Cost and Management Accounting - A Capsule for Quick Revision

In contemporary business environment, existence of an entity depends on the way it tackles the challenges posed by the competitive market conditions. Cost leadership being one of the competitive strategies, gives an added advantage to the entity. Cost being an important aspect for survival and growth in business, requires a mandatory awareness about the cost control and cost reduction. Fourth industrial revolution, also known as Industry 4.0, puts more emphasis on the digitization of information for effective decision-making, which enables an entity in keeping ahead in competition. Cost and Management accounting, a discipline of accounting, capacitates an entity in taking timely decisions by provisions of cost, profitability and other relevant information.

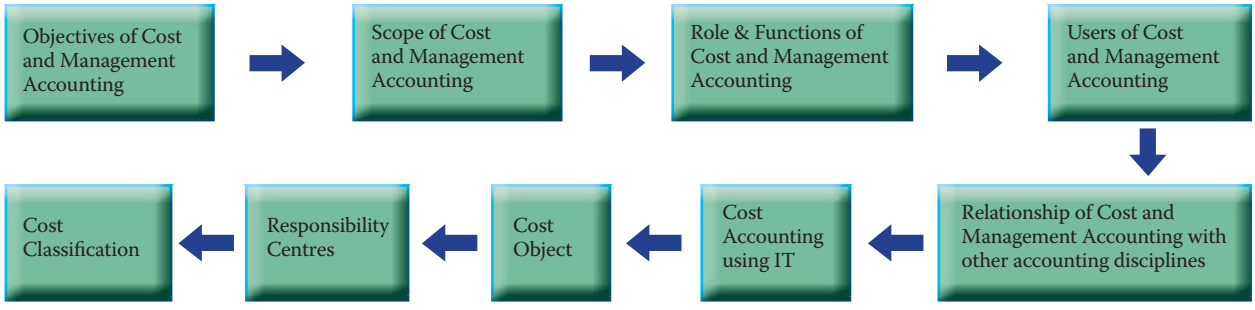
Chartered Accountants, as a global business solution provider, play an important role in business, have an onus by helping an entity to achieve its long-term objectives. In this direction, Cost and Management Accounting helps Chartered Accountants in taking timely and informed business decisions. In view of nobility of the objective to provide quality academic inputs to the students of CA course, the Board of Studies (BoS) of ICAI has decided to bring forth a capsule module of Cost and Management Accounting. Although, the capsule has been prepared keeping in view the new and revised Scheme of Education and Training of ICAI, the students of earlier Scheme may also be benefitted from it.

In the beginning, a chapter overview has been provided to present a holistic viewpoint on the topic's coverage. This capsule, though, facilitates the students in undergoing quick revision, under no circumstances; such revisions can substitute the detailed study of the material provided by the BoS.

Remember, "The expert in anything was once a beginner". Now, let us begin.

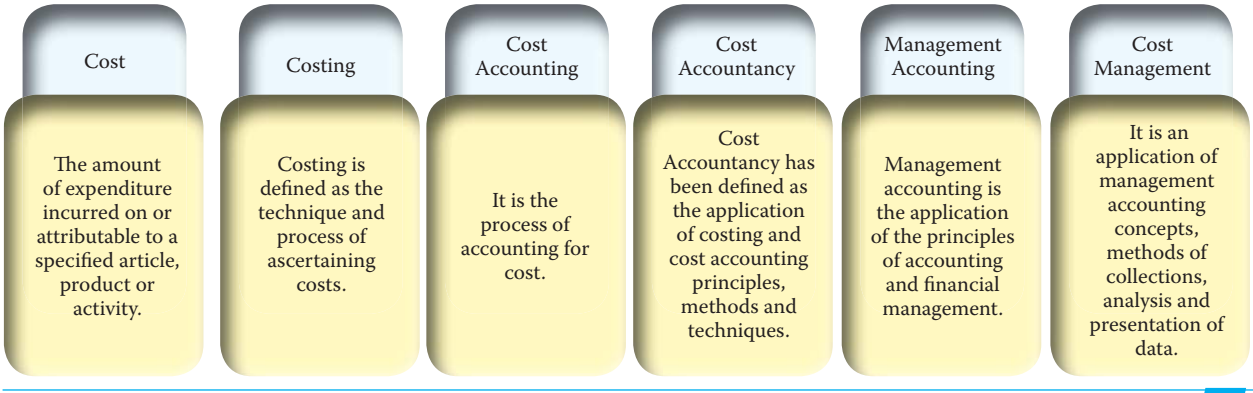
Introduction to Cost and Management Accounting

Chapter Overview



Meaning of Terms used in Cost and Management Accounting

First of all, let us discuss the meaning of various terminologies used in Cost and Management Accounting to have a clear understanding about the subject.



Objectives of Cost Accounting

There are many objectives of cost accounting. The main objectives are explained as below. We also need to keep our focus on understanding the difference between Cost Control and Cost Reduction.

Objectives of Cost Accounting

- **Ascertainment of Cost:** The main objective of cost and management accounting is accumulation and ascertainment of cost. Costs are accumulated, assigned and ascertained for each cost object.
- **Determination of Selling Price and Profitability:** The cost and management accounting system helps in determination of selling price and thus profitability of a cost object.
- **Cost Control:** Maintaining discipline in expenditure is one of the main objectives of a good cost and management accounting system. It ensures that expenditures are in consonance with predetermined set standard and any variation from these set standards is noted and reported on continuous basis.
- **Cost Reduction:** It may be defined "as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability for the use intended or diminution in the quality of the product."
- **Assisting management in decision making:** Cost and Management accounting by providing relevant information, assist management in planning, implementing, measuring, controlling and evaluation of various activities.

Scope of Cost Accounting

We also need to know various scopes of cost accounting. Cost ascertainment and the process of cost accounting are the major scopes. The other scopes are presented.

Role and Functions of Cost and Management Accounting

Role of a Cost and Management Accounting system

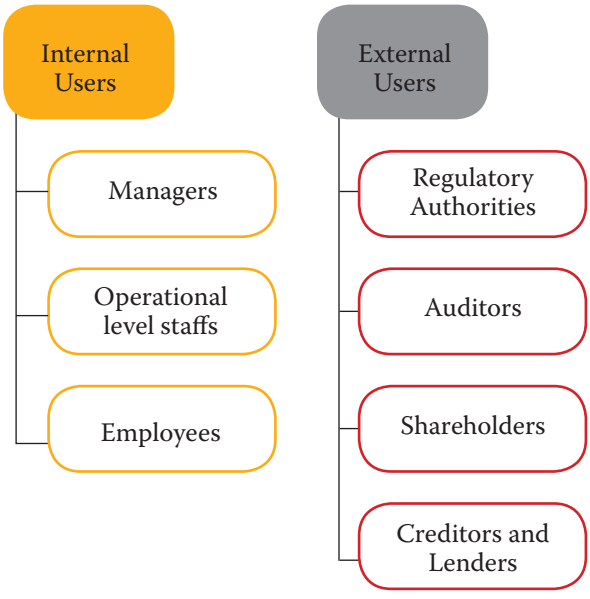
- Provide relevant information to management for decision making
- Assist management for planning, measurement, evaluation and controlling of business activities
- Help in allocation of cost to products and inventories for both external and internal users.

Functions of Cost and Management Accounting System

- Collection and accumulation of cost for each element of cost
- Assigning costs to cost objects to ascertain cost.
- Sets budget and standards for a particular period or activity beforehand and these are compared with the assigned and ascertained cost.
- Provision of relevant information to the management for decision making.
- To gather data like time taken, wastages, process idleness etc., analyse the data, prepare reports and take necessary actions

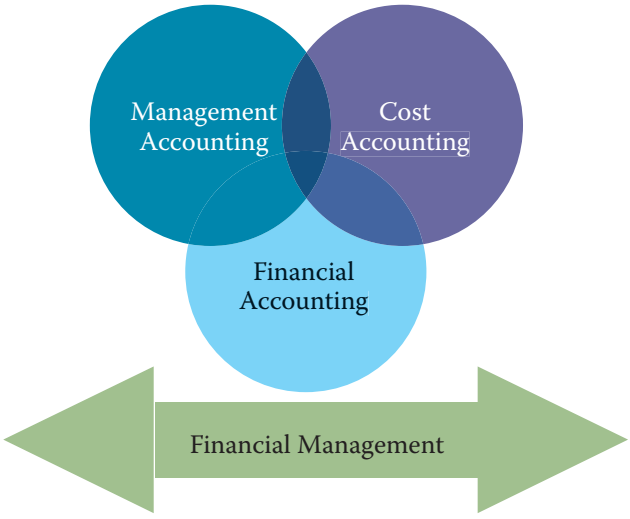
Users of Cost and Management Accounting

Cost and Management Accounting information which are generated or collected are used by various stakeholders. The users of the information can be broadly categorized as below:



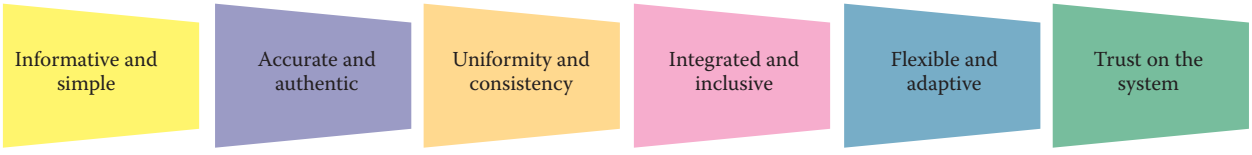
Relationship of Cost Accounting, Management Accounting, Financial Accounting and Financial Management

There is a close relationship between various disciplines like Cost Accounting, Management Accounting, Financial Accounting and Financial Management. Sometimes these disciplines are interrelated and dependent on each other also.



