						1,500		2,220
14							700	1.50	1.050	800		1,170
30		600	1.55	930						1,400		2,100
21		500	1.60	800						1,900		2,900
Mar.						900	500	1.50	750			
4							300	1.40	420			
28							100	1.55	155	1,000		1,575
							400	1.55	620	600		955
										1,400		2,115
		800	1.45	1,160		1000	100	1.55	155			
Apr.				1,000			500	1.60	800			
15							400	1.45	580	400		580
May												
21		200	1.60	320						600		900
June												
4												
20												

Figure 10 Store Ledger Account (2) (FIFO)

This account has been entered on the first-in- first-out principle, which has the same effect as if materials were issued in strict chronological order.

Note-The closing stock represents

	₦
400 units at ₦1.45 per unit =	580
200 units at ₦1.60 per unit =	320
600	900

A great advantage of FIFO is that in stock valuation, stock is not only at cost but is also as closely representative of current prices as possible, when prices are falling the material charge to production is high, while the cost of stock replacement will be low. Conversely, when prices are rising the charge to production will be low, while the replacement cost will be high.

3.1.2 Last in First Out (LIFO) (Fig. 11)

This method operates in reverse to FIFO; materials received in the latest delivery is for book-keeping purposes, deemed to have been issued first. As with FIFO, the charge in the accounts is the actual cost price. However, it suffers from the same disadvantages mentioned under FIFO, namely, that although stock is at cost, the price is that of earliest material purchased, so that it does not represent current price levels, as a result of which it may be necessary to write-off stock losses during periods of falling prices because the book values of the materials will exceed market value.

A great advantage of LIFO is that the charge to production is as closely related to current price levels as possible. Assuming the purchase of materials was in recent times, it will not be necessary to ascertain market value. In times of inflation LIFO is considered to be an effective system of pricing because the high-priced purchases are charged to production, while stock are retained at low prices. However it must be noted that, particularly in the UK, taxation authorities do not favour this system.

3.1.3 Simple Average (Fig. 12)

This method may be used advantageously when it is not possible to identify each item separately and when prices of purchases do no fluctuate very much. It is relatively easy to operate. To calculate the issue price, the total of the prices paid for the material is divided by the number of prices pad in the calculation. This may result in the charge to production not being at actual cost.

e.g.

1 unit purchased at ₦1.00 per unit
1,000 unit purchase at ₦0.50 per unit
The average price is (₦1.00 + ₦0.50) = ₦0.75

STORES LEDGER ACCOUNT

Materials…… Maximum Quantity…….. Recorder level……. Follo……..

Code……..……. Minimum Quantity…… Recorder Quantity….. Location……

	Receipts				Issues					Stock		
Date	G.R.	Quantity	Price ₦	Amount	M.R.	Quantity		Price ₦	Amount	Quantity	Price ₦	Amount
Jan. 4		1.200	1.50	1.800						1,200	1.50	1,800
14		300	1.40	420						1,500		2,220
						700	300	140	420			
30							400	1.50	600	800		1,200
Feb.21		600	1.55	930						1,400		2,130
Mar. 4		500	1.60	800						1,900		2,930
28						900	500	1.60	800			
							400	1.55	620	1,000		1,510
						400	200	1.55	310			900
Apr.							200	1.50	300	600		2,060
15		800	1.45	1,160						1,400		
May						1000	800	1.45	1,160			
21							200	1.50	300	400		600
June 4		200	1.60	320						600		920
20												

Figure 11 Stores Ledger Account (3) (LIFO)

This records the same facts as in fig. 11, but on the last in first-out principle. This tends to charge current production with current prices.

Note-The closing stock represents

	₦
400 units at ₦1.50 per unit =	600
200 units at ₦1.60 per unit =	320
600	920

From this example, it can readily be seen that the issue price is not the cost price. It will be noticed that in this illustration (Fig. 13) the design of the account has been changed slightly. Cumulative quantity columns have been introduced so that comparisons, one with another, can be made to ascertain which materials have been fully issued from stock. It is recommended that the cumulative issues column is not entered until after the price has been calculated.

Example

In the first issue:
Cumulative receipts 1,500; cumulative issues nil, so price is

$$\frac{(₦1.50 + ₦1.40)}{2} = ₦1.45$$

In the second issue:
Cumulative receipts 2,600; cumulative issues 700, so price is:

$$\frac{(₦1.50 + ₦1.40 + ₦1.55 + ₦1.60)}{4} = ₦1.51$$

In the third issue:
Cumulative receipts 2,600; cumulative issues 1,600, so price is:

$$\frac{(₦1.55 + ₦1.60)}{2} = ₦1.57^{1/2}$$

(1,600 exceeds cum. Receipts to Jan. 4 (1,500) so stock at ₦1.50 and ₦1.40 is exhausted)

In the second issue:
Cumulative receipts 2,600; cumulative issues 700, so price is:

$$\frac{(₦1.55 + ₦1.60 + ₦1.45)}{3} = ₦1.53^{1/3}$$

3.1.4 Standard Price (Fig. 13)

A standard or predetermined issue price is calculated, which takes into consideration a number of factors which may influence the price of materials in a future period; such factors include:

a) The possibility of a rise in prices due to expected wage increase

STORES LEDGER ACCOUNT

Materials……. Maximum Quantity…….. Recorder level……. Follo……..
Code……..……. Minimum Quantity…… Recorder Quantity….. Location……

	Receipts					Issues					Stock		
Date	G.R.	Quantity		Price ₦	Amount ₦	M.R.	Quantity		Price ₦	Amount	Quantity	Price ₦	Amount
		Actual	Cum				Actual	Cum					
Jan. 4		1.200	1,200	1.50	1.800						1,200	1.50	1,800
14		300	1,500	1.40	420						1,500		2,220
30							700	700	145	1,015	800		1,205
Feb.21		600	2,100	1.55	930						1,400		2,135
Mar. 4		500	2,600	1.60	800						1,900		2,935
28							900	1,600	1.51	1,359	1,000		1,576
Apr.							400	2,000	1.571/2	630	600		946
15											1,400		2,106
May		800	3,400	1.45	1,160					1,533	400		573
21							1000	3,000	1.531/3		600		893
June 4		200	3,600	1.60	320								
20													

Figure 13 Stores ledger account (4) (simple average)

Under the average methods of pricing material, the identify of material in store disappears, so that the closing stock figures cannot be verified as under the previous systems.

b) The likelihood of a rise or fall in prices due to market conditions.

A standard price will be calculated for each item in store, which can then be compared with the actual price paid. If the actual price paid exceeds standard, then a loss will be realize; if the actual price is less than standard a profit will be obtained.

This method is relatively easy to operate, because all issues of an item are calculated at the same price. A great advantage is the opportunity to check the efficiency of purchasing materials; by seeing whether or not the actual price exceeds standard.

It should e noted that this method can be utilized in most industries, even though a system of standard costing is not in operation, although, of course, the greatest benefit will be obtained under a standard costing system. In this illustration it is assumed that the standard price of the material has been calculated to be ₦1.50 per unit.

It can be seen from Fig. 14 that the value of closing stock is over-valued, due to the fact that production has been charged at the standard price which is lower than the actual price. It should be noted that if the standard price charged to production had been higher than the actual price the value of stock would have been under-valued to check the efficiency of purchasing materials (Actual receipts x standard price) – Actual amount.

(3,600 x ₦1.50) = ₦5,400
₦5,400 – ₦5,430 = ₦30

Actual amount paid exceeds standard cost of materials, so there has been a loss of ₦30 in purchasing Again if the closing stock is valued at standard price the value would be 600 x ₦1.50 = ₦900, while the actual amount shown in the account is ₦930, giving a difference of ₦30.

3.1.5 Miscellaneous systems of valuing material issues

For reference purposes, the following systems are briefly mentioned.

3.1.5.1 Base Stock

This is rather similar to FIFO in operation, with the addition of a fixed minimum stock of the material always being carried at original cost.

This minimum stock is never charged to production, so it is rather in the nature of a fixed asset.

STORES LEDGER ACCOUNT

Materials…… Maximum Quantity…….. Recorder level……. Follo……..

Code……..…… Minimum Quantity…… Recorder Quantity….. Location……

	Receipts				Issues				Stock		
Date	G.R.	Quantity	Price ₦	Amount	M.R.	Quantity	Price ₦	Amount ₦	Quantity	Price ₦	Amount
Jan. 1		1.200	1.50	1.800					1,200	1.50	1,800
14		300	1.40	420					1,500		2,220
30						700	1.50	1,050	800		1,170
Feb.21											
Mar. 4		600	1.55	930					1,400		2,100
28		500	1.60	800					1,900		2,900
						900	1.50	1,350	1,000		1,550
Apr.						400	1.50	60	600		950
15									1,400		2,110
May		800	1.45	1,160					400		610
21						1000	1.50	1,500	600		930
June 4		200	1.60	320							
20											

Figure 14 Stores ledger account (5) (standard price)

Under the standard price method the closing stock figures cannot be verified. This method ensures that production is charged always at the standard price for the material, variances from the actual price paid being transferred to price variance account.

3.1.5.2 Weighted Average Price

This is similar to the simple average price, except that whenever a new purchase is made, the cost is added to the value of the balance in hand and the total thus arrived at is averaged by dividing by the new quantity then available.

3.1.5.3 Current Market Price

Each issue is charged out at current rate to maintain proper stores control, differences between cost and prices must be debited or credited to a stores adjustment account.

3.1.5.4 Highest In First Out (HIFO)

Materials issued from stores are charged at the rate of the highest – priced material in stores. This rate continues either until the material at that high price is exhausted, after which the next-highest price is used, or until a new batch of materials is received at a rate which is higher

than the previous high price. This method attempts to ensure that materials issued to production absorb the high costs of materials, leaving stocks at relatively low-priced rate.

3.1.5.5 Next In First Out (NIFO)

Materials issued are not charged at a price which has been paid, but rather at a price which has been committed or ordered. Let us assume, for example, that in stock there are two batches of materials, one at ₦1.20 and one at ₦1.40, and that there is a further batch of materials on order at ₦1.50 which has not yet been received. If materials were issued now, they would be priced at ₦1.50. This method is obviously an attempt to be more realistic than the current market price method; instead of ascertaining the current price at the time of issue, one uses the latest price at which one has ordered new supplies of the materials.

SELF-ASSESSMENT EXERCISE

i. Benue links motors buy certain type of gear box for use in one of it mocopollo bus models. The followings are a summary of the receipts and issues of the gear box for the month of January.

Opening stock on 1st January		
200 gear boxes at		₦145
April 4	Purchased 100 gear boxes at	₦185
April 8	Issued 50 gear boxes	
April 10	Purchase 300 gear boxes at	₦190
April 11	Issued 200 gear boxes	
April 12	Issued 200 gear boxes	
April 15	Purchased 150 gear boxes at	₦160
April 21	Issued 100 gear boxes	
April 25	Purchased 100 gear boxes at	₦135
April 30	Issued 50 gear boxes	

Show the appropriate stores ledger account disclosing the cost of each issue and the cost of closing stock at 31st January, using FIFO method.

ii. Discuss the effect in times of inflation on valuation of stocks and on product costs using for the pricing of issues of raw materials.

4.0 CONCLUSION

The principle concerning the storing of material is the same as that applying to cash. The system is useful when sub-stores are used. A quantity, which should be kept at the beginning of every period, day,

week or month, is agreed, and the sub-store-keeper indents the main stores at the end of every period for the amount issued.

5.0 SUMMARY

The First-In-First out (FIFO) method is based on the assumption that the oldest layer of goods are sold or issued first and that the most recently purchased goods are in the closing stock. It must be pointed out that even though FIFO treats materials as being issued on a chronological basis, it does not necessarily follow that physical receipt, like perishable, goods, should be issued on FIFO basis.

6.0 TUTOR-MARKED ASSIGNMENT

Plateau Motors buys certain type of gear box for use in one of it Mocopollo buses. The following is a summary of the receipts and issues of the gear box for the month of July.

Opening stock on 1st July		
200 gear boxes at		₦145
July 4	Purchased 100 gear boxes at	₦185
July 8	Issued 50 gear boxes	
July 10	Purchase 300 gear boxes at	₦190
July 11	Issued 200 gear boxes	
July 12	Issued 200 gear boxes	
July 15	Purchased 150 gear boxes at	₦160
July 21	Issued 100 gear boxes	
July 25	Purchased 100 gear boxes at	₦135
July 30	Issued 50 gear boxes	

Show the appropriate stores ledger account disclosing the cost of each issue and the cost of closing stock at 31st July. Use LIFO method.

7.0 REFERENCES/FURTHER READINGS

Owler, C. W. J. and Brown, J. L. (1985). *Costing Simplified*, Pitman London.

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UNIT 3 ORGANIZATION FOR WAGES CONTROL

CONTENTS

1.0 INTRODUCTION

The chief function of the personnel department is to provide the right type of labour for the organization. The personnel department is responsible for the engagement, training, welfare, transfer and retirement or discharge of labour. The Accountant obtains information on the workers' use of their time through the help of the time-keeping department. Wages control consists of five main divisions of responsibility, as follows:

(1) Personnel recording;
(2) Recording gate times;
(3) Preparation of payroll;
(4) Allocation of wages to jobs or processes, and
(5) Making up and paying out wages.

2.0 OBJECTIVES

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

Discuss the various methods of recording gate times and its uses in preparation of employee's wages.
Explain the various mechanism of controlling wages.
Explain the procedure of preparing payroll.

3.0 MAIN CONTENT

3.1 Organization for Wages Control

Wages paid to employees in the factory and offices constitute one of the heaviest items of expenditure in any business, and, as a great deal of it is usually paid out in cash, the organization needs to be well designed to suit the particular circumstances, and simple and fool-proof in operation.

3.1.1 Personnel Records

When a worker is engaged, the personnel officer asks him to complete a record sheet, which is filed for subsequent reference. He is then given an identifying "clock number" which will be used each week on his "clock card".

3.1.2 Recording Gate Times

It is considered important to record the "in" and "out" times of workers entering and leaving the factory because, generally speaking, these times become the basis on which payment is made at a stated rate per hour. Even if workers are not paid by the hour, but by piece-work rates, that is to say at so much per piece satisfactorily completed, it is still very useful to know for other purposes how many hours they have been at work, and "clocking on" is therefore to b recommended. Only in cases of workers being paid by the week, and whose absence can be reported by other means, can the rule be relaxed.

The methods of recording which are employed vary considerably according to the outlook and prosperity of the concern. Old fashioned methods, such as the use if brass checks or discs, and dial recorders still function satisfactorily for their purpose and tend to be retained. However, the modern time recorder represents such an advance in this field that more and more firms are making use of them. It will be sufficient for the purpose of this unit to describe such a system.

No. 525

NO:……..

NAME:……

WEEK ENDING……..….20……

Harlow

	IN	OUT	IN	OUT	Total
ORDINARY TIME		Hours	Rate	₦	k
OVER-TIME					
LESS NAT. INS.					
OTHER DEDUC.					
NET WAGES					

Figure 14 Clock Card

Illustrations of clock cards for use in these machines are given in fig. 14. The clock cards are rules so that an employee's time is recorded in a special column. The machine is preset each day to allow for the card to be inserted in the slot of the machine up to the required depth. As soon as the card reaches the stop position the machine automatically and immediately stamps the time on it, changing from a blue marking to a red one at the appropriate time to indicate lateness and overtime working.

