



# **COST ACCOUNTING**

**COURSE CODE: B21CM06DC**



SREENARAYANAGURU  
OPEN UNIVERSITY

Bachelor of Commerce  
Discipline Core Course  
Self Learning Material

**SREENARAYANAGURU OPEN UNIVERSITY**

The State University for Education, Training and Research in Blended Format, Kerala

# **SREENARAYANAGURU OPEN UNIVERSITY**

## **Vision**

*To increase access of potential learners of all categories to higher education, research and training, and ensure equity through delivery of high quality processes and outcomes fostering inclusive educational empowerment for social advancement.*

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To be benchmarked as a model for conservation and dissemination of knowledge and skill on blended and virtual mode in education, training and research for normal, continuing, and adult learners.

## **Pathway**

Access and Quality define Equity.

**Cost Accounting**  
Course Code: B21CM06DC  
Semester - III

**Discipline Core Course  
Bachelor of Commerce  
Self Learning Material**



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# COST ACCOUNTING

Course Code: B21CM06DC

Semester- III

Discipline Core Course

Bachelor of Commerce

## Academic Committee

Dr. Aji S.  
P. M. Ameera Mol  
Shamly K.  
Dr. Jeeva Jose  
Dr. Priya R.  
Sreekanth M. S.  
Dr. Vishnukumar S.  
Joseph Deril K. S.  
Dr. Bindu N.  
Dr. Ajitha R. S.  
Dr. Anil Kumar  
N. Jayaraj

## Development of the Content

Dr. Sanjith S.R.  
Beena C.G.  
Dr. A. Abdul Nizar

## Review and Edit

Dr. T.K. Valsan

## Linguistics

Dr. Suresh A.

## Scrutiny

Dr. Midhun V.  
Dr. Athena Prince  
Dr. Gopika C.G.  
Dr. Kavitha S.  
Dr. Dany Thomas  
Mahesan K.P.

## Design Control

Azeem Babu T.A.

## Cover Design

Jobin J.

## Co-ordination

Director, MDDC :  
Dr. I.G. Shibi  
Asst. Director, MDDC :  
Dr. Sajeevkumar G.  
Coordinator, Development:  
Dr. Anfal M.  
Coordinator, Distribution:  
Dr. Sanitha K.K.



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# MESSAGE FROM VICE CHANCELLOR

Dear learner,

I extend my heartfelt greetings and profound enthusiasm as I warmly welcome you to Sreenarayanaguru Open University. Established in September 2020 as a state-led endeavour to promote higher education through open and distance learning modes, our institution was shaped by the guiding principle that access and quality are the cornerstones of equity. We have firmly resolved to uphold the highest standards of education, setting the benchmark and charting the course.

The courses offered by the Sreenarayanaguru Open University aim to strike a quality balance, ensuring students are equipped for both personal growth and professional excellence. The University embraces the widely acclaimed “blended format,” a practical framework that harmoniously integrates Self-Learning Materials, Classroom Counseling, and Virtual modes, fostering a dynamic and enriching experience for both learners and instructors.

The university aims to offer you an engaging and thought-provoking educational journey. The Bachelor of Commerce is one of the highly popular programmes due to the current need for skilled professionals in the field. This demand guided our approach as we developed the programme's curriculum. The programme offers a comprehensive grasp of theoretical concepts alongside clear explanations of practical applications. We are careful to maintain a balance in the management components to preserve the integrity of the discipline. The Self Learning Material has been thoughtfully crafted to include illustrative examples. The Self-Learning Material has been meticulously crafted, incorporating relevant examples to facilitate better comprehension.

Rest assured, the university's student support services will be at your disposal throughout your academic journey, readily available to address any concerns or grievances you may encounter. We encourage you to reach out to us freely regarding any matter about your academic programme. It is our sincere wish that you achieve the utmost success.



Warm regards.  
Dr. Jagathy Raj V. P.

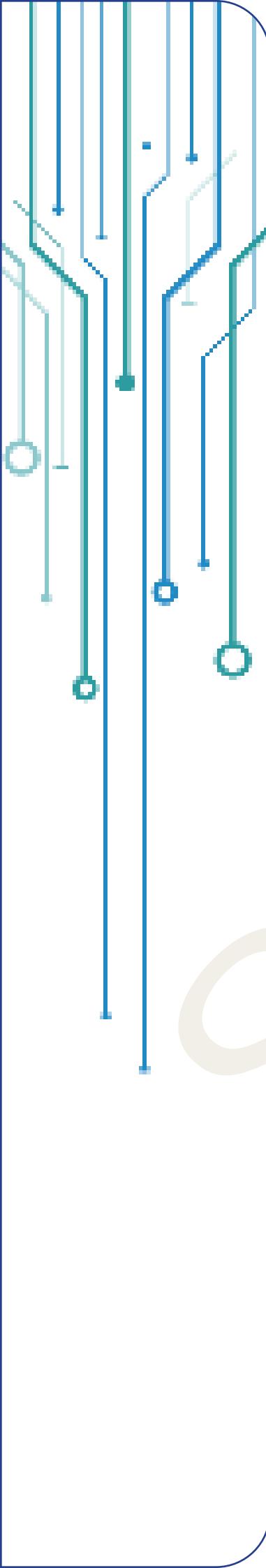
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# Introduction



# Unit 1

## Cost And Cost Concepts

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ familiarise with the cost concept
- ◊ classify the costs
- ◊ differentiate the cost centre and cost unit

### Prerequisites

Imagine a small business that makes handcrafted candles. To set up their production line, they need to understand how different costs affect their operations. They must determine the cost of materials, labour, and overhead to ensure their pricing covers all expenses and allows for profit. Therefore, they might have some questions;

- ◊ What types of costs should we track to understand the total expense of making each candle?
- ◊ How can we categorize these costs to manage them better?
- ◊ Where should we assign these costs to monitor performance effectively?
- ◊ How do we measure the cost for each individual candle?

To understand this effectively, they need to learn about the cost concept, classification of costs, cost centers, and cost units. In this unit, we will discuss these topics. Understanding these elements helps businesses manage costs, make informed decisions, and improve overall financial performance.

## Keywords

Cost Concept, Classification of Cost, Cost Centre, Cost Unit

## Discussion

### 1.1.1 Cost concepts

Cost may be defined as the total of all expenses incurred whether paid or outstanding in the manufacturing and selling of a product.

In the Oxford Dictionary, cost is the price paid for something. Cost means the expenditure incurred on, or attributable to a given thing. In other words, cost indicates an actual or estimated expenditure or direct or indirect or indirect expenditure and is related to a job, process, product, or service. Examples of expenses that constitute costs are:

- ◊ Material
- ◊ Labour
- ◊ Factory overheads
- ◊ Administrative overheads and
- ◊ Selling and distribution overheads

The cost has no fixed or definite meaning. It changes according to its interpretations and how or the purpose for which, it is ascertained. The cost must indicate its purpose and the conditions under which it is computed. If not, it may be vague, giving different meanings to different people. Hence it must be related to a particular activity or commodity and expenditure for a given quantity or unit of goods produced or services performed. The main characteristics of costs are:

- i. The term 'cost' is not complete unless it is fully identified with its nature and category
- ii. Costs do not represent the same contents under every situation
- iii. No cost is true, exact, or accurate. It is a flexible concept, it does not mean the same thing under all circumstances
- iv. Cost may be ascertained in different ways by different persons
- v. Cost varies with time, volume, firm, method, or purpose

### 1.1.2 Classification of cost

Cost accounting is an accounting process that measures all the costs connected

with production, including both fixed and variable costs. The basic objective is to help the management in the decision-making process that optimizes operations based on efficient cost management. The cost accounting is not compliant with generally accepted accounting principles (G A A P) it is only used internally to help company management to make fully informed business decisions. Cost accounting information is not shared externally.

Cost classification is the process of grouping costs based on their common characteristics. It involves organizing similar items together according to their shared features. Proper classification is crucial for accurately assigning costs to cost centres or units. Cost can be divided under various basis based on nature or element (material, labour, and overheads), based on function (production, marketing, selling), the basis of time (historical, predetermined), based on traceability (direct and indirect), based on activity (fixed, variable) based on normality (normal and abnormal), based on controllability (controllable and uncontrollable) based on Analytics (opportunity, joint), etc.

The classification of costs under different parameters is discussed below in detail.

### 1.1.2.1 Classification of cost by nature or element

It involves grouping costs based on their fundamental characteristics or types. This method focuses on the inherent nature of each cost rather than its function or purpose within the organization. It is often used to understand the basic components of costs, which helps in detailed analysis and control.

- ◊ **Materials Costs:** These are costs associated with the raw materials or components used in the production of goods or services. For example, in a furniture manufacturing company, materials costs would include the expense of wood, nails, glue, and varnish. These are direct costs that can be traced directly to the product being made.
- ◊ **Labor Costs:** This category includes expenses related to the wages, salaries, and benefits of employees who are directly involved in the production process. For instance, in a bakery, labour costs would cover the salaries of bakers and kitchen staff. These costs are also direct costs because they can be directly attributed to the production of baked goods.
- ◊ **Overhead Costs:** These are indirect costs that cannot be directly traced to a specific product or service but are necessary for the overall operation. Overhead includes expenses such as rent, utilities, depreciation of equipment, and salaries of administrative staff. For example, in a manufacturing plant, overhead costs would cover electricity for machinery, the rent for the factory space, and the depreciation of production equipment.

### 1.1.2.2 Classification of cost by function (Functional classification)

The most common way to classify costs in manufacturing companies is by their related functions. It's important to determine the costs for each of these functions. Costs are classified into four categories on this basis:

- ◊ **Manufacturing cost:** Manufacturing costs refer to all expenditures incurred in the course of production from the acquisition of materials to the primary packing of the finished product. It includes the cost of materials, cost of labour, other direct expenses, and factory overheads. These are also called Production cost
- ◊ **Administration Costs:** Administration costs encompass all expenses related to the overall management and operational oversight of the organization. Some examples of such costs are: salaries of the office staff, rent of the office building, depreciation and repairs of the office furniture, etc. In fact, any expenditure which is not related directly to production, selling, distribution, research or development forms part of the administrative costs
- ◊ **Selling costs:** Selling costs are those costs which are incurred in connection with the sale of goods. Some examples of such costs are warehousing, advertising, salesmen salaries etc
- ◊ **Distribution cost:** Distribution costs are those costs which are incurred on dispatch of the finished products to customer including transportation. Examples are packing, carriage, insurance, freight outwards etc.

### 1.1.2.3 Classification of cost by identifiability/ traceability with product

- ◊ **Direct Costs:** Direct costs refer to expenses that can be directly identified with a specific product, job, or process. For example, the cost of materials used and labour employed can be easily traced to the product or job they relate to. However, this is not the case for expenditures like rent for a building, which is a common cost for various products manufactured in the factory. Such costs need to be allocated to all products on a rational basis.
- ◊ **Indirect Costs:** Indirect costs refer to expenses that cannot be easily identified with a particular product, job, or process. These costs are general and need to be distributed among the different products produced in the factory. Examples of such costs include the rent of the factory building and the salary of the production manager. These costs need to be apportioned among different products on a rational basis. Overheads, also referred to as "on costs," can be categorized into three main types: factory overheads, administrative overheads, and selling and distribution overheads.

### 1.1.2.4 Classification of cost by variability

Based on variability, costs are classified into three categories:

- ◊ **Fixed Costs:** These are costs that remain unchanged regardless of changes in the volume of output. For example, whether we produce 20,000 or 30,000 units of a product in a given period, the rent for the factory building or the salary of the production manager remains the same. Therefore, rent and salary are considered fixed costs.
- ◊ **Variable Costs:** These costs vary directly with changes in the volume of

output. For instance, if the cost of materials for producing 10,000 units is Rs. 1,50,000, and production is increased to 12,000 units (a 20% increase), the material cost will rise to Rs. 1,80,000 (also a 20% increase). The cost per unit of material remains constant at Rs. 15, but the total material cost changes with the volume of output.

- ◊ **Semi-Variable Costs:** These costs change with the volume of output, but not in direct proportion. They are partly fixed and partly variable, also known as semi-fixed costs. For example, depreciation on machinery is affected both by the passage of time and by usage. As production increases, the total depreciation amount also increases, but not in the same proportion as the increase in output.

#### 1.1.2.5 Classification of cost by controllability

Costs are categorized based on whether they can be influenced by the actions of a specific member of the organization. This classification includes two main types:

- ◊ **Controllable Costs:** These are costs that a particular member of the organization can influence or manage. In other words, they are at least partly within the control of the management. Generally, controllable costs include all direct costs such as direct materials, direct labor, and some overhead expenses, which can be managed by lower levels of management.
- ◊ **Uncontrollable Costs:** These are costs that cannot be influenced by the actions of a specific member of the organization. They are beyond the control of the management. Most fixed costs fall into this category. For instance, the rent of a building is considered an uncontrollable cost.

#### 1.1.2.6 Classification of cost by normality

Under this classification, costs are categorized based on whether they are typically incurred at a given level of output under the conditions in which that level of activity is normally achieved. This basis divides costs into two categories:

- ◊ **Normal Cost:** This is the cost that is typically incurred at a given level of output under the conditions in which that level of activity is normally attained. It is considered part of the cost of production.
- ◊ **Abnormal Cost:** This is the cost that is not typically incurred at a given level of output under the conditions in which that level of output is normally attained. It is not included in the cost of production and is charged to the Costing Profit and Loss Account.

#### 1.1.2.7 Classification of cost by capital and Revenue (Financial Accounting Classification)

Classification of costs by capital and revenue is also known as financial accounting classification. it consists of the following:

- ◊ **Capital Cost:** This is the cost of buying assets that help earn income or

increase the business's earning potential. For example, the cost of a rolling machine in a steel plant is a capital cost. This type of cost is paid all at once, but the benefits are enjoyed over several years.

- ◊ **Revenue Expenditure:** This refers to costs needed to maintain the business's earning ability, such as expenses for maintaining assets or running daily operations. Examples include the cost of materials used in production, labour charges for making products, salaries, depreciation, repairs, and maintenance, as well as selling and distribution costs.

#### 1.1.2.8 Classification of cost by time

Costs can be classified as:

- ◊ **Historical Cost:** These are costs that are determined after they have been incurred.
- ◊ **Predetermined Cost:** These are estimated costs, calculated in advance of production, based on previous periods' costs and factors affecting such costs.

#### 1.1.2.9 Classification of cost by planning and control

Planning and control are two important management functions. Cost accounting provides information that helps management effectively carry out these functions. Based on this, costs can be classified as follows:

- ◊ **Budgeted Costs:** These represent estimates of expenditures for different phases of business operations, such as manufacturing, administration, sales, research, and development. Budgeted costs are organized in a well-conceived framework for a future period and become a written expression of managerial targets to be achieved.
- ◊ **Standard Costs:** Budgeted costs are implemented in actual operations through standard costs. The Institute of Cost and Management Accountants in London defines standard costs as "the predetermined costs based on a technical estimate for materials, labour, and overhead for a selected period and prescribed set of working conditions.

#### 1.1.2.10 Classification of cost by managerial decisions

Based on this, costs may be classified into the following types:

- ◊ **Marginal Cost:** Marginal cost is the total of variable costs, which includes prime cost-plus variable overheads. It is based on the distinction between fixed and variable costs. E.g. Suppose a factory produces 100 units of a widget at a total cost of ₹1,000. If producing 101 units increases the total cost to 1,010, the marginal cost of producing the 101st unit is ₹10.
- ◊ **Out-of-Pocket Cost:** This portion of the cost involves payments to outsiders. E.g. If a company hires a consultant and pays them ₹2,000 for their services, that ₹2,000 is an out-of-pocket cost. It involves a direct cash outflow from the company.

- ◊ **Differential Cost:** Differential cost refers to the change in costs due to a change in the level of activity, pattern, or method of production. E.g. If a company is considering switching from manual assembly to automated assembly, and the cost of manual assembly is ₹5,000 while the cost of automated assembly is ₹8,000, the differential cost between the two methods is ₹3,000.
- ◊ **Sunk Cost:** Costs that have already been incurred and cannot be recovered, regardless of future decisions. E.g. A company spent ₹10,000 on a marketing campaign that failed. The ₹10,000 is a sunk cost because it cannot be recovered, no matter what decisions are made going forward.
- ◊ **Imputed (or Notional) Costs:** These are costs that appear only in cost accounts. For example, a notional rent is charged on business premises owned by the proprietor. E.g. If a company owns a building and does not pay rent but records a notional rent of ₹1,000 for accounting purposes, this is an imputed cost. It reflects the cost of using the building even though no actual rent is paid.
- ◊ **Opportunity Cost:** This is the maximum possible alternative earning that might have been earned if the productive capacity or services had been used for an alternative purpose. E.g. If you use ₹5,000 to invest in a new machine instead of using it to open a new branch, the opportunity cost is the potential profit you would have earned from the new branch.
- ◊ **Replacement Cost:** This is the cost required to purchase an asset or material identical to that which is being replaced or revalued. E.g.: If a company needs to replace an old machine and the current cost to buy a new machine of the same type is ₹15,000, the replacement cost of the old machine is ₹15,000.
- ◊ **Avoidable and Unavoidable Costs:** Avoidable costs are those that can be eliminated if a particular product or department, to which they are directly related, is discontinued. Unavoidable costs are those that will not be eliminated with the discontinuation of a product or department. Eg: If a company decides to stop producing a particular product line and saves ₹2,000 on direct materials and labour costs, these are avoidable costs. If the company still has to pay ₹3,000 in facility rent for the production area even if the product line is discontinued, this ₹3,000 is an unavoidable cost.

### 1.1.3 Cost unit

A cost unit is a specific measure or quantity used to allocate and analyse costs associated with the production or delivery of goods and services. It provides a standardized way to measure and report costs, which helps in determining the cost per unit of output and making informed financial decisions. A cost unit is a single, identifiable unit of output or service for which costs are calculated. It can be any discrete measurement relevant to the industry, such as a product, service, or period. The primary purpose of defining cost units is to allocate total costs to individual units of output or services in a consistent manner. This helps in cost control, pricing decisions, budgeting, and performance evaluation. Example: For manufacturing companies, a cost unit might be a single product or item produced. For example, in a car manufacturing plant, each car

produced is a cost unit. If a factory produces widgets, each widget is a cost unit. If the cost of operating a machine is tracked, the machine hour can be the cost unit. Features of cost units are :

1. Cost unit is a unit of measurement of cost.
2. The concept of cost unit is used to ascertain costs.
3. A product will have only one cost unit
4. Cost units are determined not for budgeting and controlling
5. Determination of cost with depends upon the nature of the final product and the prevailing trade practices.

Table 1.1.1 Examples of Cost Unit

<b>Industry/Business</b>	<b>Cost Unit</b>
Cement/Steel/Sugar	Tonne
Chemicals	Tonne/Kilogram/Liter/Gallons etc.
Bricks	Thousand Bricks or 500 bricks
Soft Drink	Crate of 24 bottles or 12 bottles
Nursing Home/Hospital	Bed per day/ Out patient
Interior Decoration	Each job
Flour	Tonne
Shoes	Pair or dozen pair
Pencils	Dozen or gross
Power	MW
Transport	Passenger Kilometre/ Ton-Kilometre
Automobiles	Number
Paper	Ream
Printing Press	Thousand Impressions
Cotton or Jute	Bale
Building Construction	Each building or flat
Timber	Cubic foot

Brewing	Barrel
Mines	Tonne of Mineral
Carpets	Square foot
Hotels	Room per day
Gas	Cubic foot/ cubic meter
Education	Student
Petroleum	Barrel/tonne/litre

#### 1.1.4 Cost centre

A cost centre is a department or function within an organization where costs are incurred. It is a specific area of responsibility for which costs are collected and managed. Cost centres do not generate revenue directly; instead, they support the revenue-generating parts of the business.

Examples:

- ◊ Manufacturing Department: This department incurs costs related to production, such as raw materials, labour, and overhead.
- ◊ Customer Service Department: Costs include salaries of customer service representatives, office supplies, and utilities.

Cost centre fall under two categories, namely productive cost centre and service cost centres. A productive cost centre is a cost centre that directly contributes to the production of goods or services. It is involved in activities that result in the creation of a product or service and hence directly impacts the organization's output.

Examples:

- ◊ Production Line: The assembly line in a factory where goods are manufactured.
- ◊ Research and Development (R&D): In some organizations, R&D departments contribute to the development of new products or processes.

A service cost centre provides support services to other cost centres or departments within the organization but does not contribute directly to the production of goods or services. These centres incur costs that are necessary for the smooth functioning of the business but are not directly involved in production.

Examples:

- ◊ Maintenance Department: Responsible for maintaining machinery and equipment used in production.

- ◊ Human Resources Department: Handles recruitment, training, and employee welfare.

Cost centre can also be defined as personal cost centres and impersonal cost centres. A personal cost centre is a cost centre where the costs are associated with specific individuals or groups of people. It focuses on tracking and controlling costs related to personnel.

Examples:

- ◊ Employee Salary Cost Centre: Costs are tracked for individual employees or groups based on their roles and responsibilities.
- ◊ Departmental Personnel Costs: Costs related to employees working in a specific department.

An impersonal cost centre is a cost centre where costs are not attributed to specific individuals but rather to departments or functions. It does not focus on individual personnel costs but on the overall expenses of a particular area or function.

Examples:

- ◊ Utilities Cost Centre: Costs related to utilities like electricity, water, and gas used across the organization.
- ◊ Office Supplies Cost Centre: Costs associated with general office supplies used by various departments.

#### 1.1.4.1 Features of Cost Centre

1. Cost centre is a segment of an organization for which costs are accumulated.
2. The concept of cost centre is used for accumulation and control of costs.
3. Different cost centres may be involved in the production of a product
4. Cost centres are created for assisting the management in the function of budgeting and controlling.
5. Formulation of cost centres depends upon the nature and techniques of production processes size of the organization and the structure of the organization.

Table 1.1.2 Difference between Cost Centre and Cost Unit

Cost Centre	Cost Unit
A cost centre is a specific area or department within a company where costs can be tracked and measured	A cost unit is a specific unit of product or service for which the costs can be tracked and measured
It is used to identify and trace the costs incurred by a particular department or area	It is used to identify and trace the costs incurred by a particular product or service

It helps to manage and control the costs of a specific department or area	It helps to manage and control the costs of a specific product or service
It is used for internal management and planning purposes	It is used for pricing and product cost analysis
It is a higher level of cost classification than cost unit	It is a lower level of cost classification than cost centre

## Recap

- ◊ Cost: The monetary value incurred to acquire or produce something.
- ◊ Cost Unit: A measure used to assess the cost of a specific unit of production or service.
- ◊ Material Cost: Expenses related to raw materials used in production.
- ◊ Labour Cost: Costs associated with wages and salaries paid to employees involved in production.
- ◊ Overhead Cost: Indirect expenses that are not directly traceable to a specific product but are necessary for operations.
- ◊ Manufacturing Cost: Total costs incurred in the production of goods, including materials, labour, and overheads.
- ◊ Administration Costs: Expenses related to the management and administrative functions of a business.
- ◊ Selling Costs: Costs incurred in the process of selling products or services, including marketing and sales salaries.
- ◊ Distribution Cost: Expenses related to the delivery of products from the manufacturer to the customer.
- ◊ Direct Costs: Costs that can be directly attributed to a specific product, service, or project.
- ◊ Indirect Costs: Costs that cannot be directly traced to a specific product or service but are shared across various functions.
- ◊ Fixed Costs: Costs that remain constant regardless of the level of production or sales.
- ◊ Variable Costs: Costs that vary directly with the level of production or sales volume.
- ◊ Semi-Variable Costs: Costs that have both fixed and variable components, changing with the level of activity but not in a linear manner.

- ◊ Controllable Costs: Expenses that can be influenced or managed by specific individuals or departments within an organization.
- ◊ Uncontrollable Costs: Costs that cannot be altered by the actions of individuals or departments within an organization.
- ◊ Normal Cost: The cost typically incurred under normal operating conditions.
- ◊ Abnormal Cost: Costs that arise due to unusual or non-recurring events not typically encountered in normal operations.
- ◊ Capital Cost: Expenses related to acquiring or improving long-term assets, such as machinery or buildings.
- ◊ Revenue Expenditure: Costs incurred to maintain and operate assets, not intended to improve or extend their lifespan.
- ◊ Historical Cost: The original cost of an asset as recorded at the time of acquisition.
- ◊ Predetermined Cost: Estimated costs calculated in advance of production, based on historical data and projected conditions.
- ◊ Budgeted Costs: Costs estimated and planned for future periods, based on a detailed budget.
- ◊ Standard Costs: Predetermined costs for materials, labor, and overheads used as a benchmark for performance evaluation.
- ◊ Marginal Cost: The additional cost incurred by producing one more unit of a product.
- ◊ Out-of-Pocket Cost: Costs that involve actual payments made to outsiders.
- ◊ Differential Cost: The change in total cost resulting from a change in the level of activity or production method.
- ◊ Sunk Cost: Costs that have already been incurred and cannot be recovered.
- ◊ Imputed (or Notional) Costs: Costs that are recorded for accounting purposes but do not involve actual cash outlay, such as notional rent.
- ◊ Opportunity Cost: The potential benefit lost when choosing one alternative over another.
- ◊ Replacement Cost: The cost to replace an asset or material with a similar one at current prices.
- ◊ Cost Centre: Any area or department where costs are accumulated.
- ◊ Productive Cost Centre: Directly involved in the production of goods or services.
- ◊ Service Cost Centre: Provides support services necessary for operations but does not produce goods or services directly.