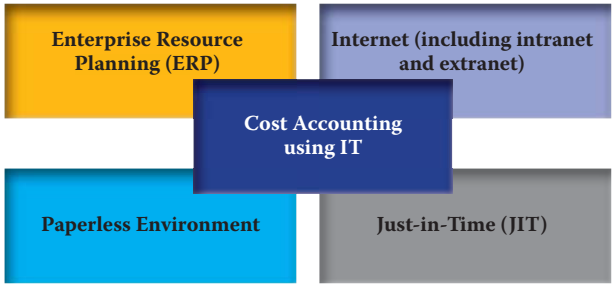
Essentials of a good Cost Accounting System

The essential features which a cost accounting system should possess are depicted as below:



Cost Accounting using Information Technology

With the use of information technology, the cost accounting system gets integrated and automated. The basic features are depicted as below:



Cost Objects

It is very important to understand the meaning of cost object, cost unit and cost driver. Their meaning alongwith examples are illustrated below.

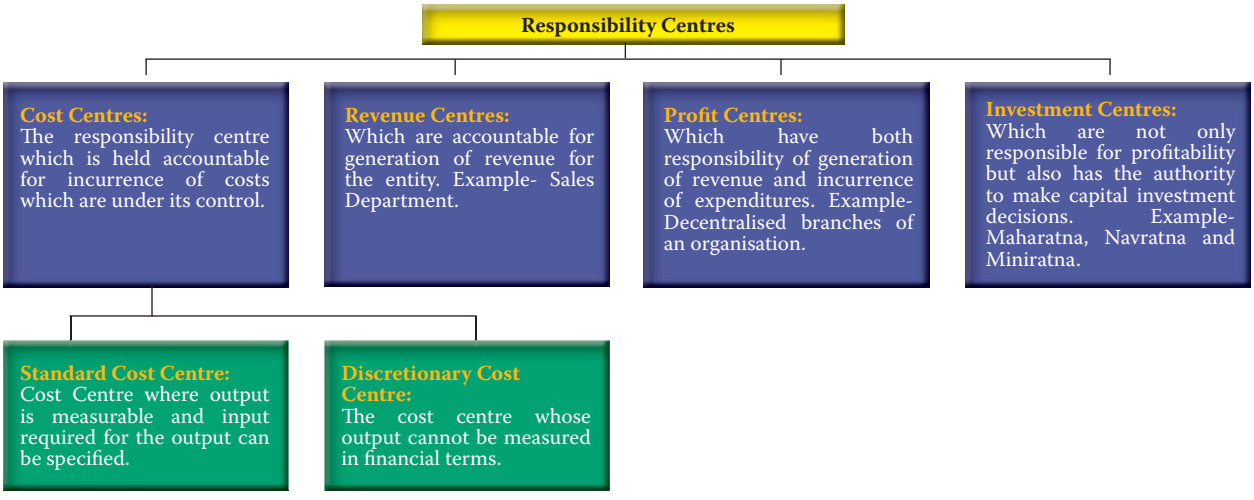
Cost Object: Cost object is anything for which a separate measurement of cost is required. Cost object may be a product (book), a service (airline), a project, a customer, a brand category etc.

Cost Units: It is a unit of product, service or time (or combination of these) in relation to which costs may be ascertained or expressed. Example for power industry is kilo Watt hour (kWh).

Cost Drivers: A Cost driver is a factor or variable which effect level of cost. Example for a purchase department is number of purchase orders.

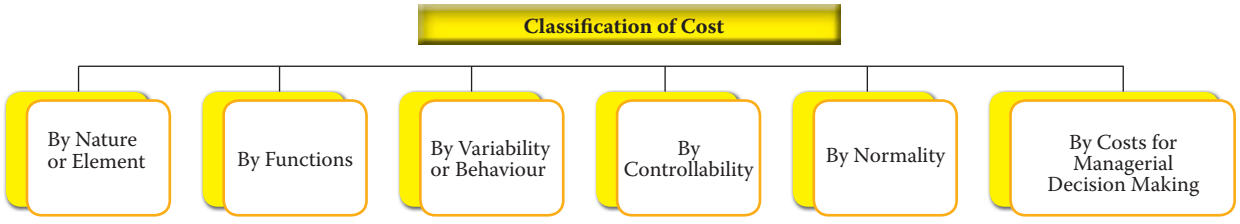
Responsibility Centres

To have a better control over the organisation, management delegates its responsibilities and authorities to various departments or persons, which are known as responsibility centres. There are four types of responsibility centres as discussed below:

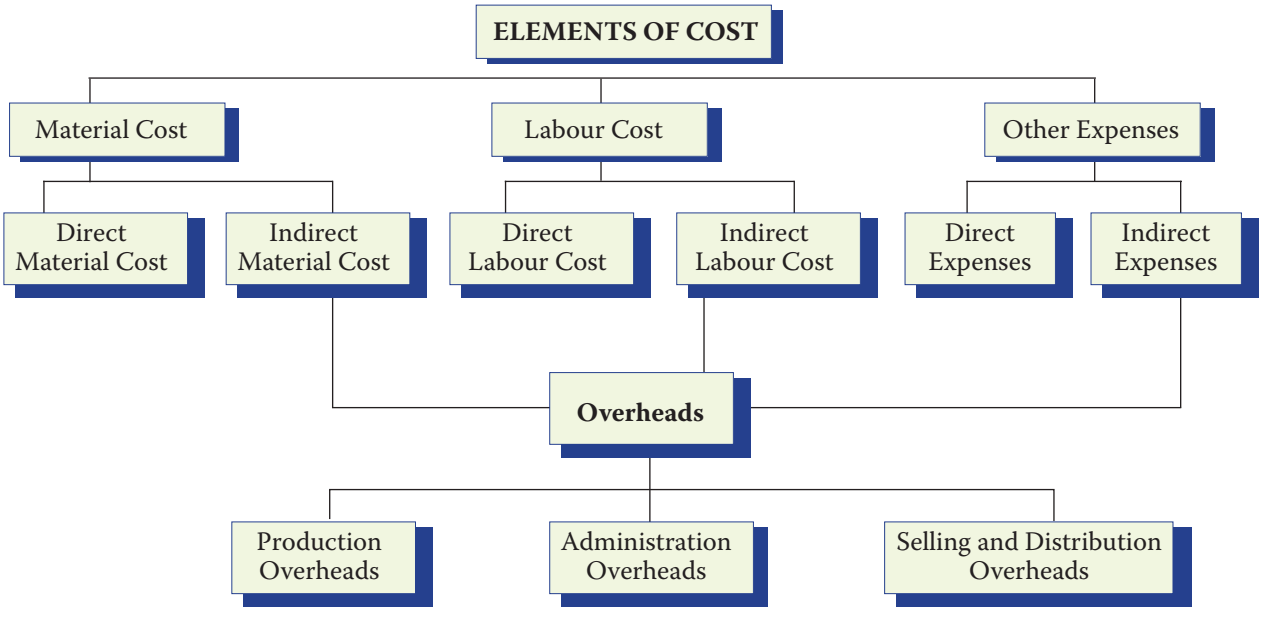


Classification of Cost

Classification of cost basically means grouping of cost according to their common features. The important ways of classification of cost are illustrated as below:



(i) By Nature or Element



(ii) By Functions

- Direct Materials
- Direct Employees (Labours)
- Direct Expenses

→ **Prime Cost**

- Indirect Material — Factory Overheads

→ **Factory Cost or Works Cost**

- Indirect Labour — Administration Overheads

→ **Cost of Goods Sold**

- Indirect Expenses — Selling and Distribution Overheads

→ **Cost of Sales**

(iii) By Variability or Behaviour

- Fixed Cost
- Variable Cost
- Semi-variable Cost

(iv) By Controllability

Controllable Costs: Cost that can be controlled

Uncontrollable Costs: Costs which cannot be influenced or controlled

(v) By Normality

Normal Cost - It is the cost which is normally incurred

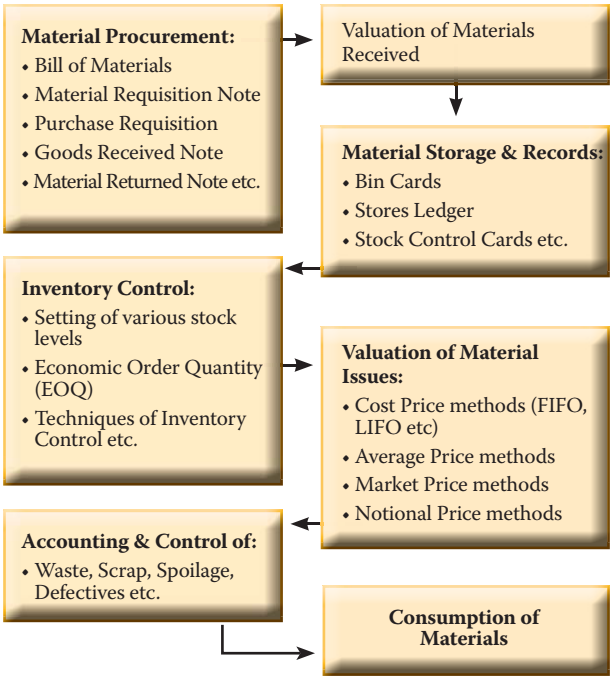
Abnormal Cost - It is the cost which is not normally incurred