On the reverse side of the card it is easy to have printed rulings to facilitate calculation of the wages due, but many firms prefer to have a specially rules form for the purpose. They find that the space on the typical clock card is too cramped to do the job clearly. Special arrangements have to be made, of course, for the calculation of the wages due to piece workers, and this may be explained by taking an example as follows.

Example

Workers are employed in packing peaches into display cases. They are paid at the rate of ₦0.10 per case packed and passing inspection. Each worker will stack the filled cases on to a pallet-that is a raised platform which can afterwards be moved by means of a fork lift truck-and when the requisite number has been stacked will be given a signed chit entitling him or her to payment for so many cases at ₦0.10 each. On presentation of these chits at the end of the week a summary is made and this summary forms the basis of payment.

X Y Z PLC-WAGES CALCULATION SHEET

Name…… Department……. Clock No……
Rate of Pay…….. National Insurance……. PAY Code…….
Holiday Savings…….. Other Deductions Agreed……

Hours worked-ordinary time per clock card ……..at			₦	K
Overtime per clock card ……..at				
Overtime premium ……..at				
Bonus, 10% on total earnings	₦	K		
Less: PAYE……				
National Insurance……				
Holiday savings……				
Net amount payable			₦	

Employer's National Insurance ……..

CALCULATION OF PAYE

Total pay to lat week

Total pay this week _____

Less Tax free pay to date _____

Taxable pay per coding _____

Tax this week

₦_____

Figure 15 Wages calculation sheet

A specimen form for the calculation of the wages due to piece-worker in a machine shop is shown in Fig. 16.

PIECE-WORK ORDER

No:……..
Employee's Name:…… Date:……
Clock No:…….. Time Taken:….

Part:……		**Price:…….**			
Operation:…….		**Quantity:……..**			
No. Mode	Passed	Rejected	Rate	N	

Signed Employee: **Signed Inspection:**
Foreman:

Figure 16 Piece-work order

These orders are the employee's entitlement to be paid for the quantity of pieces he has completed which satisfactorily pass inspection. The agreed piece-work price is stated, as well as details of the work to be done.

3.1.3 Preparation for Payroll

As soon as the wages for an individual have been calculated and checked they are entered on the payroll or wages sheet. This will be done department by department, so that the total wages incurred by each may be ascertained. An illustration of a payroll is given in Fig. 17. In many large firms the name of each employee, his clock number, his income-tax coding, his rate of pay, and the standard deductions for national insurance, etc. are recorded on "addressograph" plates. A straight list may be run off to help in the completion of the clock cards, and the payroll may be initially prepared in the same way. If, as has been suggested, separate wage

PAY ROLL

No	Name	Total Hours worked	Rate	Basic pay	Over-Time premium	Gross pay	Free pay	Taxable pay to date	Tax due to date	Tax refund	Total deduction	Net pay	Employer
				₦	₦	₦	₦	₦	₦	₦	₦	₦	₦

Figure 17 Pay Roll

This specimen of a payroll allows for an additional wages column to e used for a particular purpose such as overtime premium. Most firms have then specially printed to suit their own requirements.

Calculation forms are used, these may be started by the plates, which need not then be used on the payroll. The payroll columns may be completed by handwritten figures, using one of the advertised systems, which at one and the same operation will produce the payroll, the personal earnings card for each employee, and the employee's pay slip. Alternatively, a front-feed accounting machine may be used for neat, speedy, and accurate results. Such machines will also automatically produce the totals of the columns.

In many Firms microcomputers have taken over this part of the accounting system. Even relatively small firms can now afford to operate a microcomputer which can be programmed to undertake effectively the tasks referred to above.

3.1.4 Allocation of Wages to Jobs and Processes

The allocation of wages to departments is done from the payroll itself. In the case of some concerns, the production department may correspond to processes, and the direct labour cost incurred for a process is obtained at once from the payroll.

Example

A sweet manufacturer has the following production departments:

Boiling
Rolling
Wrapping

The gross wages incurred in these departments for the month of November were: boiling, N1.600, rolling. N1.550, and wrapping, N1,500. These figures are those shown in the payroll. This means that the payroll will be sectionalized into boiling, rolling and wrapping departments. If we imagine that the specimen payroll shown in Fig. 20 refers to the boiling department, then the total of the gross pay column will show the figure of 11,600.

In addition to production departments known as service to the concern have a number of ancillary departments known as service departments. These are so named because they render services to the concern as a whole. Examples of such departments are the boiler-house, the work canteen, and the tool-room. The wages of such departments will also be obtained from sections of the payroll. However, there is a special wages problem involved in the case of concerns which undertake individual jobs for customers.

3.1.5 Making Up and Paying Out Wages

When a payroll is prepared department by department, as soon as the totals of the first have been cast and ruled off, it is possible to make up the pay packets for that section. Of course, this cannot be done unless the wages have already been drawn from the bank, and most of the larger firms have made an arrangement to do this on an imprest basis.

When the money is drawn from the bank, the bank cashier will want to know in what proportions of notes and coin he is to issue lit, and this information is given to him on the basis of previous requirements. On return from the bank, the total amount drawn is immediately checked and arranged in convenient piles. After this, the amount required

for each department is obtained by analysis of the net pay column, and is counted out from the cashier's table. The pay packets are then filled and provided no discrepancy is found, they may be sealed. Some firms find that automatic coin-dispensing machines help in the task of filling the packets.

Each pay packet will contain the employee's pay slip, giving details of the gross pay, less deductions. When paying out it is a useful arrangement for it to be done in the departments. and in the presence of the departmental foreman, who knows the employees. The clock cards are also often handed out to the operatives in advance, so that they can check on the amount of their wages; the cards are then handed in, signed, in return for the pay packet. Certain safeguards within the wages section are deemed advisable, and act as a form of internal check. For example, those who check the clock cards should not be concerned in the preparation of the payroll, ad those who do that work should not be concerned in the preparation of the payroll, and those who do that work should not be concerned in making up the pay or in paying out the wages.

SELF-ASSESSMENT EXERCISE

i. XYL PLC estimate that their wages will amount to ₦2,000 per week as a maximum, and on April 1 transfer that sum from their main account at Midas Bank to a wages imprest account. On April 5 they draw the sum of ₦1,900 on account of wages, and subsequently find that the wages amount to ₦l,950.84 net. In the second week the wages cheque is drawn for ₦1,980, and actual net amount of wages payable amounts to ₦l,975.77. Write up the wages imprest account.

ii. The problem of avoiding payment of wages to "dummy" workers is an important feature in the organization of a wages department. Discuss.

4.0 CONCLUSION

Wages control allows organization to maintain a record of job classification, the department and wage rate of each employee. It also determines the gross and net amount of earnings of each worker and keeps a record of those earnings.

5.0 SUMMARY

This unit discussed the price function of wages control in the organization. The department also sends relevant information to management to enable it apply the necessary control measures.

6.0 TUTOR-MARKED ASSIGNMENT

Describe the methods to be adopted in the wages and cashier's office to prevent fraud occurring in the preparation and payment of wages.

7.0 REFERENCES/FURTHER READINGS

Owler,C.W.J. and Brown, J.L. (1985). *Costing Simplified*, Pitman London

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UNIT 4 METHODS OF REMUNERATION AND THE EFFECT ON COSTS

CONTENTS

1.0 INTRODUCTION

There are basically three methods of remunerating individual, these are day rate, piece rate and premium bonus. The wage department normally maintains a record of job classification, the department and wage rate of each employee. It also determines the gross and net amount of earnings of each worker and keeps a records of those earnings. Other functions include summarizing the different deductions from the wages to be posted in total to the credit of the relevant accounts and summarizing the cost of overtime and bonus payments (if any).

2.0 OBJECTIVES

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

understand the problems of remunerating an employee.
understand the various methods of remunerating an employee.
explained ways of calculating employee remuneration.

3.0 MAIN CONTENT

3.1 Methods of Remuneration and the Effect on Costs

When considering which method of remuneration should be adopted, a number of major questions have to be borne in mind. Low wages do not necessarily result in low costs of production.. and innumerable instances may be given of manufacturers who pay high wages and whose costs are actually lower than those paying less wages to their employees. The reasons for this are not difficult to see because apart from the fact that

efficient workers earning good wages may produce better work and in greater volume, with less waste, there is the factor of the incidence of overhead expenses, and particularly of the fixed overhead. The saving in cost per unit due to the spreading of overhead over a greater number of units of production may, and often does, exceed the higher amount charged in the cost for well-paid labour.

Example

In victory A the wages paid are at the rate of₦4.00 per hour. Hours worked are 40,000 per annum. The overhead, most of which is fixed, amounts to ₦100,000. Production amounts to 100.000 units per annum. It is estimated that if the rate of pay was increased to ₦5.00 per hour. greater productivity could be obtained, and the shop stewards have agreed to increase production to 125,000 units.

Thus:

Case (1)

Wages 40,000 x ₦4.00	₦160,000
Overhead	100,000
	₦260,000

Cost per unit ₦260,000 \100,000 = ₦2.60

Case (2)

Wages 40,000 x X5.00	N200,000
Overhead	100,000
	₦300,000

Cost per unit ₦300,000 \125,000 = ₦2.40

Thus the total cost per unit would be reduced by NO.20. The factors which have to be considered include the following.

(a) The need for having a satisfied staff of workers
(b) The method which will produce the best work, from the point of view of (i) quality of work, (ii) quantity of output,. In-some case quality and precision are comparatively more important than quantity, and vice versa
(c) The cost of the method. Most wages systems are simple from the point of view of clerical work; others demand much detailed recording of times, quantities, etc., and correspondingly complex analysis and recording in the cost accounts.
(d) The flexibility of the scheme to permit of any necessary variations which may arise.
(e) The scheme must be readily understood by the employees. They understand straight time wages, piece-work rates, and

simple bonus schemes, but not complex ones.

(f) The incidence of overhead, which can be linked with schemes involving consideration of output and time-saving in production.

(g) Loss arises when there are frequent changes in labour personnel. The expenses of finding new employees, attending to their engagement records, instructing recruits as to routine and detailed duties are often overlooked, yet these are losses inseparable from labour turnover. A satisfactory basis of payment to discourage labour changes is therefore advantageous.

3.2 Methods of Remunerating Labour

Methods of remuneration may be classified as follows:

(a) Time-or day-rate wages based on the time employed, including extra payment for overtime.

(b) Payment by results:
  (i) Piece-work;
  (ii) Bonus schemes;
  (iii) Profit-sharing schemes.

3.2.1 Payment by Flat Time-Wages

Wages are paid at an agreed rate per hour, day, or week, without reference to the quantity of work done. Overtime is usually paid at higher rates, e.g. time and a quarter, time and a half, or double time.

There is no special inducement to attract more than average effort, except that the employee must work with sufficient diligence to ensure that his services will be retained.

The method is suitable in the following cases:

(a) Where supervision is close.

(b) For supervisors, inspectors, general labourers, and other classes of indirect labour,

(c) When measurement of work would not be simple, e.g. engine drivers, airline crew.

(d) For precision work, e.g. tool-markers and pattern-markers, where care is more important than speed and large output.

(e) Where high wages or rates are paid and standards of efficiency and output are set which the foremen must maintain.

3.2.2 Payment by Results

Piece-work

Individual piece-work. An incentive wage based on a fixed price per unit of work, regardless of time taken. The unit may be an article, a batch of a stated quantity, or an operation.

The advantages are:

(a) A high speed is usually developed;
(b) A larger output generally results;
(c) Constant repetition tends to uniformity of the product;
(d) The employer enjoys lower unit costs as output is increased, owing to the wider spread of the overheads over a larger number of units produced; the benefit is particularly important in regard to the fixed overheads, as in total they tend to remain the same, but the proportion falling to be borne by units produced becomes less as the output increases.

In the case of some workers, careful work may be a secondary consideration to quantity of output. Special inspection is thus required, which adds to the cost and thus, reduces the savings otherwise obtained.

There are several piece-work schemes wider which differential piece-rate are used, varying with the quantity produced, i.e. at stated increases in the number of units made the ordinary piece-work rate is increased. This serves as a special incentive for the worker to produce rapidly to earn the higher piece-rates offered.

Contract system. A collective piece-work contract is made with a contracting workman, who engages the men and pays them their share. Again, when a group of, say. Five workers feed and tend a machine, a price per 100 pieces (say) will be paid and is so fixed that the piece-rate provides wages which are equally divided among the workers, with, perhaps, the charge hand taking a double share.

Premium Bonus Scheme of Payment

Under piece-work system, the wages charge per unit in the costs remains constant, but labour's reward depends on the number of units produced, and output has a definite tendency to increase. The premium bonus schemes introduce a different principle; in that a bonus is given having regard to time saved over a pre-arranged time allowed per job.

Employees have an incentive to give their best efforts and save time on production orders, and the employer, knowing that he reduces his costs, seeks to maintain a sound organization and efficient plant to ensure maximum production.

The various systems of premium bonus schemes differ chiefly in the method of computing the proportion of saving which is to be paid as bonus to the employees.

There is a reduced charge per unit for overhead, due to the spread of total shop expense over a greater number of units produced. The sum of the savings on all the units or jobs is the "fund" to be divided between the employer and his employees. There is thus a limit to the amount available for bonus. This limit is flexible, as it is determined by the extent to which production is in excess of normal production based on standard or allowed-times for jobs.

The Halsey and the Halsey-Weir premium bonus schemes. These are similar, except that in the first the bonus paid 50% of the time saved (valued at the employee's hourly rate of pay) over the time allowed for the job, and in the second the premium bonus is 30%. However, it is customary to assume that the bonus is 50° o.

Example

An allowed time for a certain job of work is set at 3 hours, and employees Clark, Smith and Jones each do the job in 3,21 2 and 2 hours respectively, their ordinary wage rate being X4.00 per hour. The earnings under the Halsey scheme would be as below:

	Time Allowed (hours)	Time taken (hours)	Basic pay at ₦4.00	Time saved (hours)	Bonus time (50%)	Bonus pay ₦	Total pay for job ₦
Clark	3	3	12.00	nil	nil	nil	12.00
Smith	3	21 /2	10.00	1/2	1/4	1.00	11.00
Jones	3	2	8.00	1	1/2	2.00	10.00

At first sight it would appear that the slower workers are better paid, but although this is true for the individual job, it is not so for the amount earned per hour. Thus the amounts earned per hour are:

Clark ₦4.00
Smith ₦4.40
Jones ₦5.00

From this example it will be obvious that for a premium bonus scheme to work effectively there must be a sufficient number of jobs on hand to keep the workers continuously employed throughout the week.

The Rowan premium bonus scheme. Under this scheme the premium to be added to the pay-rate is the percentage that the time saved is of the time allowed.