- ◊ Personal Cost Centre: Costs attributed to specific individuals or groups of people.
- ◊ Impersonal Cost Centre: Costs attributed to departments or functions, not to specific individuals.

## Objective Questions

1. What is a cost unit?
2. What type of cost is directly attributed to a specific product?
3. Which cost cannot be controlled by a specific department manager?
4. What is the cost of raw materials used in production called?
5. Which cost remains constant regardless of production levels?
6. Which cost type includes costs for marketing and sales activities?
7. What is the cost incurred to maintain the day-to-day operations of a business called?
8. Which type of cost changes in direct proportion to production levels?
9. What cost is incurred to replace an asset with a new one?
10. Which cost is not directly attributable to any specific product or service?
11. What is the additional cost of producing one more unit of output called?
12. What cost is associated with actual cash payments to outsiders?
13. What is the cost that has already been incurred and cannot be recovered?
14. Which cost involves estimating future expenditures based on past data?
15. Which cost is estimated before production based on previous data and expected conditions?
16. What cost is considered an expense for the depreciation of assets?
17. What is the cost unit used for measuring the cost of raw materials in chemicals?
18. What is the cost associated with potential benefits lost due to a decision?
19. Which type of cost varies with changes in production volume and also has a fixed component?
20. What is the term for costs that can be eliminated if a product or department is discontinued?
21. What cost is calculated based on technical estimates for materials, labour, and overhead?

22. What term describes costs associated with employee salaries and wages?
23. What is the cost of maintaining an asset or running a business day-to-day called?
24. Which type of cost is incurred to develop new products or improve existing processes?
25. What is the term for costs recorded for accounting purposes but do not involve actual cash outlays?

## Answers

1. A unit of measurement for the cost of a product or service.
2. Direct Cost.
3. Uncontrollable Cost.
4. Material Cost.
5. Fixed Cost.
6. Selling Costs.
7. Revenue Expenditure.
8. Variable Cost.
9. Replacement Cost.
10. Indirect Cost.
11. Marginal Cost.
12. Out-of-Pocket Cost.
13. Sunk Cost.
14. Predetermined Cost.
15. Budgeted Cost.
16. Overhead Cost.
17. Kilogram/Liter.
18. Opportunity Cost.
19. Semi-Variable Cost.
20. Avoidable Costs.
21. Standard Cost.
22. Labour Costs.
23. Revenue Expenditure.

24. Capital Cost.
25. Imputed Cost.

## Self-Assessment Questions

1. Define a cost unit and provide an example of how it is used in the manufacturing industry.
2. Explain the difference between direct costs and indirect costs with examples.
3. What are the main characteristics of fixed costs, and how do they differ from variable costs? Provide examples.
4. Describe what is meant by marginal cost and explain how it can influence decision-making in production.
5. How do sunk costs impact financial decision-making, and why should they be ignored in future investment decisions?
6. Compare and contrast capital costs and revenue expenditures, giving examples of each.
7. What is an opportunity cost, and how should it be considered when evaluating different business decisions?
8. Discuss the role of overhead costs in a company's financial management and provide examples of typical overhead expenses.
9. What are standard costs, and how are they used in budgeting and performance evaluation?
10. Explain the concept of controllable versus uncontrollable costs and give examples of each from a managerial perspective.

## Assignments

1. Compare the cost structures of a service-based business and a product-based business. How do direct costs, indirect costs, and overhead costs differ between these types of businesses?
2. Examine a real-world scenario where marginal cost analysis was crucial for decision-making. Discuss the steps taken and the outcomes achieved.
3. Discuss the role of sunk costs in project management. Provide an example

- of a situation where ignoring sunk costs led to better decision-making.
4. Assess the role of overhead costs in a manufacturing company. How can these costs be managed effectively to improve profitability? Include examples of common overhead expenses.
  5. Investigate how standard costs are established and used in a manufacturing setting. Discuss how variances between standard and actual costs are handled and their impact on financial performance.
  6. Analyse the impact of controllable and uncontrollable costs on managerial performance evaluation. Provide examples of how managers can address each type of cost in their budgeting and performance reviews.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., *Cost Accounting*, Sultan Chand & Sons, New Delhi.
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7. Lall Nigam B M and Jain I C, *Cost Accounting Principles and Practice*, Prentice Hall of India.
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# Unit 2

## Introduction to Cost Accountancy

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ familiarise with the term cost accounting
- ◊ identify the advantages and disadvantages of cost accounting
- ◊ grasp an idea on the functions of cost accounting
- ◊ differentiate between the cost accounting and financial accounting

### Prerequisites

In the realm of business management, financial accounting provides a comprehensive overview of an organization's financial performance and position through standardized financial statements. It focuses on recording, summarizing, and reporting transactions to external stakeholders such as investors, regulators, and creditors. However, it doesn't give a lot of details about how much it costs to make products or run the company. This is where cost accounting comes in. It focuses on understanding and managing the costs involved in production and operations.

Cost accounting extends beyond the financial summaries provided by financial accounting to address the internal needs of an organization. It involves the systematic tracking, analysis, and reporting of costs associated with production, operations, and business processes. It helps managers see where money is being spent and find ways to cut costs or improve efficiency. By giving a clear picture of costs, it helps businesses make better decisions about pricing, budgeting, and managing resources. In short, while financial accounting pro-

vides a big-picture view, cost accounting helps businesses get into the details needed to run more smoothly and make more money.

## Keywords

Cost accounting, Financial Accounting

## Discussion

### 1.2.1 Introduction to Cost Accountancy

Cost Accounting is a part of accounting that was created to address the shortcomings of financial accounting. Financial accounting focuses mainly on keeping records to prepare the Profit and Loss Account and Balance Sheet. It shows how much profit or loss a business has made and its financial position at a specific time. However, financial accounting mainly deals with record-keeping and does not help in managing or controlling business operations. It lacks detailed information on how well different parts of the business are performing. To help businesses measure their performance more effectively, Cost Accounting was developed.

Cost Accounting involves classifying, recording, and appropriately allocating expenditures to determine the cost of products and services and to ascertain profitability. It also includes preparing periodic statements and reports for controlling costs and making managerial decisions. Cost Accounting covers the calculation of costs for every order, job, contract, process, service, or unit as needed. It deals with the costs of production, selling, and distribution. Additionally, Cost Accounting focuses on the collection, classification, ascertainment, accounting, and control of various cost elements.

According to J M Fremgen “*cost accounting is the process of recording, classifying, allocating and reporting the various cost incurred in the operation of an enterprise.*”

The Institute of Cost and Management Accountant, London defines “*Cost Accounting as the application of costing and cost accounting principles, methods and techniques to the science, art and practice of cost control and ascertainment of profitability. It includes the presentation of information derived there from for the purpose of managerial decision making*”

### 1.2.1.1 Objectives of Cost Accounting

The objectives of cost accounting include the ascertainment of costs, fixation of selling prices, and proper recording and presentation of cost data to management for

measuring efficiency and controlling costs. The aim is to understand the methods by which expenditures on materials, wages, and overheads are recorded, classified, and allocated so that the cost of products and services can be accurately determined. These costs can then be related to sales, allowing for the assessment of profitability. As business and industry evolve, the objectives of cost accounting are continually adapting. The following are the main objectives of cost accounting:

- i. To ascertain the cost per unit of the different products manufactured by a business concern.
- ii. It aims to provide a correct analysis of costs.
- iii. It seeks to disclose sources of wastage.
- iv. It provides the requisite data and serves as a guide for fixing the prices of products manufactured or services rendered.
- v. It helps in ascertaining the profitability of each product.
- vi. It aims to exercise effective control over the stock of raw materials, work-in-progress, consumable stores, and finished goods to minimize the capital locked up in these stocks.
- vii. It reveals sources of economy by installing and implementing a system of cost control for materials, labour, and overheads.
- viii. It advises management on future expansion policies and proposed capital projects.
- ix. It presents and interprets data for management planning, decision-making, and control.
- x. It assists in the preparation of budgets and the implementation of budgetary control.
- xi. It guides management in formulating and implementing an incentive bonus plan based on productivity and cost savings.
- xii. It supplies useful data to management for making various financial decisions, such as introducing new products or replacing labour with machines.
- xiii. It helps in supervising the working of punched card accounting or data processing through computers.
- xiv. It aids in the internal audit system to ensure effective working of different departments.
- xv. It helps in finding out the costing profit or loss by matching revenues with the costs of products or services that generated those revenues.
- xvi. It ascertains and analyses the cost and income by product, function, and responsibility.

### 1.2.1.2 Advantages of Cost Accounting

The advantages of cost accounting are as follows:

- i. Cost accounting discloses profitable and unprofitable activities.

- ii. It enables a business to measure its efficiency.
- iii. It guides future production policies.
- iv. It helps in the fixation of selling prices.
- v. It contributes to increasing profits by revealing sources of losses.
- vi. It allows for the periodical determination of profits and losses.
- vii. It provides reliable data for comparing costs.
- viii. It discloses the relative efficiency of different workers.

### 1.2.1.3 Disadvantages of Cost Accounting

- i. **Complexity of Systems:** Cost accounting systems can be complex and require significant effort and resources to set up and maintain, which may be challenging for smaller businesses.
- ii. **Historical Focus:** Cost accounting often relies on historical data, which may not always accurately predict future costs or reflect current operational changes.
- iii. **Accuracy of Data:** The accuracy of cost accounting reports depends heavily on the accuracy of data input and cost allocation methods, which can lead to potential errors or inaccuracies.
- iv. **Limited External Use:** Cost accounting primarily serves internal management needs and may not provide the comprehensive financial information required for external stakeholders, such as investors or creditors.
- v. **Potential for Misuse:** There is a risk of cost accounting data being manipulated or misused for short-term gains, which can lead to misleading conclusions about a company's performance.
- vi. **Lacks a Uniform Procedure:** There is no universally accepted standard procedure for cost accounting, leading to variations in practices across different organizations.
- vii. **Conventions and Estimates:** Cost accounting involves a large number of conventions, estimates, and flexible factors, which can affect the consistency and comparability of cost data.
- viii. **Formalities for Small Concerns:** Small and medium-sized businesses often face challenges due to the numerous formalities required in cost accounting, which may be disproportionately burdensome.
- ix. **Limited Future Orientation:** The contribution of cost accounting in handling futuristic situations and strategic planning has been limited, as it often focuses on historical cost data.

### 1.2.1.4 Scope of Cost Accounting

- i. **Cost Ascertainment:** This involves the collection and analysis of expenses, the measurement of production of different products at various stages of manufacture, and the linking of production with expenses.
- ii. **Cost Accounting:** This is the process of accounting for costs, which begins with recording expenditures and ends with the preparation of statistical data.

It is a formal mechanism for ascertaining and controlling the costs of products or services. Costs can be determined using either historical or predetermined costing systems.

- iii. Cost Control:* Cost control refers to the guidance and regulation of the cost of operating an undertaking through executive action. It aims to align actual costs with targeted costs and to regulate any deviations from these targets through executive measures.

### 1.2.1.5 Functions of Cost Accounting

The functions of cost accounting include:

- i. Cost Determination:* Calculating the cost of products, services, or processes to ensure accurate pricing and financial planning.
- ii. Cost Analysis:* Evaluating cost data to identify cost behaviours, trends, and variances, and to provide insights for decision-making.
- iii. Cost Control:* Implementing measures to monitor and manage costs, ensuring they remain within budget and meet financial targets.
- iv. Cost Planning:* Assisting in budgeting and forecasting by projecting future costs based on historical data and expected changes.
- v. Cost Allocation:* Distributing costs among different departments, products, or projects to accurately reflect their respective contributions to overall expenses.
- vi. Performance Measurement:* Assessing the efficiency and effectiveness of operations and departments by comparing actual costs to standards or budgets.
- vii. Decision Support:* Providing relevant cost information to aid management in making informed decisions regarding pricing, production, and investment.
- viii. Reporting:* Generating detailed cost reports for internal use, helping management understand cost structures and performance.
- ix. Profitability Analysis:* Analysing the profitability of products, services, or business segments to guide strategic decisions.
- x. Cost Reduction:* Identifying areas where costs can be reduced or controlled without affecting quality or performance.

Table 1.2.1 Cost Accounting Vs Financial Accounting

Aspect	Financial Accounting	Cost Accounting
Purpose	To provide financial information for external stakeholders.	To provide detailed cost information for internal management.
Objective	To present a true and fair view of the company's financial health.	To aid in internal decision-making and cost management.

Statutory requirements	These accounts have to be prepared according to the legal requirements of Companies Act and Income Tax Act	Maintenance of these accounts is voluntary, except in certain specified industries where it has been made obligatory to keep cost records under the Companies Act
Focus	Overall financial position and performance of the business.	Detailed analysis of costs related to products, services, or processes.
Reports	Financial statements such as the balance sheet, income statement, and cash flow statement.	Cost reports such as cost of production, cost variance reports, and cost analysis.
Users	External users like investors, creditors, and regulators.	Internal users like managers and departmental heads.
Regulation	Governed by standardized accounting principles and regulations (e.g., GAAP, IFRS).	Not regulated by external standards; practices vary by organization.
Data	Historical data reflecting past performance.	Current and future data focusing on cost control and planning.
Scope	Broad; includes all financial transactions and positions.	Narrower; focuses on cost aspects of specific activities or products.
Time Period	Typically covers financial periods such as quarterly or annually.	Can be periodic (e.g., weekly, monthly) or event-based.
Emphasis	Accuracy and completeness of financial information.	Detailed cost analysis and management of cost control.
Historical vs. Current	Primarily historical.	Can include both historical and current data for analysis.

## Recap

- ◊ Cost Accounting: Tracking, analysing, and controlling costs
- ◊ Financial Accounting: Preparation and reporting of financial statements
- ◊ Cost Determination: Calculates the cost of products or services to ensure accurate pricing and budgeting.
- ◊ Cost Analysis: Examines cost data to identify patterns, trends, and variances for better decision-making.
- ◊ Cost Control: Implements measures to monitor and manage costs to stay within budget and financial targets.
- ◊ Cost Planning: Assists in forecasting future costs based on historical data and anticipated changes for better financial planning.
- ◊ Cost Allocation: Distributes costs among different departments, products, or projects to reflect their contributions to overall expenses.
- ◊ Historical Data: Focuses on recording and reporting historical financial data to reflect past performance.

## Objective Questions

1. What does cost accounting primarily focus on?
2. Which accounting method is used to produce financial statements for external stakeholders?
3. What is the main purpose of financial accounting?
4. What type of costs does cost accounting analyze?
5. Which accounting discipline involves compliance with standardized principles such as GAAP or IFRS?
6. What does financial accounting assess regarding a company's financial position?
7. What is one of the main objectives of cost accounting?
8. Which type of accounting provides detailed cost reports to assist internal management?
9. What does financial accounting provide an overview of?
10. What is the primary focus of cost accounting compared to financial accounting?

## Answers

1. Tracking, analysing, and controlling costs associated with production.
2. Financial accounting.
3. To provide an overview of the company's financial performance and position for external stakeholders.
4. Costs associated with the production of goods or services.
5. Financial accounting.
6. The overall financial position, including assets, liabilities, and equity.
7. To aid in internal management decision-making by providing cost-related information.
8. Cost accounting.
9. The company's financial performance and position.
10. Cost accounting focuses on internal cost control, while financial accounting focuses on external financial reporting.

## Self-Assessment Questions

1. What are the main objectives of cost accounting in a business?
2. How does financial accounting differ from cost accounting in terms of its primary audience?
3. What role does cost accounting play in decision-making for management?
4. In what ways does cost accounting contribute to cost control and reduction?
5. Why is cost analysis important for managing production costs?
6. What are some key benefits of using cost accounting for internal financial management?

## Assignments

1. Explain the differences between cost accounting and financial accounting, highlighting their respective purposes and uses within an organization.
2. Explore the impact of cost accounting on pricing decisions. How can cost

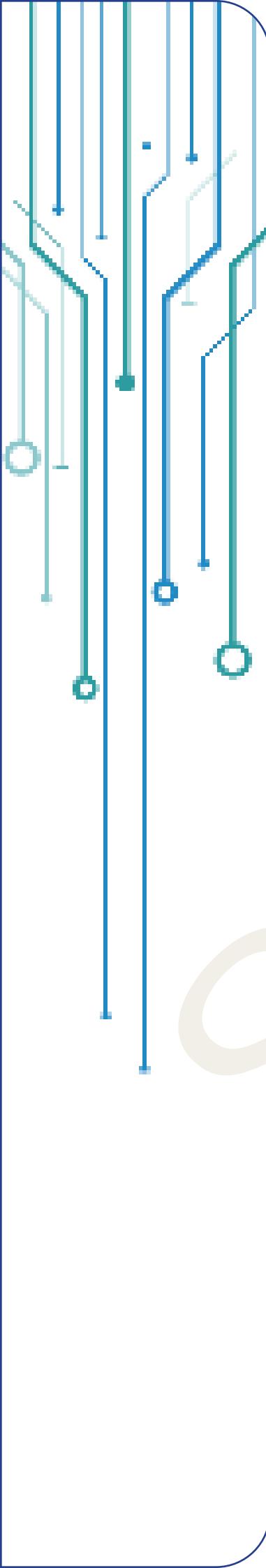
- information be used to set appropriate prices for products or services?
3. Investigate the relationship between cost accounting and financial accounting in the context of strategic management. How do both disciplines contribute to overall business strategy and performance?
  4. Discuss the impact of cost accounting on budgeting and forecasting processes. How does cost information aid in the development of accurate financial forecasts?
  5. Evaluate the advantages and limitations of cost accounting in providing an idea for managerial decision-making.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., *Cost Accounting*, Sultan Chand & Sons, New Delhi.
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**2**  
**BLOCK**

## Methods and Techniques of Costing



# Unit 1

## Methods Of Costing

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ gain an understanding on job costing
- ◊ familiarise with the term batch costing
- ◊ familiarise with the term process costing
- ◊ identify the uses of service costing

### Prerequisites

Imagine you are the financial manager of a company involved in various types of projects: custom furniture manufacturing, small batch production of standard furniture, large custom orders for corporate clients, mass production of basic furniture items, and furniture repair and maintenance services. Each of these areas requires a distinct approach to costing due to the different nature of the work and how costs are incurred.

For custom furniture, job costing tracks costs associated with individual orders, including materials, labour, and overheads, aiding in pricing and profitability analysis. Batch costing helps allocate costs to each batch of standard furniture produced, simplifying price setting and profitability management. Contract costing is used for long-term, large-scale projects, monitoring costs over the contract duration to ensure budget adherence. Process costing suits mass production of identical items by averaging costs over all units produced, aiding in cost management and pricing. Lastly, service costing is employed for repair and maintenance services, tracking costs to set prices and manage expenses effectively. Using the appropriate costing method allows the company to accurately track costs, set prices, and make informed financial decisions based on each type of work.

## Keywords

Job costing, Batch costing, Contract costing, Process costing, Service costing

## Discussion

### 2.1.1 Costing

Costing is the process of determining the total costs associated with producing a product or providing a service. CMA London defines costing as the technique and process of ascertaining costs. It involves identifying, measuring, and analysing all expenses incurred in the production process, including materials, labour, overheads, and other costs. The primary goal of costing is to provide detailed information on how much it costs to produce a good or service, which helps in pricing, budgeting, financial planning, and evaluating profitability.

### 2.1.2 Methods of cost accounting

Cost accounting methods are techniques that help businesses determine the cost of producing goods and services. They can assist management with pricing decisions, resource allocation, and performance evaluation. From conventional approaches like absorption and marginal costing to modern and innovative techniques like target costing and life cycle costing, a range of techniques exists to cater to diverse business needs in the competitive world.

The methods to be used for the attainment of cost of production differ from industry to industry. It primarily depends on the manufacturing process and also on the methods of measuring the departmental and finished product. Methods of costing can be broadly classified into five:

- ◊ Job costing
- ◊ Batch costing
- ◊ Contract costing
- ◊ Process costing
- ◊ Service costing

#### 2.1.2.1 Job costing

Job costing is an accounting method used to determine the exact cost of producing a specific product or completing a particular job. It's particularly useful for businesses that undertake unique projects or produce custom items, such as construction companies, manufacturing firms, and service-based industries.

The core idea is to track all expenses associated with a job, from direct materials

and labor to indirect costs like overhead, and allocate them specifically to that job. This helps businesses understand the profitability of each project, make informed pricing decisions, and identify areas for cost reduction.

Job costing is used in printing press, Automobile repair shop, interior decoration, general engineering, machines tools etc.

### **Features of job costing**

Job costing has several distinctive features that make it particularly useful for businesses that handle custom or project-based work. Here are the key features:

- i. Production is against customer's orders and not for stocks.
- ii. Each job has its own characteristics and requires special attention
- iii. The flow of production from one department to another is uniform. It is the nature of job which determines the department through which it is to be processed.

### **Advantages of job costing**

- i. Profitability of each job can be individually determined
- ii. It provides a basis for estimating the cost of similar jobs which are to be taken in future.
- iii. It provides, the detailed analysis of the cost of material, labour and overhead for each job as and when required
- iv. Plant efficiency can be controlled by confining attention to costs relating to individual jobs.
- v. Spoilage and defective work can be identified with a specific job and responsibility for the same may be fixed on individuals
- vi. By adopting pre-determined overhead rates in job costing, we can get all advantages of budgetary control
- vii. Job costing is essential for cost-plus contract where contract price is determined directly on the basis of cost.

### **Limitations of job costing**

- i. It is expensive to operate as it requires considerable detailed clerical work.
- ii. With the increase in the clerical work the chances of errors are increased.
- iii. Job order costing cannot be efficiently operated without highly developed production control system. The job costing requires intricate factory organisation system.
- iv. The costs as ascertained are historical as they compiled after incidence and therefore does not provide control of cost unless it is used with standard costing system.

### **Job costing Procedure**

#### **i. Job Number**

The first step in the job costing procedure involves assigning a unique job number

to each project or job. This number serves as a distinctive identifier that allows for organized tracking of all related costs and activities. By assigning a specific job number, the company ensures that all expenses, labour, and material records are linked to the correct job. This systematized approach simplifies the management of job costs and facilitates easy retrieval of information for reporting and analysis.

## ii. Production Order

Once the job number is assigned, a production order is issued by the production control department to initiate the job. This document outlines the specifics of the job, including detailed descriptions, requirements, and deadlines. The production order serves as a formal directive for starting the work, ensuring that all departments and personnel involved are informed of the job's objectives and expectations. It facilitates coordination among various teams and sets the stage for systematic execution, ensuring that the job proceeds according to the established plan. Several copies of the production order are prepared, the copies often being in different colours to distinguish between them more easily. The copies are passed on to the following:

- ◊ All departmental foreman concerned with the job
- ◊ Storekeeper for issuance of materials
- ◊ Tool room for an advanced notification of tools required.

PRODUCTION ORDER			
Name of the customer .....	Job No	.....	
Date of Commencement .....	Date	.....	
Date of completion .....	Bill of Material No	.....	
Special Instructions .....	Drawing attached	.....	
Quantity	Description	Machines to be used	Tools required
(Sign).....			
Production authorised by:			
Head of production Control Dept.			

Fig 2.1.1 Production order



The columns provided in the production order differ widely, depending largely upon the nature of production. Sometimes orders are accompanied by the blue prints and contain a bill of materials and detailed instructions as to which tools and machinery are to be used.