(vi) By Cost for Managerial Decision Making

(a) Pre determined Cost	A cost which is computed in advance before production or operations start
(b) Standard Cost	A pre-determined cost, which is calculated from managements 'expected standard of efficient operation' and the relevant necessary expenditure
(c) Marginal Cost	The amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by one unit
(d) Estimated Cost	The expected cost of manufacture, or acquisition, often in terms of a unit of product computed on the basis of information available in advance of actual production or purchase
(e) Differential Cost	It represents the change (increase or decrease) in total cost (variable as well as fixed) due to change in activity level, technology, process or method of production, etc.
(f) Imputed Costs	These costs are notional costs which do not involve any cash outlay
(g) Capitalised Costs	These are costs which are initially recorded as assets and subsequently treated as expenses.
(h) Product Costs	These are the costs which are associated with the purchase and sale of goods (in the case of merchandise inventory).
(i) Opportunity Cost	This cost refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action
(j) Out-of-pocket Cost	It is that portion of total cost, which involves cash outflow
(k) Shut down Costs	Those costs, which continue to be incurred even when a plant is temporarily shut-down e.g. rent, rates, depreciation, etc
(l) Sunk Costs	Historical costs incurred in the past are known as sunk costs. They play no role in decision making in the current period.
(m) Absolute Cost	These costs refer to the cost of any product, process or unit in its totality.
(n) Discretionary Costs	Such costs are not tied to a clear cause and effect relationship between inputs and outputs.
(o) Period Costs	These are the costs, which are not assigned to the products but are charged as expenses against the revenue of the period in which they are incurred.
(p) Engineered Costs	These are costs that result specifically from a clear cause and effect relationship between inputs and outputs.
(q) Explicit Costs	These costs are also known as out of pocket costs and refer to costs involving immediate payment of cash. Salaries, wages, postage and telegram, printing and stationery, interest on loan etc.
(r) Implicit Costs	These costs do not involve any immediate cash payment.

Material Cost

Chapter Overview



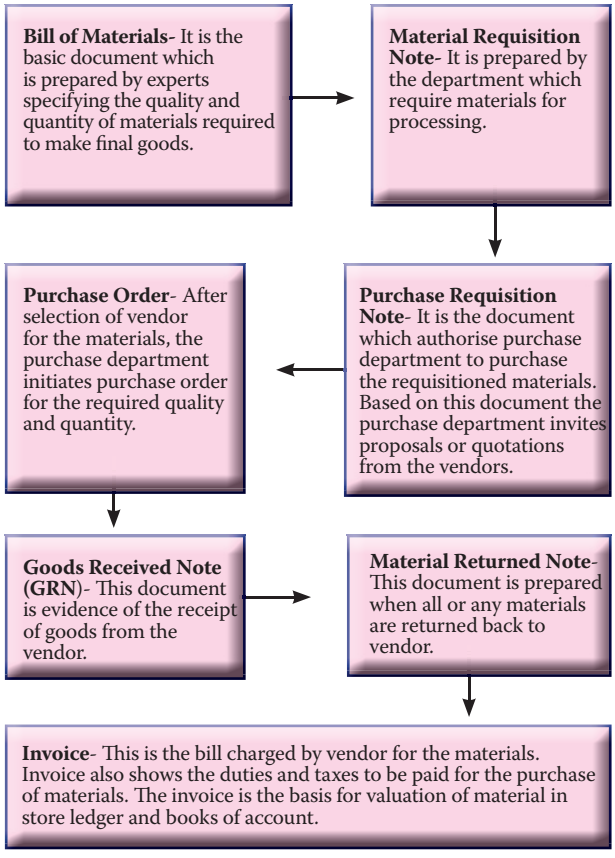
Value at Which Materials are Recorded in Stores Ledger

From the following table we can understand the procedure of calculating total value at which materials are to be recorded in stores ledger.

Particulars	Amount	Amount
Purchase Price		XXX
Additions/ Inclusions:		
Insurance charges	XXX	
Commission or brokerage	XXX	
Freight inward	XXX	
Cost of containers	XXX	
Wastage due to normal reasons	XXX	
Duties and Taxes for which no credit or refund is available	XXX	XXX
Deduction/ Exclusions:		
Discount, Rebate and Subsidy	XXX	
Duties and Taxes for which credit or refund is available	XXX	
Penalties and charges	XXX	
Other expenses not borne	XXX	(XXX)
		XXX

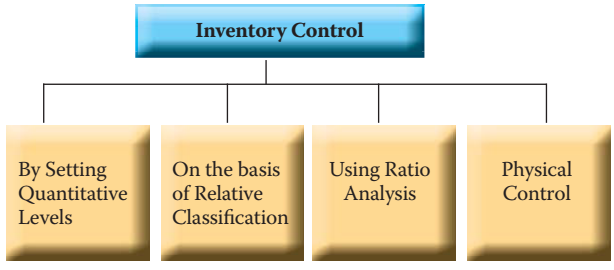
How Material is Procured?

Material requirement procedure can be understood with the help of the following diagram. We should focus on various documents in general required and also should keep in mind the departments who initiate these documents.



How Inventory is Controlled?

Inventory control is the function of ensuring that sufficient inventory is retained to meet all requirements. In inventory control, it is essential to balance between overstock and understock. Various techniques of inventory control are illustrated below:



(a) Inventory Control- By Setting Quantitative Levels

Re-order Stock Level	When to Order
Re-order Quantiy/ EOQ	How Much to Order
Maximum Stock Level	Upto How much to stock
Minimum Stock Level	Atleast How much to keep
Average Stock Level	Stock normally kept
Danger Stock Level	Kept for emergency requirement
Buffer Stock	To meet sudden demand

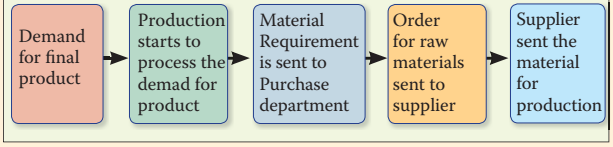
(i) Re-order Stock Level (ROL): Maximum Consumption × Maximum Re-order Period
Or, ROL = Minimum Stock Level + (Average Rate of Consumption × Average Re-order period)

(ii) Re-Order Quantity/ Economic Order Quantity (EOQ):

$$EOQ = \sqrt{\frac{2x \text{ Annual Requirement (A) x Cost per order (O)}}{\text{Carrying Cost per unit per annum (C)}}}$$

Just in Time (JIT) Inventory Management

JIT is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production.



(iii) Minimum Stock Level:
Minimum Stock Level = Re-order Stock Level - (Average Consumption Rate × Average Re-order Period)

(iv) Maximum Stock Level:
Maximum Stock Level = Re-order Level + Re-order Quantity - (Minimum Consumption Rate × Minimum Re-order Period)

(v) Average Inventory Level:
Average Stock Level = Minimum Stock Level + 1/2 Re-order Quantity
Or
Average Stock Level =

$$\frac{\text{Maximum Stock Level + Minimum Stock Level}}{2}$$

(b) On the basis of Relative Classification

ABC Analysis	On the basis of value and frequency of inventory
Fast, Slow and Non Moving (FSN)	On the basis of inventory turnover
Vital, Essential and Desirable (VED)	On the basis of importance of inventory
High, Medium and Low (HML)	On the basis of price of an item of inventory

(c) Using Ratio Analysis

(i) Input Output Ratio: Input-output ratio is the ratio of the quantity of input of material to production and the standard material content of the actual output.

(ii) Inventory Turnover Ratio:
Inventory Turnover Ratio =

$$\frac{\text{Cost of materials consumed during the period}}{\text{Cost of average stock held during the period}}$$

(d) Physical Control

(i) Two Bin System: Two Bin System is supplemental to the record of respective quantities on the bin card and the stores ledger card.

(ii) Establishment of system of budgets: Based on this, inventories requirement budget can be prepared. Such a budget will discourage the unnecessary investment in inventories.

(iii) Perpetual inventory records and continuous stock verification :
Perpetual inventory represents a system of records maintained by the stores department in the form of Bin cards and Stores ledger.

(iv) Continuous Stock Verification:
The system of continuous stock-taking consists of physical verification of items of inventory.

Valuation of Material Issue

Cost Price Methods	Average Price Methods	Market Price Methods	Notional Price Methods
• Specific Price Method • First-in First-out (FIFO) method • Last-in-First-out (LIFO) method • Base Stock Method	• Simple Average Price Method • Weighted Average Price Method	• Replacement Price Method • Realisable Price Method	• Standard Price Method • Inflated Price Method • Re-use Price Method

Some of the techniques are discussed as follows:

(i) First-in First-out method (FIFO): The materials received first are to be issued first when material requisition is received. Materials left as closing stock will be at the price of latest purchases.

(ii) Last-in First-out method (LIFO): The materials purchased last are to be issued first when material requisition is received. Closing stock is valued at the oldest stock price.
(Accounting Standard- 2 and Ind AS-2 do not allow LIFO method for inventory valuation, however, for academic knowledge it may be studied).

(iii) Simple Average Method: Material Issue Price=

$$\frac{\text{Total of unit price of each purchase}}{\text{Total Nos of Purchases}}$$

(iv) Weighted Average Price Method: This method gives due weightage to quantities purchased and the purchase price to determine the issue price.