It is often more convenient to calculate the wages at basic rates, and then add the percentage or proportion. Thus suppose the percentage to be added to the basic rate of N3.60 is 33 v'%. We may calculate:

(a) 8 hours at (₦3.60 + ₦1.20) = 8 x ₦4.80 = ₦38.40
(b) 8 hours at ₦3.60 = ₦28.80
Add 33 $^{1/3}$% = ₦9.60 = ₦38.40

To show the comparison between the Halsey and the Rowan systems, let us take the same examples as before. Payments under the Rowan system will be:

	Time Allowed (hours)	Time taken (hours)	Basic pay at ₦4.00	Time saved (hours)	Bonus time (50%)	Bonus pay ₦	Total pay for job ₦
Clark	3	3	12.00	nil	nil	nil	12.00
Smith	3	21/2	10.00	$^{1}/_{2}$	1/6	1.67	11.67
Jones	3	2	8.00	1	1/3	2.67	10.67

The Rowan system is seen to be more favourable to the employees at first, for savings up to 50% of the time allowed. Thereafter the Halsey scheme becomes more favourable-at least in theory-but there are limitations to the speed a worker can sustain day in and day out.

Other Bonus Schemes

The fixed bonus system

A separate fixed bonus per hour or per unit is given in each department if output reaches or exceeds a stated quantity. This is, in effect, a bonus for collective time saved.

Cost premium method

A standard cost is set up, and if the actual cost proves to be less, a proportion of the saving is distributed to the employees on some agreed basis. This is a collective bonus scheme.

Production "point" system

A "point" is made to represent the amount of work an employee should do in one minute, giving a fair allowance for rest. The "point" is determined by a time study of each operation or even part of an operation. Sixty points is thus the standard for one hour, or 480 for an 8-hour day.

An incentive rate is fixed "per point" and the employee is paid for his production measured in "point". In some cases only a proportion of his excess points over the daily standard-say 75%- is credited to him, the balance being allotted to a fund out of which the foremen and other indirect labour receive bonuses. This has not proved popular, and has largely been abandoned in favour of giving the operator his full earnings.

Example

A drilling operation is set up, the standard rate for which, in points, is 0.75 points per piece or 75 points per 100 pieces. The rate agreed is 8per point. A guaranteed daily wage for an 8-hour day is in force, at the rate of N4.00. The standard is set at 480 points per day, i.e. 60 points x 8 hours, equivalent to 640 pieces.
One operator completes 800 pieces
Another completes only 600 pieces.
The earnings will be
Operator 1 800 pieces x 0.75 = 600 points
600 points at 8p ₦48.00

Operator 2 below standard, therefore guaranteed pay is due
8 hours x ₦ 4.00 ₦32.00
He cannot claim to be paid ₦ 36.00 on the incentive points basis, which has been introduced to encourage high production.
(600 x 0.75 = 450 at 8p)

Collective bonus schemes

These are intended to create collective effort. They are effective only in certain circumstances.

(a) Where the group is small, say 10 or 15 in number
(b) When the group gets on with each other and work as a team.
(c) When the group has some control over the replacement of members who leave.
(d) When the bonus is calculated and paid out without delay.

These schemes are based on such factors as production output measured in points (Priestman's production bonus), reduced labour cost (Towne gain sharing method), or reduced production costs, already referred to.

Profit Sharing Schemes

These schemes usually provide for a certain percentage to be paid to all employees, in agreed proportions, out of taxed profits remaining after the fixed dividends have been paid on preference shares, and an agreed percentage on the ordinary shares.

Example

Company A has an issued share capital, fully paid up, considering of:
10,000 9% preference shares of ₦1 each
30,000 ordinary shares of ₦1 each.

It is agreed that 25% of the remaining taxed profits be paid to the employees after the payment of:

(a) The dividend due on the preference shares;
(b) A dividend of 15% on the ordinary shares

The after tax profits for the year are ₦ 20,0000.
How much would be available for the profit sharing scheme?
Dividends will absorb:

Preference shares 9%	₦ 900
Ordinary shares 15%	₦ 4,500
	₦ 5,400

Deducting this figure from X20,000 leaves taxed profits available for distribution of ₦ 14,600
The profit-sharing scheme will absorb 25% of this ₦ 3,650

In some cases an escalator clause is introduced into the scheme, so that, for example, the employees subsequently receive a further distribution if it is desired to authorize a higher dividend to the ordinary shareholders.

The payment of the share of profit cannot finally be made until the annual accounts have been audited and agreed, so that there is inevitably a considerable interval between the earning of the bonus and its receipt.

However, the advantage of receiving each year a lump sum bonus of substantial size, possibly coupled with an opportunity to acquire shares in

the concern which rank for dividend, will he an attractive co-operatives) will tend to become more common.

Nowadays, the annual reports of companies contain references to shares reserved for employees, substantial bonuses paid, etc. It is customary to take into account both earnings and length of service in fixing the scale of this additional remuneration.

From the employer's point of view such schemes powerfully help in increasing productivity and in keeping wages steady, since the amount of profit made, and consequently the amount to be shared out among the employees, will be governed largely by the efficiency of all departments. It is therefore in the interests of everybody to secure positive progress-both the maintenance and increase of sales and the reduction of total cost per unit produced.

SELF-ASSESSMENT EXERCISE

i. An operator has a basic hourly rate of ₦3 and every hour saved he is paid a bonus &f 50% of the basic rate:

Calculate

(i) The gross wage payable
(ii) The bonus earned.

If time allowed for job is 50 hours and the time taken is 40 hours.

ii. In considering the introduction of an incentive scheme. What general principles would you apply to determine its suitability?

4.0 CONCLUSION

In this unit, all the various methods of remunerating an employee was highlighted, and no particular method command any superiority. Organizations can adopt any of the methods.

5.0 SUMMARY

The management of an organization can determine any method of remunerating a employees, provided it will help in saving idle time.

6.0 TUTOR-MARKED ASSIGNMENT

Mal Bala whose hourly rate of pay is ₦1.00 was assigned the following jobs which he completed during a week.

Job No:	Time allowed (hrs)	Time taken (hrs)
21	24	18
61	40	25

1. You are required to calculate under Rowan premium scheme (i) Mal Bala's remuneration for the week (ii) Mal Bala's effective hourly rate for that week
2. What would Mal Bala's remuneration for the week have been if the Halsey 50/50 premium bonus scheme has been in operation?

7.0 REFERENCES/FURTHER READINGS

Owler, C.W.J. and Brown, J.L.(1985). *Costing Simplified*, Pitman London

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UNIT 5 ORGANIZATION FOR OVERHEAD CONTROL

CONTENTS

1.0 INTRODUCTION

Overhead costs are normally traceable to the various cost centres. The process of charging to a cost centre the overhead cost arising solely because of the existence of the cost centre is known as allocation. For overhead cost to be allowed two conditions must be fulfitled. They are:

1. The cost must be accurately determined.
2. It must be incurred solely by the cost centre.

An overhead cost is therefore apportioned if the cost is common to more than one cost centre.

2.0 OBJECTIVES

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

Discuss the main classification of overhead
Explain the various methods of depreciation
Describe the various expenses included under the main classification.

3.0 MAIN CONTENT

3.1 Organization for Overhead Control

A general idea of the nature of overhead has already been discussed.

3.1.1 Classification of Overhead

The main classification of overhead into:

a) Production overhead;
b) Administration overhead;
c) Selling overhead, and
d) Distribution overhead;

is straight forward enough, but in order to be informative, and to make control of expenditure easier, it is necessary to devise a suitable list of expense headings under each ol'these four main classifications. The particular headings will, of course, vary in some respects from one kind of business to another, but should be fairly uniform as between lirms which are engaged in the same trade or industry. Two principles will act as a guide.

a) There must be enough headings to cover every circumstance.
b) None of them should be so narrow in scope as to allow some items of expense to tall into a somewhat similar heading.

Cost accountants often refer to the expense headings for production overhead as "standing order numbers", and to those under the other classifications as "cost account numbers". There is no magic in these names, and expense numbers" or nominal headings" would do equally as well.

For the sake of convenient reference the headings have to be coded. This may be done in anyway desired, but there are two well-tried and acceptable methods.

The Mnemonic Method

This method uses as codes the letters of the alphabet in the form of memory aids. For example:

SA for sales,
MA for maintenance;
WA for wages
AD for administration, and so on.

These letter combinations would then be used in conjunction with numbers.

The Decimal Method

This is a system of numerical codes somewhat similar to the Dewey method used in libraries.

Illustration

One of the service departments of **HPLC** is the boiler-house. The fuel used is coke. Devise a code of standing order numbers for the boiler-house.

ANSWER

09 SERVICE DEPARTMENTS
09 01 Stores
02 Tool-room
03 Boiler-house etc.

09 03 BOILER-HOUSE
01 Stokers' wages
02 Stokers' overtime premium
03 Employers' national insurance 04 Coke
05 Water
06 Power for mechanical stoker
07 Heating and lighting 08 Depreciation
09 Fire and explosion insurance
10 Maintenance of boilers
1 l Maintenance of mechanical stokers
12 Maintenance of boiler-house instruments
13 Softening equipment supplies
14 General expenses

Thus, the invoice received for the insurance premium for the fire and explosion risk for the boilers would be coded 090309, and would be posted accordingly, either directly or via an overhead control account.

It will be seen from the above example that there can be as many divisions and subdivisions of the coding system as may be required. Obviously, it would be pointless to reproduce a whole coding manual in a text of this size; but it may be useful to you reader to have before you a short list of the kind of expense headings which could be expected under

the four main-classifications, and this has been given at the end of the chapter.

3.1.1.1 Fixed and Variable Overhead

At this stage you are asked to look more closely at the headings for the boiler-house `given in the precedinu2 illustration. Certain items of expenditure may be regarded as being fixed in amount, e.g. depreciation, while others are variable, e.g. coke. Even if the boilers are only lightly used during the dry season the depreciation is still incurred; on the other hand, the use of coke would be greatly diminished. Other expenditures are partially fixed and partially variable.

The effect of these various quantities inherent in the nature of overhead is extremely important to all businesses, and the measurement of what the precise effect is in particular circumstances really constitutes the problem of overhead.

3.1.2 Depreciation

You will notice further from the boiler-house headings that almost all the expenditures are directly incurred. That is to say, there is a payment of cash involved. The one notable exception to this is depreciation. The reason for this is that plant and machinery. and other fixed assets, are bought and capitalized, and therefore during the lifetime of the asset the cost is gradually written off to record the loss of value due to wear and tear.

In dealing with overhead, therefore, we must, among other matters, have a good system for recording particulars about our plant and other fixed assets; decide on a method of depreciation which we think is most suitable, schedule it and transfer it by journal entry from the asset account to the appropriate expense heading. A ruling for a plant register is given in Fig. 24, and it will be seen that it combines a method for scheduling, the annual depreciation. The methods of depreciation most frequently encountered are enumerated below.

1. STRAIGHT-LINE METHOD

This simple and effective method is much used, and is to be preferred for costing purposes owing to the uniform charge. The life of the machine, or other asset, is estimated; also the residual value. The cost, less the residual value (plus the cost of fixing, in the case of a new machine), divided by the estimated years of life, determines the ann ual amount of depreciation to be charged. A separate calculation should be made for each machine.

Ref. No.	Description	Date of purchase	Cost	Rate of Depreciation	20……..		20……		
					Depreciation ₦	Balance value ₦	Depreciation ₦	Balance value ₦	etc
E1	Leader No.2	3/1/19..	5,000	20%	1,000	4,000	1,000	3,000	
E2	10" Centre Lathe	2/1/19..	2,500	10%	250	2,250	250	2,000	

Note- The examples provide depreciation by the straight-line method, which is usually more satisfactory. More complicated forms of plant register may show details of periodical major repairs and renewals, sales and profits and losses on sales.

If, subsequently, capital additions and even abnormal expensive overhaul and repair are made to any asset the rate of depreciation will be adjusted by dividing the sum of the addition and the then value of the asset by the anticipated remainder of years of life.

A machine costs ₦10,000, and it is estimated that its residual value at the end of tem years will be ₦500. At the end of five years the machine is completely overhauled at a cost of ₦3,000. The depreciation for the first five years will be at rate of N950 per annum. tend the book value will have been written down to ₦5,250. The overhaul cost will be added to this, less the residual value, so that ₦7,750 must be written off over the next live years. The depreciation will therefore become ₦1,550 per annum.

2. REDUCING BALANCE METHOD

A constant annual percentage rate of depreciation is determined, which is written-off the reducing balance of the capital value, the rate being so fixed that at the end of the estimated life of the asset only the residual scrap value remains. In favour of this method it is argued that a heavier depreciation charge is borne in the earlier years, when repairs are lighter and that the assumed increasing repair cost is counter-balanced, in later years, by the reduced annual charge of depreciation. The assumption is frequently incorrect.

Example

A machine costing ₦10,000 is to be depreciated by the reducing-balance method at the rate of 20% per annum.

₦2,000 will be written off in year 1, leaving ₦8,000
₦1,600 will be written off in year 2, leaving ₦6,400 and so on.

3. PRODUCTION UNIT METHOD

When production can be estimated for the life span of a machine this method may be used to charge depreciation directly on to the products as a variable overhead.

Example

A soap company installs a toilet-soap tableting machine which produces 1 dozen tablets per operation. The cost of the machine is ₦60,000. It is estimated that production will be in the order of 12 million tablets before the machine has to be replaced. The depreciation per dozen tablets will be:

$$\frac{₦60,00}{12,000,000 \times 12} = ₦\ 0.06$$

4. REVALUATION METHOD

This is the most convenient method to use for loose tools and patterns, because new items are often being made in the works and added to the stock, while others become worn out and are discarded. It would he too costly and time consuming to keep records about each tool, and a quick examination by an expert at the end of the year, with a clerk noting down his valuation, is a far easier task. The method of revaluation is also used by farmers in regard to their livestock, and by racing establishments in regard to their racehorses.

SELF-ASSESSMENT EXERCISE

Discuss three methods of depreciation that are must frequently encountered.

3.1.3 List of typical expenses included under Main Classifications

1. Production Overhead

a) Rent of building and land. When the manufacturer owns the property a charge equivalent to rent may be made.
b) Rates imposed by local authorities.
c) Insurance on

(i) Factory property
(ii) Machinery
(iii) Fixed annual charge (if any) for automatic fire alarms, sprinkler installation.

d) Depreciation on:

(i) Plant and machinery
(ii) Buildings.

e) Salaries for managers and principal officials are often included
f) Interest on capital to the extent (if any) it is included as an item of cost.

g) Maintenance and repairs (which includes materials and labour used by maintenance service departments plus the overhead apportioned to these departments) of buildings, plant, machinery etc.
h) Oiling and cleaning machinery, shafting, motors, etc
i) Miscellaneous operating supplies (consumable stores)
j) Cotton waste, cloths for wiping
k) Belt-dressing, fasteners, etc.
l) Brushes for sweeping, dusting, scrubbing.
(iv) Oil, benzene, emery and sand-paper, carborundum dust
(v) Cleaning
j) Perishable tools, small taps, dies, drills, files, emery wheels, polishing wheels, oil-tones, saw blades, reamers, etc
l) Waiting time (=idle time). viz:

I. Machinery breakdown
II. Power-supply failure
III. Waiting for work instructions IV. Accident to workers
V. Waiting for material
VI. Waiting for tools, et

(i) Holiday and sickness with pay.
(m) Stocktaking and stores physical check expenses.
(n) Inspection and testing.
(o) (i) Experimental and research work
(ii) Designing for production.
(iii) Drawing-office expenses.
(p) Timekeeping and gate control.
(q) Supervision: foreman, assistants, superintendents.
(r) Shop clerical work, labour and stationary.
(s) Shop labouring, general indirect; shop cleaning, etc.