### iii. Job Cost Sheet

The job cost sheet is a comprehensive record used to capture all costs associated with a particular job. Job cost sheets are not prepared for specified periods but they are made out for each job regardless of the time taken for its completion. However, material, labour, overhead costs are posted periodically to the relevant cost sheet. The material, labour and overhead to be absorbed into jobs are collected and recorded in the following way:

- a. *Direct Material*: This section details the costs of raw materials or components directly used in the job. By accurately recording these costs, businesses can track the expenditure on materials specific to the job, such as wood for furniture or steel for construction.
- b. *Direct Wages*: Here, the wages paid to workers who are directly involved in the job are recorded. This includes labour costs for employees who contribute their time and effort specifically to the job. By documenting direct wages, businesses can determine the labour costs associated with the job.
- c. *Direct Expenses*: This part of the job cost sheet captures any additional expenses directly related to the job, beyond materials and wages. These might include costs for special tools or equipment rentals necessary for completing the job.
- d. *Overheads*: Overheads encompass indirect costs that are necessary for production but cannot be traced directly to a specific job. This includes expenses such as utilities, rent, and administrative salaries. By allocating a portion of these overheads to the job, businesses ensure that all relevant costs are included in the final job cost.

### iv. Completion of Jobs

The final step in the job costing procedure is the completion of the job. This involves reviewing and finalizing all costs recorded on the job cost sheet. The completion phase ensures that all expenses have been accurately captured and that the job meets the required specifications. At this stage, businesses verify that all costs are accounted for and prepare for billing or delivery. This step is essential for assessing the overall profitability of the job and ensuring that the project has been executed efficiently and cost-effectively.

JOB COST SHEET										
Customer					..... Job No.					
Date of commencement					Date of completion.....					
Material cost			Labour cost				Factory Overheads (Absorbed)			
Date	Material Req. No.	Amount	Date	Hours	Rate	Amount	Dept	Hours	Rate	Amount
Total			Total				Total			
Profit/Loss			Cost Summary							
Price Quoted			₹							
Less: Cost			.....							
Profit or Loss			.....							
			Material							
			Labour							
			Factory Overhead							
							Prime cost			
							Work cost			
							Cost of production			
							Total cost			

Fig 2.1.2 Job cost sheet

### 2.1.2.2 Batch costing

Batch costing is a method of cost accounting used to determine the cost of producing a batch of identical or similar products. This technique is particularly useful when products are manufactured in batches rather than individually. It helps in calculating the cost of each batch and assessing profitability. The cost per unit is determined by dividing the cost of the batch by the number of units produced in a batch. Batch costing is applied in the manufacture of shoes, toys, readymade garments, components parts of say, cars, radios, watches etc.

#### **Economic Batch Quantity (EBQ)**

EBQ is a concept used in batch production to determine the optimal size of a production batch that minimizes the total costs associated with production. It balances the trade-off between setup costs and holding costs to find the most cost-effective batch size. While determining Economic Batch Quantity two types of costs are considered:

- ◊ **Setting-up cost:** this is the cost of setting the machine and the tools for production of a particular branch. This is of a fixed nature. Therefore, when the size of the batch is large, setting up cost per article in the batch is lower.
- ◊ **Carrying cost:** This includes the cost of storage, interest on capital invested, etc. Larger size of a batch leads to higher carrying cost.

In determining the Economic Batch Quantity, there are five main considerations:

- i. The cost and time taken in setting up the tools on the machines
- ii. The cost and time taken in manufacturing the parts.
- iii. The interest on capital invested in the parts.
- iv. The cost of storage
- v. The rate of consumption or sale of the parts.

The EBQ can be calculated using the following equations:

$$EBQ = \sqrt{\frac{2 \cdot U \cdot S}{C}}$$

Where

EBQ = Economic Batch Quantity

U = number of units to be produced in a year

S = Set-up cost per batch

C = Carrying cost per unit of production.

#### **Features of Batch Costing**

- i. **Cost Accumulation:** Costs are accumulated for each batch separately. This includes direct materials, direct labour, and overheads.

- ii. **Cost Per Unit:** The total cost of each batch is divided by the number of units in that batch to determine the cost per unit.
- iii. **Cost Tracking:** Allows tracking of costs for each batch, providing clear idea on production efficiency and cost management.
- iv. **Batch Records:** Detailed records are maintained for each batch, including the quantity produced, cost incurred, and any issues encountered.
- v. **Standardization:** Typically used for products that are manufactured in standardized batches rather than individually.

### **Advantages of Batch Costing:**

- i. **Cost Control:** Helps in controlling and monitoring the costs associated with production batches, making it easier to identify cost overruns and inefficiencies.
- ii. **Improved Accuracy:** Provides accurate cost information for each batch, aiding in precise pricing and profitability analysis.
- iii. **Better Planning:** Facilitates production planning by determining the cost implications of different batch sizes and production schedules.
- iv. **Inventory Management:** Assists in managing inventory levels and minimizing holding costs by analysing batch production and storage requirements.
- v. **Quality Control:** Helps in monitoring and maintaining quality standards by tracking the performance and costs of different batches.

### **Limitations of Batch Costing:**

- i. **Complexity in Cost Allocation:** Allocating overheads and indirect costs to individual batches can be complex and may require detailed calculations.
- ii. **Batch Variability:** Variations in costs between batches can occur due to changes in production conditions, raw material prices, or labour efficiency, which can complicate cost analysis.
- iii. **Setup Costs:** Frequent changes in batches can lead to high setup costs, which may not be fully captured in batch costing.
- iv. **Limited Applicability:** Not suitable for products manufactured individually or those with highly variable production processes.
- v. **Inventory Issues:** If batches are produced in large quantities, it can lead to high inventory levels, potentially increasing holding costs and risk of obsolescence.

### **Procedures of batch costing**

#### **i. Define the Batch Size**

The first step in batch costing is to determine the size of the batch to be produced. This involves deciding how many units will be made in one production run. The batch size is typically based on factors like production capacity, customer demand, and cost considerations. Choosing the right batch size is crucial as it affects the overall cost and efficiency of production.



## **ii. Accumulate Costs**

Next, gather all the costs associated with producing the batch. This includes the cost of direct materials, which are the raw materials used to make the products. It also includes direct labour costs, which are the wages paid to workers directly involved in the production. Additionally, overhead costs such as utilities, depreciation, and indirect labour must be included. All these costs are collected to get a clear picture of the total expense for the batch.

## **iii. Allocate Costs to the Batch**

Once the costs are accumulated, they need to be allocated to the batch. Calculate the total cost by adding together the costs of direct materials, direct labour, and overheads. To find the cost per unit, divide the total batch cost by the number of units produced in that batch. This gives you the cost of producing each individual unit within the batch.

## **iv. Record Batch Costing Data**

Maintain accurate records of all the costs associated with each batch. This includes detailed documentation of materials used, labour hours, and overheads. Proper record-keeping is important for tracking expenses, analysing cost efficiency, and ensuring that costs are managed effectively.

## **v. Analyse and Compare Cost**

After recording the costs, analyse them to evaluate the performance of the batch. Compare the costs of different batches to identify any variances and determine if any adjustments are needed. This analysis helps in understanding the cost behaviour and finding areas where cost savings can be achieved.

## **vi. Evaluate Efficiency and Quality**

Assess how efficiently the batch was produced by examining factors such as setup time, production time, and any issues encountered. Additionally, monitor the quality of the products to ensure consistency and address any quality problems. This evaluation helps in improving production processes and maintaining high product standards.

## **vii. Report and Review**

Prepare reports that summarize the costs and performance of each batch. These reports are useful for financial planning and decision-making. Regularly review the batch costing results to identify areas for improvement and to make necessary adjustments in production processes and cost management strategies.

## **viii. Integrate with Inventory Management**

Link batch costing with inventory management to keep track of inventory levels and manage stock efficiently. This integration helps in reducing holding costs and ensuring that inventory is handled properly, avoiding issues like overstocking or stockouts.

## **ix. Feedback and Continuous Improvement**

Gather feedback from the batch costing process to make informed decisions about batch sizes and production methods. Use the insights gained to continuously improve production efficiency, cost management, and overall business performance. Regularly updating and refining batch costing practices helps in staying competitive and optimizing operations.

### 2.1.2.3 Contract costing

Contract costing (terminal costing) is a specialized method of cost accounting used to determine the cost and profitability of individual contracts, particularly in industries where work is done on a contract basis, such as construction, shipbuilding, large-scale manufacturing etc. In this method of costing, each contract is a cost unit and is executed under customers specifications. In this method an account is opened for each contract in the books of the contractor to ascertain profit/loss thereon.

Table 2.1.1 Difference between Contract Costing and Job Costing

Aspect	Contract Costing	Job Costing
Scope	Long-term projects or contracts (e.g., construction, shipbuilding)	Short-term jobs or assignments (e.g., custom manufacturing, repair services)
Purpose	To track the cost and profitability of individual contracts	To track the costs associated with a specific job or order
Cost Accumulation	Costs are accumulated separately for each contract, including direct and indirect costs	Costs are accumulated for each job, including direct costs and some indirect costs
Revenue Recognition	Typically uses percentage-of completion or completed-contract methods	Revenue recognized when the job is completed and invoiced
Reporting	Contract accounts or cost sheets summarizing costs, revenue, and profit, with progress reports	Job cost sheets or job order costing reports summarizing job costs and profitability
Location	Contract works are done at site	Jobs are usually carried out in a factory premises.
Examples	Construction of buildings, shipbuilding, infrastructure projects	Custom manufacturing orders, specific client projects, repair services

## Features of Contract Costing

- i. Costs are tracked and accumulated separately for each contract, including direct costs (materials, labour) and allocated indirect costs (overheads).
- ii. Revenue is recognized based on the progress of the contract using methods like percentage-of-completion or completed-contract.
- iii. Contracts are generally large size and therefore, a contractor usually carries out a small number of contracts in the course of one year.
- iv. A contract generally takes more than one year to complete
- v. Each contract undertaken is treated as a cost unit
- vi. Regular reports are generated to monitor progress, costs, and profitability of the contract.
- vii. Separate accounts are maintained for each contract to record costs, revenue, and profit.
- viii. The progress of the contract is monitored through various stages to ensure that it is completed on time and within budget.
- ix. Helps in controlling costs and identifying potential overruns early.

## Advantages of Contract Costing

- i. Provides a clear picture of the profitability of each contract, helping in better financial planning and decision-making.
- ii. Allows for detailed tracking of costs associated with each contract, facilitating better control and management of expenses.
- iii. Helps in maintaining financial control over large and complex projects, ensuring that costs are kept within the budget.
- iv. Enables appropriate recognition of revenue based on contract progress, improving financial reporting accuracy.
- v. Facilitates regular evaluation of the progress of the contract, helping in identifying and addressing issues early.
- vi. Provides an idea for project managers to make informed decisions and manage resources effectively.

## Limitations of Contract Costing

- i. The process can be complex, requiring detailed tracking and reporting, which may involve significant administrative effort.
- ii. Revenue and profit recognition might be delayed until the contract is completed or a significant portion is finished, potentially impacting financial statements.
- iii. Allocating indirect costs to individual contracts can be challenging and may lead to disputes or inaccuracies.
- iv. Accurate forecasting of costs and revenue can be difficult, especially for long-term contracts with uncertain outcomes.

- v. Effective contract costing relies on accurate estimates and projections, which can be affected by unforeseen issues and changes in project scope.
- vi. If not properly managed, costs can exceed estimates, leading to financial overruns and reduced profitability.

### **Procedures of contract costing**

#### **i. Open a Contract Account**

To manage the financial details of each contract, a separate contract account must be opened. This account is designated with a unique number for each contract to keep financial transactions distinct and organized. This segregation allows for precise tracking of costs and revenues specific to each contract, ensuring clarity and accuracy in financial reporting.

#### **ii. Record Direct Costs**

Direct costs are the expenses that can be directly attributed to a specific contract. These include costs for materials used in the contract, wages and salaries for labor and supervision directly involved, any additional direct expenses, depreciation of plant and machinery used specifically for the contract, and sub-contract costs. All these direct costs are debited to the contract account to provide a clear picture of the expenses incurred in fulfilling the contract.

#### **iii. Record Indirect Costs**

Indirect costs, which are generally smaller in relation to direct costs, are also debited to the contract account. These costs often include overheads such as head office expenses and storage costs, which are not directly traceable to any one contract. Indirect costs are usually absorbed based on an arbitrary basis, such as a percentage of prime cost, materials, or wages, to allocate these costs fairly across various contracts.

#### **iv. Transfer of Materials or Plant**

When materials, plant, or other resources are transferred from the contract, the contract account is credited by the value of these transfers. This step ensures that the value of resources moved out of the contract is appropriately accounted for, reflecting any adjustments in the contract's financial status.

#### **v. Record Contract Price**

The total contract price, which is the agreed-upon amount for completing the contract, is credited to the contract account. If the contract is not finished by the end of the financial year, the account is credited with the value of work-in-progress as of that date. This adjustment provides an accurate representation of the financial status of the contract at year-end, showing the portion of the contract price corresponding to the work completed.

#### **vi. Determine Profit or Loss**

The balance in the contract account, after all costs and revenues have been recorded,



represents the profit or loss of the contract. This balance is transferred to the Profit and Loss Account to reflect the financial outcome of the contract. For contracts that are not completed within the financial year, only a partial profit is recognized based on the work done. The remaining profit is kept as a reserve to cover any potential losses that may arise from the incomplete portion of the contract, ensuring that financial statements accurately reflect the risks associated with ongoing contracts.

### Special points in contract costing

- i. **Sub-Contract:** Sub-contract costs refer to expenses incurred when part of the contract work is outsourced to other contractors. These costs include payments made to sub-contractors for their work and materials provided. Sub-contracting is a common practice in contract work, and these costs must be recorded separately in the contract account to accurately reflect the total cost and profit of the contract.
- ii. **Work Certified:** Work certified refers to the portion of the contract work that has been completed and officially verified or approved by the client or contract manager. It is important for recognizing revenue and for invoicing purposes. The value of work certified is credited to the contract account to reflect the completed portion of the work and to calculate the corresponding revenue.
- iii. **Work Uncertified:** Work uncertified includes the portion of the contract work that has been completed but not yet certified by the client or contract manager. This work is still part of the ongoing contract but cannot be invoiced or recognized as revenue until it is officially certified. The value of work uncertified is not immediately reflected in revenue but is considered in the assessment of work-in-progress.
- iv. **Retention Money and Cash Ratio:** Retention money is a portion of the contract price withheld by the client to ensure that the contractor completes the contract satisfactorily and addresses any defects or issues. This money is typically released after a defect liability period or upon successful completion of the contract. The cash ratio refers to the proportion of cash received against the total contract value, which can impact cash flow and financial management of the contract.
- v. **Extra Work:** Extra work refers to additional tasks or changes in the scope of the contract that were not originally included in the contract terms but are performed upon request by the client. The cost of extra work is added to the contract account and may affect the overall contract price and profitability. Proper documentation and agreement on the cost of extra work are essential for accurate financial reporting.
- vi. **Escalation Clause:** An escalation clause is a contractual provision that allows for adjustments in the contract price due to changes in costs of materials, labor, or other expenses beyond the control of the contractor. This clause helps manage the risk of cost increases during the contract period and ensures that the contractor is compensated fairly for unforeseen cost increases.

## 2.1.2.4 Process costing

Process costing is a costing method used to determine the cost of producing goods in industries where products are manufactured through a series of continuous, repetitive processes. This method is commonly applied in industries like chemicals, textiles, and food production, where the production process is standardized, and products are indistinguishable from each other.

### Features of process costing

- i. Costs are accumulated for each production process or department. These include direct materials, direct labour, and manufacturing overheads.
- ii. The products are homogeneous and standardised
- iii. The sequence of operations or process is specific and predetermined.
- iv. Costs are assigned to products based on the total costs incurred in each process. The costs are averaged over the units produced to determine the cost per unit.
- v. Some loss of materials in process (due to chemical action, evaporation, etc) are unavoidable.
- vi. The total costs for a process are divided by the number of units produced during that period to determine the cost per unit. This includes costs for both completed and partially completed units.
- vii. Process cost reports are prepared to summarize the costs incurred in each process and the cost per unit. These reports help in analysing cost efficiency and controlling production costs.
- viii. Costs are transferred from one process to the next as products move through different stages of production. This involves debiting the cost of the output from one process to the input of the next process.

### Process of Process Costing

Process costing is used in manufacturing environments where production involves multiple stages or processes. Here's a detailed explanation of the procedure based on the stages you provided:

#### *i. Division of the Factory into Processes and Maintenance of Accounts*

The first step in process costing involves dividing the factory into several distinct processes or departments. Each of these processes is responsible for a specific stage of production. For accurate tracking and cost management, a separate account is maintained for each process. This separation allows for precise recording and analysis of costs incurred at each stage of production, facilitating better cost control and financial reporting.

#### *ii. Debiting Process Accounts with Costs*

Each process account is debited with all relevant costs associated with that process.

These costs typically include:

- ◊ Material Cost: The cost of raw materials used in that specific process.
- ◊ Labour Cost: Wages and salaries paid to workers who are directly involved in the process.
- ◊ Direct Expenses: Any additional expenses directly attributable to the process, such as special tools or equipment.
- ◊ Overheads: Manufacturing overheads that are allocated or apportioned to the process. These can include utilities, rent, and other indirect costs that support production but cannot be directly traced to specific units.

### *iii. Transfer of Output to the Next Process*

Upon completion of a process, the output is transferred to the subsequent process in the production sequence. Essentially, the finished output of one process becomes the input for the next process. This transfer is recorded by crediting the account of the process from which the output has been moved and debiting the account of the next process with the transferred cost. This continuous flow of costs ensures that each process's contributions are accurately tracked and accumulated until the final product is completed.

### *iv. Transfer of Finished Output to Finished Goods Account*

Once the final process is completed, the finished product is transferred to the Finished Goods Account. This step involves crediting the final process account with the total cost of the completed product and debiting the Finished Goods Account with this amount. This transfer reflects the completion of the production cycle and moves the product from work-in-progress to inventory, ready for sale or further distribution.

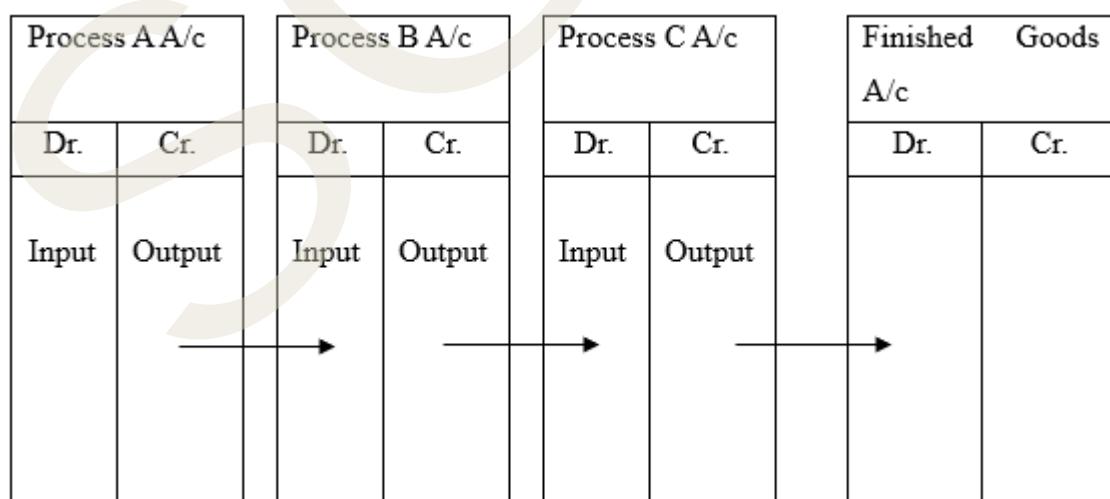


Fig 2.1.3 Process costing procedure

### 2.1.2.5 Service or operating costing

Service costing is a method used to determine the cost of providing services rather than producing goods. It is commonly applied in service industries such as healthcare, education, transportation, and hospitality, where the primary output is a service rather than a physical product. This costing method helps organizations in these sectors to understand the cost structure of their services, set appropriate pricing, and manage expenses effectively. The cost of providing a service is termed as 'operating cost'. Hence, the service costing is also known as operating costing.

#### Features of service costing

- i. **Cost Classification:** Service costing involves classifying costs into direct and indirect categories. Direct costs are those that can be directly attributed to providing a specific service, such as wages of service staff or materials used in service delivery. Indirect costs, such as overheads (e.g., administrative expenses, utilities), are allocated across different services based on some rational basis.
- ii. **Cost Accumulation:** Costs are accumulated for each service provided. This includes recording all expenses associated with delivering the service, such as labour costs, materials, and overheads. The accumulated costs are then analysed to determine the total cost of providing each service.
- iii. **Cost Allocation:** Costs are allocated to different services based on predefined criteria or allocation bases. This may include the time spent by employees, the volume of services provided, or other relevant factors. Accurate cost allocation ensures that each service bears its fair share of costs.
- iv. **Cost Analysis:** Service costing involves analysing the costs incurred in providing a service to determine cost efficiency and profitability. This analysis helps in identifying areas where cost savings can be made and in evaluating the financial performance of the service.
- v. **Pricing Decisions:** The information derived from service costing is used to make informed pricing decisions. By understanding the cost structure of a service, organizations can set prices that cover costs and generate a desired profit margin.
- vi. **Performance Evaluation:** Service costing helps in evaluating the performance of different service departments or units by comparing actual costs with budgeted costs. This helps in assessing operational efficiency and identifying areas for improvement.

#### Advantages of Service Costing

- i. **Accurate Cost Information:** Service costing provides detailed understanding on the costs associated with delivering a service. This helps organizations understand the true cost of their services and manage expenses more effectively.
- ii. **Informed Pricing Decisions:** With accurate cost information, organizations can set appropriate prices for their services. This ensures that prices cover costs and contribute to profitability, avoiding underpricing or overpricing.

- iii. **Cost Control:** By analyzing service costs, organizations can identify areas where cost savings can be achieved. This enables better control over expenses and improves overall financial performance.
- iv. **Performance Measurement:** Service costing allows organizations to measure the performance of different service units or departments. By comparing actual costs with budgeted costs, organizations can evaluate efficiency and make necessary adjustments.
- v. **Budgeting and Planning:** Accurate service costing data is essential for effective budgeting and planning. It helps organizations allocate resources efficiently and plan for future service needs.

### Limitations of Service Costing

- i. **Difficulty in Cost Allocation:** Allocating indirect costs to specific services can be challenging, especially in service environments with multiple overlapping activities. This can lead to inaccuracies in cost attribution.
- ii. **Lack of Physical Inventory:** Unlike manufacturing, where physical inventory can be measured, service costing deals with intangible outputs. This can make it difficult to measure and assess service costs accurately.
- iii. **Complex Cost Structures:** Service costing can become complex in organizations offering a wide range of services with varying cost structures. Managing and analysing these costs requires careful planning and expertise.
- iv. **Subjectivity in Cost Estimation:** Estimating the cost of providing a service may involve some degree of subjectivity, particularly in allocating overheads and indirect costs. This can lead to potential inaccuracies in cost reporting.
- v. **Limited Standardization:** Service costs can vary significantly based on the nature of the service, the level of customization, and other factors. This lack of standardization makes it difficult to apply a uniform costing approach across different services.

## Recap

- ◊ Job Costing: Tracking and allocating costs to individual jobs or projects.
- ◊ Batch Costing: Calculating costs for a batch of identical items.
- ◊ Contract Costing: Tracking costs for long-term contracts separately.
- ◊ Process Costing: Averaging costs over large quantities of homogeneous products.
- ◊ Service Costing: Determining the cost of providing a service.
- ◊ Job Cost Sheet: Record tracking all costs for a specific job.
- ◊ Economic Batch Quantity (EBQ): Optimal batch size to minimize production costs.
- ◊ Setting-up Cost: Cost to prepare equipment and processes for production.
- ◊ Carrying Cost: Cost of holding inventory.
- ◊ Subcontract: Outsourcing part of a project to another entity.
- ◊ Work Certified: Approved portion of work in a contract.
- ◊ Work Uncertified: Completed work not yet approved in a contract.
- ◊ Escalation Clause: Contract term allowing price adjustments due to cost changes.

## Objective Questions

1. In which costing method would a construction company track the costs of building a new office, including materials, labor, and overheads, specifically for that project?
2. If a bakery calculates the costs for producing 200 loaves of bread in one production run, which costing method are they using?
3. A company is tracking costs for constructing a bridge over several years. Which costing method best applies?
4. What is Job Costing?
5. What does Batch Costing involve?
6. In which costing method are costs tracked for long-term contracts?
7. Which costing method averages costs over large quantities of homogeneous products?

8. What is the purpose of Service Costing?
9. What does a Job Cost Sheet record?
10. What is Economic Batch Quantity (EBQ)?
11. What does Setting-up Cost refer to?
12. What is Carrying Cost?
13. What does Subcontracting involve?
14. What is Work Certified in contract costing?
15. What does Work Uncertified refer to?
16. What is an Escalation Clause?