Weighted Average Price =

$$\frac{\text{Total cost of materials in stock}}{\text{Total quantity of materials}}$$

Normal and Abnormal Loss of Materials

Loss of Material

- **Waste:** Portion of basic raw material lost in processing having no recoverable value
- **Scrap:** The incidental material residue coming out of certain manufacturing operations having low recoverable value.
- **Spoilage:** Goods damaged beyond rectification to be sold without further processing.
- **Defectives:** Goods which can be rectified and turned out as good units by the application of additional labour or other services.
- **Obsolescence:** It is the loss in the intrinsic value of an asset due to its supersession.

Treatment of Loss of Material

(i) Treatment of Waste

Normal- Cost of normal waste is absorbed by good production units.

Abnormal- The cost of abnormal loss is transferred to Costing Profit and loss account.

(ii) Treatment of Scrap

Normal- The cost of scrap is borne by good units and income arises on account realisable value is deducted from the cost.

Abnormal- The scrap account should be charged with full cost. The credit is given to the job or process concerned. The profit or loss in the scrap account, on realisation, will be transferred to the Costing Profit and Loss Account.

(iii) Treatment of Spoilage

Normal- Normal spoilage (i.e., which is inherent in the operation) costs are included in costs either charging the loss due to spoilage to the production order or by charging it to production overhead so that it is spread over all products.

Abnormal- The cost of abnormal spoilage (i.e., arising out of causes not inherent in manufacturing process) is charged to the Costing Profit and Loss Account.

(iv) Treatment of Defectives:

Normal- The cost less realisable value on sale of defectives are charged to material cost of good production.

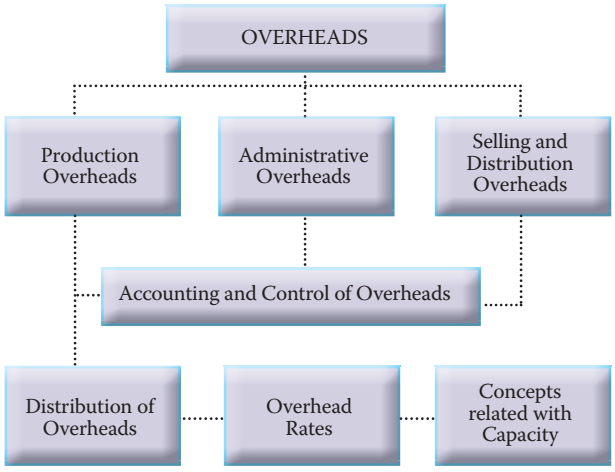
Abnormal- The material cost of abnormal loss is transferred to costing profit and loss account.

(v) Treatment of Obsolescence:

The value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials on abnormal loss does not form part of the cost of manufacture.

Overheads

Chapter Overview



Classification of Overheads

Overheads are the expenditure which can not be identified with a particular cost unit. Overheads can be classified as under.

By Function	By Nature	By Element	By Control
• Factory or Manufacturing or Production Overhead • Office and Administrative Overheads • Selling and Distribution Overheads	• Fixed Overhead • Variable Overhead • Semi-Variable Overheads	• Indirect materials • Indirect employee cost • Indirect expenses	• Controllable costs • Uncontrollable costs

Functional Classification of Overheads

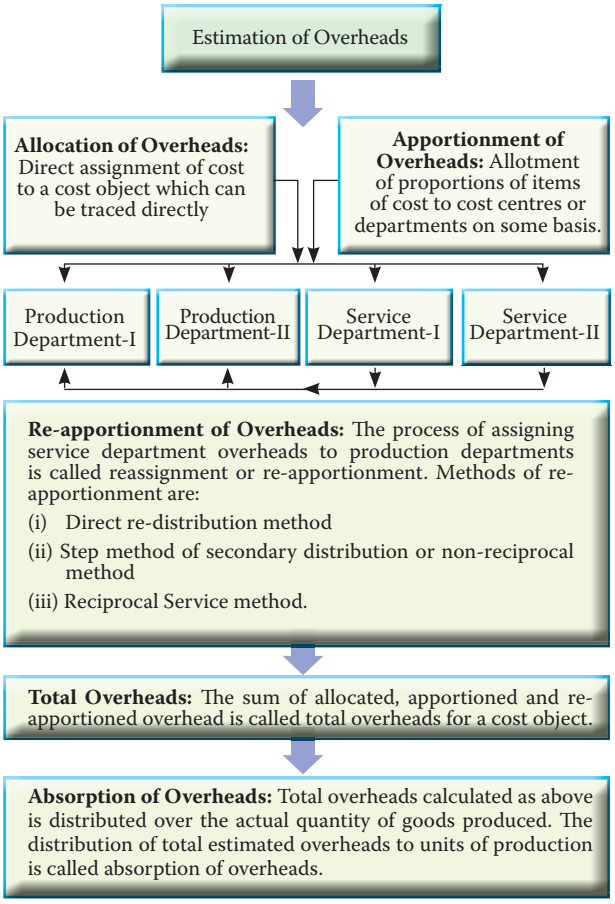
One of the most important ways of classifying overheads is as per their function. As per this classification overheads are classified as under.

Factory or Manufacturing or Production Overhead — Indirect cost incurred for manufacturing or production activity in a factory. Manufacturing overhead includes all expenditures incurred from the procurement of materials to the completion of finished product.

Office and Administrative Overheads — Expenditures incurred on all activities relating to general management and administration of an organisation. It includes formulating the policy, directing the organisation and controlling the operations of an undertaking which is not related directly to production, selling, distribution, research or development activity or function.

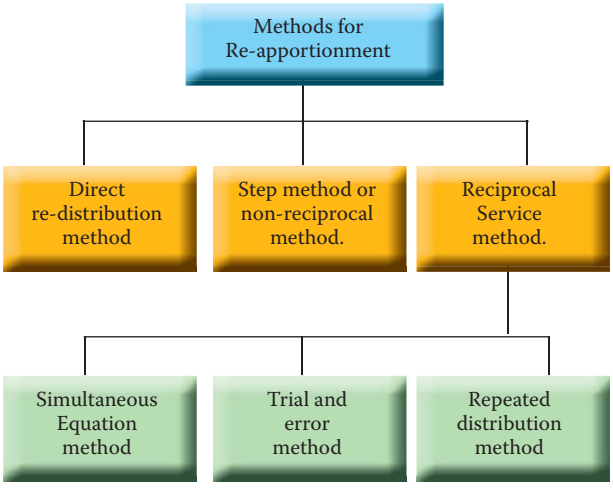
Selling and Distribution Overheads — (i) Selling overhead: expenses related to sale of products and include all indirect expenses in sales management for the organisation.
(ii) Distribution overhead: cost incurred on making product available for sale in the market.

Steps for Distribution of Overheads



Methods for Re-apportionment of Overheads

The re-apportionment of service department expenses over the production departments may be carried out by using any one of the following methods:



Methods of Absorbing Overheads to various Products or Jobs

Several methods are commonly employed either individually or jointly for computing the appropriate overhead rate. The more common of these are:

- Percentage of direct materials
- Percentage of prime cost
- Percentage of direct labour cost
- Labour hour rate
- Machine hour rate
- Rate per unit of Output

Machine hour rate

Machine hour rate implies, cost of running a machine for an hour to produce goods.

The steps involved in determining of Machine hour rate is as follows:

Step1: Calculate total of overheads apportioned to a production department.

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Step 2: Apportion further these overheads to machines or group of machines in the department.

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Step 3: Allocate machine specific costs (directly identifiable with the machine)

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Step 4: Estimate total productive hours for the machine

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Step 5: Aggregate overheads as apportioned in step-2 and allocated in step-3 and divide it by Estimated total productive hours

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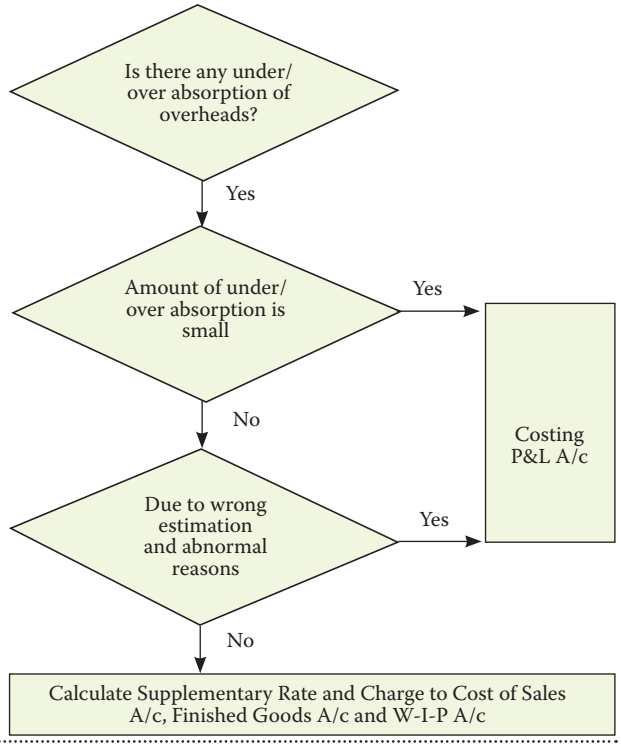
The resultant figure is machine hour rate

Treatment of Under-absorption and Over-absorption of overheads in Cost Accounting



Types of Overhead Rates

Normal Rate: This rate is calculated by dividing the actual overheads by actual base. It is also known as actual rate.

Pre-determined Overhead Rate: This rate is determined in advance by estimating the amount of the overhead for the period in which it is to be used.

Blanket Overhead Rate: Blanket overhead rate refers to the computation of one single overhead rate for the whole factory.