(i) Carriage inwards (unless added to the price of materials)
(ii) Storekeeper and assistants
(iii) Other charges, e.g. branding, measuring and cutting off materials for issue, but not expenses particular to a specific order.

(u) Training and instructing new employees
(v) Welfare; ambulance and first aid; canteens
(w) Waste-spoilt and lost materials, stock discrepancies, faulty work, etc.
(x) Insurance

(i) National
(ii) Machinery breakdown, etc.

(y) Overtime expenses (except when a direct charge) (z) Services.

(i) Power of all kinds
(ii) Steam service
(iii) Lighting
(iv) Heating
(v) Other services, e.g. fire protection, internal transport.

2. Administration overhead

a) Salaries of executives, managers, etc.
b) Clerical expenses
c) Office expenses

(i) Rent, rates, insurance (excluding the proportion applicable to the works).
(ii) lighting, heating and cleaning
(iii) Repairs and maintenance of buildings
(iv) Repairs of equipment: machines.

d) Stationery, postage, telephones.

3. Selling overhead

a) Sales office expenses
b) Travellers' salaries, commission, and expenses
c) Advertising; catalogues; price-lists; samples
d) Discounts allowed (sometimes excluded from costs)
e) Estimating; preparing drawings and designs for tenders.

4. Distribution overhead

a) Warehousing of finished goods
b) Packing and warehouse trucking
c) Loading; loading conveyors, charges for cranes, hoists, etc.
d) Delivery-upkeep and running of vehicles; outward freight and carriage.

3.1.4 Expenditure Excluded from cost

Such items as income tax, cost of fixing new plant (except for a specific job), bonuses to employees voted at an annual meeting (being an apportionment of profit), dividends, cannot be included as items of cost. Various kinds of expenses connected with financing, and exceptional losses such as abnormal waste and abnormal loss, are ordinarily also excluded. Some exclude cash discounts received and allowed; and again, while bad debts are included in selling overhead by some accountants, others exclude them.

It is usual to exclude large abnormal losses such as, for example, obsolescence. Obsolescence is the process by which an asset loses its value by falling into disuse, other than by wear and tear. The term is generally used to indicate loss of value when, say, a machine or building is discarded before the expiration of its normal life, usually because of its inability to compete with one better adapted or of more modern type. There is a sudden, rather than gradual, diminution in value. If plant is scrapped before the original costs of plant and fixing have all been written off, the balance of the capital value is therefore transferred to obsolescence account, and from thence at the end of the year it is written off to profit and loss account.

SELF-ASSESSMENT EXERCISE

i. Comment on the choice of an overhead absorption rate based on direct labour.

ii. Distinguish between overhead allocation and overhead apportionment.

4.0 CONCLUSION

Manufacturing overhead which is also known as factory production overhead is any production cost that is neither direct material nor direct labour. It is always included in the production cost before arriving at the total cost of production.

5.0 SUMMARY

In this unit we treat issues relating to overhead. Manufacturing overhead costs include indirect material such as factory supplies, indirect labour, depreciation of factory equipment and repairs and maintenance of factory equipment.

6.0 TUTOR -MARKED ASSIGNMENT

A multi-drilling machine has just been installed in an engineering factory and is designated plant register number 11/27.

Details are as follows

Original cost including installation:	N26,600
Estimated life span: 10 years	
Estimated scrap value after 10 years:	N600
Floor space occupied: 250 square metres	
Number of operator: 2	
Estimated running hours: 1,800 hours per annum	
Estimated cost of maintenance:	N480 per annum
Estimated cost of power:	N2,000 per annum

The following data relate to the department in which the machine is located:

Floor area: 5,000 square metres
Number of machine operators: 60
Rent, rates, light and heat: N8,800 per annum
Supervision: N7,200 per annum

Using the information given above, calculate a machine-hour absorption rate for machine 11/27.

7.0 REFERENCES/FURTHER READINGS S

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MODULE 3

Unit 1 Cost Classification
Unit 2 Cost Behaviour
Unit 3 Standard Costing
Unit 4 Cost Ascertainment
Unit 5 Planning System Concept

UNIT 1 COST CLASSIFICATION

CONTENTS

1.0 INTRODUCTION

In performing his managerial functions of planning and control, the information about 'costs' is of vital importance to the cost accountant. In choosing among alternatives and planning and the optimum utilization of resources, he should know costs of each alternative. Costs data are also needed to make decisions such as pricing, volume, make or buy replacement, assets acquisition, product mix, etc.

Further, the performance of executives and their subordinates can be evaluated and controlled only when a comparison between the costs actually incurred and the costs that should have been incurred is made.

2.0 OBJECTIVES

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

Explain the nature of cost.
Explain cost classification in a manufacturing firm
Describe cost concepts for planning and control.

3.0 MAIN CONTENT

3.1 Cost Classification

3.1.1 Nature of Cost

There is not a universal definition of the term, "cost". Accountants, economists, engineers and others, to suit their individual needs, have developed a number of cost concepts.

One general definition of cost is: cost is a forgoing or sacrifice, measured in monetary terms, incurred or potentially to be incurred; to achieve a specific purpose.

Their basic features inherent in this definition are:

1. Cost is the measurement of a foregoing or a sacrifice. The forgoing or sacrifice is represented by a current or future decrease in cash or other assets (resources) or an increase in current or future liabilities.
2. The uses of resources are measured in monetary terms. Resources that constitute the element of cost are material, labour service and other services.
3. Since a forgoing or a sacrifice is made to secure some specific benefit, cost should be measured in the context of the stated objective.

The traditional cost accounting system recognized only one purpose of cost:- stock (inventory) valuation and profit determination. This purpose underscores the historical concept of cost. The modern systems of management, on the other hand, are future or predicted costs are, therefore, measured for planning and control and other decision making purpose.

3.1.2 Cost classifications in a manufacturing firm

Historically, cost accounting system was concerned with the study of manufacturing costs. The reason for this pre-occupation of cost accounting system with manufacturing costs was the fact that the managerial techniques of planning and control were first developed in manufacturing concerns because of their complexity of operations and greater degree of uncertainty attached tot them. In modern times, equal importance is given to the measurement of both manufacturing and non-manufacturing costs, since the planning and control functions are equally relevant for both manufacturing and non-manufacturing operations.

3.1.2.1 Elements of manufacturing cost

Manufacturing is a process of converting raw materials into finished goods through the use of labour service and other facilities in factories.

There are three (3) major elements of manufacturing costs:

1. Direct materials cost.
2. Direct labour cost.
3. Factory overhead cost .

Direct materials cost

Materials are physical commodities that enter into the making of a product. These are sometimes called store or raw materials. The term materials used in the cost accounting is not restricted to natural resources only: the finished products of one firm can he a raw material for another. For example, the cardboard or tin sheets manufactured by a firm would be raw material for a packaging -cases manufacturer.

Materials may be classified as direct or indirect with respect to a product manufactured. Direct materials are those which can be directly and conveniently identifies with the physical units of finished product: These materials really enter into, and become a part of the finished product. For example, leather used to manufacture a pair of shoes or wood used to make a chair or steel used to produce a stellalmirah are direct materials since they can be directly traced to respective finished products.

Indirect materials, on the other hand, are those materials that are used in the manufacturing operations, but do not become the part of a finished product. These goods cannot be identified with them. The examples of indirect materials are' cotton waste, lubricants, grease oil etc. Indirect materials are a part of factory or manufacturing overhead.

The distinctions between direct and indirect materials is not very rigid; it is based on practical and pragmatic grounds. Some materials like glue, nails, thread, screws are logically traceable to finished goods. But because of the impracticality of tracing these materials' costs the it is more prudent to classify such costs as indirect materials cost.

Direct Labour Cost

Like materials, labour is also classified as direct and indirect. Direct labour is one which is directly involved in converting raw materials into the finished goods. Cost spent on direct labour can be directly traced to the finished goods. Thus, wages paid to the workers who operate

machine which manufactures products, to the workers who assemble manufactured part into finished products, or to those who do finishing work on the manufactured goods, are examples of direct labour cost.

Indirect labour is that which is required to perform manufacturing activities generally but is not directly involved in the conversion of raw materials into finished goods. Wages paid to foremen. clerks, material expediters-time keepers. Purchases. and assistants, maintained employees, etc are examples of indirect labour cost.

Factory Overhead

Factory overhead comprises all indirect manufacturing costs which cannot be identified with specific units of the finished products; factory overhead is not an expense. It is a part of product cost and will become expense only when products are sold. Factory overhead is supplies. Fixed factory overhead, on the other hand, is non-variable with production. Examples are depreciation, insurance, rent, plant supervisor's salary.

3.1.3 Cost concepts for planning and control

In financial accounting, the emphasis is on historical costs while the focus in management planning and control is on future or estimated costs. Realistic and attainable standard for various elements of costs are developed for estimating costs. These estimated or standard costs are incorporated into the operating plans (budgets) of the business enterprises. While estimating costs, an important factor to be considered is the behaviour of costs with the level of activity or volume.

Some costs have the tendency of varying with activity while others are non-variable. The variability of costs certainly has a significant bearing on the plans of the firm. Further, future or estimated costs are used as bench-marks to evaluate and control performances of executives and their subordinates. The planning and control activities of the firm also include choosing among alternatives. In making the choices, all relevant costs should be considered. The concepts of differential and marginal costs are important in such situations.

SELF-ASSESSMENT EXERCISE

i. Discuss briefly the matters you would consider in planning a costing estimate for a manufacturing company.
ii. An existing cost system lacks the essential aspects of cost control. List the main matters to be introduced to make good the system's deficiencies.

4.0 CONCLUSION

To determine the cost of production, costs incurred are assigned to products. Some costs are difficult to be traced to products. Variable costs are comparatively easily assignable since they can readily and reasonably be identified with products, manufactured. This does not imply that variable costs and direct costs are necessary identified. Some direct costs are variable while others are not.

5.0 SUMMARY

Cost is a forgoing, measured in money terms, incurred or potentially to be incurred for a specific purpose. The basic purpose of cost accumulation are: inventory valuation and profit determination. However, cost data are very useful in economic decision making. They are required for making decision such as pricing, volume, make or buy, replacement, product nix, and assets acquisitions. Costs data also aid in planning and control and performance evaluation.

6.0 TUTOR MARKED QUESTION

Why do many firms find it advantageous to introduce a system of cost accounts in addition to the financial accounts?

7.0 REFERENCES/FURTHER READINGS

Harngren. C.T. (1973) cost accounting: A managerial emphasis, prentice-hall of India PCL Ltd

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UNIT 2 COST BEHAVIOUR

CONTENTS

1.0 INTRODUCTION

Management must be aware of how costs and revenue will react to change in the level of output if, there is to be effective planning and decision making. In Module 3 Unit 1 we have discussed the classification of cost and the inherent problems associated with the conventional classification. In this unit, the behaviour of cost associated with the classification will be discussed.

2.0 OBJECTIVES

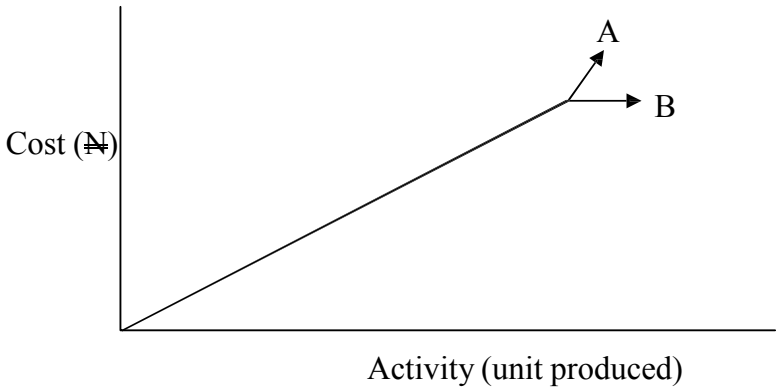
By the end this unit, you should be able to:

Describe the cost patterns.
Fxplain cost.
Explain the revenue Behaviour patterns

3.0 MAIN CONTENT

3.1 The Cost Patterns

Normally for an increase in the level of activity, there is a uniform increase in cost. This assumption that a linear relationship exists between activity and cost is made by the accountant. But is it always valid? The economist would disagree with the accountant’s viewpoint maintaining that it is not linear relationship that exists, but rather what he refers to as a curvi-linear relationship. This can be illustrated in relation to two major variable costs: Direct material and Direct labour. The economist's graphical presentation of such costs may be as follows:

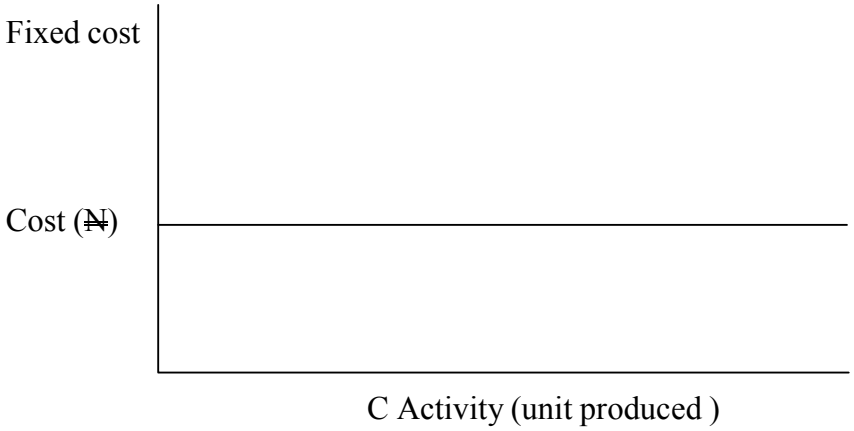


In the above graph it can be seen that as higher levels of activity are attained, the variable cost per unit may increase (line A); or it may decrease (line B). what reasonable explanation may be given for his curvi-linear relationship if we are attempting to illustrate graphically direct materials and direct labour costs?

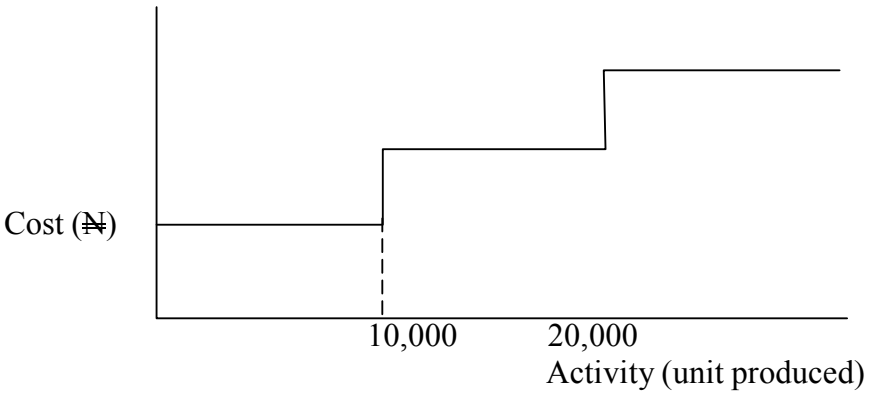
Line A: This increasing variable cost per unit could be explained by a restriction on the availability of the resources (i.e paying a premium for extra material or paying at an increase rate for overtime hours worked by employee)..