## Answers

1. Job Costing
2. Batch Costing
3. Contract Costing
4. Job Costing is the method of tracking and allocating costs to individual jobs or projects.
5. Batch Costing involves calculating the costs for a batch of identical items.
6. Contract Costing is used to track costs for long-term contracts.
7. Process Costing averages costs over large quantities of homogeneous products.
8. The purpose of Service Costing is to determine the cost of providing a service.
9. A Job Cost Sheet records all costs associated with a specific job.
10. Economic Batch Quantity (EBQ) is the optimal batch size to minimize production costs.
11. Setting-up Cost refers to the cost of preparing equipment and processes for production.
12. Carrying Cost is the cost of holding inventory.
13. Subcontracting involves outsourcing part of a project to another entity.
14. Work Certified in contract costing is the approved portion of work.
15. Work Uncertified refers to completed work that has not yet been approved.
16. An Escalation Clause is a contract term allowing price adjustments due to changes in costs.

## Self-Assessment Questions

1. Explain the key differences between Job Costing and Batch Costing. Provide examples of scenarios where each method would be most appropriate.
2. Describe the process of Contract Costing and its importance in tracking long-term projects. How does it differ from Process Costing?
3. In Service Costing, what are the main challenges in determining the cost of providing a service compared to manufacturing a product?
4. Define Economic Batch Quantity (EBQ) and discuss how it impacts production efficiency and cost management. Provide an example calculation if possible.
5. What are Setting-up Costs, and why are they important in the costing process? How do they affect overall production costs?
6. Discuss the role of an Escalation Clause in a contract. How does it protect both parties involved in the contract from cost fluctuations?
7. Compare and contrast Batch Costing and Process Costing in a textile manufacturing plant. Explain how each costing method would be used to track costs and manage production efficiency. Illustrate your answer with examples of products produced in batches and continuous processes.

## Assignments

1. Analyse a case study where a company used Job Costing to track the costs of a custom project. Describe the process, including how costs were allocated and managed. Discuss the advantages and challenges faced by the company.
2. Develop a comprehensive explanation of Contract Costing, focusing on a construction project scenario. Include steps for managing and tracking costs, handling work certified and work uncertified, and dealing with escalation clauses.
3. Prepare a case study on Process Costing for a company involved in continuous production, such as a chemical plant. Discuss how costs are accumulated and transferred through various processes, and analyse the impact on financial reporting.
4. Explain the concept of Economic Batch Quantity (EBQ) with an example calculation for a manufacturing company. Discuss how EBQ is determined and its effect on production and inventory management.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
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7. Lall Nigam B M and Jain I C, *Cost Accounting Principles and Practice*, Prentice Hall of India
8. Thulsian PC-*Practical Costing*, Vikas Publishing House, New Delhi



## Techniques Of Costing

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ Identify various techniques for costing
- ◊ Familiarise with the standard costing
- ◊ Familiarise with the budgetary control
- ◊ Identify the need of marginal costing

### Prerequisites

In the previous unit, we discussed the methods of costing, which refer to the systematic approaches used to determine the cost of production or service delivery, such as Job Costing, Process Costing, and Batch Costing. These methods provide a framework for allocating costs to products or services based on their nature and production processes. For example, in Job Costing, costs are traced and allocated to specific jobs or projects, which is ideal for custom orders or unique projects. Process Costing, on the other hand, is used for continuous production processes where costs are averaged over large quantities of identical products.

Now we need to learn about the techniques of costing. While methods of costing focus on the allocation and determination of costs, techniques of costing are more about controlling, analyzing, and managing those costs to optimize financial performance.

## Keywords

Techniques of costing, Standard Costing, Budgetary Control, Marginal Costing

## Discussion

The object of cost accounting is to compute the total cost of the production of goods or the cost of providing services. But the presentation of this data depends on the techniques of costing employed. Techniques of costing are essential tools that help businesses manage and control their expenses more effectively. Unlike methods of costing, which focus on determining how much it costs to produce a product or deliver a service, techniques of costing are about monitoring and controlling these costs to ensure they stay within budget.

These techniques involve setting up systems to track spending, analyse variances, and make adjustments to improve financial performance. By applying these techniques, businesses can gain an understanding of the cost structures and make informed decisions that enhance profitability.

For example, a company might use these techniques to compare its planned expenses with actual spending, identify any areas where costs are higher than expected, and take corrective actions to address these issues. This proactive approach helps businesses avoid overspending, optimize resource use, and achieve their financial goals more efficiently. Ultimately, mastering these techniques allows businesses to maintain better control over their finances and drive long-term success. Major techniques of costing include standard costing, budgetary control, and marginal costing.

### 2.2.1 Standard costing

The word standard means ‘a norm’ or a criterion. Standard cost is thus a criterion cost which may be used as a yardstick to measure the efficiency with which actual cost has been incurred. In other words, standard costs are predetermined costs or target costs that should be incurred under efficient operating conditions. Standard cost is the predetermined cost based on the technical estimates for materials, labour and overhead for a selected period for a prescribed set of working conditions.

CIMA London defines standard cost as the predetermined cost based on the technical estimation for materials, labour and overhead for a selected period for a prescribed set of working conditions”. Standard costing is simply the name given to a technique whereby standard costs are computed and subsequently compared with the actual costs to find out the differences between the two. the differences (known as variances) are then analysed to know the causes thereof to provide a basis of control.

### 2.2.1.1 Features of Standard Costing

- i. **Predetermined Costs:** Standard costing involves setting predetermined costs for materials, labour, and overheads based on historical data, industry standards, or estimates. These costs are used as benchmarks for performance evaluation.
- ii. **Cost Control:** It provides a framework for comparing actual costs with standard costs, helping identify variances. This allows management to investigate and address inefficiencies or cost overruns.
- iii. **Variance Analysis:** Standard costing facilitates variance analysis, where differences between standard and actual costs are analysed to determine their causes, such as price changes or operational inefficiencies.
- iv. **Budgeting:** It aids in budgeting by providing a baseline for expected costs, making it easier to plan and allocate resources effectively.

### 2.2.1.2 Advantages of Standard Costing

- i. **Cost Management:** By comparing actual costs with standard costs, businesses can identify areas where cost savings can be made and improve cost control.
- ii. **Performance Evaluation:** It helps in evaluating the performance of departments, teams, or individuals by assessing how well they adhere to cost standards.
- iii. **Decision Making:** Standard costing provides valuable information for making financial decisions, such as pricing products or managing resources.
- iv. **Management by exception:** Reporting of variances is based on the principles of management by exception. Only variances beyond a predetermined limit may be considered by the management for corrective action. This also reduces the cost of preparing reports.
- v. **Simplified Accounting:** It simplifies cost accounting by reducing the need to track every cost element separately, as costs are compared to set standards.
- vi. **Facilitates coordination:** While establishing standards, the performance of different departments, such as production, sales, and purchase, is taken into account. Thus, through the working of a standard cost system, coordination of various functions is achieved.

### 2.2.1.3 Limitations of Standard Costing

- i. **Rigidity:** Standard costs may become outdated if not regularly updated, leading to inaccuracies in cost control and budgeting.
- ii. **Overemphasis on Cost:** Focusing too much on variances can sometimes lead to a narrow view of performance, neglecting other important factors like quality and customer satisfaction.
- iii. **Variance Interpretation:** Variance analysis can be complex and may not always reveal the root causes of cost deviations, potentially leading to misguided corrective actions.

**iv. Inflexibility:** In dynamic environments with frequent changes in costs or operations, maintaining and adjusting standard costs can be challenging and may not reflect real-time conditions.

#### **2.2.1.4 Procedures of standard costing**

##### *i. Setting Standard Costs*

The first step in standard costing involves establishing standard costs for various elements such as materials, labour, and overheads. This process begins with estimating the cost of raw materials required for production by evaluating historical data and market prices. Similarly, standard labour costs are set based on wage rates and the average time needed to complete each task or produce a unit. Overhead costs, which include indirect expenses like utilities and rent, are allocated using consistent methods, such as a percentage of direct labour or material costs. This step is crucial as it provides a benchmark for evaluating performance and cost control throughout the production process.

##### *ii. Ascertaining Actual Costs*

Once standard costs are set, the next step is to track and record the actual costs incurred during production or service delivery. This involves monitoring expenditures on materials, labour, and overheads as they occur. For materials, this means recording actual purchase prices and quantities used. Labor costs are tracked by recording actual hours worked and wages paid. Overhead costs are captured by documenting all indirect expenses. Accurate cost tracking is essential for obtaining a true picture of the costs associated with production, which is necessary for effective cost control and performance assessment.

##### *iii. Comparing Standard with Actual Costs*

After recording actual costs, the next step is to compare them with the predetermined standard costs to identify any variances. This involves calculating the differences between the standard costs and actual costs for each cost element—materials, labour, and overheads. For instance, if the standard cost for materials is ₹10 per unit but the actual cost is ₹12, this results in a material variance. Similarly, variances are calculated for labour and overhead costs. This comparison helps in pinpointing areas where costs deviate from expectations, setting the stage for further analysis.

##### *iv. Analysing Variances*

With variances identified, the next step is to analyse them to understand their causes. This involves investigating why actual costs differ from standard costs. For material variances, the analysis may reveal issues such as changes in supplier prices or inefficient usage. Labour variance analysis might uncover problems like increased overtime or productivity issues. Overhead variances could be due to fluctuations in utility costs or unexpected maintenance expenses. By analysing these reasons, businesses can gain insights into underlying problems and identify opportunities for cost control and operational improvements.

#### *v. Reporting Variances and Analysis*

The final step is to report the variances and their analysis to management. This involves preparing detailed variance reports that summarize the differences between standard and actual costs and highlight their causes. These reports should include visual aids like charts or graphs to enhance understanding. Management reviews these reports to assess the impact of variances on financial performance and to decide on necessary corrective actions. Timely and clear reporting enables management to make informed decisions, implement cost control measures, and adjust strategies to improve overall financial performance.

### **2.2.2 Budgetary Control**

Budget refers to a plan relating to a definite future time expressed in monetary and/or quantitative terms. The act of preparing budgets is called budgeting. Budgetary control is a system of controlling costs through the preparation of a budget. It involves planning, controlling, and monitoring an organization's financial resources to ensure that actual performance aligns with budgeted targets.

#### **2.2.2.1 Features of Budgetary Control**

- i. **Budget Preparation:** It begins with the creation of various budgets, including sales, production, cash flow, and capital budgets, which outline the financial plans for different periods.
- ii. **Setting Financial Targets:** It establishes specific financial goals and targets that departments or units need to achieve, providing clear guidelines for financial performance.
- iii. **Monitoring and Comparison:** Regularly compares actual financial performance with budgeted figures to identify any variances. This involves tracking revenues, expenses, and other financial metrics.
- iv. **Variance Analysis:** Involves analysing the differences between budgeted and actual figures to understand the reasons behind any deviations and assess their impact on financial performance.
- v. **Corrective Actions:** Based on variance analysis, corrective measures are implemented to address any issues or discrepancies, helping to bring actual performance in line with the budget.
- vi. **Reporting:** Provides detailed reports on-budget performance, highlighting variances and the reasons behind them, which aids in managerial decision-making.

#### **2.2.2.2 Advantages of Budgetary Control**

- i. **Improved Planning:** Facilitates detailed financial planning and resource allocation, helping organizations set clear financial objectives and strategies.
- ii. **Enhanced Coordination:** Ensures that all departments or units work towards common financial goals, promoting better coordination and efficiency.

- iii. **Effective Cost Control:** Helps in identifying and controlling excessive expenditures, thereby reducing wastage and promoting cost efficiency.
- iv. **Performance Evaluation:** Provides a benchmark for evaluating financial performance, enabling management to assess how well the organization or departments are performing against set targets.
- v. **Financial Discipline:** Encourages departments to adhere to their budgets, fostering a culture of financial discipline and accountability.

### 2.2.2.3 Limitations of Budgetary Control

- i. **Inflexibility:** Budgets may be rigid and not easily adaptable to sudden changes in the business environment or unforeseen circumstances.
- ii. **Time and Resource Intensive:** Preparing, monitoring, and analysing budgets can be time-consuming and require significant administrative effort.
- iii. **Potential Inaccuracy:** Budgets based on incorrect assumptions or outdated data may lead to unrealistic targets and poor financial decisions.
- iv. **Overemphasis on Financial Metrics:** Focusing solely on financial targets may lead to neglecting other important aspects of performance, such as customer satisfaction or employee morale.
- v. **Psychological Impact:** Unrealistic budget targets can lead to employee dissatisfaction or pressure, potentially affecting morale and productivity.

### 2.2.2.4 Types of budgetary control

Various budgets may be classified on the following basis.

#### a. Classification according to time factor

- i. *Long-term budget:* When the budgets are prepared for a period of 5-10 years these are called long-term budgets.
- ii. *Short-term budget:* These budget budgets for a short period of a year or two. these are prepared in the form of a production plan in monetary terms.
- iii. *Current budget:* These are very short-term budgets covering a month or so. These are prepared considering current conditions or prevailing circumstances.

#### b. Functional classification

- i. *Sales budget:* Estimates future sales revenue based on market conditions, sales strategies, and historical data. It helps in forecasting income and planning production and inventory needs
- ii. *Production budget:* Details the number of units to be produced to meet sales forecasts and inventory requirements. It guides the production process and resource allocation.
- iii. *Direct material usage budget:* Estimates the quantity and cost of raw materials required for production. It assists in planning material procurement and managing material costs.

- iv. *Direct material purchase budget:* Projects the cost of purchasing raw materials based on usage and inventory levels. It helps in budgeting for material procurement expenses.
- v. *Direct labour cost budget:* Estimates the cost of labour directly associated with production. It provides a basis for planning wage expenses and workforce requirements.
- vi. *Factory overhead or production overhead budget:* Covers indirect costs associated with production, such as utilities, depreciation, and maintenance. It helps in controlling and budgeting for overhead expenses.
- vii. *Plant utilisation budget:* Estimates the capacity utilization of production facilities. It assists in planning production schedules and optimizing plant usage.
- viii. *Production cost budget:* Aggregates all costs associated with production, including direct materials, direct labour, and overheads. Provides a comprehensive view of production costs for financial planning.
- ix. *Stock budget:* Projects the levels of inventory to be maintained. It helps in managing inventory levels and related costs.
- x. *Cost of goods sold budget:* Estimates the cost of goods sold based on production and inventory levels. It assists in forecasting and managing the cost of sales.
- xi. *Administration cost budget:* Covers costs related to general administrative functions, such as salaries, office supplies, and utilities. It helps in planning administrative expenses.
- xii. *Selling and distribution cost budget:* Projects expenses related to marketing, selling, and distribution of products. It assists in budgeting for sales and distribution activities.
- xiii. *Research and development cost budget:* Estimates expenses for research and development activities. It supports planning for innovation and product development.
- xiv. *Capital expenditure budget:* Details planned investments in long-term assets, such as machinery, equipment, and buildings. It guides major capital investment decisions.
- xv. *Cash budget:* Projects cash inflows and outflows over a specific period. Ensures adequate liquidity and manages cash flow effectively.
- xvi. *Master budget:* A comprehensive budget that consolidates all individual budgets (sales, production, administrative, etc.) into a single financial plan. It provides an overview of the overall financial plan and performance.

### c. Classification according to flexibility

- i. **Fixed budgets:** Remains unchanged regardless of changes in actual levels of activity or output. Provides a baseline for comparison but may not reflect changes in operational conditions. However, it is less effective in adapting to fluctuations in activity levels.
- ii. **Flexible budgets:** Adjusts for changes in activity levels or output, providing a

more accurate picture of performance. Allows for real-time adjustments based on actual performance, making it useful for variance analysis and decision-making. It provides more relevant information by aligning budgeted figures with actual activity levels. Flexible budget is a dynamic budget. CIMA defined flexible budget as “budget designed to change in accordance with the level of activity attained” it shows estimated cost and profits at different levels of output. It is also called variable sliding scale budget.

Table 2.2.1 Difference between Fixed and Flexible Budget

<b>Fixed budget</b>		<b>Flexible budget</b>
1	Based on the assumption that business conditions do not change	Based on the assumption that business conditions change
2	Comparison between actual and budgeted costs are not possible	Comparison between actual and budgeted costs is possible.
3	Costs are not classified according to variability	Costs are classified according to variability
4	Prepared for a specific level of activity	Prepared for different levels of activities
5	Not useful for control, price fixation etc.	Useful for cost centre and pricing decision etc.

Table 2.2.2 Difference between Budgetary Control and Standard Costing

<b>Category</b>	<b>Standard Costing</b>	<b>Budgetary Control</b>
Definition	Standard costing involves setting predetermined costs and comparing them with actual costs.	Budgetary control focuses on setting financial targets and comparing actual results with budgeted figures.
Purpose	The purpose of standard costing is to measure and control costs, analyze variances, and evaluate performance.	The purpose of budgetary control is to plan and control financial activities, allocate resources, and monitor financial performance.
Scope	Standard costing is primarily used for cost control and performance evaluation within specific areas of an organization.	Budgetary control has a broader scope and encompasses various aspects of financial planning and control across the entire organization.

Time Orientation	Standard costing is more concerned with historical costs and variance analysis.	Budgetary control focuses on future-oriented financial planning, forecasting, and target setting.
Focus	Standard costing emphasizes cost control, cost measurement, and performance evaluation at the operational level.	Budgetary control emphasizes overall financial control, planning, and forecasting at the strategic level.
Performance Evaluation	Standard costing evaluates the performance by comparing actual costs with standard costs and analyzing variances.	Budgetary control evaluates the performance by comparing actual results with budgeted figures and identifying areas of deviation.

### 2.2.3 Marginal Costing

Marginal costing, also known as variable costing or direct costing, is an accounting approach where only the variable costs (costs that change with the level of output) are considered when calculating the cost of producing additional units of a product. Fixed costs (costs that remain constant regardless of the level of output) are treated as period costs and are not included in the cost of production.

In marginal costing, the cost of producing one more unit of a product is called the marginal cost. This includes direct materials, direct labour, and variable overheads. Marginal costing is useful for decision-making, particularly in situations like pricing, product mix decisions, and determining the profitability of different products or services. The key points of marginal costing consist of:

- ◊ Variable Costs: Only variable costs are assigned to units of production.
- ◊ Fixed Costs: Treated as period costs and charged to the profit and loss account.
- ◊ Contribution Margin: The difference between sales revenue and variable costs, which contributes to covering fixed costs and generating profit.
- ◊ Break-Even Analysis: It helps in determining the break-even point, where total revenue equals total costs.

#### 2.2.3.1 Features of Marginal Costing

- i. Variable Cost Focus: Marginal costing emphasizes variable costs directly associated with production, such as direct materials, direct labour, and variable overheads. Fixed costs are treated as period costs and are not included in product cost calculations.
- ii. Contribution Margin: It calculates the contribution margin, which is the difference between sales revenue and variable costs. This margin is crucial for covering fixed costs and generating profit.

- iii. Fixed Costs: Fixed costs are absorbed or written off during the period they are incurred and therefore they are not included in the production cost or in cost of stocks or inventories.
- iv. Cost Behaviour Analysis: Marginal costing separates costs into fixed and variable components, making it easier to analyse cost behaviour in relation to changes in production volume.
- v. Decision-Making Tool: Marginal costing is primarily used for short-term decision-making, such as determining the most profitable product mix, pricing strategies, and break-even analysis.

### 2.2.3.2 Advantages of Marginal Costing

- i. Simplifies Decision-Making: By focusing on variable costs and contribution margin, marginal costing simplifies decisions related to pricing, product mix, and cost control.
- ii. Useful for Break-Even Analysis: Marginal costing facilitates break-even analysis, helping businesses determine the level of sales needed to cover fixed costs and start generating profit.
- iii. Highlights Contribution Margin: It emphasizes the contribution margin, which helps in assessing the profitability of different products or services, aiding in prioritizing production and sales efforts.
- iv. Cost Control: By distinguishing between variable and fixed costs, marginal costing aids in identifying areas where cost control measures can be applied more effectively.
- v. Flexibility: It allows businesses to respond quickly to changes in production levels or market conditions without being burdened by the allocation of fixed costs.

### 2.2.3.3 Limitations of Marginal Costing

- i. Ignores Fixed Costs in Product Costing: Since fixed costs are not included in product costs, marginal costing may not provide an accurate picture of total costs, potentially leading to under-pricing or overpricing.
- ii. Not Suitable for Long-Term Decision-Making: Marginal costing focuses on short-term decision-making and may not be appropriate for long-term planning where fixed costs need to be considered.
- iii. Overemphasis on Contribution Margin: Relying too heavily on contribution margin might lead to overlooking other important factors such as market demand, competition, and product lifecycle.
- iv. Inapplicability in Financial Reporting: Marginal costing is not suitable for financial reporting, as accounting standards typically require absorption costing, which includes both fixed and variable costs in product cost calculations.
- v. Complexity in Identifying Costs: In practice, it can be challenging to accurately classify costs as fixed or variable, leading to potential misinterpretation of cost data and decision-making errors.

## Recap

- ◊ Standard Cost: A predetermined cost of producing a good or service under normal conditions.
- ◊ Standard Costing: A costing method that compares actual costs to standard costs to identify variances and control expenses.
- ◊ Budgetary Control: The process of comparing actual financial performance with the budgeted figures to manage and control financial activities.
- ◊ Marginal Cost: The additional cost incurred to produce one more unit of a product.
- ◊ Marginal Costing: A costing method that considers only variable costs for decision-making, treating fixed costs as period costs.
- ◊ Variable Cost: A cost that changes directly with the level of production or sales, such as raw materials and direct labour.
- ◊ Fixed Cost: A cost that remains constant regardless of the level of production or sales, like rent and salaries.
- ◊ Contribution Margin: The difference between sales revenue and variable costs, contributing to covering fixed costs and generating profit.
- ◊ Cash Budget: A financial plan that estimates cash inflows and outflows over a specific period to manage liquidity.
- ◊ Master Budget: A comprehensive financial plan that consolidates all individual budgets within an organization, including sales, production, and expenses.
- ◊ Production Cost Budget: A detailed estimate of the costs associated with manufacturing a product, including materials, labour, and overhead.
- ◊ Capital Expenditure Budget: A financial plan outlining the expected spending on long-term assets like equipment, buildings, and machinery.
- ◊ Fixed Budget: A budget that remains unchanged, regardless of actual production or sales levels.
- ◊ Flexible Budget: A budget that adjusts based on actual production or sales levels, allowing for more accurate cost control.

## Objective Questions

1. What is the process called that involves comparing actual financial performance with budgeted figures to manage financial activities?
2. Which budget outlines the expected spending on long-term assets like equipment and machinery?
3. What is the term for a budget that remains unchanged, regardless of actual production or sales levels?
4. What type of budget adjusts based on actual production or sales levels?
5. What is the term for the additional cost incurred to produce one more unit of a product?
6. Which costing method considers only variable costs for decision-making?
7. What type of cost changes directly with the level of production or sales?
8. What is the name of the cost that remains constant regardless of the level of production or sales?
9. What do we call the difference between sales revenue and variable costs?
10. What type of budget estimates cash inflows and outflows over a specific period?
11. What is the term used for the predetermined cost of producing a good or service under normal conditions?
12. Which costing method compares actual costs to standard costs to identify variances?
13. What is the comprehensive financial plan that consolidates all individual budgets within an organization called?
14. What is the detailed estimate of costs associated with manufacturing a product known as?

## Answers

1. Budgetary Control
2. Capital Expenditure Budget
3. Fixed Budget
4. Flexible Budget
5. Marginal Cost
6. Marginal Costing

7. Variable Cost
8. Fixed Cost
9. Contribution Margin
10. Cash Budget
11. Standard Cost
12. Standard Costing
13. Master Budget
14. Production Cost Budget

## Self-Assessment Questions

1. How would you differentiate between standard cost and marginal cost?
2. Explain how standard costing can be used as a tool for cost control in an organization.
3. In what ways does budgetary control contribute to effective financial management?
4. Discuss the importance of the contribution margin in determining a company's profitability.
5. How does marginal costing help in making pricing decisions?
6. Can you describe the impact of variable costs on the overall production cost? Provide an example.
7. Why is it important to classify costs as fixed or variable? How does this classification affect decision-making?
8. What role does a cash budget play in managing a company's liquidity?
9. How does a master budget integrate the different functional budgets within an organization?
10. What is the significance of having a flexible budget compared to a fixed budget in dynamic business environments?