Departmental Overhead Rate: It refers to the computation of one single overhead rate for a particular production unit or department.

Concepts related with Capacity

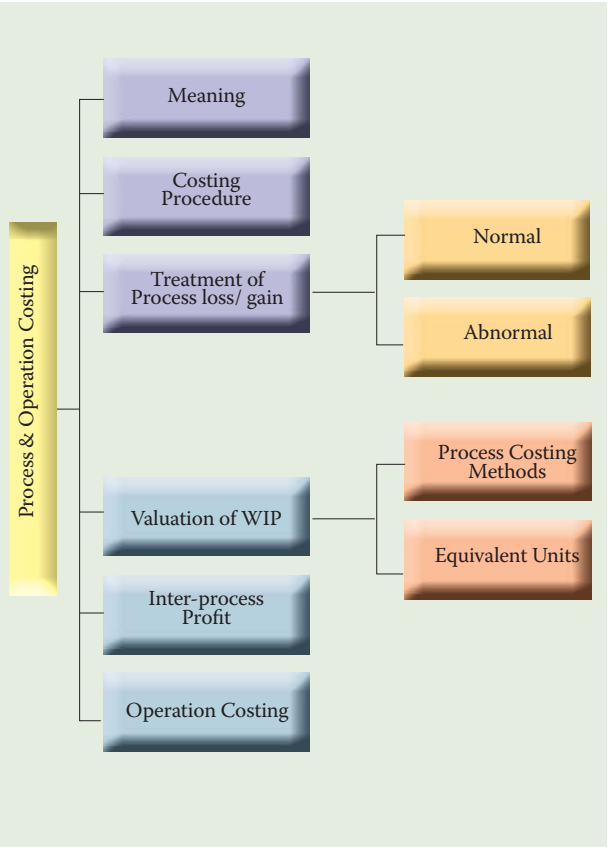
Installed/ Rated capacity	The maximum capacity of producing goods or providing services. It is also known as theoretical capacity.
Practical capacity	It is defined as actually utilised capacity of a plant. It is also known as operating capacity.
Normal capacity	The volume of production or services achieved or achievable on an average over a period under normal circumstances taking into account the reduction in capacity resulting from planned maintenance.
Actual capacity	Capacity actually achieved during a given period.
Idle capacity	It is that part of the capacity of a plant, machine or equipment which cannot be effectively utilised in production.

Treatment of Certain Items in Cost Accounting

Interest and financing charges	It includes any payment in nature of interest for use of non- equity funds and incidental cost that an entity incurs in arranging those funds. Interest and financing charges shall be presented in the cost statement as a separate item of cost of sales.
Packing expenses	Cost of primary packing necessary for protecting the product or for convenient handling, should become a part of cost of production. The cost of packing to facilitate the transportation of the product from the factory to the customer should become a part of the distribution cost.
Fringe benefits	These indirect benefits stand to improve the morale, loyalty and stability of employees towards the organisation. If the amount of fringe benefit is considerably large, it may be recovered as direct charge by means of a supplementary wage or labour rate; otherwise these may be collected as part of production overheads.
Research and Development Expenses	If research is conducted in the methods of production, the research expenses should be charged to the production overhead; while the expenditure becomes a part of the administration overhead if research relates to administration. Similarly, market research expenses are charged to the selling and distribution overhead. Development costs incurred in connection with a particular product should be charged directly to that product. Such expenses are usually treated as "deferred revenue expenses," and recovered as a cost per unit of the product when production is fully established.

Process and Operation Costing

Chapter Overview



Meaning of Process Costing

Process Costing is a method of costing used in industries where the material has to pass through two or more processes for being converted into a final product. It is defined as "a method of Cost Accounting whereby costs are charged to processes or operations and averaged over units produced".

This can be understood with the help of the following diagram:

Costing Procedure in Process Costing

Materials: Each process for which the materials are used, are debited with the cost of materials consumed on the basis of the information received from the Cost Accounting department.

Employee Cost (Labour) - Each process account should be debited with the labour cost or wages paid to labour for carrying out the processing activities. Sometimes the wages paid are apportioned over the different processes after selecting appropriate basis.

Direct expenses - Each process account should be debited with direct expenses like depreciation, repairs, maintenance, insurance etc. associated with it.

Production Overheads- These expenses cannot be allocated to a process. The suitable way out to recover them is to apportion them over different processes by using suitable basis.

Steps in Process Costing

Step-1: Analyse the Physical Flow of Production Units

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Step-2: Calculate Equivalent Units for each Cost Elements

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Step-3: Determine Total Cost for each Cost Element

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Step-4: Compute Cost Per Equivalent Unit for each Cost Element

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Step-5: Assign Total Costs to Units Completed and Ending WIP

Treatment of Normal, Abnormal Loss and Abnormal Gain

Normal Process Loss	Abnormal Process Loss	Abnormal Process Gain/ Yield
• The cost of normal process loss in practice is absorbed by good units produced under the process. The amount realised by the sale of normal process loss units should be credited to the process account.	• The cost of an abnormal process loss unit is equal to the cost of a good unit. The total cost of abnormal process loss is credited to the process account from which it arises. • Total cost of abnormal process loss is debited to costing profit and loss account.	• The process account under which abnormal gain arises is debited with the abnormal gain and credited to abnormal gain account which will be closed by transferring to the Costing Profit and Loss account.

Valuation of Work-in-process

The valuation of work-in-process presents a good deal of difficulty because it has units under different stages of completion from those in which work has just begun to those which are only a step short of completion.

(i) Equivalent Units

Equivalent units or equivalent production units, means converting the incomplete production units into their equivalent completed units. Under each process, an estimate is made of the percentage completion of work-in-process with regard to different elements of costs, viz., material, labour and overheads.

The formula for computing equivalent completed units is:

$$\text{Equivalent completed units} = \left(\begin{array}{c}\text{Actual number of units in}\\ \text{the process of manufacture}\end{array}\right) \times \left(\begin{array}{c}\text{Percentage of}\\ \text{Work completed}\end{array}\right)$$

Input Details	Units	Output Particulars	Units	Equivalent Units					
				Material		Labour		Overhead	
				%	Units	%	Units	%	Units
			a	b	c= a×b	d	e=a×d	f	g=a×f
Opening W-I-P	xxx	Opening W-I-P*	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Unit Introduced	xxx	Finished output**	xxx	xxx	xxx	xxx	xxx	xxx	xxx
		Normal loss***	xxx	-	-	-	-	-	-
		Abnormal loss/ Gain****	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Total		Closing W-I-P	xxx	xxx	xxx	xxx	xxx	xxx	xxx
	xxx	Total	xxx		xxx		xxx		xxx

* Equivalent units for Opening W-I-P is calculated only under FIFO method. Under the Average method, it is not shown separately.

**Under the FIFO method, Finished Output = Units completed and transferred to next process less Opening WIP. Under Average method, Finished Output = Units completed and transferred.

***For normal loss, no equivalent unit is calculated.

****Abnormal Gain/ Yield is treated as 100% complete in respect of all cost elements irrespective of percentage of completion.

(ii) Methods for valuation of work-in-process

First-in-first-out (FIFO) method	Weighted Average (Average) Method
Under this method the units completed and transferred include completed units of opening work-in-process and subsequently introduced units. Proportionate cost to complete the opening work-in-process and that to process the completely processed units during the period are derived separately.	Under this method, the cost of opening work-in-process and cost of the current period are aggregated and the aggregate cost is divided by output in terms of completed units.

Inter Process Profit

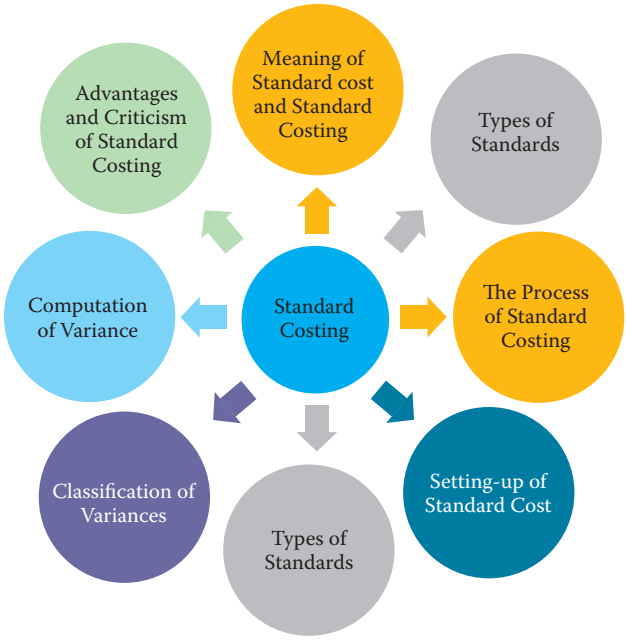
In some process industries the output of one process is transferred to the next process not at cost but at market value or cost plus a percentage of profit. The difference between cost and the transfer price is known as inter-process profits.

Operation Costing

This product costing system is used when an entity produces more than one variant of final product using different materials but with similar conversion activities. Which means conversion activities are similar for all the product variants but materials differ significantly. Operation Costing method is also known as Hybrid product costing system as materials costs are accumulated by job order or batch wise but conversion costs i.e. labour and overheads costs are accumulated by department, and process costing methods are used to assign these costs to products.

Standard Costing

Chapter Overview



What is a Standard or Standard Cost?

Standard cost is defined in the CIMA Official Terminology as "'the planned unit cost of the product, component or service produced in a period. The standard cost may be determined on a number of bases. The main use of standard costs is in performance measurement, control, stock valuation and in the establishment of selling prices."