Line B: The decreasing variable cost per unit may be explained. For example in relation to direct materials by the company taking advantage of the economics of scale and obtaining a discount by buying bulk, or in relation to labour learning curve showing the process of labour time and consequently cost, as more and more units are produced until the point of maximum efficiency is reached.

The level by fixed cost remains constant as it is unaffected by changes in the level of activity within a limited range of output, as shown below graphically.



But at some point it may become necessary to increase fixed costs in order to increase output (e.g rent of N50,000 may be sufficient to allow for production up to 10,000 units, but in order to increase output to possible 20,000 units would require additional premises with rental costs of say, N40,000 extra). This can be expressed graphically.



It can be seen from the above how fixed cost has increased at a level of activity of 10,000 and 20,000 units. Due to its appearance, this is known as a "stepped fixed curve".

3.1.2 Cost Forecasting

This background is vital to the management accountant when he is attempting to forecast future cost behaviour for use in planning and decision making.

There are there broad approaches to the problem of cost forecasting:

(i) That based on extrapolation of historical costs and data, frequently using statistical analysis of varying degree of sophistication
(ii) The accounts classification method; and
(iii) The industrial engineering approach.

(i) These are Dealt with Below

Forecasting using historical data frequently data will be available on the part cost incurred, performance levels output, sales and similar matters which are used as a basis for forecasting future values, numerous techniques have been developed to help with this process ranging from simple arithmetic and visual methods to advanced computer based statistical systems.

(ii) The Accounts Classification Method

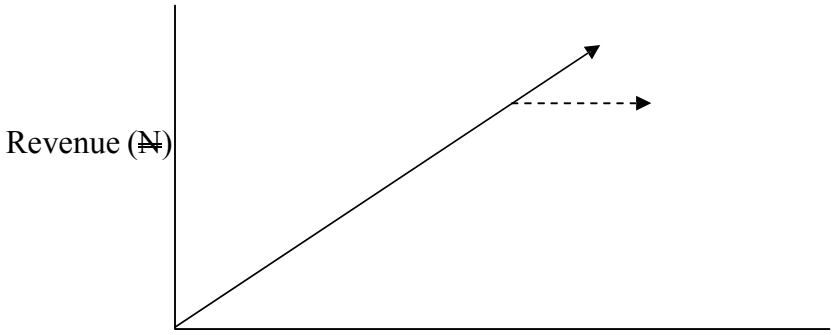
This method involves examination of the accounting records and classifying each item on the basis of its assumed behaviours, e.g rent and rates as fixed, material cost as variable, for each of these costs an estimate must be made of the fixed and variable components.

(iii) Industiral Engineering Approach

Where there are no previous cost records, for example, the launching of a completely new product-or where conditions have changed substantially any form of statistical analysis is likely to be of little or no value. It is in such circumstances that engineering approach can be used. This method uses a detailed, elemental approach to establish the required level of inputs (materials, labour. facilities, capital equipment) for a particular level of output. These physical inputs are then converted into money cost. The engineering approach is lengthy and can be expensive but when used for the right purpose it can be quite accurate.

3.1.3 The Revenue Behaviour Patterns

We may now review the behaviour patters of revenue and activity.



It can be seen that a linear relationship has been assumed, so that as activity increases, revenue increase by a uniform amount.

The dottled line represents the economist's assumption that a curvi-linear relationship is in existence. The rationale behind this is the basic effect of supply and demand (i.e the point will arise where in order to increase sale volume, the sales price must be reduced). The accountant, however, still persists with the assumption of linearity, as again this will tend to be valid within the relevant range, and the costs of attempting to determine the correct curvi-linear relationship would outweight the

benefits to be derived from the practical use of such information.

SELF-ASSESSMENT EXERCISE

i. "Cost alone does not determine selling price. The keenness of competition in normal times often determine the price at which goods are sold". Write an essay on the cost accountants function in relation to price fixing.

ii. The board of directors have called a meeting to discuss possible price changes. The proposal before the board is that $7^1/_2$ per cent reduction in selling price should be made.

The budget for the next twelve months discloses that estimated sales are 200,000 units at N4 cacti. Variable cost are N2.50 per unit and fixed costs are N125,000 units per annum it is estimated that 260,00 units per annum could be produced with no further increase in fixed costs or in variable cost per unit.

Write a brief report, without using technical accounting language, bringing out from the facts given the significant features of the proposal.

4.0 CONCLUSION

The methods and techniques illustrated in this unit are most appropriate for short-run planning and decision making purpose. This means that the relationship between costs and activity are only likely to hold good over a relatively short-time span. Over longer time periods, unpredictious factors are bound to occur, technology will improve materials may become scare, so that predictions of cost behaviour, based on examination of historical data, are likely to be increasingly unreliable.

5.0 SUMMARY

The ability to predict costs (and other factors such as sales) is a vital part of supplying information for planning and decision making. Costs frequenly do not behave in regular fashions and a cost may be linear, curvi-linear or stepped at different activity levels.

6.0 TUTOR-MARKED ASSIGNMENT

Analysis of cost and activity data shows that the variable cost of part No. 320 can be represented by function:

Variable cost of part No 320 =

$bx + Cx^2 + dx^3$.

Where: b = material cost per unit = ₦3
c = labour cost per unit = ₦0.80
d = variable overheads per unit = ₦0.06

Calculate

1. Variable cost when production is 10 units
2. Variable cost when production is 15 units

7.0 REFERENCES/FURTHER READINGS

Horngren, C.T (1973) *Cost Accounting*, A managerial emphasis, Prentice-Hall of India PVC Ltd.

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UNIT 3 STANDARD COSTING

CONTENTS

1.0 INTRODUCTION

Standard costing is an important control techniques which follows the feedback control. Standard costing establishes predetermined estimates of the cost of production or services, collects aural costs and output data and compares the actual results with the predetermined estimates. The predetermined costs are known as standard, costs and the difference between standard and actual is known as a variance. The process by which the total variance or difference between standard and actual cost is subdivided is known as variance analysis.

2.0 OBJECTIVES

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

Explain how standards are developed.
Explain the importance of the behavioural aspects of standard costing. Describe the principles of variance analysis.
Explain the method of setting the standard cost.

3.0 MIN CONTENT

3.1 Standard Costing

3.1.1 How standards are developed

Both standards and budgets are concerned with setting performance and cost levels for control purpose. They, therefore, are similar in principle although they differ in scope. Standards which can be used for control purposes rest on a foundation of properly organized. standardized methods and procedures and a comprehensive information system. It is little point trying to develop a standard cost for a product if the production method is not decided upon. A standard cost implies that a target or standard exists for every single element which contributes to the product; the types usage and prices of materials and parts, the grades, rates of payment, times for the labour involved, the production methods and layouts, the tools and jigs and soon considerable efforts is involved in establishing, standard costs and keeping them up to date. Traditionally, the standard cost for each part or product is recorded on a standard cost card. With the increased usage of computers for costing purposes frequently nowadays there is no physical standard cost card. When a computer is used, the standard costs are recorded on a magnetic disk or tape file and can be accessed and processed as required. Whether a computer or manual system is used, there are no differences in the principles of standard costing. although there are many differences in the method of day to day operation.

3.1.1.1 Responsibility for setting standards

The line managers who have to work with and accept the standards must be involved in establishing them. There are strong behaviour and motivational factors involved in this process. Work study staff, engineers, accountants and other specialists provide technical assistance and information but the line managers must be involved in the critical part of standard setting, that of agreeing the level of attainment to be included in the standard.

3.1.2 Behaviour Aspect of Standards

Because of the detailed nature of standard costing and its involvement with foremen and production workers, communication becomes of even greater importance. Production workers frequently regard any form of performance evaluation with deep suspicions, and if a cost-conscious, positive attitude is to be developed, close attention must be, paid to the behavioural aspects of the system. Full participation, realistic

standards, prompt and accurate reporting, no undue pressure or censure-all contribute to an acceptable system. Remember if the system is not accepted by the people involved it will be unworkable.

3.1.3 The principles of variance analysis

An important objective of standard costing is to be able to monitor current operational performance against standards by the use of variance analysis. This procedure follows the control cycle.

It will be recalled that a variance is a difference between standard cost and actual cost. Invariably, it is qualified in some way. For example, labour efficiency variance, direct material yield variance and so on.

The process by which the total difference between standard and actual cost is analysed is known as "variance analysis". Variance arise from differences between standard and actual quantities, efficiencies and proportions and/or differences between standard and actual rates or prices.

These are the causes of variances, the reasons for the differences have to be established by investigation.

Notes:

(a) Variance may be "adverse" i.e where actual cost is greater than standard or they may he favourable where actual cost is less than standard. Alternative terms are minus plus variances, respectively.

(b) The accounting use of the term variance should not be confused with the statistical variance which is a measure of the dispersion of statistical population. In statistical terminology, an accounting variance would be known as a deviation.

3.4 The Method of Setting the Standard Cost

The standard cost for each items is made up of each of the cost elements: materials, labour, variable and fixed overhead. The responsibility for determining the standard cost for each cost element should be primarily with the management responsible for using them albeit under supervisory control. We can now examine each cost element to determine what information is required to formulate the standard cost and from whom that information should originte.

Material: Information required	Source of information
(i) Specification	Design Department
(ii) Quality	Production Department
(iii) Price	Buying Department

Labour:

(i) Grade	Production planning department
(ii) Time	Work study
(iii) Rate of pay	Personnel Department

Variable Overhead:

(i) Budgeted expenditure	Departmental budget
(ii) Basis of absorption	Management accountant

Fixed overhead:

(i) Budgeted expenditure	Departmental budgets
(ii) Basis of absorption	Management accountant
(iii) Level of activity	Departmental budgets

SELF-ASSESSMENT EXERCISE

i. What information would be required to set a standard manufacturing cost for a completely new machine which an engineering company is to make for sale? From where would this information be obtained? Present your answer in brief numbered paragraphs.

ii. A manufacturing company is operating a system of cost finding for products. What changes are necessary to establish a comprehensive system of budgetary control and standard costing?

4.0 CONCLUSION

Standard costing involves comparing actual cost with predetermined cost and the analysis differences known as variance.

5.0 SUMMARY

Standard costing is the preparation and use of standard costs, their comparison with actual cost and the analysis of variance as to their causes and points of incidence.

6.0 TUTOR-MARKED, QUESTION

The following figures refer to a department in a business for a normal week:

	₦
Direct materials	40,000
Direct wages	10,000
Variable overhead	15,000
Fixed overhead	20,000

The standard direct wage rate is N250 per hour and production amounts to N50,000 units in a 40 hour week. Wages are paid at hourly rates, and variable overheads are absorbed at the rate of 150 per cent of direct wages. During a particular week, 4 days are worked instead of days, owing to fall-off in demand for the product, but the productivity of direct labour increases by 10 percent. Present figures in respect of this week.

7.0 REFERENCES/FURTHER READINGS

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UNIT 4 COST ASCERTAINMENT

CONTENTS

1.0 INTRODUCTION

The whole process of cost ascertainment is directed towards the establishment of what it actually cost to produce an article, run a department or complete a job. The costs involved are past costs i.e those that have already been incurred. Thus, the cost ascertainment process (like financial accounting) in concerned with collecting, classifying. recording, analysis and reporting upon the financial consequences of past actions.

2.0 OBJECTIVES

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

Explain the process of establishing overheads Explain overhead absorption and absorption costing. Distribution between marginal costing and absorption costing.

3.0 MAIN CONTENT

3.1 Cost Ascertainment

3.1.1 Establishing overheads

The process of establishing overheads is more involved than for direct costs. The conventional process includes defining a number of cost centres and then allocating or apportioning costs to the cost centres. These terms are defined below:

Cost centre

production or service location: function, activity or item of equipmcnt whose costs may be attributed to cost units. Terminology

Basis	Costs which may be apportioned on this basis
Floor area	Rates, rent, heating, Cleaning, lighting, building depreciation.
Volume or space occupied	Heating, lighting, building depreciation
Number of employees in each cost centre	Canteen, welfare, personnel, general administration, industrial relations, safety.
Book (or replacement) values of plant, equipment, premises, etc.	Insurance, depreciation
Stores requisition	Store-keeping
Weight of materials	Store-keeping, material

Thus, through via the cost centre coding system, costs are gathered together according to their incidence. The gathering together of the indirect costs results in the establishment of the overheads relating to each cost centre which is an essential preliminary to spreading the overheads over cost units.

Cost allocation

This is the term used where the whole of a cost, without splitting or separation, can be attributed to a cost unit or cost centre.

All direct costs being identifiable with a cost unit can be allocated without difficulty. Allocation is less frequent with indirect costs but for some items it is possible. For example, fuel oil for a heating boiler which supplies heat to the whole factory could be allocated to the boiler cost centre.

Apportionment: The process which is common for indirect costs, involves the splitting or sharing of a common cost over the receiving cost centers on some basis which is deemed to reflect the benefits received. The following table gives examples of typical bases of apportionment.

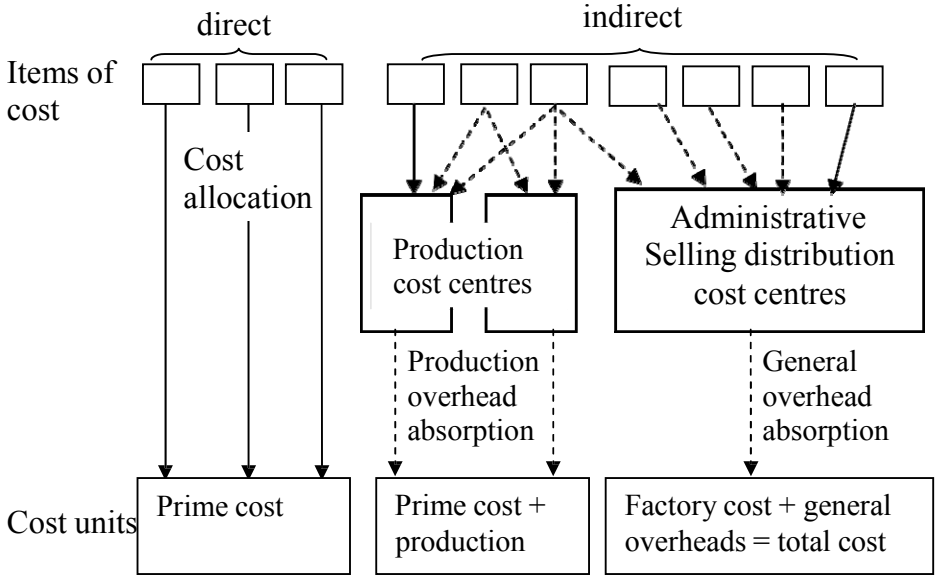
Note

The process of apportionment, although commonly used for cost ascertainment purposes, is a convention only and as such its accuracy cannot be tested. Furthermore, the use of data which involves apportionments for planning, control or decision making purpose is likely to give misleading results. Accordingly the management accountant must carefully analyze the methods by which cost data are prepared and make appropriate adjustments before using such data for management accounting purpose.