## Assignments

1. Explain the concept of standard costing and discuss its advantages and disadvantages in modern manufacturing environments.
2. Discuss the role of budgetary control in financial planning and how it aids in achieving organizational goals. Provide examples.
3. Analyse the impact of variable costs and fixed costs on pricing strategies and profit margins in a competitive market.
4. Prepare a detailed cash budget for a hypothetical company, outlining expected cash inflows and outflows for a three-month period.
5. Develop a master budget for a small manufacturing firm, including all functional budgets such as sales, production, and capital expenditure budgets.
6. Evaluate the usefulness of contribution margin analysis in making decisions about product lines and product discontinuation.
7. Discuss the significance of a capital expenditure budget in long-term strategic planning, and how it affects a company's financial stability.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., *Cost Accounting*, Sultan Chand & Sons, New Delhi.
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BLOCK

## Material Costing



SREENARAYANA GURU  
OPEN UNIVERSITY

# Introduction to Material Costing

## Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ familiarise the concept of material cost control
- ◊ understand the different stages involved in the material purchase procedure.
- ◊ to evaluate an effective Inventory control system

## Prerequisites

In cost accounting, the material is part of the inventory. This forms a major part of the total cost of production. This is a very flexible and controllable source of production. Imagine you are running a bakery that sources ingredients like flour, sugar, and butter from different suppliers. To keep your costs under control and ensure smooth production, you must follow a proper **material purchase procedure**. First, you estimate your needs based on sales forecasts and current stock levels. You send inquiries to reliable suppliers, evaluate their offers, and place orders with the vendor offering the best quality, price, and delivery terms. Once the materials arrive, they are inspected, recorded in inventory, and stored properly. This process is part of **inventory control**, which ensures you always have enough stock to meet demand without overstocking, which ties up capital or leads to wastage. By carefully managing the purchase and control of materials, you can minimize costs and maximize efficiency, ensuring the bakery runs profitably and consistently by meeting customer expectations. The present unit deals with the meaning of material control, material purchase procedure, and the basis of inventory control.

## Keywords

Material control, Material Purchase Procedure, Inventory Control

## Discussion

Material refers to all commodities that are consumed in the process of manufacture, Material can be defined as “anything that can be stored, stacked or stockpiled “ The total cost is analyzed based on its elements. Among the aspects of cost, materials form a major part of the cost of production. Every element of cost such as materials, labour, and expenses has to be effectively controlled. So every organization has to follow a suitable system of material control to reduce the cost of production and improve the profitability of organization. Effective control of the material is necessary from the time purchase orders are placed with suppliers or materials till they are consumed.

### 3.1.1 Accounting and control of material cost

Material is any substance that forms part of the finished product. It refers to the commodities supplied to an undertaking for transformation into final products. The term ‘stores’ is often used synonymously with material. However, stores have a wider meaning and it covers not only raw materials consumed in production but also such other items as sundry supplies, components, maintenance stores, tools, etc. Finished and partly finished products are also often included under the term ‘stores’. Materials are also known as inventory. The inventory/ materials covers not only raw materials but also components, work in progress and finished goods and scrap.

Material control can be defined as a comprehensive framework for the accounting and control of material cost designed with the object of maintaining material supplies at a level to ensure uninterrupted production while at the same time preventing excessive investment in inventory. Material control means exercising systematic control over the purchase, storage, and usage of materials to minimize the possible cost of materials while ensuring the uninterrupted flow of material.

#### 3.1.1.1 Objectives of Material Control System

The objectives of a system of material control are as follows :

- a. To make continuous availability of raw materials so that there may be an uninterrupted flow of materials for production. Production may not be held up for want of material.
- b. To purchase the requisite quantity of materials to avoid locking up working capital and to minimize the risk of surplus and obsolete stores ie. To avoid

- understocking and overstocking.
- c. To avoid losses and wastage during the storage and usage of material.
  - d. To make purchases competitively and wisely at the most economical prices so that there may be a reduction of material costs.
  - e. To maintain systematic and up-to-date inventory records.
  - f. To purchase proper quality materials to have minimum possible wastage of materials
  - g. To serve as an information centre on the materials knowledge for prices, sources of supply, lead time, quality, and specification

### 3.1.1.2 Aspects of Material Control

There are two aspects of material control as given below:

- a. **Accounting Aspect**:- Accounting aspect of material control is concerned with maintaining documentary evidence of movement of materials at every stage right from the time, sales and production budgets are approved to the point when actually used in production operation.
- b. **Operational Aspect**: This aspect of material control is concerned with the maintenance of materials supplies at a level so as to ensure that material is available for use in production and production services as and when required by minimizing investment in materials.

### 3.1.1.3 Essentials of Material Control

In the majority of manufacturing units, the cost of materials constitutes a major proportion of the total cost of production. Therefore, proper control of material is necessary. To reduce the cost of production and improve the profitability of an organisation, effective control of the material is necessary from the time, purchase orders are placed with suppliers till they have been consumed. Material control thus covers three stages. They are:

1. Purchase of materials
2. Storing of materials
3. Issue of materials

### 3.1.1.3 Purchase Organization

Purchasing involves the procurement of materials of requisite quantity and quality at an economic price. It is of extreme importance particularly, to a manufacturing concern because it has a bearing on all vital factors of manufacturing such as quantity, quality, cost, efficiency, economy, prompt delivery, volume of production, and so on. The purchase department in a business concern can be organized into two types ie,

centralized purchasing system and decentralized purchasing system.

In the case of centralised purchasing, only one purchase department is authorised to make all the purchases whereas each department is authorised to make the purchases in the case of decentralised purchasing.

### 3.1.2 Material Purchase Procedure

The main functions of a purchasing department are as follows :

- a. What to purchase? - (Right quality of material)
- b. When to purchase? - (Right time of procurement of material)
- c. Where to purchase? (Right source of procurement of material)
- d. How much to purchase? - (Right quantity of procurement of material)
- e. At what price to purchase? - (Right price of procurement of material)

To perform these functions effectively, the purchasing department follows the following procedure .

- a. Receiving purchase requisition
- b. Exploring the sources of supply and choosing the supplier
- c. Preparing and execution of purchase order
- d. Receiving materials
- e. Inspecting and testing materials
- f. Checking and passing of bills for payment

#### 3.1.2.1 Receiving purchase requisition

Purchase Requisition is a request made to the Purchase Department to procure materials of given description and of the required quality and quantity within a specified period-. It is a formal request and it authorizes the Purchase Department to issue a Purchase Order to secure materials intended for the periodical requirement of a given material or materials. It guides the purchase department to estimate future requirements to secure maximum purchase benefit in the form of higher discounts and better credit terms. The extent and range of materials requirements provide a basis for the preparation of a purchase budget. The actual requirement of a given period can be summarized from the purchase requisition and compared with the purchase budget to determine the variances and the reasons thereof. Storekeeper prepares this form for regular items and the departmental head for special materials is not stocked as regular items. The purchase requisition is prepared in triplicate. The original copy is sent to the purchasing department whereas the storekeeper retains the second copy and the third copy is forwarded to the costing department.

Purchase Requisition provides the three basic things



- a. What type of material is to be purchased?
- b. When the material is to be purchased?
- c. How much material is to be purchased?

### Specimen form of Purchase Requisition

<b>Bright Ltd</b>					
<b>Purchase Requisition</b>					
Purchase Req. Type:      Special/Regular					
Purchase Req No : .....					
Purchase Requisition Date: .....					
Department : .....					
Serial No :					
Serial No :	Material Code	Description of goods	Required Quantity	Material Required by Date	Remarks
Requested by  For use in Purchase Department			Approved by		
Quotations from			PO placed: Yes/No		
1)			PO No:		
2)			PO No:		
3)			PO No:		

### 3.1.2.2 Exploring the sources of supply and selection of suppliers

A source of supply of materials must be selected after the receipt of the purchase

requisition. Quotations may be invited from these suppliers by issuing tenders to them. On receipt of the quotations from the suppliers, a comparative statement of various quotations received should be prepared and the desirable suppliers should be selected. The golden rule of purchase is to buy the best materials at the lowest possible price without any compromise to the quality, after giving due consideration to delivery dates and other terms and conditions of purchase.

### Specimen of Tender

<b>Bright Ltd</b>						
<b>Comparative analysis of Quotations</b>						
Tender No:				Date:		
Name of Material:						
Serial No	Name of the supplier	Quantity	Price	Terms of Delivery	Other terms	Remarks
Compared by				Signature of Purchase manager		

### 3.1.2.3 Preparing Purchase order

After choosing the supplier, the purchase department prepares a purchase order for the supply of stores. The order is the written authorization to the supplier to supply the particular material. It is the evidence of the contract between the buyer and the supplier to the terms under which the order is placed. It must contain all the particulars mentioned in the Proforma. Large companies generally prepares five copies of the purchase order

- i. Original copy to supplier
- ii. Second copy is retained in purchase department
- iii. Third to receiving department as advance intimation to expect materials.
- iv. Fourth to the costing department to record in the stores ledger
- v. Fifth to the department requisitioning the material

## Specimen form of Purchase Requisition

<b>Bright Ltd</b>							
<b>Purchase Order</b>							
Department.....							
Supplier: .....	P O .....	Date:.....					
Quotation Ref no.							
PR No:							
Please supply the following items in accordance with the instructions mentioned there in on the following terms and conditions.							
Serial No:	Material Code	Material Description	Quantity	Rate per unit	Amount	Delivery Date	Remark
Packing & Freight							
Taxes							
Total Amount							
Delivery: Goods to be delivered at				Requisition by			
Delivery date:				Approved by			
Payment Terms:							
Authorized Signatory:							

### 3.1.2.4 Receiving and Inspection of Materials

In large concerns, Receipt and Inspection Department should be set up to receive and inspect the materials. But in small concerns, the work of receiving the goods may be entrusted to the store keeper. The functions of the receipts and inspection department are:

- i. Maintenance of purchase order file

- ii. Receiving, unloading and unpacking the material delivered by the supplier under delivery challans
- iii. Checking quantity and physical condition of materials received
- iv. Checking quality of materials received

### Specimen of Goods received cum Inspection Note

Bright Ltd Goods Received cum Inspection Note							
Received from:				GRN No:			
Received at:				GR Date:			
PO Ref No:				Gate Entry No:			
Serial No:	Material code	Material description	Quantity received	Quantity accepted	Quantity rejected	Reason for rejection	Remark
Prepared by Inspected by Inspected by Store keeper Received by Store keeper							

An inspection report is prepared to show the results of the inspection. This report is either prepared separately or incorporated in the goods received note. In either case, this is forwarded to the purchase department. Where materials received are damaged or not under specification, these are usually returned to the supplier along with a debit note. The rejected material may be returned to the supplier immediately or they may be held pending his instructions.

#### 3.1.2.5 Passing of bills for payment

When the invoice is received from the supplier, it is sent to the store's accounting section to check both the authenticity as well as the arithmetical accuracy. The quantity and price mentioned in the invoice is checked with reference to the store's received note, debit note in case of rejections, and the purchase order respectively. All the invoices are

serially numbered and entered in the register.

Documents involved in material accounting

- a. Stores ledger
- b. Bin card
- c. Material return note
- d. Material transfer note
- e. Stores requisition note
- f. Goods received note
- g. Material inspection note
- h. Purchase order

### 3.1.3 Inventory control

The term inventory comprises of raw materials, work in progress, finished goods and stores and spares. The process of planning, organising and controlling the purchase and storage of inventory to ensure that the required quality and quantity of inventory will be made available at the required time and at the required cost is known as inventory control.

The purpose of material control is to maintain the adequate stock of raw materials so that they may be available as and when required by the production department. There may be overstocking or under stocking if there is no planning. Over stocking causes blockage of the capital and it leads to deterioration or obsolescence. On the other hand, under stocking hold up the production and cause idleness. Customers may turn away on account of failure of timely supply of goods.

Some of the main techniques used for inventory control include

1. Stock levels (minimum level, maximum level, reorder level )
2. Economic Order Quantity (EOQ)
3. ABC Analysis
4. VED Analysis
5. Inventory Turnover Ratios
6. Just in Time Control System
7. Perpetual Inventory System

## Recap

- ◊ Material control is a systematic control over the purchasing, storing and using of materials.
- ◊ Material control ensures optimal inventory management by maintaining adequate stock, minimizing costs and wastage, ensuring quality, and providing reliable information on materials.
- ◊ The purchasing process involves receiving requisitions, selecting suppliers, issuing purchase orders, receiving and inspecting materials, and verifying bills for payment.
- ◊ A purchase requisition is a formal request to the purchasing department to acquire specific materials of the required description, quality, and quantity within a designated timeframe.
- ◊ Inventory control refers to the systematic process of planning, organizing, and managing the procurement and storage of inventory to ensure that the right quality and quantity are available at the appropriate time and cost.
- ◊ Some of the prominent techniques of inventory control are Stock levels, Economic Order Quantity (EOQ), ABC Analysis, VED Analysis, Inventory Turnover Ratios and Just in Time Control System and Perpetual Inventory System.

## Objective Questions

1. What is the process called that ensures the availability of the right quantity and quality of materials at the right time while minimizing waste and cost?
2. What is the formal internal document used to request the procurement of specific materials, detailing their description, quantity, quality, and required delivery timeframe?
3. What is the purchasing system called where all procurement activities are managed and controlled by a single central department within an organization?
4. What is the process called that involves managing and overseeing the stock of materials to ensure optimal levels are maintained, preventing shortages or overstocking?
5. Name any one technique of inventory Control?

## Answers

1. Material Control
2. Purchase requisition
3. Centralised Purchasing System
4. Inventory Control
5. ABC Analysis

## Self-Assessment Questions

1. Explain material control.
2. What do you mean by Centralised purchasing system?
3. What do you mean by purchase requisition note?
4. What do you mean by inventory control?
5. Which are the different inventory control techniques?
6. What are the objectives of material purchase system?

## Assignments

1. Explain the material purchase procedure.
2. Explain the consequences of poor inventory control on a company's profitability and cash flow with an example.
3. Choose a company and analyse the challenges in material cost control and ways to overcome them.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., Advanced Cost Accounting, Kalyani Publishers, New Delhi.
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8. Thulsian PC-Practical Costing, Vikas Publishing House, New Delhi



# Unit

## Material Stock Level

### Learning Outcomes

After completing this unit, the learner should be able to;

- ◊ to gain insight into the different inventory control techniques.
- ◊ to understand the different types of inventory systems
- ◊ to identify the different types of material losses

### Prerequisites

Material stock is an indispensable part of inventory management that refers to the optimal quantity of raw materials or goods an organisation needs to maintain at a given time to confirm a smooth flow of business operations. Imagine you are managing a factory that produces chocolate bars. Every day, you need to plan how much raw material, like cocoa, sugar, and milk powder, to order and store. You want to buy these materials in quantities that balance getting a good price and not overloading your storage space. For expensive ingredients like premium cocoa, you keep a close watch to avoid waste, while for cheaper items like sugar, you ensure there's always enough in stock to prevent production delays. You also focus on which materials are used most frequently and which ones are rarely needed, so you can manage storage space effectively. Some materials, like flavouring agents, are critical to the chocolate's quality and need extra care in handling and storage. You aim to order materials just in time for production to avoid piling up inventory unnecessarily. Whenever raw materials are taken from storage to the production line, the quantities are recorded carefully at the storage location and in your main records. You keep a system that updates your stock levels automatically, but you also conduct physical counts occasionally to verify accuracy. Inevitably, you deal with issues like spillage, dama-

ged packaging, or defective batches of raw materials. You try to minimize such losses by training workers and maintaining high storage standards. Through meticulous planning and control, you ensure the factory runs efficiently, reduces costs, and produces high-quality chocolate bars that meet customer demand. The above example throws light on the importance of proper management and control of inventory. The present chapter is related to the various issues and scenarios mentioned in the above example and it deals with the various inventory control techniques, inventory systems and material losses.

## Discussion

### 3.2.1 Material stock levels

Stock level is the standard amount of inventory a firm is supposed to maintain for smooth flow of production and business operations. The store keeper is to see that neither production is adversely affected nor there is unnecessarily blocking of capital due to over locking of materials. So a scientific method followed by organisations is to fix various levels of stock namely reorder level, minimum level, maximum level, average stock level and danger level. Several factors influence these decisions, including demand estimation, ordering cost, market trend, supply chain efficiency, Government regulations etc.

Stock level indicates the different stock levels required for the optimal running of production activities and operations. These decisions in business pertaining to minimum, maximum, re-order, and danger levels of inventory are influenced by various factors. The maintenance of safety stock depends on the regularity and efficiency of suppliers in delivering right quality products in right quantity, at right place and price.

#### 3.2.1.1 Types of inventory management

##### Re-order level

It is the point at which the store keeper should initiate purchase requisition for fresh supplies. The order is sent before the minimum level is reached. Re-order level is usually fixed between the maximum level and minimum level

Re-order level = Maximum consumption  $\times$  Maximum re-order period

OR

Re-order level = Minimum level + Consumption during the time required to get fresh delivery

##### Minimum stock level

It represents the minimum quantity of an item of material to be kept in the store at

any time. Material should not be allowed to fall below this level

Minimum stock level = Re-order level - (Normal consumption x Normal Re-order period )

### **Maximum level**

It represents the maximum quantity of an item of material which can be held in stock at any time. Stock should not exceed this quantity. The quantity is fixed so that there may be not be over stocking.

Maximum stock level = Re-ordering level + Re-ordering quantity - (Minimum consumption  $\times$  Minimum Re-ordering period)

### **Average stock level**

The average stock level is calculated by adding the minimum stock level and  $\frac{1}{2}$  of re-order quantity.

Average stock level = Minimum stock level +  $\frac{1}{2}$  of re-order quantity

OR

Average stock level = (Minimum level + Maximum level) / 2

### **Danger level**

It is the level beyond which material should not fall. This means a level at which normal issues of the material are stopped and issues are made only under specific instruction.

Danger level = Average consumption  $\times$  Maximum Re-order period for emergency purchase.

### **Illustration 1**

Calculate the maximum level, minimum level, re-order level and average stock level  
Re order quantity=1500 units

Re-order period= 4-6 units

Maximum consumption=400 units per week

Minimum consumption=250 units per week

#### **Solution:**

Re-order level=Maximum consumption  $\times$  Maximum re-order period  
 $= 400 \times 6 = 2400$

Minimum stock level = Re-order level - (Normal consumption  $\times$  Normal Re-order period )

$$= 2400 (235 \times 5)$$

$$= 2400 - 1175 = 1225 \text{ units.}$$

Maximum stock level = Re-ordering level + Re-ordering quantity - (Minimum consumption  $\times$  Minimum Re-ordering period)

$$2400 + 1500 - (250 \times 4)$$

$$= 2400 + 1500 - 1000 = 2,900 \text{ units}$$

Average stock level = Minimum stock level + 1/2 of re-order quantity

$$= 775 + \frac{1}{2} \times 1500$$

$$= 775 + 750$$

$$= 1525 \text{ units.}$$

Note:

$$\text{Normal consumption} = \frac{(400 + 250)}{2} = 325$$

$$\text{Normal reorder period} = \frac{(4 + 6)}{2} = 5$$

### Illustration 2

ABC Ltd manufacturers a Product X. The following particulars were collected for the year 2024.

Normal usage – 60 units

Minimum usage – 35 units per week

Maximum usage - 85 units per week

Reorder period – 4 to 6 weeks

Weeks in a year – 52

Reorder Quantity = 400 units

Calculate (i) Reorder level (ii) Minimum Level (iii) Maximum Level (iv) Average Stock Level

**Solution :**

Re-order level = Maximum consumption  $\times$  Maximum re-order period

$$= 85 \times 6 = 510 \text{ units}$$

Minimum stock level = Re-order level - (Normal consumption  $\times$  Normal Re-order period )

$$\begin{aligned}
 &= 510 - (60 \times 5) \\
 &= 510 - 300 = 210 \text{ units.}
 \end{aligned}$$

Maximum stock level = Re-ordering level + Re-ordering quantity - (Minimum consumption  $\times$  Minimum Re-ordering period)

$$\begin{aligned}
 &510 + 400 - (35 \times 4) \\
 &= 910 - 140 \\
 &= 770 \text{ units.}
 \end{aligned}$$

$$\begin{aligned}
 \text{Average stock level} &= \text{Minimum stock level} + \frac{1}{2} \text{ of re order quantity} \\
 &= 210 + \frac{1}{2} \times 400 \\
 &= 210 + 200 \\
 &= 410 \text{ units.}
 \end{aligned}$$

### 3.2.2 Economic Order Quantity

The economic order quantity can be defined as the quantity which is most economical to order at a time. It is a quantity of material to be ordered at one time. This quantity is fixed in such a manner as to minimize the cost of ordering and carrying the stock. The order for the material to be purchased should be large enough to earn more trade discount and to take advantage of the bulk transport, but at the same time it should not be too large to incur too heavy a payment on account of interest, storage and insurance cost. If the price to be paid is stable, the quantity to be ordered each time can be ascertained by the following formula

$$EOQ = \sqrt{\frac{2AO}{C}}$$

Where : A = Annual consumption of input

O = Ordering cost per order

C = Carrying cost per unit per annum

#### Illustration 3

A factory requires 2500 units of an item per month each costing ₹25. The cost per order is ₹250 and the inventory carrying charges work out to 20% of the average inventory. Find out the economic order quantity and the number of orders per year.

#### Solution :

$$\text{Annual Consumption} = 2500 \times 12 = 30,000$$

Cost of placing an order = ₹250

Carrying cost per unit per annum =  $20\% \times ₹25 = ₹5$

$$EOQ = \sqrt{\frac{2 \times AO}{C}}$$

$$EOQ = \sqrt{\frac{2 \times 30,000 \times 250}{5}}$$

$$= \sqrt{\frac{1,50,00,000}{5}}$$

$$= \sqrt{30,00,000}$$

= 1732 units.

$$\text{Number of orders per year} = \frac{30000}{1732} = 17.32$$

### 3.2.3 ABC Analysis

Under ABC analysis all materials are classified into three categories-A,B and C according to value. Category A includes high value materials. Category B includes medium or moderate value materials category C includes lower value materials. According to this technique, a greater strict control is exercised over category A materials, a moderate control is exercised over category B materials and relatively lesser degree of control is exercised over category C materials. Thus, ABC analysis is an analytical technique of materials control that divides materials into three categories and uses different degrees of control over each category. It is considered as one of the best and popular methods of inventory control.

#### 3.2.3.1 Advantage of ABC Analysis

1. It ensures an effective control over costlier items in which large amount of capital is invested.
2. It helps in reduction of storage costs
3. It helps to use working capital in a better way
4. Investment in materials can be regulated.

### 3.2.4 VED Analysis

Vital Essential Desirable (VED) analysis is used primarily for the control of spare parts. The spare parts can be classified into three categories-vital, essential, or desirable

keeping in view the criticality to production. VED Analysis is based on the criticality of items in stock. Under this technique, inventories are classified into three categories in the decreasing order of their criticality. They are Vital, Essential and Desirable. Vital items are those which are very critical for production. If these are out of stock, it will lead to immediate production/stoppages and heavy production loss. Essential items are those which are very important. They are essential but their absence would not do much harm in production. If they are out of stock for a long period, production will stop. Desirable items are those which are required for production but factory can manage without them for some time. While exercising control, greater attention should be paid on vital items. VED Analysis is used for control of spare parts, oil, lubricants etc.

**Vital:** The spares, the stock out of which even for a short time will stop production for quite some time and where the cost of stock out is very high, are known as Vital spares

**Essential:** The spares the absence of which cannot be tolerated for more than a few hours or a day and the cost of production is high and which are essential for the production to continue, are known as essential spares

**Desirable:** The desirable spares are those spares that are needed but their absence for even a week or so will not lead to a stoppage of production.

### 3.2.5 FSN Analysis

FSN Analysis is the process of classifying the materials based on their movement from inventory for a specified period. All the items are classified in a F-Fast moving S-slow moving and N- Non moving items based on consumption and average stay in the inventory. The longer the stay of an item in the inventory , the slower would be the movement of the material. This analysis helps the store keeper/purchase department to keep the fast moving items always available and take necessary steps to dispose off the non-moving inventory.

### 3.2.6 Just In Time Inventory Technique

Just In Time (JIT) is a production strategy that strives to improve a business return on investment by reducing in process inventory and associated carrying costs. Inventory is seen as incoming costs, or waste, instead of adding and soring value, contrary to traditional accounting. In short. The Just In Time inventory system focuses on the right material, at the right time, at the right place and in the exact amount without the safety net of inventory.

It is a modern technique of inventory control. It refers to purchasing or procuring only what is needed, when it is needed and in just the quantity needed. It is a philosophy that focuses attention on eliminating waste by purchasing or manufacturing just enough through of the right items just in time.

Under this system, raw materials are received just in time to go into production, manufactured parts are completed just in time to be assembled into products and

products are completed just in time to be sold to customers.