Types of standards

There are various types of standard which are illustrated below:

Ideal Standards: The level of performance attainable when prices for material and labour are most favourable, when the highest output is achieved with the best equipment and layout and when the maximum efficiency in utilisation of resources results in maximum output with minimum cost.

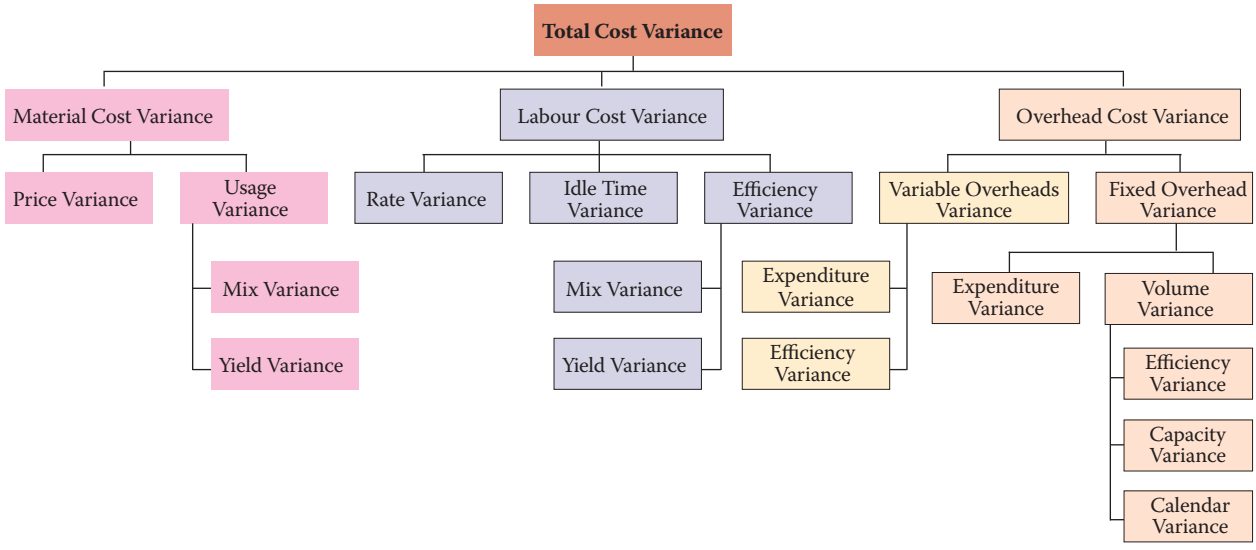
Normal Standards: These are standards that may be achieved under normal operating conditions.

Basic or Bogey Standards: These standards are used only when they are likely to remain constant or unaltered over a long period.

Current Standards: These standards reflect the management's anticipation of what actual costs will be for the current period.

Process followed in Standard Costing

Variances at a Glance



Variance Analysis

(i) Material Cost Variance

Material Cost Variance

[Standard Cost – Actual Cost]

(The difference between the Standard Material Cost *of the actual production volume* and the Actual Cost of Material)

[(SQ × SP) – (AQ × AP)]

Material Price Variance

[Standard Cost of Actual Quantity – Actual Cost]

(The difference between the Standard Price and Actual Price for the Actual Quantity Purchased)

[(SP – AP) × AQ]

Or

[(SP × AQ) – (AP × AQ)]

Material Usage Variance

[Standard Cost of Standard Quantity for Actual Production – Standard Cost of Actual Quantity]

(The difference between the Standard Quantity *specified for actual production* and the Actual Quantity *used*, at Standard Price)

[(SQ – AQ) × SP]

Or

[(SQ × SP) – (AQ × SP)]

Material Mix Variance

[Standard Cost of Actual Quantity in Standard Proportion – Standard Cost of Actual Quantity]

(The difference between the Actual Quantity *in standard proportion* and Actual Quantity *in actual proportion*, at Standard Price)

[(RSQ – AQ) × SP]

Or

[(RSQ × SP) – (AQ × SP)]

Material Yield Variance

[Standard Cost of Standard Quantity for Actual Production – Standard Cost of Actual Quantity in Standard Proportion]

(The difference between the Standard Quantity *specified for actual production and Actual Quantity in standard proportion*, at Standard Purchase Price)

[(SQ – RSQ) × SP]

Or

[(SQ × SP) – (RSQ × SP)]

(ii) Labour Cost Variances

Labour Cost Variance

[Standard Cost – Actual Cost]

(The difference between the Standard Labour Cost and the Actual Labour Cost *incurred for the production achieved)*

[(SH × SR) – (AH* × AR)]

Labour Rate Variance	Labour Idle Time Variance	Labour Efficiency Variance
[Standard Cost of Actual Time – Actual Cost] (The difference between the Standard Rate per hour and Actual Rate per hour for the Actual Hours paid) [(SR – AR) × AH*] *Or* [(SR × AH*) – (AR × AH*)]	[Standard Rate per Hour x Actual Idle Hours] (The difference between the Actual Hours *paid* and Actual Hours *worked* at Standard Rate) [(AH* – AH#) × SR] *Or* [(AH* × SR) – (AH# × SR)]	[Standard Cost of Standard Time for Actual Production – Standard Cost of Actual Time] (The difference between the Standard Hours *specified for actual production* and Actual Hours *worked* at Standard Rate) [(SH – AH#) × SR] *Or* [(SH × SR) – (AH# × SR)]

Labour Mix Variance Or Gang Variance	Labour Yield Variance Or Sub-Efficiency Variance
[Standard Cost of Actual Time Worked in Standard Proportion – Standard Cost of Actual Time Worked] (The difference between the Actual Hours worked in standard proportion and Actual Hours worked in actual proportion, at Standard Rate) [(RSH – AH#) × SR] *Or* [(RSH × SR) – (AH# × SR)]	[Standard Cost of Standard Time for Actual Production – Standard Cost of Actual Time *Worked* in Standard Proportion] (The difference between the Standard Hours specified for actual production and Actual Hours worked in standard proportion, at Standard Rate) (SH – RSH) × SR *Or* (SH × SR) – (RSH × SR)

(iii) Variable Overhead Variances

Variable Overhead Cost Variance

(Standard Variable Overheads for Production – Actual Variable Overheads)

Variable Overhead Expenditure (Spending) Variance	Variable Overhead Efficiency Variance
(Standard Variable Overheads for Actual Hours#) *Less* (Actual Variable Overheads) [(SR – AR) × AH#] *Or* [(SR × AH#) – (AR × AH#)]	(Standard Variable Overheads for Production) *Less* (Standard Variable Overheads for Actual Hours#) [(SH – AH#) × SR] *Or* [(SH × SR) – (AH# × SR)]

(iv) Fixed Overhead Variances

Fixed Overhead Cost Variance

(Absorbed Fixed Overheads) *Less* (Actual Fixed Overheads)

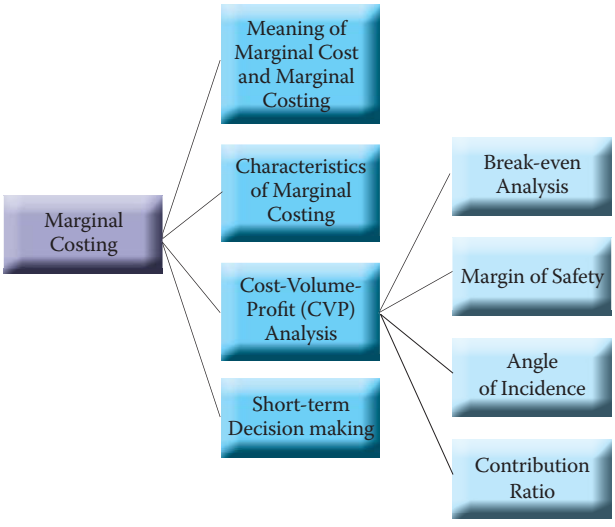
Fixed Overhead Expenditure Variance	Fixed Overhead Volume Variance
(Budgeted Fixed Overheads) *Less* (Actual Fixed Overheads) *Or* (BH × SR) – (AH × AR)	(Absorbed Fixed Overheads) *Less* (Budgeted Fixed Overheads) *Or* (SH × SR) – (BH × SR)

Fixed Overhead Capacity Variance	Fixed Overhead Calendar Variance	Fixed Overhead Efficiency Variance
SR (AH – BH) *Or* (AH × SR) – (BH × SR)	Std. Fixed Overhead rate per day (Actual no. of Working days – Budgeted Working days)	SR (AH – SH) *Or* (AH × SR) – (SH × SR)

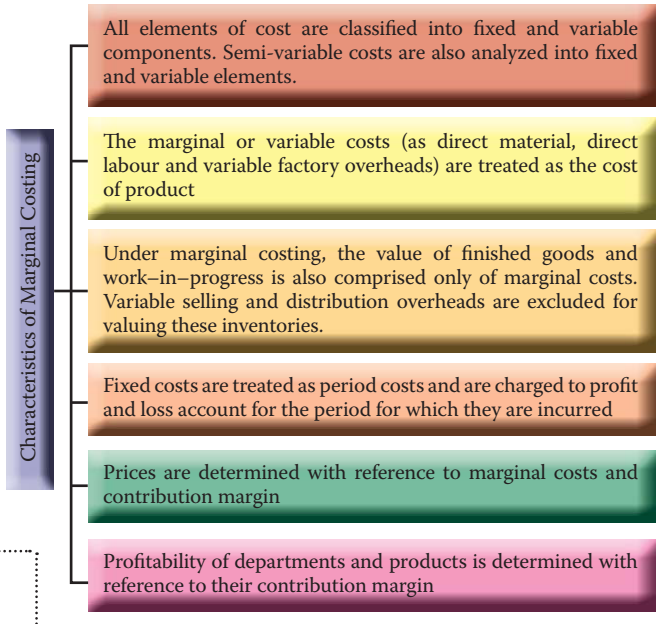
AH* - Actual Hours paid
AH# - Actual Hours worked

Marginal Costing

Chapter Overview



Characteristics of Marginal Costing



Meaning of Terms

In order to understand the concept of marginal costing, let us first define various terminology associated with marginal costing.