3.1.2 Overhead Absorption

Overheads form part of total cost but cannot be directly identified with a given cost unit in the way that direct costs can be. Accordingly overheads are spread over the cost units by the process known as overhead absorption or overhead recovery.

This is conventionally done by calculating an overhead absorption rate (OAR) based on the estimated overheads for a cost centre and the expected number of direct labour hours or ma,htines hours for the cost centre. Lbour and machine hours are the most common bases. Methods such as these more accurately reflect the incidence of overheads in labour or machine intensive departments, respectively, but note that this view is challenged by newer developments such as Activity-based costing. Having defined the various terms the, build up of total cost can be shown



The conventional build-up of total cost

3.1.3 Absorption costing

The procedure outlined and marginal costing far by which overheads is absorbed production is known as absorption costing or sometimes total absorption costing. Because total overheads contain items which are fixed in nature (those which ddo not change when the level or less directly with activity changes , eg raw material usage), absorption costing has implications for stock valuation and performance measurement which as subject to criticism from some accountants. An alternative method of costing, known as marginal costing, excludes fixed from the absorption process and charges them in total against the period's results.

Marginal costing distinguishes between fixed costs and variable costs. The marginal cost of a product is its variable cost, i.e it includes direct labour, direct materials , direct expenses and the variable part of overheads. Marginal costing can be defined as:

> "the accounting system in which variable costs are changed to cost units and fixed cost of the period are written-off in full against the aggregate contribution. Its special value is in decision making ". *Terminology.*

The term `contribution" mentioned in the formal definition is the term given to the difference between sales and marginal cost.

Thus:

Marginal cost
= Variable cost
= Direct labour + Direct expenses + Variable overheads.

Contribution

= Sales - Marginal cost

The term marginal cost sometimes refers to the marginal cost per unit and sometimes to the total marginal costs of a department or batch or operation.

There are two main uses for marginal costing principles

a) As a basis for providing information to management for planning and decision-making. It is particularly appropriate for

short run decisions involving changes in volume or activity and the resulting cost changes.

b) It can also be used in the routine cost accounting system for the calculation of costs and the valuation of stocks. Uses in this fashion, it is an alternative to total absorption costing. This facet of marginal costing is dealt with below.

Absorption costing, sometimes known as total absorption costing is the basis of all financial accounting statements and the basis used for the first part of this unit. Using absorption costing, all costs are absorbed into production and thus operating statements do not distinguish between fixed variable costs.

Consequently, the valuation of stocks and work-in-progress contains both fixed and variable elements. On the other hand, using marginal costing, fixed costs are not absorbed into the cost production. They are treated as period costs and written off each period in the costing profit and loss account. The effect of this is that finished goods and work-in-progress are valued at marginal costs only ie the variable elements of cost, usually prime cost plus variable overhead. At the end of a period he marginal cost of sales is deducted from sales revenue to show the contribution, from which fixed costs are deducted to show net profit. The two approaches are adopted.

SELF-ASSESSMENT EXERCISE

i. During the year, 20,000 units of Z were produced and sold. Costs and revenues were:

	₦
Sales	100,000
Production costs:	
Variable	35,000
Fixed	15,000
Administrative + selling	
Overheads fixed	25,00

Required

Show the net profit using both absorption and marginal costing approach.

ii. What do you understand by the term `marginal costing'?

4.0 CONCLUSION

Although the method of presentation was different, both marginal and absorption costing produced the same net profit. This was because there was no stock at the beginning or end of the period.

5.0 SUMMARY

No generalized, all embracing answer can be given as to which techniques should be used. The accountant should make a judgment as to which techniques is more appropriate for the requirement of a particular organization. Although any technique can be used for internal purposes, SSAP is quite clear that absorption costing must be the basis of the financial accounts.

6.0 TUTOR-.MARKED QUESTION

Assume the same data as exercise 1 except that only 18,000 of the 20,000 units produced were sold, 2,000 units being carried forward as stock to the next period.

Required

Show the net profit based upon marginal costing and absorption costing principles.

7.0 REFERENCES/FURTHER READINGS

Ola, C.S (2003). *Management Accounting,* Claverianum Press Ibadan.

Walker, C.J. (1982).*Principles of Cost Accounting* MacDonald and Evans London

UNIT 5 PLANNING SYSTEM CONCEPTS

CONTENTS

1.0 INTRODUCTION

Systems exist in very facet of life. There are mechanical system, biological systems, information systems, social systems, organizational systems and innumerable others; In this unit, we will discuss system as it relates to planning.

2.0 OBJECTIVES

By the end of this unit you should be able to:

Explain the relevance of systems theory to planning;
Describe open and close system;
Discuss sub-optimality;
Explain that planning and control are related.

3.0 MAIN CONTENT

3.1 Planning System Concept

3.1.1 Systems Approach

The systems approach avoids taking a piecemeal approach to problems and directs the activities of the components or sub systems of the total system towards meeting overall objectives. The systems approach recognizes that changes cannot be made to some parts of the system without considering the effect on the system as a whole and that

the overall system characteristics are greater than the sun of the separate parts. This later is known as the synergy or the 2 + 2 = 5 effect. In relation to a particular organization the systems approach would require consideration of the following factors:

a) the system must be define. This requires establishing the boundaries (real or arbitrary) which encompass the system must be specified.
b) The real objectives of the system must be specified.
c) The environment in which the system operates, the interactions with the environment, and the constraints which it imposes.
(d) The indicators which will be used to measure the performance of the system as a whole.
e) The current and anticipated resources available to operate the system.
f) The parts of the system (i.e the sub systems) their relationships, activities and objectives must be studied to ensure conformity with overall system objectives.
g) The way that the system managed, ie the planning and controlling of the system through information networks.

Note: It will be seen how the systems approach aligns closely to good management practice. It is objective oriented, an overall view is taken and the effect of the environment are considered.

3.1.2 Types of Systems

For our purpose, the three most relevant types of systems are deterministic, stochastic and adaptive.

Deterministic or mechanistic system

These are the simplest systems which are perfectly predictable. ie given the inputs, the outputs can be predicted accurately. Machines and computer programs are examples of deterministic systems.

Stochastic or probabilistic systems

In these systems some states can be predicted from a previous state but only in terms of probable behaviour. Predictions will always have a certain degree of error because of the existence or random variations in the values of the systems components caused by internal and external influences. For example, in an inventory control system the average stock or average demand can be predicted buy the exact value of these factors at a future time cannot be predicted. Various control

systems (e.g inventory control, production control, quality control) are installed to detect and control the variations in order that they do not become of such magnitude as to endanger the fulfillment of the system objectives.

Adaptive or self-organizing or cybernetic systems

These are highly complex systems which adapt to the environment by altering their structure and/or parts and/or behaviour. This adaption is of the system and not merely the alteration of some parameter (eg a stock level) within the system. This class of system includes all living systems- animals, plants. social groups and organizations. It is a primary task of management to ensure that organization continually adapt to changes in the environment to ensure survival and development. It is essence of long-term planning that recognition is given to the fact the organizations are adaptive systems and that environmental influences are all important.

3.3 System relationship with the environment

The environment of a system is all other systems outside its own boundaries. Thus the environment of an organiation are the systems (i.e the markets, suppliers, competitors, distribution and so on) in the sector of the economy in which it operates. The environment of a production system in an organization is the other interacting systems which the organization.

SYSTEM MAY BE CLOSED OR OPEN

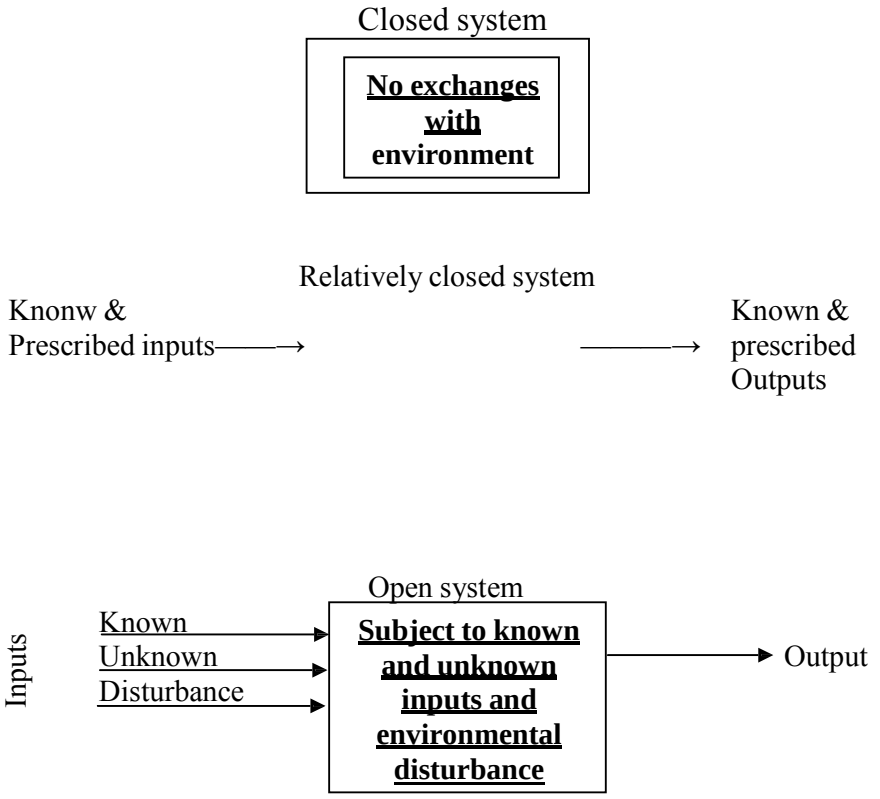
Closed system

These are systems which are self contained and do not exchange material, information or energy with the environment. In the strict sense no business or organization system can be a closed system but for many planning and control purposes, systems are designed to be relatively closed with only minimal interactions with their environment. This greatly aids the prediction and monitoring of system performance.

Open systems

These are system which interact and exchange information, energy and materials with their environment. To ensure survival (the primary organizational objective) adaption to changes in the environment is vital and only open systems have this capability.

These various types of systems are shown below;



Relationship with environment

Thus, it will all be seen that an organization is an open, adaptive system containing within 'it a number of sub-system which may be adaptive, probabilistic or deterministic.

3.1.4 Sub-optimization

This is where the objectives of sub-systems are pursued to the detriment of the overall system goals. Each sub-system may be working at peak efficiency but this does not necessarily mean that the system as a whole is acting optimally. Sub-optimizations is probably more common than is realized and may be caused by departmental pressures and rivalries, poor communications, lack of co-ordination, poor information systems, or lack of centralized direction and control. The avoidance of sub-optimization is an optimization is to ensure that the overall objectives of the organization dominate eh objectives of each of the sub systems. This factor must he borne in mind when planning, controlling and monitoring performance.

3.5 Planning and control

Planning precedes control and planning without consideration of the type, frequency and method of control will largely be a waste of time. It follows from this, that part of the planning process involves the design of an appropriate control system. control is an important element of the work of the management accountant.

SELF-ASSESSMENT EXERCISE

i. What is a system?
ii. List the various types of system

4.0 CONCLUSION

Various definitions exist of a system but all contain the essential elements of parts and relationships. The systems approach directs attention to overall objectives and thus attempts to avoid sub-optimality.

5.0 SUMMARY

Open system interact with the environment, while close systems which are self contained parts of the planning process, includes consideration of an appropriate control system.

6.0 TUTOR-MARKED ASSIGNMENT

Distinguish between open system and close systems?

7.0 REFERENCES/FURTHER READINGS

Ola, C. S. (2003). *Management Accounting Theory and Application*, Claverianum press Ibadan

Walker. C.J. (1982). *Principles of Cost Accounting* (3rd Edition) Macdonald and Evans London

MODULE 4

Unit 1 Short-Term Operational Planning
Unit 2 Elements of Cost-Materials, Labour, Overhead
Unit 3 Activity-Based Costing
Unit 4 Measuring Performance in Organization

UNIT 1 SHORT-TERM OPERATIONAL PLANNING

CONTENTS

1.0 INTRODUCTION

The cost accountant is one of the major providers of information for planning purposes, and to do this effectively, it is essential that he understand the nature of planning, how plans are established, the importance of short-term planning. the place of budgeting in the planning process. In this unit we will examine the methods, objectives and problems of preparing short-term plans. Long-term planning involving an examination of the 'techniques of investment appraisal and the methods of providing finance for long term capital plans.

2.0 OBJECTIVES

By the ending this unit, you should be able to:

Discuss the methods of short-term planning.
Explain the objectives and problems of preparing short-term plans.

3.0 MAIN CONTENT

3.1 Short-Term Operational Planning

Short-term planning is performed setting budgets and standard. Irrespective of the nature of the business, a budgetary control system can be operated and plans prepared in relation to a particular time period. If the business producers homogenous products (i.e. is involved in the continuous manufacture of identical units for stock from which stock sales are made), then a standard costing system may also be operated and plans prepared in relation to cost units.

3.1.1 Budgets

A budget represents a detailed plan of action that is prepared in relation to a particular period of tune. The period of time involved may be one year or operational budgets (e.g. sales or production budget) or a periods of between 3 and 10 years or the capital budget. A budget enables the overall objectives of the organization to be translated into detailed plan to action.

(1) Objectives

The major objectives of the budgetary process are to facilitate the planning and control functions of management; planning to achieve the corporative of the organization and control to ensure that actual activities accord with those plans. These overall objectives may be itemized into more detailed points:

(i) Makes Management Look Ahead

The budgetary process compels management to look ahead and so plan for the changing conditions that will prevail during the forthcoming budget period. Alternative plans may be considered and final plans formulated that will ensure, as far as possible, the most efficient use of the resources available to the business. If this planning process is not undertaken, then profitable business opportunities may be overlooked and not undertaken. Similarly, the valuable resources of the organization may be used inefficiently. This is particularly relevant in relation to the existence of scarce resource (e.g. availability of material, labour or cash) as the business may find itself having to react to the changes in conditions without an adequate plan with the possible consequent adverse results on the performance of the organization.

(ii) Co-ordination of Activities

If the overall objectives of the organization are to be achieved, it is important that all members and areas of the organization work towards those objectives. The management involved in the preparation of budgets on a departmental basis should, therefore subordinate their own personal goals and those of their departments to the achievement of the corporate goals.

(iii) Communication of Objectives

It is important that management should realized what the organization is seeking to achieve and hoe the organization seeks to achieve it during the relevant periods. After all, management is responsible for turning the plans of the organization into actual activities and it is the budgets which provide the means of communication.

(iv) Motivation

It the business objectives are to be achieved, then it is vital that management are motivated sufficiently to achieve those objectives. Budgets should at as motivational device to management, first by setting a target and second, by the simple fact that the performance of management will be evaluated on their ability level of performance. However, if motivation is to be achieved in this manner, the targets set must be realistically achievable target and management should be involved in the target setting.