### 3.2.7 Stock turnover

Stock turn over (Inventory turnover) ratio is one of the methods of exercising material control. This ratio is very much helpful to the management to find out the items that are slow moving and fast moving. A low ratio is indicative of slow moving and vice versa

Inventory turnover ratio = Cost of materials consumed during the period/Cost of average stock held during the period

This ratio can also be determined in days as follows :

Inventory turnover in days = Days during the period / Inventory turnover ratio

#### Illustration 4

Calculate Inventory turnover ratio and determine which of the two materials is more fast moving

Particulars	Material X	Material Y
Materials in hand on 01-01-2017	25,000	87,500
Materials in hand on 31-12-2017	15,000	62,500
Materials purchased during the year	1,90,000	1,25,000

**Solution :**

Particulars	X	Y
Materials consumed		
Opening stock	25000	87500
Add purchases	190000	125000
	215000	212500
Less closing stock	-15000	-62500
Cost of material consumed	200000	150000

$$\text{Cost of average stock of material X} = \frac{(25000 + 15000)}{2} \\ = 20,000$$

$$\text{Cost of Average stock of material Y} = \frac{(87500 + 62500)}{2} \\ = 75,000$$

Inventory turnover ratio :-

$$X = \frac{200000}{20000} = 10$$

$$Y = \frac{150000}{75000} = 2$$

Inventory turnover ratio of X = 10:1

Inventory turnover ratio of Y = 2: 1

Hence, it can be concluded that X is the fast moving as its inventory turnover ratio is more as compared to Y.

### 3.2.8 Stores (or Material ) Records

The bin card and the stores ledger are the two important stores record that are generally kept for making a record of the various items of store .

#### 3.2.9 Bin card

A bin card is a quantitative record of the receipts and issues of materials and closing balance of each item of stores . Quantity of stores received is entered in the receipt column and the quantity of stores issued is recorded in the issue column of the bin card and a balance of the quantity of the store is taken after every receipt or issue , so that the balance at any time can be readily seen. These cards are maintained by the store keeper and the store keeper is answerable for any difference between the physical stock and the balance shown in the bin card. These cards are used not only for recording receipts and issues of stores but also assist the store keeper to control the stock.

A bin card is also known as bin tag or stock card and is usually hung up or placed in shelf, rack or bin where the material has been kept. Bin cards can also be in the form of loose sheets which can be maintained in a ledger kept in the store.

Specimen of Bin card

#### BIN CARD OF BRIGHT LTD

Material :	Maximum Level :				
Code No :	Minimum Level :				
Bin No :	Reorder Level :				
Sl . Folio :	Reordering Quantity:				
Date	Receipts		Issue		Remark
	G.R.	Quantity	M.R.	Quantity	
	Note No:		Note No:		

### 3.2.10 Stores ledger

This ledger is kept in the costing department and is identical to the bin card except that receipts, issues, and balances are shown along with their money values. It contains an account for every store item and records the receipts, issues, and balances both in quantity and value. Thus, the ledger provides information for the pricing of material issued and the money value at any time of each store item.

#### Stores Ledger of Bright Ltd

Material :	Maximum Level :										
Code No :	Minimum Level :										
Bin No :	Reorder Level :										
Sl . Folio :	Reordering Quantity:										
Date	Receipt			Issue			Balance				
	Gr No	Qty	Rate	Amount	SR No	Qty	Rate	Amount	Qty	Rate	Amount

Difference between Bin Card and Stores Ledger following are the differences:

Bin Card	Stores Leger
Bin Card is attached to the bin	It is kept in the cost office
It is maintained by the store keeper	It is maintained by the cost clerk
Bind card records quantity only	Records of both quantity and value
Entries are posted individually	Entries are posted periodically and in total.
Entries are posted just before the transaction take place	Entries are posed after the transaction take place

### 3.2.11 Inventory systems

#### 3.2.11.1 Perpetual Inventory Systems

Perpetual Inventory system may be defined as a system of records maintained by the controlling department, which reflects the physical movement of stock and their current balances. Thus it is a system of ascertaining balance after every receipt and issue of materials through stock records to facilitate regular checking and to avoid closing down the firm for stock taking. To ensure the accuracy of the perpetual inventory records (bin card and stores ledger) physical verification of the stores is made by a program of continuous stock-taking

The operations of the perpetual inventory system may be as follows

1. The stock records are maintained up to date posting of transactions are made there in so that the current balance may be known at any time
2. Different sections of the stores are taken up by rotation for physical checking
3. Stores received but awaiting quality inspection are not mixed up with the regular stores at the time of physical verification because entries relating to such stores have not yet been made in the stock records
4. The physical stock available in the store, after counting, weighing, measuring, or listing as the case may be, is properly recorded in the bin cards/inventory tags and stock verification sheets

#### 3.2.11.2 Periodic Inventory system

This system envisages physical stock verification at a fixed date/period during the year. Generally, under this system the activity takes place at the end of the accounting period or date close to such date. Usually, the system is opened in the following manner

- i. 5/7 days depending on the magnitude of the work is chosen during which all the items under stock are verified physically and such period is known as “cut off” period. During this period there is no movement of stock items and neither receipts nor the issues permitted.
- ii. The items are physically counted depending on their nature
- iii. The bin card balances are also checked and initiated
- iv. After the physical verification is completed worksheets are counter-signed by the godown supervisor
- v. Thereafter reconciliation statement is prepared item wise
- vi. Then the balance as per bin card and stores ledger is also compared
- vii. Finally the shortages/excess statement is prepared by the concerned department

### 3.2.12 Material losses

#### 3.2.12.1 Wastage

Wastage may be classified as normal or abnormal according to the circumstances.

Normal wastage denotes that part of the wastage which is generally bound to arise in a manufacturing processing on account of evaporation, shrinkage of basic raw materials, or on account of typical manufacturing process being involved. Usually such wastage remains within certain normal ratio or percentage of the input. On the other hand, abnormal wastage is that loss which does not arise in the ordinary course of manufacturing process but is the result of certain adverse circumstances such as power failure, major breakdown of machinery, non-availability of the basic raw material etc. It is generally not possible to estimate the extent of such wastage before as they are much more than the normal ratio/percentage of loss compared to the input of basic materials.

Since the normal wastage of the materials is an unavoidable and uncontrollable issue, it should be recovered through good production. The cost of such normal wastage will be recovered as production overhead and apportioned on the number of units produced. Necessary allowances should however be made for any amount which the wastage should realize when it is disposed of. On the contrary, the cost of abnormal wastage should be separately collected and charged off to the costing profit and loss account so as not to violate the production cost of good unit produced

### **3.2.12.2 Scrap**

This is also in the form of incidental material residue coming out of certain type of manufacturing processes but it is usually in small amount and has low measurable utility or market value, recoverable without further processing. Numerous examples of scrap may be given, scrap may arise in the form of turnings, borings, trimmings, fillings, shavings etc. from metals on which machine operations are carried out.

### **3.2.12.3 Spoilage**

When production does not come up to the standard specifications or quality it has to be rejected outright. The components or materials are so damaged in the manufacturing process that they cannot be brought back to the normal specifications by repairs or reconditioning. Some spoiled work may be sold as seconds but in most cases, the entire production is sold for small value in the form of scrap or treated as waste if it has no market value. Spoilage involves not only loss of materials but also of labour and manufacturing overhead incurred up to the stage when the spoilage incurred.

### **3.2.12.4 Defectives**

Defectives are that portion of production which can be rectified at some extra cost of re operation. Defectives may arise due to sub-standard materials, poor workmanship, bad supervision and careless inspection. The additional cost of rectifying the defective is added to the total cost and the quantity of defective rectified is added to the quantity of good output because defective units rectified can be sold as “firsts” or “seconds”. Rectification of defective unit is advisable only when the cost of rectification is low and more profitable than to sell a spoiled unit.

## Recap

- ◊ Re-order level is the point at which the store keeper should initiate purchase requisition for fresh supplies.
- ◊ Minimum level represents the minimum quantity of an item of material to be kept in the store at any time. Material should not be allowed to fall below this level.
- ◊ Maximum represents the maximum quantity of an item of material which can be held in stock at any time. Stock should not exceed this quantity.
- ◊ The average stock level is calculated by adding the minimum stock level and  $\frac{1}{2}$  of re-order quantity.
- ◊ Danger level is the level beyond which material should not fall.
- ◊ EOQ is used to determine the optimal order quantity that minimizes the total inventory costs, which include ordering costs and holding costs.
- ◊ ABC Analysis stands for Always Better Control. It is an inventory control technique which categorizes inventory into three groups based on value and importance
- ◊ VED Analysis stands for Vital, Essential, Desirable. It classifies items based on their criticality to operations.
- ◊ FSN Analysis stands for Fast moving, Slow moving, Non – Moving. FSN Analysis groups inventory based on usage rates.
- ◊ Just In Time is a strategy to reduce inventory levels by receiving materials "just in time" for production.
- ◊ Stock Turnover Measures how often inventory is sold or used over a given period. This ratio is very much helpful to the management to find out the items which are slow moving and fast moving. A low ratio is an indicative of slow moving and vice versa.
- ◊ A bin card is a quantitative record of the receipts and issues of materials and closing balance of each item of stores.
- ◊ Stores ledger contains an account for every item of stores and makes a record of the receipts, issues and the balances both in quantity and value.
- ◊ Perpetual Inventory System is a system where the physical stock verification activity takes place at the end of the accounting period or date close to such date..
- ◊ Periodic inventory system, inventory levels are checked at fixed intervals to update stock records.
- ◊ Wastage refers to unusable material due to inefficiency or overproduction.
- ◊ Scrap refers to residual material that may have some value.
- ◊ Spoilage refers to damaged goods unsuitable for use or sale.
- ◊ Faulty items that may require repair or rework is known as defectives.

## Objective Questions

1. What is the term for the optimal order quantity that minimizes total inventory costs?
2. Which analysis categorizes inventory into three groups based on value?
3. Which analysis is used to prioritize inventory based on criticality?
4. Which analysis focuses on the movement of inventory (fast, slow, or non-moving)?
5. Which inventory system aims to minimize stock levels by receiving goods only when needed?
6. What inventory system updates stock levels continuously?
7. What term describes material losses due to inefficient processes or carelessness?
8. What are items called that fail to meet quality standards?
9. What term describes leftover materials from a manufacturing process?
10. What is the term for damaged materials that cannot be used?

## Answers

1. EOQ
2. ABC
3. VED
4. FSN
5. JIT
6. Perpetual
7. Wastage
8. Defectives
9. Scrap
10. Spoilage

## Self-Assessment Questions

1. What do you mean by EOQ?
2. Explain ABC Analysis.
3. What do you mean by stores ledger?
4. What are the different types of stock levels used for inventory control?
5. What do you mean by inventory turnover?
6. What is perpetual inventory system?
7. Which are the different categories of material losses?
8. Explain the material purchase procedure.

## Assignments

1. XYZ Pvt. Ltd. produces Product Y. The following details were collected for the year 2024:

Normal Usage: 100 units per week, Minimum Usage: 70 units per week, Maximum Usage: 150 units per week, Re-order Period: 3 to 5 weeks, Weeks in a Year: 52, Re-order Quantity: 600 units.

You are required to calculate the following:

- i. Re-order Level
- ii. Minimum Stock Level
- iii. Maximum Stock Level
- iv. Average Stock Level

**(Solution:** Re-order Level: 750 units, Minimum Level: 350 units, Maximum Stock Level: 1,140 units, Average Level: 650 units)

2. Tara Ltd manufacturers a Product X. The following particulars were collected for the year 2024.

- i. Normal usage = 60 units per week
- ii. Minimum usage = 35 units per week
- iii. Maximum usage = 85 units per week
- iv. Re-order period = 4 to 6 weeks
- v. Re-order quantity = 400 units
- vi. Weeks in a year = 52 weeks

You are required to calculate (i) Re-order level (ii) Minimum Level (iii) Maximum Level (iv) Average Stock Level

**(Solution:** Re-order Level = 510 units, Minimum Level = 210 units, Maximum Level = 770 units, Average Stock Level = 490 units)

3. A manufacturing unit consumes 1,200 units of a component each month. The cost of each unit is ₹50. The ordering cost is ₹500 per order, and the inventory carrying cost is 15% of the average inventory value per year. Find EOQ

**(Solution:** 1386 units)

## Suggested Readings

1. Jain, S.P., & Narang, K.L., Advanced Cost Accounting, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., Cost Accounting, Sultan Chand & Sons, New Delhi.
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7. Thulsian PC-Practical Costing, Vikas Publishing House, New Delhi



# Unit

## Pricing of Issue of Materials

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ understand the pricing issue of material.
- ◊ narrate various methods of valuation of material

### Prerequisites

Imagine you are running a small furniture workshop crafting custom designs for your clients. Your stock includes teakwood purchased at different times and prices—some were bought earlier at ₹1,000 per cubic foot, some later at ₹1,200 per cubic foot, and some recently at ₹1,500 per cubic foot. A new client places an order, and you need to issue teakwood from your stock to complete the project. But how do you calculate the cost of the wood being used? This is where different material pricing methods help. **FIFO (First-In, First-Out)** assumes you use the oldest stock first, meaning the ₹1,000 teakwood is issued first. **LIFO (Last-In, First-Out)** assumes the opposite, issuing the most recently purchased ₹1,500 teakwood first. **Simple Average** calculates an average of all purchase prices - ₹1,233 in this case - and uses it for all issues. **Weighted Average** considers the quantity bought at each price, providing a more accurate cost representation. This unit deals with the various ways in which the issue of materials will be priced.

## Discussion

Materials are kept in stores so that the store keeper may issue them whenever they are required by the production departments. However a storekeeper must not issue materials unless a properly authorized material requisition is presented to him.

### 3.3.1 Material Requisition

The storekeeper should always issue the material on proper authority to avoid the misappropriation of material. This authority is usually given by the foreman of the production department on a form known as material requisition.

#### Specimen of Material Requisition

<b>Bright Ltd</b>							
<b>Material or Stores Requisition</b>							
Department:	No:						
Job No:	Date:						
To							
The store keeper							
Please issue the materials stated here in							
Description	Code No	Bin Card No	Ledger Folio	Quantity	Rate	Amount	Remarks
Authorized by:							
Received by:							
Issued by:							
Checked by:							

### 3.3.2 Methods of Valuing Material Issue

When materials are issued to the production department the difficulty arises regarding the price at which materials are issued from stores should be priced at the price at which they are carried in inventory. Materials may be purchased from different suppliers at different prices in different situations where as consumption may happen the entire inventory at a time or different lots. So issue of material should be valued after considering the following factors

- i. Nature of business and production process
- ii. Management policy relating to the closing stock valuation
- iii. Frequency of purchase and price fluctuations

Several methods of pricing of material issues have been evolved; they may be classified into the following

#### A. Cost price method

- i. First in First Out (F I F O)
- ii. Last in First Out (L I F O)
- iii. Base stock method
- iv. Specific Price method
- v. Highest – in First out Method (H I F O)

#### B. Average price method

- i. Simple average price method
- ii. Weighted average price method
- iii. Moving simple average method
- iv. Moving weighted average method

#### C. Market price method

- i. Replacement method
- ii. Realizable price method

#### D. Notional price method

- i. Standard price method
- ii. Inflated price method

#### 3.3.2.1 First in First Out Method

It is a method of pricing the issue of materials in the order in which they are purchased.

In other words, the materials are issued in the order in which they arrive in the store. This method is considered suitable in times of falling prices because the material cost charged to production will be high while the replacement cost of materials will be low. In case of rising prices, this method is not suitable.

### **Advantages of FIFO**

- i. It is simple and easy to operate
- ii. In case of falling prices, this method gives better results
- iii. Closing stock represents the market prices
- iv. It is a logical method, materials are issued in order of purchase
- v. Under this method materials are issued at the purchase price

### **Disadvantages of FIFO**

- i. If the price fluctuate frequently, this method may lead to clerical errors
- ii. In case of rising prices this method is not advisable
- iii. The material costs charged to same job are likely to show different rates
- iv. For pricing one requisition more than one price has often to be taken
- v. When prices rise, the issue price does not reflect the market price as materials are issued from the earliest consignment

### **3.3.2.2 Last in First Out method**

Under this method the prices of last received batch (lot) are used for pricing the issues, until it is exhausted and so on. During the inflationary period or period of rising prices, the use of LIFO would help to ensure the cost of production determined approximately on the above basis is approximately the current one. Under LIFO stocks would be valued at old prices, but not represent the current prices

### **Advantages of LIFO**

- i. The cost of materials issued will be either nearer to and or will reflect the current market price.
- ii. In case of falling prices profit tend to rise due to lower material cost
- iii. This is simple to operate when transactions are not too many
- iv. Production is charged at the recent prices because materials are issued from the latest consignment
- v. In times of rising prices, LIFO method of pricing issue is suitable because materials are issued at the current market prices which are high

## Disadvantages of LIFO

- i. The computations become complicated if too many receipts are there
- ii. The stock in hand is valued at a price which does not reflect the current market price
- iii. This method may lead to clerical errors
- iv. Comparison between one job and the other job will become difficult
- v. For pricing a single requisition, more than one price has often to be adopted

### 3.3.2.3 Simple Average Price Method

Under this method, materials issued are valued at an average price., which is computed by dividing the total of all units rate by the number of units

Material issue price = Total unit price of each purchase/ Total number of the unit

This method is useful, when the materials are received in uniform lots of similar quantity and prices do not fluctuate considerably.

### 3.3.2.4 Weighted average price method

This method removes the limitations of the Simple Average method in that it also takes into account the quantities which are used as weights to find the issue price. This method uses total cost of material available for issue divided by the quantity available for issue

Issue price = Total cost of materials in stock/Total quantity of material in stock

#### Illustration 1

Prepare stores ledger under simple average and weighted average price method  
01-10-2018 (Opening balance) 500 units @Rs. 10/unit

09-10-2018 Received 300 units @ Rs. 12 / unit

16-10-2018 Issued 650 units

21-10 2018 Received 400 units @ Rs. 14/ unit

26-10-2018 Issued 350 units

29-10-2018 Received 400 units @ Rs. 11/ unit

### Simple Average Price Method

Date	Receipt				Issue				Balance		
	GRN NO	Qty	Rate	Amount	MRN NO	Qty	Rate	Amount	Qty	Rate	Amount
01-10-2018									500	10	5000
09-10-2018		300	12	3600					300		8600
16-10-2018						650	11	7150	150		1450
21-10-2018		400	14	5600					550		7050
26-10-2018						350	13	4550	200		2500
29-10-2018		400	11	4400					600		6900

Rate of issue(16-10-2018)=(12+10)/2 = 11

Rate of issue (26/10/2018)=(14+12)/2 = 13

### Weighted Average Method

Date	Receipt				Issue				Balance		
	GRN NO	Qty	Rate	Amount	MRN NO	Qty	Rate	Amount	Qty	Rate	Amount
01-10-2018									500	10	5000
09-10-2018		300	12	3600					800	10.75	8600
16-10-2018						650	10.75	6987.5	150	10.75	1612
21-10-2018		400	14	5600					550	13.11	7212.48
26-10-2018						350	13.11	4589.77	200	13.11	2622.72
29-10-2018		400	11	4400					600	11.70	7022.76

Notes:

$$2600/800 = 10.75, 7212.48/550 = 13.1136, 7022.76/600 = 11.7046$$

### Illustration 2

The following are the receipts and issues of the items of materials

01-01-2017 Purchases 300 units @ Rs. 20 per unit

03-01-2017 Issued 120 units

08-01-2017 Purchased 220 units @ Rs. 22 per unit

16-01-2017 Issued 200 units

30-01-2017 Purchased 100 units @ Rs. 24 per unit

Prepare stock ledger account using FIFO, LIFO method

**FIFO Method**  
**Stores Ledger**

Date	Receipt			Issue			Balance		
	Qty	Rate	Amount	Qty	Rate	Amount	Qty	Rate	Amount
01-01-2017	300	20	6000				300	20	6000
03-01-2017				120	20	2400	180	20	3600
08-01-2017	220	22	4840				180	20	3600
							220	22	4840
16-01-2017				180	20	3600	200	22	4400
				20	22	440			
30-01-2017	100	24	2400				200	22	4400
							100	24	2400

**LIFO Method**  
**Stores Ledger**

Date	Receipt			Issue			Balance		
	Qty	Rate	Amount	Qty	Rate	Amount	Qty	Rate	Amount
01-01-2017	300	20	6000				300	20	6000
03-01-2017				120	20	2400	180	20	3600
08-01-2017	220	22	4840				180	20	3600
							220	22	4840
16-01-2017				200	22	4400	180	20	3600
				20	22	440	20	22	440
30-01-2017	100	24	2400				180	20	3600
							20	22	440
							100	24	2400

## Recap

- ◊ FIFO METHOD-First in First Out method
- ◊ LIFO method-Last in First Out Method.
- ◊ FIFO method is a method of pricing the issue of materials in the order in which they are purchased.
- ◊ FIFO method is considered suitable in times of falling price.
- ◊ LIFO method is a method of pricing the issue of materials in which the prices of last received batch (lot) are used for pricing the issues.
- ◊ LIFO method is considered suitable in times of rising prices.

## Objective Questions

1. What does LIFO stand for?
2. Which inventory batch is sold first under LIFO?
3. Under LIFO, which inventory remains unsold?
4. Which inventory costing method reflects current costs in the cost of goods sold?
5. What does FIFO stand for?
6. Under FIFO, which inventory is sold first?
7. In which method of pricing, closing stock is valued at the oldest price paid?
8. Which inventory method is not advisable during rising prices?
9. Which inventory method is advisable during rising prices?
10. In which method, the price of lots in stock are averaged and issued at averaged and average price is issued for issuing materials?

## Answers

1. Last in Last Out
2. Recent
3. Oldest

4. LIFO
5. First in First Out
6. Oldest
7. LIFO method
8. FIFO
9. LIFO
10. Simple Average Price Method

## Self-Assessment Questions

1. Explain LIFO method.
2. What are the advantages and disadvantages of LIFO method ?
3. Explain the advantages and disadvantages of FIFO method.

## Assignments

1. Explain the differences between LIFO and FIFO Methods of Valuing inventory.
2. The following transactions involve the receipts and issues of materials:  
 01-01-2024: Purchased 500 units @ ₹30 per unit  
 05-01-2024: Issued 200 units  
 10-01-2024: Purchased 300 units @ ₹32 per unit  
 18-01-2024: Issued 250 units  
 25-01-2024: Purchased 150 units @ ₹34 per unit  
 Prepare a Stock Ledger Account using the FIFO and LIFO methods.
3. From the following information prepare stores ledger account as per LIFO method and FIFO Method.  
 2024  
 Jan 1 Received 2000 units @ ₹ 1 per unit.  
 Jan 10 Received 520 units @ ₹ 2 per unit

Jan 20 Issued 1400 units  
 Jan 23 Received 800 units @ ₹ 1 per unit  
 Jan 24 Received 600 units @ ₹ 4 per unit  
 Jan 25 Issued 1240 units  
 Jan 26 Issued 480 units  
 Jan 27 Received 1000 units @ ₹ 1 per unit.  
 Jan 29 Issued 760 units

4. The following is the record of receipts and issues of certain materials in the factory during a period

01-06-2016(Opening balance) 50 kg @Rs.10  
 Issued (MRN:34) 30 kg  
 02-06-2016 received (GRN:48)60 KG @ Rs.10.20/kg  
 03-06-2016 Issued (MRN :47) 25 kg  
 04-06-2016 Received back into stores (RN :17) 10 kg  
 (Previously issued at rs.9.15/kg)  
 05-06-2016 Issued MRN:71) 40 kg  
 06-06-2016 Received GRN:79)22 kg @ Rs.10.30/kg  
 07-06-2016 Issued (MRN :94) 38 kg

Prepare stores ledger under FIFO and LIFO method

## Suggested Readings

1. Jain, S.P., & Narang, K.L., Advanced Cost Accounting, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., Cost Accounting, Sultan Chand & Sons, New Delhi.
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5. J Madegowda, Advanced Cost accounting, Himalaya Publishing House, Mumbai
6. Shukla, M.C., and Grewal, T.S., Cost Accounting, Sultan Chand & Sons, New Delhi.
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7. Thulsian PC-Practical Costing, Vikas Publishing House, New Delhi



4

BLOCK

Labour cost

# Unit 1

## Introduction to Labour Cost

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ comprehend the meaning and concepts of labour cost and time
- ◊ differentiate between direct and indirect cost
- ◊ know the control of labour cost
- ◊ grasp knowledge about the control of labour cost idle time
- ◊ gain insight on the concept of labour turnover
- ◊ examine the causes and effects of labour turnover

### Prerequisites

Labour cost is the second important element of cost of production. Labour cost is a critical component of a company's overall expenses, representing the total expenditure a business incurs to employ its workforce. Consider a manufacturing company called ABC Electronics, which produces consumer electronics. The company employs workers in its production line, engineers for research and development, and administrative staff in human resources, marketing, and finance. The total labour cost for ABC Electronics includes wages of employees directly involved in the manufacturing process, such as assembly line workers and machine operators, wages for employees who support the production process but are not directly involved in it, such as supervisors, maintenance personnel, and quality control inspectors, employee benefits including health insurance, retirement contributions, paid time off, and other benefits provided to employees and employers are also required to pay certain taxes, such as social security and medicare, for each employee, which contributes to the total labour cost.