Marginal Cost

Marginal cost as understood in economics is the incremental cost of production which arises due to one-unit increase in the production quantity.

Marginal Costing

It is a costing system where products or services and inventories are valued at variable costs only.

Direct Costing

Direct costing and Marginal Costing is used synonymously at various places and it is so also.

Differential Cost

Differential cost is difference between the costs of two different production levels.

Computation of Contribution and Profit under Marginal Costing

For the determination of cost of a product/ service under marginal costing, costs are classified under variable and fixed. All the variable costs are part of product and fixed costs are charged against contribution margin.

Cost and Profit Statement under Marginal Costing

	Amount (Rs)	Amount (Rs)
Revenue		xxx
Product Cost:		
- Direct Materials	xxx	
- Direct employee (labour)	xxx	
- Direct expenses	xxx	
- Variable manufacturing overheads	xxx	
Product (Inventoriable) Costs	**xxx**	**(xxx)**
Product Contribution Margin		xxx
- Variable Administration overheads	xxx	
- Variable Selling & Distribution overheads	xxx	(xxx)
Contribution Margin		**xxx**
Period Cost:		
Fixed Manufacturing expenses	xxx	
Fixed non-manufacturing expenses	xxx	(xxx)
Profit/ (loss)		xxx

Advantages of Marginal Costing

There are many advantages of marginal costing, some of them are discussed below.

Cost-Volume-Profit (CVP) Analysis

It is a managerial tool showing the relationship between various ingredients of profit planning viz., cost, selling price and volume of activity.

Marginal Cost Equation

Marginal Cost Equation = S -V = C = F ± P

Marginal Cost Statement

	(₹)
Sales (S)	xxxx
Less: Variable Cost (V)	xxxx
Contribution (C)	xxxx
Less: Fixed Cost (F)	xxxx
Profit/ Loss (P)	xxxx

Profit Volume Ratio or P/V ratio

This ratio shows the proportion of sales required to cover fixed cost and profit. P/V ratio is calculated as below:

(a) $P/V\ Ratio = \frac{Contribution}{Sales} \times 100$

(b) When two years' data is given, P/V Ratio

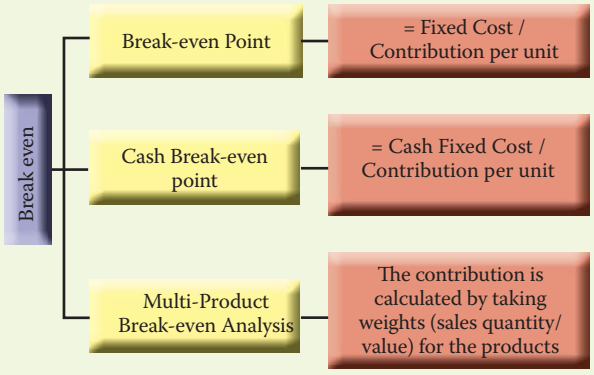
$= \frac{Change\ in\ contribution/\ Profit}{Change\ in\ sales} \times 100$

Break-Even Analysis

Break-even analysis is a generally used method to study the CVP analysis. This technique can be explained in two ways.

(i) In narrow sense it is concerned with computing the break-even point.

(ii) In broad sense this technique is used to determine the possible profit/loss at any given level of production or sales.



Angle of Incidence

This angle is formed by the intersection of sales line and total cost line at the break-even point. This angle shows the rate at which profit is earned once the break-even point is reached. The wider the angle the greater is the rate of earning profits. A large angle of incidence with a high margin of safety indicates extremely favourable position

Margin of Safety

This is the difference between the expected level of sales and break even sales (no profit, no loss). The larger is the margin of safety higher is the profit and vice versa.

Variations of Basic Marginal Cost Equation and other formulae

i.	Sales – Variable cost = Fixed cost + Profit / Loss
	By multiplying and dividing L.H.S. by S
ii.	$\frac{S(S-V)}{S} = F + P$
iii.	S x P/V Ratio = F + P or Contribution ($P/V\ Ratio = \frac{S-V}{S} \times 100$)
iv.	BES x P/V Ratio = F (∵ at BEP Profit is zero)
v.	$BES = \frac{Fixed\ cost}{P/V\ Ratio}$
vi.	$P/V\ Ratio = \frac{Fixed\ cost}{BES}$
vii	S × P/V Ratio = Contribution (Refer to iii)

viii. $\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sale}} \times 100$

ix. (BES + MS) × P/V Ratio = Contribution (Total sales = BES + MS)

x. (BES × P/V Ratio) + (MS × P/V Ratio) = F + P

By deducting (BES × P/V Ratio) from L.H.S. and F from R.H.S. in (x) above, we get:

xi. M.S. × P/V Ratio = P

xii. $\text{P/V Ratio} = \frac{\text{Change in profit}}{\text{Change in sales}} \times 100$

xiii. $\text{P/V Ratio} = \frac{\text{Change in contribution}}{\text{Change in sales}} \times 100$

xiv. $\text{Profitability} = \frac{\text{Contribution}}{\text{Key factor}}$

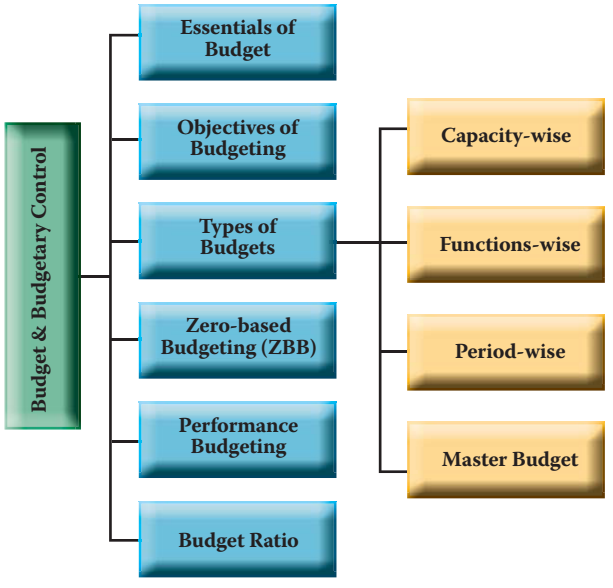
xv. Margin of Safety = Total Sales – BES or $\frac{\text{Profit}}{\text{P/V Ratio}}$

xvi. BES = Total Sales – MS

xvii. $\text{Margin of Safety Ratio} = \frac{\text{Total sales} - \text{BES}}{\text{Total Sales}}$

Budget & Budgetary Control

Chapter Overview



Definition and Terminology

Let us first define various important terminologies used in budget and budgetary control.

Budget	Budgeting	Budgetary control
Quantitative expression of a plan for a defined period of time	Coordinating the combined intelligence of an entire organisation into a plan of action based on past performance	The establishment of budgets relating to the responsibilities of executives of a policy and the continuous comparison of the actual with the budgeted results, either to secure by individual action the objective of the policy or to provide a basis for its revision

Essentials of Budget

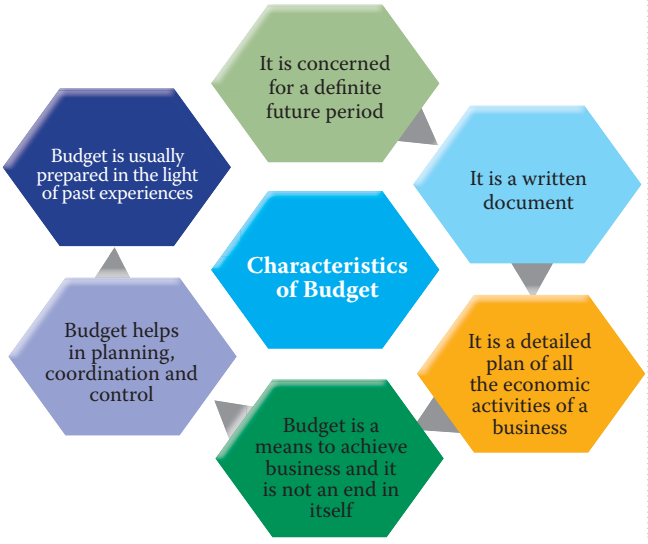
Essential elements of budget are illustrated below:

Essential elements of a budget

Organisational structure must be clearly defined	Setting of clear objectives and reasonable targets	Budgets are prepared for the future periods based on expected course of actions	Budgets are updated for the events that were not kept into the mind while establishing budgets	Budgets should be quantifiable and master budget should be broken down into various functional budgets. Budgets should be monitored periodically	Budgetary performance needs to be linked effectively to the reward system

Characteristics of Budget

Main characteristics of budget are as below:

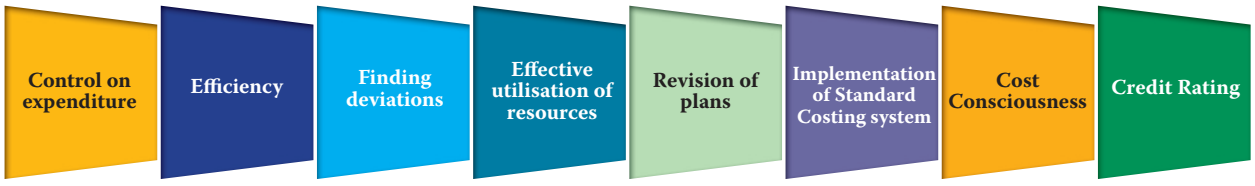


Objectives of Budgeting

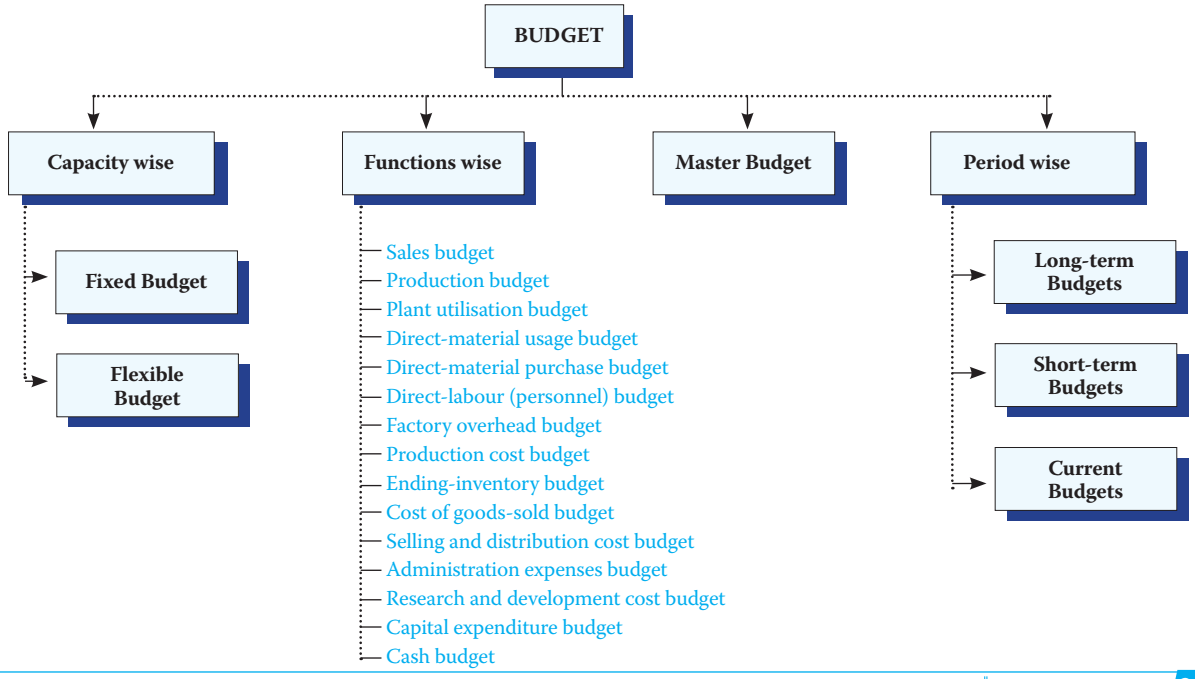
The objective of budgeting begins with planning and ends with controlling. Once the planning is done, they can be used for directing and controlling operations so that the stated targets in planning are achieved.

Advantages of Budgetary Control System

There are many advantages of budgetary control system, and some of the them are illustrated below:



Classification of Budget



Definition of different types of Budget

Functional Budgets	Budgets which relate to the individual functions in an organisation are known as Functional Budgets. For example, purchase budget; sales budget; production budget; plant-utilisation budget and cash budget.
Master Budget	It is a consolidated summary of the various functional budgets. It serves as the basis upon which budgeted P & L A/c and forecasted Balance Sheet are built up.
Long-term Budgets	The budgets which are prepared for periods longer than a year are called long-term budgets. Such budgets are helpful in business forecasting and forward planning. Capital expenditure budget and Research and Development budget are examples of long-term budgets.
Short-term Budgets	Budgets which are prepared for periods less than a year are known as short-term budgets. Cash budget is an example of short-term budget. Such types of budgets are prepared in cases where a specific action has to be immediately taken to bring any variation under control, as in cash budgets.
Basic Budgets	A budget which remains unaltered over a long period of time is called basic budget.
Current Budgets	A budget which is established for use over a short period of time and is related to the current conditions is called current budget.
Fixed Budget	According to CIMA official terminology, "a fixed budget, is a budget designed to remain unchanged irrespective of the level of activity actually attained".
Flexible Budget	According to CIMA official terminology, "a flexible budget is defined as a budget which, by recognizing the difference between fixed, semi-variable and variable costs is designed to change in relation to the level of activity attained."

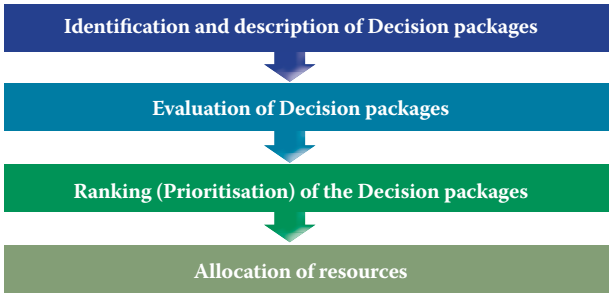
Differences between Fixed Budget and Flexible Budget

Sl. no.	Fixed Budget	Flexible Budget
1.	It does not change with actual volume of activity achieved. Thus it is known as rigid or inflexible budget	It can be re-casted on the basis of activity level to be achieved. Thus it is not rigid.
2.	It operates on one level of activity and under one set of conditions. It assumes that there will be no change in the prevailing conditions, which is unrealistic.	It consists of various budgets for different levels of activity.
3.	Here as all costs like - fixed, variable and semi-variable are related to only one level of activity, so variance analysis does not give useful information.	Here, analysis of variance provides useful information as each cost is analysed according to its behaviour.
4.	If the budgeted and actual activity levels differ significantly, then the aspects like cost ascertainment and price fixation do not give a correct picture.	Flexible budgeting at different levels of activity facilitates the ascertainment of cost, fixation of selling price and tendering of quotations.
5.	Comparison of actual performance with budgeted targets will be meaningless specially when there is a difference between the two activity levels.	It provides a meaningful basis of comparison of the actual performance with the budgeted targets.

Zero- Based Budgeting (ZBB)

It is defined as 'a method of budgeting which requires each cost element to be specifically justified, although the activities to which the budget relates are being undertaken for the first time, without approval, the budget allowance is zero.'

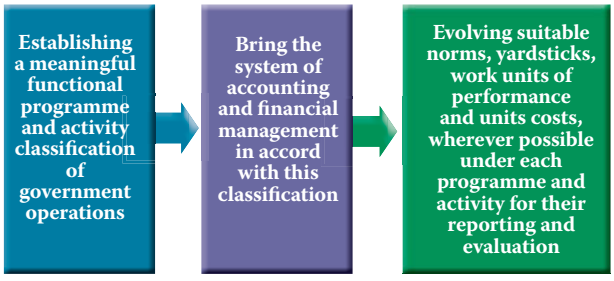
Stages in Zero-based budgeting



Performance Budgeting

A performance budget is one which presents the purposes and objectives for which funds are required, the costs of the programmes proposed for achieving those objectives, and quantitative data measuring the accomplishments and work performed under each programme.

Steps in Performance Budgeting



Budget Ratio

Budget ratios provide information about the performance level, i.e., the extent of deviation of actual performance from the budgeted performance and whether the actual performance is favourable or unfavourable.

The following ratios are usually used by the management to measure development from budget

Efficiency Ratio

This ratio may be defined as standard hours equivalent of work produced expressed as a percentage of the actual hours spent in producing the work.

Standard Capacity Employed Ratio

This ratio indicates the extent to which facilities were actually utilized during the budget period.

Level of Activity Ratio

This may be defined as the number of standard hours equivalent to work produced expressed as a percentage of the budget of standard hours.

Capacity Usage Ratio

This is the relationship between the budgeted number of working hours and the maximum possible number of working hours in a budget period.

Calendar Ratio

This ratio may be defined as the relationship between the number of working days in a period and the number of working days as in the relative budget period.

Budget Ratios:

(i) **Efficiency Ratio** = $\frac{\text{Standard Hours}}{\text{Actual Hours}} \times 100$

(ii) **Activity Ratio** = $\frac{\text{Standard Hours}}{\text{Budgeted Hours}} \times 100$

(iii) **Calendar Ratio** = $\frac{\text{Available working days}}{\text{Budgeted working days}} \times 100$

(iv) **Standard Capacity Usage Ratio** = $\frac{\text{Budgeted Hours}}{\text{Max. possible hours in the budgeted period}} \times 100$

(v) **Actual Capacity Usage Ratio** = $\frac{\text{Actual Hours worked}}{\text{Max. possible working hours in a period}} \times 100$

(vi) **Actual Usage of Budgeted Capacity Ratio** = $\frac{\text{Actual working Hours}}{\text{Budgeted Hours}} \times 100$

Toppers of Chartered Accountants Intermediate (IPC) Examination- May-2017

Gaurav Sarawagi
First
Churu

Ronak Rajendra Jain
Second
Nashik

Usama Hasan
Third
Nagpur

Our Hearty Congratulations