Behavioural scientists have stated that if a manager is `ego involved' rather than `task involved' he is more likely to achieve the defined level performance expected of him. The ‘ego involvement’ represents a personal commitment to the achievement. This will motivate far more than will the imposition of such a target on management. This does not imply, however, that departmental managers should have sole responsibly for the setting of their budgets. but that must be involved in their determination.

(v) Performance Evaluation

Once set, the budget form the basis for control against which actual activities can be measured. More valid control information should be revealed from this comparison than from a comparison of actual activities with those of previous years, as the budgets should take account of the changes that may have taken place from one year to the next (e.g. changes in product range, technological change, changes in labour and capital intensity.

A budgetary Control system will also allow for the operation of the principle of management by exception. If actual activities are in accordance with the planned activities outlines in the budgets and approved by top management, then there is no need for- direct involvement by top management in the day to day running of the business. This will leave them free to concentrate on the strategic planning and decision making of the organization which is vital to ensure its long term existence and departments themselves may he budget centers as well. The budgets of the various sections will then be consolidation into a department budget, the departmental budget in turn will be consolidation into a budget for the subsidiary, and the budgets of all the subsidiaries will be combined into a master budget for the group as a whole.

(2) Clear Lines of Responsibility for the Achievement of Budget Targets

Individual managers should be held responsible for the attainment of budget goals of a specific budget center. Responsibility accounting is often defined as `a system of accounting that segregates revenues and costs into areas of personal responsibility in order to assess the performance attained by persons to whom authority has been assigned' (CIMA Official Terminology).

A responsibility center in itself is a unit function of an organization headed by a manager having direct responsibility for its performance. Responsibility centers should also be budget centers.

(3) Responsibilities for Revenues Costs, and Capital Employed

Budgets center and responsibility centers should be arranged such that on person is held accountable for all the income earned, by the cots incurred and the capital employed by the organization at an appropriate level of authority in the management hierarchy.

A budget center may comprise cost centers, revenue centers, profit centers and Investment centers.

3.1.2 Preparation of Budgets

The process of budget preparation will involves setting many individual budget (e.g. sales, production. purchases and cash) which must then be combined together to formulate the master budgets which take the form of a budgeted Profit and Loss Account for the budget period and a budgeted Balance Sheet as a t the end of the budget period. This poses two main problems:

(i) administering the budget preparation: and
(ii) determining the principal budget factor.

(i) Budget Administration

The preparation of the budgets will be organized by the budget committee, which should consist of several members of top management drawn from the various operational department of divisions. The committee will operate under the direction of the budget officer, probably the financial controller or someone of equivalent standing. The responsibilities of the committee should cover the following major point

(a) Determining the organization structure of the business and clearly identifying responsibilities and authority for the preparation of the detailed.

SELF-ASSESSMENT EXERCISE

i. Explain what is meant by the "principal budget factor, and indicate its significance in the fields of:

(a) setting long-term budgets;
(b) assessing product profitability; and
(c) fixing selling prices

ii. The summary budget for a company making a wide variety of articles is as follows:

Direct materials	N600,000
Direct wages (100,000hr)	N300,000
Variable overheads	N450,000
Fixed overheads	N300,000
Total costs	N1,650.000
Profit	N 200,000
Sales	N I,850,000

Ample finance and facilities are available, but it is difficult to obtain labour, although some labour can be persuaded to work a limited amount of overtime. It is the company's practice to absorb all overheads as a percentage of direct wages. Standard figure for three jobs are as follows:

Job	A	B	C
Direct materials	₦ 14.50	₦ 9.00	₦4.25
Direct wages (at 3.00 per hr)	3.00	6.00	4.50
Sales price	27.50	33.00	22.00

Present figures to management to represent the comparative profitability of the three products. State which has the greatest profit potential, and indicate how each compares with the average profitability of products, as revealed by the budget.

ICMA (Adapted)

3. The AB Co. Ltd budget to sell in the month of January 2,500kg of Product A at E3 per,200kg of Product B at ₦ 2 per kg and 2,000kg of Product C at ₦2 per kg. During the month actual sales were 2,000 kg of Product A for ₦5,500, 1,800 kg of Product B for ₦4,050 and 2,200 kg of Product C for ₦4,950. ₦2 per unit for C, and were in line with actual cost.

You are required to calculate the effect of sales variance (price quantity and mix) on budgeted profit, and to prepare a statement showing how each product has contributed to the increase or decrease in budgeted profit.

4.0 CONCLUSION

Planning proceeds control and planning without consideration of the type, frequency and method of control will largely be a waste of time. If follows from this, that part of the planning process involves the design of an appropriate control system.

5.0 SUMMARY

Budgetary process compels management to look ahead and so plan for the changing conditions that will prevail during -the forthcoming budget period. Alternative plans may be considered and final plans formulated that will ensure, as far as possible.

6.0 TUTOR-MARKED ASSIGNMENT

An essential part of profit planning is the budgeting of sales and selling costs. What checks would you apply on receiving the first draft of the sales and selling cost budgets, before using them as the basis for production and other budget?

7.0 REFERENCES/FURTHER READINGS

Ola, C,S (2003). *Management Accounting Theory and Application*, Claveriancum Press Ibandan.

Walker, C,J (1982). *Principles of Cost Accounting* (3'd Edition) MacDonald and Evans London.

UNIT 2 ELEMENT OF COST MATERIALS LABOUR AND OVERHEAD

CONTENTS

1.0 INTRODUCTION

Material control depends on buying materials of adequate quality at competitive prices, and maintaining the stocks at the correct level to ensure that production is never delayed by a lack of materials, but at the same time capital is not tied up in unnecessary stocks.

The store facility must be adequate to ensure that deterioration and theft cannot take place.

2.0 OBJECTIVES

By the en of this unit; you should be able to:

Discuss the management of materials labour and overhead.
Explain the various costing methods

3.0 MAIN CONTEST

3.1 Elements of Cost-Material, Labour and Overheads

3.1.1 Materials

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

There are two main areas with which cost accountants are conceived., firstly, the management of the investment in materials and stocks through inventory control procedures.

Secondly. the costing problems involved in pricing issues of materials to production. The pricing system should be consistent and realistic and should not involve Undue administrative complications.

The major pricing systems are FIFO (first in First Out) LIFO (Last in First Out),

FIFO Issues are priced at the price of the oldest batch in stock until all units have been issued when the next oldest batch is used. It is an actual cost system, which has the effect of charging the oldest prices to production and valuing stocks at the more recent.

LIFO Issues are priced at the price of the most recent batch until a new batch is received. It is an actual cost system which causes product costs to be based prices. FIFO it is administratively cumbersome because it required the recording system to keep track of batched.

Average Price. This is a perpetual weighted average system where the issue price is calculated after each receipt taking into account both quantities and money value. This system has an effect on product costs and stock valuation somewhere between LIFO and FIFO. The system makes cost comparisons between jobs somewhere easier and is simpler to administer.

Standard Price This is a predetermined price based on consideration of all factors, which are expected to affect the price. If a realistic price can be set then purchasing efficiency can be monitored to some extent.

Apart from the rare occasions when the specific price paid for material can be charged into product costs, the price charges will be based on a pricing convention such as described above. It is because of this that product costs from the costing system which are to be used for planning and decision making and decision making purposes the appropriate materials cost may be the future replacement cost, the net realizable value or the value of the material in some alternative use (opportunity cost) rarely will the historical cost be appropriate.

3.1.2 Labour Cost

Payment systems for production workers are frequently complex and difficult to administer. Although there are innumerable variation they are essentially of two types; those where straight time rates are paid and wages are not related to production levels, and those where payment is related directly or indirectly to production level.

Obviously, where the payment system is related in some way to activity, for example by straight or differential piecework or by individual and/or group bonus systems, labour costs will have some variable characteristics but rarely, if ever, will labour costs behave in a truly variable, linear fashion. The existence of guaranteed minima, in-lieu bonuses, high day rate system, the tendency for more production workers to become salaries employed, all have implications for the management accountant when considering labour costs in planning and decision making.

3.1.3 Service cost centers

As previous described, overheads are aggregated by the process of classification, allocation and apportionment and are then spread over the cost units produced, by the process known as overhead absorption.

A typical complication which occurs in most costing systems relates to service cost centers. These are departments which, although providing essential services to production departments and each other, do not take part in actual production, eg maintenance and stores. Naturally, service cost centers incur costs which may be allocated to them (eg. Store man's wages to stores) or apportioned to them (eg an appropriate share of the rates, heating costs to the maintenance shop) by the normal cost accounting process.

The service department costs have to be shared over the production departments by the process of secondary apportionment, the necessary so that all the service department costs are eventually included in the cost of the production cost units. Typical bases for the secondary apportionment, i.e. the apportionment of service costs to production: cost center. are shown below:

Service Department	Possible Bases for the Secondary Apportionment of Service Department Costs to Production Cost Centres
Stores	No. of Requisition Weight of Materials Issues No. of Items Issued
Maintenance	Maintenance Labour Hours Maintenance Wages Plant Values
Power Generation	Metered Usage Notional Capacity
Personnel	No. of Employees per Department Gross Wages per Department

The necessity for secondary apportionment disappears when Activity Based Costing (ABC) is used. With ABC most of the cots of support services can be traced direct to the product. This is explained in more detail when ABC is covered.

3.1.3.1 Service Department Costs with Reciprocal Servicing

Prior to the secondary apportionment of cost to production departments it is necessary to established the cost of each service department. Particular problems arise when service departments provide reciprocal servicing for each other as well as for Production. For example assume the Maintenance (M) do work for Power Generation (PG) who supply power to maintenance. The total cost of M cannot be found until the charges for PG's services is known whilst PG's costs cannot be found until the charges for M's work is known.

SELF-ASSESSMENT EXERCISE

A factory has two service department maintenance (M) and Power Generation (PG) and three production department (P1, P2, and P3,). There is reciprocal servicing as well as servicing the production department. It has been agreed that the most appropriate bases of apportionment for service departments costs are: Capital equipment values for maintenance and motor horse power for power generation. The appropriate data are summarized below:

Department	M	PG	P1	P2	P3
Overheads	N4,800	N14,600	N14,000	N22,000	N33,000
Capital values		N100,000	N550,00	N760,00	N640,00
Proportion	-	5%	25%	38%	32%
Horse power	9000	-	24000	16200	10800
Proportion	15%	-	40%	27%	18%

It is required to established total overhead of the production departments.

Solution to Illustration
Let m = Total overhead for maintenance when the power generation charges have been allotted.

Let pg = Total overhead for power generation when the maintenance charges have been allotted.

$$m = 4800 + 0.15pg$$
$$pg = 14600 + 0.05m$$

which rearranged give

$$m - 0.15pg = 4800 \quad \text{Equation I}$$
$$pg - 0.05m = 1460 \quad \text{Equation II}$$

These equations are solved in the normal manner (in this case Equation II is multiplied by 20 and added to Equation I) thus

m - 0.15 pg = 4800	Equation I
20pg - m = 292,00	20 x Equation II
19.85pg = 296,800	pg = ₦ 14952

and by substitution, m is found to be N7.043.
These values of notional overhead are used to make the final secondary apportionments this (Rounded to the nearest N)

				Departments	
	M	PG	P 1	P2	P3
Original Allotment	N4,800	N14,600	N14,000	22,000	33,000
National overhead for M Apportioned over services Departments	-7,043	352	1,761	2,676	2,254
National overheads for PQ Apportioned over services Departments	2,243	-12,952	5,981	4,037	2,691
			21,742	28,713	37,945

The final apportioned overheads equal the original total allotments i.e. N88,400

Notes:

a) The processes of primary and secondary apportionments and establishing the cots of service departments are conventions only and as such their accuracy cannot be tested. The use of such data for decision making should therefore be subject to close scrutiny to ensure its appropriateness for the intended purpose.
b) Reciprocal service cost problems can also be solved using matrix algebra, which is described in detail in "Quantitative Techniques' Ibid.

3.1.4 Costing methods

These are methods of costing which are designed to suit the way products are manufactures or processed or the way that services are provided. Examples of costing methods are: job costing batch costing contract costing and process costing which are explained below: it must be clearly understood that, what ever costing methods is used, basic costing principles relating to classification, allocation, apportionment and absorption will be used.

3.1.4.1 Job Costing

The main purpose of job costing are to established the profit or loss on each completed job and to provide a valuation of uncompleted jobs, i.e. the Work-in-Progress (WIP).

This done by creating a Job Cost Card for each job on which would be entered the following details.

Direct Labour costs - including time based and piecework earnings.
Direct Material costs - based on store issues, special purchases, bills of materials.
Direct expenses - expenses incurred specifically for the particular job, e.g tool hire, royalties.

Based on these details and labour and machine time bookings the production departmental overhead would be calculated using the times recorded and the predetermined overhead absorption rates for labour or machine time as appropriate. A job is normally valued at factory cost until it is dispatched when an appropriate amount of selling and administration overheads would be added usually as percentage of the

works cost. The total of the party complete job cost cards represent the firms work-in-progress and on completion the costs are removed from W-I-P and charged to the Cost of Sales account (DR Cost of Sales CR WIP)

3.1.4.2 Batch costing

This is a form of costing which is used where a quantity of identical articles are produced together as a batch. The general procedures are very similar to costing jobs. The batch would be treated as a job during manufacture and the various costs (material, labour and overheads) collected in the usual manner. On completion of the batch the total batch cost would he divided by the number of good articles produces so as to provide the average cost per article. Batch costing procedures are common in a variety of industries including clothing, foot ear, engineering components.

3.1.4.3 Contract costing

This is many similarities to job costing and is usually adopted for work which is site based. of a relatively long duration and undertaken to the customer's special requirements. Because of the self contained nature of most site operations more cots than normal can be identified as direct and thus charged to the contract, eg telephones on site, design and planning salaries vehicle costs.

A particular feature associated with contracts is the provision for provision for progress payments to be made by the client which are necessary because if the length and value of some contract. The basis for these interim payments is an architect's certificate of work satisfactorily completed. The amount paid is usually the certified values less a percentage retention which is released by the client when the contract is fully completed, because contract often extend over more than one financial years it is necessary to estimate the profit on uncompleted contracts so as to avoid undue fluctuation in compan y results. The profit to be taken is conservatively estimated to allow for any unforeseen difficulties and cost. Anticipated losses should be allowed for, in full, as early as possible.

3.1.4.4 Process costing

This form of costing is appropriate where the product follows a series of sequential, frequently automatic process. eg paper making refining, paint manufacture, food processing. The essence of process costing is the averaging of the total costs of each process over the total throughput of one process (including partly completed units) and

charging the cost of the output of one process as the raw material input to the next process. Any partly complete units at the end of the period are, for cost calculation purposes, expressed as 'equivalent units'. This merely means the equivalent number of fully complete units which the partly complete units represent.

SELF-ASSESSMENT EXERCISE

List the factors you would consider when preparing a material budgeting.

4.0 CONCLUSION

One of the most important functions of the cost department is to assist in planning and control of materials. labour and overhead costs.

5.0 SUMMARY

Cost accounting systems are largely concerned with the analysis of past costs and operations. Cost units should be chosen that are the most relevant for the activities of the particular organization.

6.0 TUTOR-MARKED ASSIGNMENT

Discuss the various costing methods

7.0 REFERENCES/FURTHER READINGS

Walker. CJ. *Principles of Cost Accounting* MacDonald and Even Ltd, London.