In the current political scenario with a restless labour in the organized industry, it is very difficult to reduce the labour cost. Therefore, proper control and accounting for labour cost is needed in every business enterprise. Managing labour costs effectively is essential for maintaining profitability, competitiveness, and financial sustainability.

## Keywords

Labour Cost, Time keeping, Time booking, Labour Turnover

## Discussion

Labour cost refers to the total expenditure a business incurs to compensate its employees. Labour costs can vary depending on the industry, location, and the nature of the work, but managing these costs effectively is essential for businesses to maintain profitability, efficiency, and a competitive edge.

### 4.1.1 Meaning

Labour refers to the various items of expenditure incurred on workers by the employer and would include monetary benefits and fringe benefits. The cost of labour is the total of all wages paid to employees, plus the cost of employee benefits and payroll taxes paid by the employer. Labor costs are divided into two categories: direct and indirect labour cost. Direct labour costs include compensation for employees who directly involved in the production process such as assembly line workers, whereas indirect labour costs is the cost of any labour that support production process, but which is not directly involved in the active conversion of materials into finished goods.

Labour cost may be increased due to labour inefficiency, wastage of material due to absence of proper supervision, high labour turnover, increased idle time, overtime work than needed and many other related factors.

### 4.1.2 Control of Labour Cost

Control of labour cost plays a vital role on the cost of production, growth and profitability. Labour may become unduly high due to inefficiency and irresponsible labour force, ineffective supervision, idle time, unusual overtime work etc. The fundamental objective of cost control management of labour is to utilize efficiently the labour force as economically as possible.

The control of labour cost and its accounting is very difficult as it deals with human resources. Labour is the perishable commodity and should be effectively utilized within the time frame.

Labour is categorised into direct labour and indirect labour. Direct labour is directly engaged in the production of goods or services and which can be directly allocated to the job, process or commodity. Indirect labour is not directly engaged in the production of goods and services but indirectly helps the direct labour engaged in production process.

The distinction between direct and indirect labour must be treated carefully. Because payment of direct labour is a direct expenditure and is a part of prime cost whereas payment of indirect labour is an item of indirect expenditure and is shown as works, office, selling and distribution expenditure. Management is interested in the labour costs due to the following reasons:

- ◊ To use direct labour cost as a basis for increasing the efficiency of workers
- ◊ To identify direct labour cost with products, orders, jobs or processes for ascertaining the cost of every product, order or process.
- ◊ To use direct labour cost as a basis for absorption of overhead
- ◊ To determine indirect labour cost to be treated as overhead
- ◊ To reduce the labour turnover

Hence, control of labour cost is an important objective of management and the realization of this objective depends upon the cooperation of every member of the supervisory force from the top executive to foremen. Labour costs represent not only basic wages but also a number of other expenses. It represents the various items of expenditure incurred on workers by the employer and would include the following:

- a. **Monetary benefits:** It includes basic wages, dearness allowance, employers' contribution to provident fund, employers' contribution to Employees State Insurance (ESI) Scheme, production bonus, profit bonus, old age pension, and retirement gratuity.
- b. **Fringe benefit:** Fringe benefits include subsidized food, subsidized housing, subsidized education to the workers' children, medical facilities, holiday pay and recreational facilities.

### 4.1.3 Time keeping

Timekeeping refers to the process of accurately recording and tracking the time spent on tasks, activities, or events. It includes the arrival and departure time of workers.

Time keeping will be used in

- i. Preparation of pay roll for time-paid workers
- ii. Meeting the statutory requirements
- iii. Ensuring discipline in attendance
- iv. Recording of each worker's time 'in' and 'out' of the factory to categorise the

- working time into normal time, over time, late attendance and early leaving
- v. For distribution of overhead when overheads are absorbed on the basis of labour hours.

#### **4.1.3.1 Methods of time keeping**

There are two methods of time- keeping. They are the manual methods and the mechanical methods. While selecting the method, ensure that,

- ◊ It should keep a correct record of the time
- ◊ The method should be cost effective and
- ◊ Minimize the risk of fraud

##### **4.1.3.1.1 Manual methods of time keeping**

i) Attendance register method

ii) Metal disk method

###### **i) Attendance Register Method**

This is the traditional method where an attendance registers or muster roll is kept near the factory gate or in each department. The time keeper records the details such as the name of the worker, the worker's number, the department in which he is working, the rate of wages, the time of arrival and departure, normal time and over time. If the workers are literate, they record the time themselves in the presence of a time keeper or foreman.

This method is simple and less expensive and can be used in small firms where the number of workers is small. However, this method is not practical to record the time of workers who work at customers premises and places which are situated at a distance from the factory.

###### **ii) Metal Disc Method**

Under this method, each worker is allotted a metal disk or a token with a hole bearing his identification number. A board is kept at the gate with pegs on it and all tokens are hung on this board. These boards can be maintained separately for each department so that the workers can remove the token without delay and put it in a tray or box kept near the board. Immediately after the scheduled time for entering the factory, the box is removed and the late comers will have to give their token to the time keeper and their exact time of arrival is recorded. The tokens or disc left on the board will represent the absentees. Later the time keeper records the attendance in the attendance register and passed on to the Pay Roll Department.

##### **4.1.3.1.2 Mechanical Methods**

The mechanical methods used for time keeping are as follows:

i) Time Recording Clocks

ii) Dial Time Records

### i) Time Recording Clock

The time recording clock is a mechanical device, which automatically records the time of the workers. Under this method, each worker is given a time card which is kept in a tray near the factory gate. When a worker enters the gate, he picks up his card from the tray, puts it in the time recording clock. The clock then prints the exact time of arrival in the proper space provided for each day. This procedure is repeated while recording the time of departure and return from lunch and time of leaving the factory in the evening after work. Late arrivals and overtime are recorded in red to attract the attention of the management.

### ii) Dial Time records

Under this method, a dial time recorder machine is used. It has a dial with a number of holes (usually about 150) and each hole bears a number corresponding to the identification number of the workers. There is one radial arm at the centre of the dial. When a worker enters the factory gate, he has to press the radial arm after placing it at the hole of his number and his time will automatically be recorded on a roll of a paper inside the dial. The sheet on which the time is recorded provides a running account of the worker's time and it can calculate the number of hours and prepare the wage sheet after that. The high installation cost of the dial time recorder and its use for only a limited number of workers constitute the main drawback of this method.

## 4.1.4 Time booking

Time booking is the recording of time spent by the worker on different jobs or work orders carried out by him during his period of attendance in the factory. It is crucial for accurately allocating labour costs to specific jobs, products, or processes. This information is also used to improve efficiency, track productivity, and ensure proper wage calculations. The objectives of time booking are:

- i. To ensure that time spent by a worker in a factory is effectively utilized on different jobs or work orders.
- ii. To ascertain the labour cost of each individual job or work order
- iii. To provide a basis for the apportionment of overhead expenses over various jobs or work orders.
- iv. To ascertain idle time, so as to make efforts to keep it within limits.
- v. To know the time taken to complete a particular job so that bonus can be paid as per the incentive schemes.
- vi. To examine the efficiency of workers, it is necessary to make a comparison of actual time taken with time allowed for completing a particular task.

Following documents are generally used for time keeping

- i. Daily time sheets
- ii. Weekly time sheets

### iii. Job tickets or job cards

Daily time sheets are given to each worker where he records the time spent by him on each job or work order. Weekly time sheets record the same particulars for a week and hence one card is required for a week. Job cards are used to keep a close watch on the time spent by a worker on each job so that the labour cost of a job may be conveniently ascertained.

#### **4.1.4.1 Differences between Time Keeping and Time Booking**

##### **1. Purpose:**

Time Keeping: Focuses on tracking employee attendance and total working hours.

Time Booking: Focuses on tracking how much time is spent on specific tasks or projects within those hours.

##### **2. Application**

Time Keeping: Used primarily for payroll and attendance records.

Time Booking: Used for project management, client billing, and task tracking.

##### **3. Detail Level:**

Time Keeping: Provides a general overview of how long someone worked.

Time Booking: Provides detailed insights into how much time was allocated to specific activities.

##### **4. Usage:**

Time Keeping: Common in hourly-based jobs like retail, manufacturing, and hospitality.

Time Booking: More common in industries like consulting, law, and marketing where accurate project billing is essential.

##### **5. Outcome:**

Time Keeping: Ensures employees are paid correctly based on the number of hours worked.

Time Booking: Helps businesses to understand how efficiently time is being spent on different tasks or projects.

#### **4.1.4.2 Idle time**

Idle time is the time during which the worker spends their time without giving any production or benefit to the business concern. It is the time when employees are not being productive but are still being paid. The idle time may arise due to non-availability of raw materials, power cuts, mechanical breakdowns etc.

## Types of idle time

- a) Normal idle time
- b) Abnormal idle time

**a) Normal idle time:** This represents the time, the wastage of which cannot be avoided; therefore, the employer has to bear the labour cost of this time. But effort should be made to reduce it to the lowest level. For example, time taken for going to department from factory gate. Normal idle time is unavoidable cost and should be included in cost of production. The cost of normal idle time can be treated as an item of factory expenses and recovered as an indirect charge or added to labour cost.

For example : Time taken for personal matters, time taken for obtaining work, time taken for changing from one job to another, time taken for lunch and tea break, waiting time for getting instructions, tools and or raw materials, spares etc.

### **b) Abnormal Idle Time:**

Abnormal idle time refers to any loss of time which occur due to some abnormal reasons. This can be avoided though effective planning and control. For example, time wastage due to faulty production planning, break down of machinery, lack of co-operation and co-ordination among line and staff, on account of inefficiency of the works engineer, failure of the power supply, shortage of materials, waiting for tools and raw- materials, or strikes or lock outs in the factory.

It is a principle of costing that all abnormal expenses and losses should not be included in costs as such wages paid for abnormal idle time should not form part of the cost of production. Hence it is debited to Costing Profit and Loss Account

### **4.1.4.2.1 Over Time**

It is the work done beyond the normal working hours in a day or a week. For overtime, the workers are paid with double of their wages. The additional amount paid on account of overtime is known as overtime premium. Over time increases the cost of production and should not be encouraged always because of its disadvantages such as:

- i. Overtime is paid at higher rate
- ii. Overtime is done at late hours when workers are tired naturally, efficiency will be reduced than the normal working hours
- iii. Worker will develop a habit of working slowly during normal working hours and complete the work by availing overtime to earn more wages.
- iv. Expenses such as lighting, cost of supervision, and wear and tear of machines will increase disproportionately.

Therefore, overtime should be recorded separately and thoroughly investigated to know that it is availed genuine reasons. Treatment of overtime depends on the situation. If overtime is incurred due to the sequence of jobs, then the normal wages is added to the cost of labour. On the other hand, if overtime incurred due to any abnormal

reasons like break down of machinery or power failure, overtime premium is excluded from the cost of production and is debited to the Costing Profit and Loss Account.

## 4.1.5 Labour turnover

Labour turnover refers to the rate at which employees leave an organisation and replaced by new employees. It denotes the percentage changes in the labour force of an organization. High percentage of labour turnover denotes that labour is not stable and there are frequent changes in the labour force because of new workers joined and workers who have left the organization. A high labour turnover is not desirable.

### 4.1.5.1 Methods of calculating labour turnover

- Labour turnover according to separation method

$$\frac{\text{Number of separations during a period}}{\text{Average number of workers during a period}} \times 100$$

- Labour turnover according to flux method

$$\frac{\text{Number of additions + separations during a period}}{\text{Average number of employees during a period}} \times 100$$

- Labour turnover according to replacement method

$$\frac{\text{Number of workers replaced during a period by Average}}{\text{Number of workers during the period}} \times 100$$

#### Illustration 4.1.5.2

From the following information, calculate the labour turnover rate by applying

- Separation method
- Replacement method
- Flux method

Number of workers at the beginning of the year 7,600

Number of workers at the end of the year-8,400

During the year 80 workers left while 320 workers are discharged, 1200 workers are required during the year, of these 300 workers are recruited because of leavers and the rest are engaged in accordance with an expansion scheme.

#### Solution:

- Labour turnover rate by applying Separation method

= Number of workers left during the year/Average number of workers during the month  $\times 100$

$$\text{Average number of workers during the year} = \frac{(7600 + 8400)}{2}$$

$$= \frac{16000}{2} = 8,000$$

Number of workers left during the month = 80 + 320 = 400

$$\text{Labour Turnover rate} = \frac{400}{8000} \times 100 = 5\%$$

b) Labour turnover Rate by applying Replacement Method

$$= \text{Number of workers replaced during the year} / \text{Average number of workers during the year} \times 100 = \frac{300}{8000} \times 100 = 3.75\%$$

c) Labour Turnover Rate by Flux Method

$$= (\text{Number of additions} + \text{Separations during the year}) / \text{Average number of workers during the year} \times 100$$

$$= \frac{(1200 + 400)}{4000} \times 100 = 40\%$$

Labour flux rate denotes the total changes in the composition of labour force due to additions and separations of workers.

#### 4.1.5.2 Causes of labour turnover

The causes of labour turnover can be classified into the following three heads

- i) Personal causes
- ii) Unavoidable causes
- iii) Avoidable causes

##### i) Personal causes:

Workers may leave the organization purely on personal grounds such as:

- a. Domestic troubles and family responsibilities
- b. Retirement due to old age
- c. Permanently incapable of doing work due to accidents
- d. Women workers may leave after marriage in order to take up house hold duties.
- e. Dislike for the job or place
- f. Death
- g. Workers finding better jobs at some other places

##### ii) Unavoidable causes:

In certain circumstances, it becomes necessary for the management to ask some of

the workers to leave the organization. These circumstances may be as follows:

- a. Workers may be discharged due to inefficiency
- b. Workers may be discharged due to continuous or long absence
- c. Workers may be retrenched due to shortage of work

**iii) Avoidable causes:**

- a. Low wages and allowances may force workers to leave the factory and join other factories where higher wages and allowances are offered.
- b. Unsatisfactory working conditions
- c. Job dissatisfaction on account of wrong placement of workers.
- d. Lack of accommodation, medical, transport and recreational facilities
- e. Long hours of work
- f. Lack of promotion opportunities
- g. Unfair method of promotion
- h. Lack of security of employment
- i. Lack of proper training facilities

#### **4.1.5.3 Effects of Labour turnover**

The effect of excessive labour turnover is low labour productivity and increased cost of production because:

- a. Frequent changes in the labour force give rise to interruption in the continuous flow of production resulting in reduction in overall production.
- b. New workers take time to become efficient. So, the lower efficiency and experience of new workers increases the cost of production.
- c. Cost of selection and training of newly recruited workers to replace the workers who have left, will increase the cost of production.
- d. New workers being unfamiliar with the work will give rise to scrap, rejects and defective work which in turn increases the cost of production.
- e. Due to faulty handling of machinery by new workers, breakdown occur very often and it will hamper production.
- f. New workers may be inexperienced and they are more prone to accidents. Consequently, all costs associated with accidents such as loss on account of output lost compensation for the injured workers, damage of materials and equipment due to accidents etc. will increase the cost of production

## Recap

- ◊ Labour costs represent the various items of expenditure incurred on workers by the employer.
- ◊ Direct labour is that labour which is directly engaged in the production of goods or services.
- ◊ Indirect labour is that labour which is not directly engaged in the production of goods and services.
- ◊ Time keeping is concerned with the recording of time of workers for the purpose of attendance and wage calculation.
- ◊ Time booking is the recording of time spent by the worker on the different jobs or work orders during his period of attendance in the factory.
- ◊ Normal idle time represents the time, the wastage of which cannot be avoided
- ◊ Abnormal idle time is that time the wastage of which can be avoided
- ◊ Labour turnover denotes the percentage change in the labour force of an organization

## Objective Questions

1. What does the term 'labour cost' refers to?
2. State the main purpose of controlling labour costs in an organization?
3. What is the effect of high labour turnover on labour costs?
4. What is the difference between direct and indirect labour?
5. What is the main purpose of timekeeping in a factory?
6. Time booking is done primarily to?
7. Idle time is the difference between?
8. In the case of abnormal idle time, the wages paid should be debited to which account?
9. Which document is commonly used for recording the time spent by workers on specific jobs?

## Answers

1. The total of wages, employee benefits, and payroll taxes.
2. To increase the efficiency and productivity of workers
3. Increases labour costs due to recruitment and training.
4. Direct labour can be traced to a specific product, whereas indirect labour cannot.
5. To ensure accurate recording of time for payroll purposes.
6. Record the time spent on different jobs for cost allocation.
7. Time booked to different jobs and time recorded at the factory gate.
8. Debited to the Costing Profit and Loss Account.
9. Job Cards.

## Self-Assessment Questions

1. What is labour cost?
2. What is idle time?
3. What is time keeping?
4. Briefly explain different methods of time keeping?
5. What is time booking?
6. What is labour turnover?
7. What is direct labour?
8. What is normal idle time?
9. What is abnormal idle time?
10. List out effects of labour turnover?

## Assignments

1. Suggest a few organisations in your locality and identify the methods they used for time keeping and explain why?
2. Identify the common causes of high labour turnover in an organization and discuss the effects of high labour turnover on business operations.

3. "Labour turnover can significantly impact a company's productivity and profitability. Conduct a detailed study on the concept of labour turnover and its implications in a company in any industry of your choice. Your study should include the following
  - (i) Calculate the labour turnover rate using at least two theoretical methods (Separation Method, Replacement Method, or Flux Method) with hypothetical or real data.
  - (ii) Analyze the impact of labour turnover on the company's productivity and financial performance.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., *Cost Accounting*, Sultan Chand & Sons, New Delhi.
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8. Thulsian PC-*Practical Costing*, Vikas Publishing House, New Delhi.

## Wage Payment Systems

### Learning Outcomes

After completing this unit, the Learner will be able to;

- ◊ gain knowledge about different methods of wage payment
- ◊ calculate wages using different wage payment systems
- ◊ examine individual as well as group based incentive schemes
- ◊ comprehend the various non-monetary incentives

### Prerequisites

Imagine a small furniture manufacturing company called "Craft Works." The company has been in business for several years, but recently, they've noticed that while their workers are skilled, the productivity levels aren't quite as high as they should be. Sarah, the owner of the company begins to wonder if the compensation system could be the reason. In the meeting, John, the factory supervisor, suggests that the workers might be more motivated if they were paid based on how much they produce rather than the hours they work.

After some research, Sarah decides to introduce a piece-rate system, where workers will be paid a specific amount for every piece of furniture they produce. This, she believes, will encourage them to work faster and more efficiently. But she doesn't stop there - she also introduces an incentive plan. Every month, if the workers collectively meet a certain production target, they'll receive a bonus. This bonus will be shared equally among the team, rewarding collaboration and performance. The next month, something remarkable happens. Workers start working more efficiently, and the quality of the products improves.

Through this story of Sarah and CraftWorks, we see how different wage payment systems, can be powerful tools to drive productivity, motivation, and employee satisfaction. The right combination of compensation strategies ensures that both the company and its workers thrive together.

## Discussion

Wage payment systems and incentive plans are fundamental components of compensation strategies within organizations. These systems are designed to ensure that employees are compensated fairly for their work while also motivating them to enhance productivity, job satisfaction, and overall performance. A well-structured wage payment system and effective incentive plans not only foster a sense of fairness and security but also encourage employees to contribute more toward the organization's goals.

### 4.2.1 Systems of wage payment

Wage payment system is the way of giving financial compensation to the workers. There is no single method of wage payment which is acceptable to both the employers and the workers. The selection of correct method of wage payment will result into higher production, improved quality of output and a contented labour force. There are mainly two systems of wage payment:

- i. Payment on the basis of time spent on each work rather than the amount of work done. This method is known as Time rate system
- ii. Payment on the basis of the work done rather than the time taken by the worker. This method is called Piece Rate System.

In addition, there are number of incentive plans to induce workers to work hard.

### 4.2.2 Time Rate wage System

Under this method of wage payment, the worker is paid at an hourly, daily, weekly, or monthly basis. Thus, payment is made according to the time worked and not in accordance to the work done. There are five types of time rate system, each method is distinct in terms of fixation of the rate. They are as follows:

- i) Flat time rate or time rate at ordinary level
- ii) High day rate or time rate at high wage level
- iii) Measured day rate
- iv) Graduated time rate
- v) Differential time rate



### **i) Flat time rate or time rate at ordinary level**

It is the oldest method of wage payment. Under this method, workers are paid at a flat rate on the basis of time they are worked. The flat rate may be paid per hour, day week or month. The flat rate is usually fixed on the basis of the rate prevailing in similar trades in the same locality for the same grade and skill. The earnings of workers depend on the time they spend on work. This method is suitable for the types works listed as follows:

- i. Where highly skilled and apprentices are working
- ii. Where quality of goods produced is of extreme importance, Example, Artistic goods.
- iii. Where the speed of the work is beyond the control of the workers.
- iv. Where close supervision of work is possible.
- v. Where output cannot be measured

#### **Advantages**

- ◊ Time rate method is easy and simple to follow and
- ◊ The worker is assured of payment for the time spent by him.

But the method suffers from the following disadvantages

#### **Disadvantages**

- i. Workers are not motivated
- ii. Workers will get payment for idle time
- iii. Efficient workers will become inefficient in the long run as all of them get same wages
- iv. Strict supervision is necessary to get the work done
- v. Inefficiency results in upsetting the production schedule and increases the cost per unit
- vi. It will encourage a tendency among workers to go slow so as to earn overtime wages

Thus, this method does not establish a direct relationship between effort and reward and it will not result into increased production and reduction in labour cost per unit.

### **ii) High Day Rate or Time Rate at High Wage Level**

One of the limitations of the flat time rate is that it does not provide any incentive for efficient workers. This drawback is overcome by adopting high day rate which is usually higher than the average wage rate of the industry. The rate of wages is fixed by hour or day but the rate fixed is relatively higher. Higher rate is given to attract the efficient workers who can easily be motivated to achieve predetermined standards of efficiency which are relatively fixed at higher levels.

### iii) Measured Day Rate

The workers under this method are given a specified work to be performed and the rate is fixed in accordance with the level of performance specified by the employer. Higher rate is fixed for higher level of performance, so that it will provide incentives to efficient workers. But this method suffers from the limitation that there is no additional remuneration for any improvement in the level of performance initially fixed.

### iv) Graduated Time Rate

Under this method the rate of wages is linked up with the cost-of-living index. Thus, the rate per hour or day fixed initially goes on changing with the changes in the cost-of-living index. This method is liked by workers in a period of rising prices because they are suffered from the increase in the cost-of-living index. This method is preferred by employers when their products have an inelastic demand because rise in wages can be shifted to consumers through higher prices.

### v) Differential Time Rate

Under this method different rates of wages are fixed for different workers in the same group according to the changes in their personal skills and abilities. Higher rates are given to efficient workers as a recognition to their efficiency. Thus, workers are paid according to their merits and there is an incentive for improvement of performance.

#### 4.2.2.1 Computation wage payment under Time rate system

##### a) At Ordinary Levels

Wages = Hours worked  $\times$  Ordinary Rate per hour

##### b) At High Wage Level

- i) Wages = Hours worked  $\times$  Ordinary Rate per Hour (if the worker doesn't attain standard)
- ii) Wages = Hours worked  $\times$  Time rate of high wage level (if the worker attained standard)

##### c) Guaranteed Time Rate

Wages = Two-time rates. i.e., an element of fixed rate and element of variable rate

##### d) Differential time rate

Differential time rates are fixed for different levels of efficiency

#### 4.2.3 Piece Rate system

Under this system of wage payment, a fixed rate is paid for each unit produced, job completed or an operation performed. Thus, payment is made according to the quantity of work rather than the time spent by the workers on work. For example, a

worker is paid at the rate of Rs 10 per unit and produces 5 units during the day, he will get Rs. 50 (Units produced multiplied by rate per unit, i.e., 5 units @ Rs. 10 per unit). An equitable piece work rate should be fixed to give a motivation to workers to produce more. Equitable rates can be fixed with the help of time and motion study and job analysis. Different piece rates should be fixed for different types of jobs or operations after considering factors such as efforts involved while working on the jobs or operations, conditions under which jobs would be performed, risk involved etc.