UNIT 3 ACTIVITY BASED COSTING (ABC)

CONTENTS

1.0 INTRODUCTION

The ideas behind ABC have been around for many years but ABC has been brought into recent prominence by the work of the Harvard Business School. The main idea behind ABC is to focus attention on what factors cause or drive costs, known as cost drivers.

2.0 OBJECTIVES

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

Explain the basic assumption of ABC
Explain the various cost classification using ABC
Describe the transaction based cost drivers.
Discuss Understand the merit and demerit of ABC

3.0 MAIN CONTENT

3.1 Activity-Based Costing

3.1.1 Basic Assumptions of ABC

The ideas behind ABC have been around for many year but ABC has been brought into recent prominence by the work of the Harvard Business School, especially Professors Kaplam and Cooper.

At its simplest level ABC can be though of as a method of charging overheads to cost units on the basis of benefits received from the particular indirect activity eg ordering, planning, setting and so on. ABC seeks not only to attribute overheads to product cosy on a more realistic basis than simply production volume, but also attempts to shoe the relationship between overhead costs and the activities that cause them. There are some similarities between ABC and traditional systems but a key difference is the way that the costs of support activities are collected and then charged or traced to cost units.

In outline an ABC system is developed and used as follows:

Step 1 Identify the main activities in the organization.
Example include: materials handling, purchasing, reception, dispatch, machining, assembly and so on.

Step 2 Identify the factors which determine the costs of an activity. There are known as cost drivers.
Examples include: number of purchase orders, number of orders delivered, number of set-un and so on.

Step 3 Collect the costs of each activity: These are known as cost pools and are directly equivalent to conventional cost centers.

Step 4 Charge support overheads to products on the basis of their usage of the activity, expressed in terms of the chosen cost driver(s). for example, if the total costs of Purchasing were N200,000 and there were 1,000 Purchase orders (the chosen cost driver), products would be charged N200 per purchase order. Thus a batch generating 3 purchase orders would be charged 3 x N200 = N600 for Purchasing overhead.

It will be seen from the diagram that there are considerable similarities between the two systems. In both systems, direct costs go straight to the product and overheads are traced to the product using a two stage allocation process. However, it is in the second stage of the overhead allocation process that significant differences arise. In a traditional system overheads would be charged to products using at the most two absorption bases (labour hours and/ or machine hours). On the other hand, ABC, systems use many drivers as absorption bases (Eg number of set-ups, number of orders, number of dispatched costs, especially where support overheads are high.

Having examined the main principles of ABC, more detailed points can be considered.

3.1.2 Cost Classifications

Using traditional system, variable costs are those that change with production volume, Examples include: direct material, power costs and so on. Fixed costs are those which for not change with production volume. This includes the majority of costs including most overhead.

Using ABC, Kaplan and Cooper advocate classifying overhead costs in a different way. They propose: short-term variable costs, long-term variable costs and fixed cost.

Short-term variable costs

These are costs that do vary with production volume and would be those also classified. These vary in direct relationship to production volume, expressed as machine hours.

It is suggested that short-term variable overhead costs are traced to produced using production volume-related cost drivers as appropriate. Examples include: direct labour hours. machine hours, direct material cost or weight, ABC recognizes that there could be several cost drivers whenever labour hours, machine hours and material costs are used in different proportions by products. In most organization there will only be a small proportion of overheads that can be classed as short-term variable costs.

Long-Term Variable Costs

These are overhead costs which do not vary with production volume but do vary with other measures of activity, but not immediately. For example, costs for support activities such as stock handling, production scheduling, set-ups etc are fixed in the shorter term but vary in the longer term according to the range and complexity of the products manufactures. ABC requires these costs be traced to products by transaction based cost drivers.

Most support overheads can be classified as long-term variable costs and thus traced to products using appropriate cost drivers. In traditional systems most of these costs would he classified as fixed.

Fixed Costs

Using ABC these are classified as costs which do not vary, for a given time period with any activity indicator. An example would be the salary of the Managing Director. Research by Kaplan and Cooper suggests that these costs are a relatively small proportion of the total costs.

3.1.3 Transaction-based cost drivers

A key idea behind ABC is to focus attention on what factors cause or drive costs known as cost drivers. Cost drivers can be defined as:

Activities or transactions which are significant determinants of cost.

There are difficulties in choosing realistic cost drivers and Cooper warns:

There are no simple rules that pertain to the selection of cost drivers. The best approach is to identify the resources that constitute a significant proportion of the product costs and determine their cost behaviour. If several are long-term variable costs, a transaction-based cost system should be considered.

Examples of transaction-based cost drivers are given below.

Support Department Costs (ie Cost Pools)	Possible Cost Driver
Production scheduling	No of production runs
Set-up Costs	No of production runs
Material handling	No of production runs
Finished goods stock handling & dispatch costs	No of purchase orders
Raw material stock handling	No of orders received

The development of ABC and the designation of cost pools and appropriate cost-drivers Ibrces the organization to ask the following important questions:

> What does this department achieve?
> Does for example, the department add value or does it simply add cost? Why is it needed? Can we do without it?
> What causes the activity for which the department is responsible? This question can force a re-appraisal of the underlying causes of costs. As Johnson has said `people cannot manage cost, they can only manage the activities which cause costs'

Focusing on the drivers which causes overheads and tracing overheads to products on the usage of cost drivers enables a higher proportion of overheads to be product related. Using traditional systems most support

overheads cannot be related to products except in the most general arbitrary way. It is this feature of ABC, which, it is claimed, produces greater realism.

OAR based on machine hours = $\frac{\text{N27,180}}{\text{1,650}}$ =N 16.47 per machine hour

	Cost summary				
	A	B	C	D	Total
	N	N	N	N	
Direct materials	750	1,875	7,500	18,750	N
Direct labour	350	700	3,500	7,000	
Prime costs	1,100	2,575	11,00	25,750	40,425
Overheads @ ₦16.47 per hour	824	1,647	8,235	16,220	27,177
"Total cost	1,924	4,222	19,235	42,220	67,602
Unit produced	25	25	250	250	
Cost per unit (rounded)	N77	N169	N77	N169	

b) Using ABC

Calculation of cost driver rates

Cost driver rates

Short-term variable cost $\frac{\text{28,250 machine hours}}{\text{1,650}}$ =N5 per machine hour

Scheduling costs $\frac{\text{7,680 production runs}}{\text{24}}$ =N320 per production run

Set-up costs $\frac{\text{3,600 production runs}}{\text{24}}$ =N150 per production run

Materials handling costs $\frac{\text{N7,650 components*}}{\text{3.825}}$ = N22 per component

* Number of component in period = 25 x 8 + 25 x 5 + 250 x 8 + 250 x 6 = 3,825

	Cost summary				
	A	B	C	D	Total
	N	N	N	N	N
Prime cost	1,100	2,575	11,000	25,750	40,425
Short run variable costs					
@₦5 per machine hour	250	500	2,500	5,000	8,250
Scheduling (4N 320 per run	960	1,280	2,240	3,2090	7,680
Set-up @ ₦150per run	450	600	1,050	1,500	3,600
Material handling					
@₦2 per component	400	250	4,000	3,000	7,650
"Total cost	3,260	5,205	20,790	38,450	*67,605
Unit produced	25	25	250	250	_____
Cost per	N126.4	N208.2	N83.16	N153.8	

* Slight difference in total cost due to rounding

c) Comparing the results we obtain

Products	A	B	C	D
	₦	₦	₦	₦
Unit cost: conventional	77	169	77	169
Unit cost: ABC	126.4	208.2	83.16	153.8
Percentage change using ABC	+64%	+23%	+8%	-9%

It will be seen that ABC charge more overheads to lower volume production and tends to charge relatively less to higher volume production, especially Product D in this case. The above example has deliberately been kept simple in order to show the principles of the ABC method.

3.1.4 Merits of ABC

The following are the main claims made regarding ABC:

a) More realistic product costs are provided especially in Advanced Manufacturing Technology (AMT) factories where support overheads are a significant proportion of total costs.
b) More overhead can be traced to the product. In modern factories there are a growing number of non-factory floor activities. ABC is concerned with all activities so takes product costing beyond the traditional factory floor basis.
c) ABC recognize that it is activities which cause cost, not product and it is products which consume activities.
d) ABC t Buses attention on the real nature of cost behaviour and helps in reducing costs and identifying activities which do not add value to the product.
e) ABC recognizes the complexity and diversity of modern production by the use of multiple cost drivers, many of which are transaction based rather than based solely on production volume.
f) ABC provides a reliable indication of long-run variable product cost which is relevant to strategic decision making.
g) ABC is flexible enough to trace costs to processes, customers, areas of managerial responsibility, as well as product costs.
h) ABC provides useful financial measure (eg cost driver rates) and non-financial measure (Cg` transaction volumes).

3.1.5 Criticisms of ABC

a) A lull ABC system with numerous cost pools with multiple cost drivers is undeniably more complex than traditional systems and will thus be more expensive to administer.

b) ABC was originally developed by CAML, the US based consortium of very large manufacturing forms, consulting groups and universities. Much of their work is defence related and pricing is on a cost-plus basis hence the need to show accurate product costs. The applicability of ABC to companies who have to use market-based pricing and do not have the same high technology structure has been questioned.

c) Many practical problems are unresolved.

4.0 CONCLUSION

The principles of ABC is to identified activities and cost drivers, the classification of costs, the distinction between activities that ass vulus and those that do not are equally applicable to the service sector.
ABC also assist in providing more accurate costs of individuals services.

5.0 SUMMARY

Activity Based costing (ABC) treats diet costs the same as traditional product costing, and it also supports overheads by tracing it to product costs based on the usage of cost drivers.

6.0 TUTOR-MARKED ASSIGNMENT

What are the criticism of Activity Based costing (ABC)?

7.0 REFERENCES/FURTHER READINGS

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UNIT 4 MEASURING PERFORMANCE IN ORGANIZATION

CONTENTS

1.0 INTRODUCTION

Both elements of accounting information e:' cost (inputs) and revenues (output) are considered in measuring performance. However, in a profit centre the measure of performance is broader than in a cost center.

2.0 OBJECTIVES

By the end of this unit you should be able to:

Explain the concept of profit centre.
Discuss the process of measuring
Performance in an organization

3.0 MAIN CONTENT

3.1 Measuring Performance in Organization

3.1.1 Profit Centres

A profit centre is a responsibility centre in which inputs are measured in terms of expenses and outputs are measured in terms orrevenues. Both the elements of accounting information. i.e. cost (inputs) and revenues (output) are considered. In other words, in a profit center: the measure of performance is broader than in a cost center because in a cost center the accounting system measures only one element (cost), whereas in a profit center. both the elements (cost as well as revenue) are measures in monetary terms. In an operational statement, the profit center is a division/unit of an organization in which financial performance is measured on the basis of profit, that is, revenues less cost.

A profit center, as a responsibility center, is of considerable significance in measuring the performance of divisions/divisional managers. Three aspects deserve special mentioning. Fists. profit defined as the difference between revenues and costs/expenses, is a combined measure of both effectiveness and efficiency. It provides a powerful tool for measuring how well the profit center/manger of the profit center has performed. Secondly, it resembles a business in a miniature. Like a separate firm, its profits are calculated. The performance of the managers is measured by the profit generated. Therefore they will be motivated to take decisions about inputs and outputs in such a way that the profit of their center is maximized. Briefly put, managers can be expected to behave as if they were running their own business. For this reason, the profit center is a good training ground for general management responsibility. Thirdly, the most profit center is closely related to the organization possible. To management can safely delegate the authority to the divisional managers because the profit center reports/provide adequate information about how well the operating managers are doing their jobs.

However, profit centers encounter some problems. These are:

(i) criteria for profit centers
(ii) measurement of expenses, and
(iii) transfer prices.

Investment Centres

This is profit center for which the designated manager is responsible for profit in relation to the capital invested in the division. It should be noted however that the manager does not necessarily responsible for the investment decisions within the divisions as investment decisions are frequently the prerogative of top management.

3.1.2 Measures of Performance

Having decided that a division's performance must be monitored, the measures to be used need to be chosen. If it is to be judged on profit generated; hat should be the basis of calculation? The consideration affecting these and other measures are dealt with below but it must he realized that no one measure can fulfill all the requirement of an ideal appraisal criterion nor can any one measure satisfactorily monitor all aspects of the multifaceted nature of divisional operation.

There are two different methods which are commonly used in appraising divisional performance, viz, the absolute values, which are usually profitability criteria of one kind of another. and those based on

relative vales, which are generally some form of return on investment or capital employed.

a) Profitability Measures of Performance

Profit is a widely used absolute measure of performance and is conversant with management and acceptable to them. Where and when used, it provides means by which division can be compared with division or one division's performance can be compared period by period. When profit is chosen as a measure of divisional performance, it may he defined in a variety of ways. Besides there are variants of profit as discussed here below

(i) Controllable Profit

As the tern implies, it can be defined as revenue less controllable at the divisional level. The reason for this concept is based on the fact that profit here includes only those costs and revenues for which local management has primary responsibility.

(ii) Divisional Profit

This is sometimes known as traceable profit or direct profit. It arises from divisional operation which can be calculated without arbitrarily apportioned head office costs. It is equivalent to controllable profit less depreciation on divisional assets and other non-controllable divisional overheads.

(iii) Net Profit

This is defined as revenue less controllable divisional costs and apportioned central administration costs. The use of this method does allow local management to be aware of all the costs of the division and of its net effect on the group results. However, all methods of apportioning costs are arbitrary and local management have no control ober the amount of costs apportioned which may be at a significant level. In such circumstance, appraisal by divisional net profit may have a adverse behavioural effects, reduce motivation and may lead to sub-optimal decision-making.

(iv) Controllable Residual Profit

This is sales revenue less controllable divisional costs and interest imputed on the divisional investment. Using this as a performance measure implies that the level of divisional investment is a responsibility of divisional management. This should be contrasted with the view

taken when controllable profit is used as a performance measure that the investment level is a central, strategic responsibility. Therefore, it follows that depreciation should he charged on fixed assets controlled by the division when residual income is calculated. The imputed interest charge on the amount invested represents the opportunity cost of funds and is normally based on the firm's cost of capital.

(v) Net Residual Profit

This is controllable residual profit less interest on non-controllable divisional assets and apportioned head office charges. This appraisal method attempts to appraise the economic worth of the division as a whole from the viewpoint of the group. It combines both the performance of local management appraised by controllable residual profit and an evaluation of the investment in the division and its total costs, including an appropriate share of central charges/overheads.

SELF-ASSESSMENT EXERCISE

i. What is a profit center?
ii. What do you understand by investment centers?

4.0 CONCLUSION

Performance in the organization are normally judged or measure using cost or profit as a yardstick Organizations are at liberty to adopt any measuring system that is more suitable to its operation.

5.0 SUMMARY

Profitability is widely used absolutely as a measure of performance, but other indicators can also assist management in measuring performance.

6.0 TUTOR-MARKED ASSIGNMENT

List and discuss the problems encountered in adopting profit as a yardstick in measuring performance.

7.0 REFERENCES/FURTHER READINGS

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