There are four types of Piece Rate system, each one is distinct in terms of fixation of the piece rate is concerned. They are:

- i. Straight Piece Rate System
- ii. Taylors Differential Piece Rate System
- iii. Merrick's Multiple Piece Rate System
- iv. Gant's Task and Bonus Plan

#### **4.2.3.1 Methods of wage payment under piece rate system**

##### **i) Straight Piece Rate System**

It is the simplest method of payment in which payment is made according to the number of units produced at a fixed rate per unit. Another type of the straight piece rate method is a piece rate with guaranteed time rate in which the workers is guaranteed the time rate with an opportunity of getting piece wages if their earnings according to piece rate are more than his time wage earnings.

###### **a) Straight Piece Rate System**

Piece Wages = Number of Units  $\times$  Rate Per Unit

###### **b) Piece Rate with Guaranteed Time Rate**

Wages = minimum wages on the basis of the time rate + Piece wages for units above a required minimum

##### **Advantages**

- i. Workers are paid according to their merits because distinction is made between efficient and inefficient workers
- ii. An incentive is given to the workers to increase their production
- iii. Increased production will reduce fixed expenses per unit
- iv. Different from time wage system, piece rate system not paid for Idle time
- v. The employer is able to know his exact labour cost per unit which will help him in making quotations confidently
- vi. Workers use their tools and machinery with care.
- vii. Less supervision is required than time rate system.

## **Disadvantages**

- i. Difficult to fix a suitable piece work rate.
- ii. The quality of the output will suffer because workers will try to produce more to earn more wages,
- iii. There may not be an effective use of materials, due to the efforts of workers to increase the production
- iv. Increased production not always led to lower cost of production
- v. Increased production will not reduce the labour cost per unit because the same rate will be paid for all units
- vi. Workers have the fear of losing wages if they are not able to work due to some reason.
- vii. Workers may work for long hours to earn more wage; this may spoil their health.

### **ii) Taylor's Differential Piece Rate System**

This system was introduced by F W Taylor, the father of scientific management. The underlying principle of this system is to penalize a slow worker by paying him a low piece rate for low production and to reward an efficient worker by giving him a higher piece rate for a higher production. Taylor proceeded on an assumption that through time and motion study is possible to fix a standard time for doing a particular task. To encourage the workers to complete the work within the standard time, Taylor advocated two-piece rates, so that if the worker performs the work within or less than the standard time, he is paid a higher piece rate, and if he does not complete the work within the standard time, he is given a lower piece rate.

Thus, if the standard production has been fixed at 8 units per day of 8 hours, the higher piece rate for 8 units or beyond may be Re 1 per unit and the lower rate for an output if less than 8 units per day.

Hence Taylor offers high reward to those who would complete the work within or less than the standard time and low wages to those who would not complete the job within the standard time

#### **Illustration 4.2.1**

Calculate wages payable for workers A and B under Taylor's differential piece rate system. Standard production - 40 units per hour.

Simple time rate Rs. 400 per hour

Differential piece rate to be applied

75%-piece rate when below standard

125% of piece rate when produce above standard

The workers have produced in a day of 8 hours as A-300 units, B-420 units

### **Solution:**

Piece Rate = Time wages per hour/Standard unit per hour

$$= \frac{400}{40} = \text{Rs.10}$$

$$\text{Low piece rate} = 10 \times \frac{75}{100} = \text{Rs.7.5}$$

$$\text{High piece Rate} = 10 \times \frac{125}{100} = \text{Rs.12.5}$$

$$\text{Standard} = 40 \times 8 = 320$$

A-low piece rate is applied

$$\text{Unit} = 300$$

$$\text{Rate} = 300 \times 7.5 = \text{Rs.2250}$$

B-high piece rate is applied

$$\text{Unit} = 420$$

$$\text{Rate} = 420 \times 12.5 = \text{Rs.5250}$$

### **iii) Merrick's Multiple piece rate**

Under this method, three-piece rates are applied for workers with different levels of performance. Wages are paid in the following order:

Less than 83% of standard output - Basic piece rate (Normal Piece Rate).

Between 83% and 100% of the standard output - 110% of the ordinary piece rate.

More than 100 % of standard output -120% of the ordinary piece rate.

### **Advantages**

- i. It is simple to understand.
- ii. It is more acceptable to the workers.
- iii. It ensures guaranteed time wages to the worker who are performs below average workers
- iv. It makes distinction between efficient workers and inefficient workers.
- v. Fixed cost per unit decreases with increase in production due to incentive for efficiency given under this scheme of wage payment.

### **Disadvantages**

- i. It divides the workers into competing categories; one who earns the bonus and the other who does not earn the bonus.

- ii. The guaranteed time wages may not encourage efficiency if workers feel satisfied with the time wages.

#### 4.2.4 Incentive plans

Both time rate system and piece rate system have their advantages and disadvantages. Incentive plans attempt to combine the good points of both the systems.

The main purpose of an incentive plan is to motivate workers to produce more to earn a higher wage. Naturally, producing more in the same period of time should result in increased pay for the worker.

##### 4.2.4.1 Types of incentive Plans/Individual incentive schemes

###### 1. Premium and bonus plan

The objective of a premium plan is to increase the production by giving an incentive to the workers in the form of higher wages for less time worked. Under this plan, standard time is fixed for the completion of a specific job or operation. The worker is paid for the time taken by him to complete the job or operation at an hourly rate plus wages for a certain fraction of the time saved on the standard by way of a bonus. This wage payment system is in between the time wage system and piece work system.

The important premium plans are as follows

###### i. Halsey Premium Plan

This plan was developed by F.A.Halsey. This system is also termed as split Bonus plan or fifty-fifty plan. Under this method, standard time for doing each job or operation is fixed on the basis of past performance. The worker is given wages for the actual time he has taken to complete the job or operation at the agreed rate. If a worker completes his job within or more than the standard time then the worker is paid a guaranteed time wage. If a worker completes his job within or less than standard time, then he gets a bonus at 50% of the time saved plus normal earnings.

Under this method, the total earnings is calculated as follows ;

Total earnings = Guaranteed Time wages + bonus of 50% of time saved

Time saved = Standard time- Actual time

###### Illustration 4.2.2

Calculate earnings of a worker under Halsey Premium plan

Standard time - 48 hours

Actual time - 40 hours

Rate per hour- Rs.5

###### Solution

Earning = Time wages + (50% of time saved  $\times$  time rate)

Time saved = Standard time - Actual time

= 48-40 = 8 hours

$$\text{Earnings} = (40 \times 5) + \left(8 \times \frac{50}{100}\right) \times 5$$
$$= 200 + 4 \times 5 = \text{Rs. } 220$$

### Advantages

- i. It is simple to understand and relatively simple to operate.
- ii. It guarantees time wages to workers.
- iii. The wage of time saved are shared by both employers and workers, so it is helpful in reducing labour cost per unit.
- iv. It makes distinction between efficient and inefficient workers because it provides incentive to efficient workers
- v. Fixed overhead cost per unit is reduced with increase in production.

### Disadvantages

- i. Quality of the work suffers because workers are in a hurry to save more time to get more bonus.
- ii. Workers criticize this method on the ground that the employer gets a share of wages of the time saved.
- iii. Under this method establishment of standard is very difficult.

### iii) Halsey Weir plan

This method is similar to Halsey plan except that, in Halsey Weir plan the bonus is equal to 30% of the time saved instead of 50% of time saved under Halsey plan.

### iv) Rowan Plan

This Plan was introduced by James Rowan of England. Under this method, the worker is again guaranteed wages at the ordinary rate for the time taken by him to complete the job or operation. The difference between Halsey Premium plan and the Rowan Premium plan is only in the calculation of the bonus. Under the Halsey plan, bonus is a fixed percentage of the wages of the time saved whereas under the Rowan plan bonus is that proportion of the wages of the time taken which the time saved bears to the standard time allowed.

Earnings = (Time taken  $\times$  rate) + (Rate  $\times$  time taken)  $\times$  time saved/standard time

Thus, bonus under this plan is calculated as

$(S-T)/S \times T \times R$

And the total earning will be calculated as:

$$T \times R + (S-T)/S \times T \times R$$

Where  $T$  = time taken (Actual time)

$S$  = Standard time (Time allowed)

$R$  = Rate per hour

### Illustration: 4.2.3

Calculate the earnings of a worker from the following information:

- a) Time Rate method
- b) Piece Rate method
- c) Halsey plan
- d) Rowan Plan

#### Information given:

Standard time: 30 hours

Time taken: 20 hours

Hourly rate of wages Re. 1 per hour plus a dearness allowance @ 50 paise per hour worked

#### Solution:

- a) Earnings under Time rate Method

Wages for 20 hours (time taken) @ Re 1 per hour - Rs. 20

Dearness allowance for 20 hours @ 50 paise per hour -Rs 10

Earnings = Rs. 30

- b) Earnings under Halsey plan

Wages for 20 hours (actual hours worked) @ Re 1 per hour - Rs. 20 Bonus for the half of the time saved  $(S-T)/2 \times R$

$$= \frac{(30 - 20)}{2} \times \text{Re } 1 = \text{Rs. } 5$$

Dearness allowance for 20 hours @ 50 paise per hour -Rs 10

Earnings = Rs. 35

- c) Earnings under Rowan plan

Wages for 20 hours @ Re 1 per hour = Rs. 20

Bonus  $(S-T)/S \times T \times R$

$$= \frac{(30 - 20)}{30} \times 20 \times \text{Re } 1 = \text{Rs.6.67}$$

Dearness allowance for 20 hours @ 50 paise per hour = Rs 10

Earnings = Rs. 36.67

### Advantages

1. It provides guaranteed minimum wages to workers just like Halsey plan
2. It protects the employer against loose rate setting.
3. It provides higher bonus than under the Halsey plan, upto 50% of the time saved.
4. The worker is not induced to rush through the work under this method of wage payment. Because, if time saved is more than 50 % of the standard time, the bonus increases at decreasing rate.
5. It provides good incentive for comparatively slow workers and beginners.

### Disadvantages

1. Bonus calculation is complicated and may not be easily understood by workers.
2. In case of extra efficient workers, bonus is less than under Halsey Plan.

### ii) Gantt's task and bonus plan

According to Gantt's task and bonus plan, no bonus is payable to a worker whose efficiency is less than 100%. Under this plan, a worker is given a task to complete in a certain amount of time, and is paid a bonus for completing the task within the specified time and to the required standard of efficiency.

If the worker completes the task within the standard time, then his efficiency is 100% and in addition to the time wages, he is also paid a bonus of 20% on the wages earned. If the worker takes less than the standard time to complete a task, then his efficiency is more than 100%, and the wages are paid at high-piece rates.

#### Illustration 4.2.4

Calculate wages under Gantt's task plan

Time rate - Rs. 5 per hour

High task - 40 units per week

Piece rate above high task-Rs. 6.5 per unit

In a 40-hour week each of the following workers produced:

A - 35 units

B - 40 units

C - 41 units

D -52 units

**Solution:**

Wages:

$$A - \text{Time wages} = 40 \times 5 = 200$$

B - Time wages + 20% of time rate

$$= 40 \times 5 + 40 \times 5 \times 20/100$$

$$= 200 + 200 \times 20/100 = 240$$

C – high piece rate

$$= 40 \times 6.5 = 260$$

D = High piece rate

$$= 52 \times 6.5 = 338$$

**Emerson's Efficiency Plan**

This scheme is introduced for giving encouragement to the slow workers to perform better than past. Time wages are guaranteed. The standard output in this plan is fixed to represent 100% efficiency. A bonus paid to workers whose efficiency is more than 66%. The bonus is increased gradually in steps as efficiency increases. So that at 100% efficiency, bonus would rise to 20% of the wages. Beyond 100% the bonus increases at 1% of the basic rate for each one percent increase in efficiency.

Efficiency	Bonus
Below 66 $^{2/3}\%$	No Bonus
66 $^{2/3}\%$ to 100%	Bonus increases step by step and rises to 20 % at 100 % efficiency
Over 100%	20 % bonus plus 1 % for each increase of 1 % in efficiency

**Illustration 4.2.5**

Standard output in 8 hours = 64 units

Actual output in 8 hours = 72 units

Time rate = ₹3 per hour

Calculate the earnings under Emerson's plan.

**Solution:**

$$\text{Efficiency in \%} = 72/64 \times 100 = 112.5 \%$$

$$\text{Bonus \%} = 20\% + 12.5\%$$

$$= 32.5\%$$

$$\text{Time wages} = 8 \text{ hours} @ 3 = ₹24$$

$$\text{Add: bonus } 32.5\% \text{ of } 24 = ₹ 7.8$$

$$\text{Total earnings} = 24 + 7.8 = 31.8$$

In this example, if the actual output of the worker is upto 42.6 units. i.e.,  $66^{2/3}$  efficiency, he will not get any bonus and his wages will be simply time wages ie.,  $8 \times 3 = 24$ . The worker will get bonus if his output in 8 hours is more than 42.6 units. If he produces 64 unit, i.e., when his efficiency is 100%, his total earnings will be:

$$\text{Total earnings} = \text{Time wages} + \text{Bonus}$$

$$(8 \text{ hrs} \times 3) + 20\% = 24 + 4.8 = 28.8\%$$

### Advantages

- ◊ It guarantees minimum time wages
- ◊ It is easy to understand and simple to operate
- ◊ It provides an incentive to beginners

### Disadvantages

The incentive offered under this method is too inadequate to motivate efficient and ambitious workers.

#### 4.2.4.2 Team-based /collective incentive plan/ Group Bonus plan

The plans described above are all individual bonus plans. It is applicable to individual performance depending directly on Production. But several times the output of individuals cannot be measured individually. In certain cases, output of individual is dependent on the performance of the group. In such cases, rather than applying individual bonus systems, group bonus system is implemented. The total amount of bonus, which is determined according to productivity, can then be shared equally or in agreed proportion among the team members.

##### The main objectives of group bonus system are:

- (a) Creation of team spirit.
- (b) Elimination of excessive wastage of time and materials.
- (c) Recognition of group efforts.
- (d) Improving productivity.

Different Group Bonus Schemes or team based incentive schemes are as follows:

##### a. Budgeted Expenses Bonus plan:

Under this system, bonus is based on the savings in actual total expenditure compared with the budgeted expenditure.

**b. Cost Efficiency Bonus:**

Under this method, standards are set for expenses like material, labour and overheads. The actual expenditure against these standards is measured and if there is a savings in actual expenditure as compared to the standards, a portion of such savings is distributed as bonus amongst the workers in team.

**c. Priestman Bonus plan:**

In this plan standard performance is fixed by the management and committee of works. Production standards are set in units or points and actual production is compared with the standards. If the actual production exceeds the standard, the workers are paid additional wages equal to the percentage of output over standard. Naturally, no bonus is payable if actual production does not exceed the standard production. This method is mainly used in foundries.

**d. Towne's Gain Sharing Plan:**

In this method standards are set for costs [mainly labour cost] and the actual cost is compared with the standards. If there is a saving in the costs, the saving is shared by workers and supervisory staff in agreed proportion. The principle of this method is that if there is a saving in the cost, not only the workers but the supervisory staff should also get the reward because the cost reduction is the joint efforts of both. Hence both, workers and supervisors should share it.

**e. Waste Reduction Bonus:**

This system of bonus is based on savings in the material cost. If there is a saving in the material cost, the workers share the same in the agreed proportion. This system is generally implemented in industries where cost of material is very high.

**f. Rucker Plan:**

The amount of bonus is linked with 'value added' in this system. The 'value added' is obtained by deducting the cost of material and services from sales value. In other words, value added is the total of labour, overheads and profits. Under this plan, employees receive a constant proportion of value added. For example, if the target ratio of labour cost to value added is 70%, and the actual ratio comes to 68%, 2% of the actual value added is distributed as group bonus, so that the ratio of direct labour cost to value added is maintained at 70%. Normally instead of distributing the entire bonus, some proportion is distributed and the remaining is transferred to reserve fund.

**g. Scanlon Plan:**

This method is similar to the Rucker plan except that the ratio of labour cost to the sales is taken rather than direct labour cost to added value. Normally bonus is paid

based on average of last three years ratios. A part of the bonus may be transferred to bonus equalization fund for future use when the workers do not get bonus under this scheme.

## 4.2.5 Bonus System for Indirect Workers

Indirect workers not directly involved in the production process, but they play significant role in the production. So, it is difficult to choose a bonus system for indirect workers, as there is a difficulty in measuring their output. However, it is advisable to plan a bonus system for indirect workers in order to motivate them for enhanced productivity. Bonus to indirect workers is paid on the basis of output of the department, saving in time or expenditure against the budgeted, product quality, reduction of waste and scrap and reduction of labour turnover.

### 4.2.5.1 Indirect Monetary Incentives

Indirect schemes are regarded beneficial to both employers and workers in this regard, under indirect monetary incentives by giving them a share of profit and introducing ESOP or co-partnership scheme in the business to make a very profitable enterprise. These methods aim at giving additional remuneration based on the prosperity of the concern. The following schemes fall in this category:

#### a. Profit Sharing:

In this system, the profits of the organization are shared by workers in agreed proportion. The Payment of Bonus Act 1965 in India makes it mandatory to pay minimum bonus of 8.33% of salary and maximum bonus of 20% of salary to the workers.

#### b. Co-partnership:

Under this method, the workers get an opportunity to participate in the ownership of the organization and to receive the part of share of profits. The employees are given right to purchase shares (ESOP) of the company. Thus, the employees get dividend and bonus also. These schemes help to boost the morale of workers to a large extent.

## 4.2.6 Non-Monetary Incentives

These incentives are given in addition to monetary incentives for facilitating the moral of the employees. Though these benefits do not result in additional remuneration, they help to improve productivity by catalysing the morale of the employees. Some of the non-monetary incentives are listed below:

- (a) Free education and training.
- (b) Medical benefits.
- (c) Subsidized canteens.
- (d) Superannuation benefits like pensions, gratuity, life assurance schemes etc.
- (e) Sports and recreation facilities, housing facilities, long service awards.
- (f) Job security, promotion schemes.
- (g) Benevolent funds and welfare fund.

## Recap

- ◊ Piece Rate system is a system of wage payment in which fixed rate is paid for each unit produced.
- ◊ Time wage system is a method of wage payment where the worker is paid at an hourly, daily, weekly or monthly rate.
- ◊ Under premium and bonus plan, standard time is fixed for the completion of a specific job or operation.
- ◊ Under Halsey plan, worker is given wages for the actual time he has taken to complete the job or operation at the agreed rate per hour plus a bonus equal to one half of the wages of the time saved.
- ◊ In Rowan plan, the worker is again guaranteed wages at the ordinary rate for the time taken by him to complete the job or operation.
- ◊ Emerson's Efficiency Plan is introduced for giving encouragement to the slow workers to perform better than past.
- ◊ Team based incentive plans are applied in situations, where the output of individuals cannot be measured individually.
- ◊ A bonus system for indirect workers is planned in order to motivate them for enhanced productivity.
- ◊ Non-monetary incentives are given in addition to monetary incentives for facilitating the moral of the employees

## Objective Questions

1. The piece-rate system of wage payment is best suited for?
2. The "Halsey Premium Plan" is an example of?
3. State the main disadvantage of the piece-rate system?
4. The 'Taylor Differential Piece Rate System' involves?
5. In which payment system is the compensation based on the amount of work completed or the number of units produced.
6. Which wage system compensates employees for their time spent at work rather than their output or sales performance?
7. Which incentive plan provides employees with a fixed percentage of the profits made by the company?

8. In the Halsey Premium Plan, what percentage of the time saved is paid to the employee as a bonus?
9. In a team-based incentive plan, what determines the rewards given to employees?
10. Which system offers a higher pay rate to workers who exceed a specified standard output?

## Answers

1. Workers performing standardized tasks
2. A combination of time-rate and incentive system
3. It can lead to poor product quality.
4. Giving workers different rates based on their productivity.
5. Piece-rate system.
6. Time-based wage system
7. Profit-sharing plan'
8. 50% of the time saved.
9. The collective performance of the team.
10. Taylor Differential Piece Rate System

## Self-Assessment Questions

1. What is piece rate system?
2. What is time wage system?
3. What is the difference between a time-based wage system and a piece-rate system?
4. What are the advantages and disadvantages of the piece-rate system.
5. Describe the Halsey Premium Plan and how it combines aspects of both time-based and piece-rate systems?
6. Briefly Explain Emerson's Efficiency Plan?
7. What is Gantt's task and bonus plan.
8. Write a short note on bonus system for indirect workers?

9. What are non-monetary incentives?
10. Write a short essay on Group bonus schemes/ team based incentive schemes?

## Assignments

1. Select a company from any industry (e.g., retail, manufacturing, services) and investigate its wage payment system.
  - a. What wage payment method does the company use (e.g., time-based, piece-rate, commission-based, or a combination)?
  - b. How does this method impact employee productivity and morale?
  - c. Conduct a survey (or interview) with employees in the company to understand their perception of the current wage payment method.
2. Choose two companies in the same industry but with different wage payment systems (e.g., one using time-based pay, and the other using a piece-rate system).
  - a. Compare and contrast the advantages and disadvantages of both systems based on productivity, employee satisfaction, and financial performance.
  - b. Recommend which system might be more effective for each company and justify your reasoning.
3. Select a company that has switched from one wage payment system to another (e.g., from time- rate system pay to piece rate system or vice versa).
  - a) Analyze the reasons behind the change in the wage system. What challenges did the company face with the previous system?
  - b) Evaluate the impact of the new wage system on employee performance, productivity, and job satisfaction.
  - c) Assess the financial implications of the change for the company, including labor costs and profitability.
  - d) Based on your findings, recommend whether the new system is sustainable in the long run or if further modifications are needed.

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Overhead Accounting

# Unit 1

## Accounting for Overhead

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ get an awareness on the classification of overheads
- ◊ get an idea on the segregation of overheads
- ◊ learn the different methods used for the segregation of semi variable cost

### Prerequisites

Imagine you're running a small shop that sells handmade candles. When you make each candle, you have direct costs, like wax, wicks, and scents – things that go directly into each candle. But you also have other expenses that aren't tied to any one candle but keep the shop running. These include things like rent, electricity, and packaging supplies. These expenses are called overheads. Even though they don't go into making of each candle, they are essential for your shop to operate.

There are different types of overheads. Fixed overheads stay the same each month, like rent. Variable overheads change based on how much you use, like electricity. Semi-variable overheads include things like part-time help, where some of the cost is fixed, but extra hours might be needed for busier times.

To make sure your business is sustainable, you need to account for overheads when setting the price of each candle. For instance, if your monthly overheads are Rs.1,000 and you make 500 candles each month, you could allocate Rs. 2 of overhead to each candle. By adding this to the direct costs, you ensure that each sale helps cover both the visible and

hidden expenses of running your shop. This way, you can set fair prices, cover all costs, and keep your business running smoothly. Overhead costs and accounting for overheads are discussed in this unit.

## Keywords

Over heads, Segregation of semi-variable costs, Scatter diagram method, High and Low points method

## Discussion

### 5.1.1 Introduction

Overheads are business costs that are related to the day-to-day running of the business. Unlike operating expenses, overheads cannot be traced to a specific cost unit or business activity. Instead they support the overall revenue-generating activities of the business. For example,

My G, an electronic retail company pays a premium rent for its business in a central location in a metro city to run a modern showroom, this premium rent is one of the overhead cost of the business. A business must pay its overhead costs on an ongoing basis, regardless of whether its products are selling or not. Simply, overheads are sum of all indirect expenses i.e.

$$\text{Overheads} = \text{Indirect material} + \text{Indirect labour} + \text{Indirect expenses}$$

### 5.1.2 Accounting for overheads

Normally a major portion of the total cost is overhead cost. In order to control the total cost, it is necessary to account and control the overheads. For accounting and control purpose, it can conveniently be classified into the following two parts.

1. Classification, codification and collection of overheads
2. Allocation, Apportionment and absorption of overheads

### 5.1.3 Classification of overheads

Broadly, the overhead costs may be classified on the basis of

- a. Elements

- b. Functions
- c. Behaviour
- d. Controllability

### 5.1.3.1 Element wise classification

This classification is based on the nature and source of expenses. This method follows logically from the definition of overhead costs. Accordingly, the total indirect expenses are divided into

- a. Indirect material
- b. Indirect labour
- c. Indirect expenses

#### a. Indirect materials

Materials which do not form part of production directly are known as indirect material. They cannot be allocated or apportioned to a particular cost centre /cost unit. For eg: stores used in the factory such as cotton waste, lubricants, small tools etc.

#### b. Indirect wages

Wages paid to any worker other than those engaged in the production activities is called indirect wages. Indirect wages are those which cannot be allocated but which are to be apportioned to or absorbed by cost centre or cost unit. For eg: wages paid to supervisors, cleaners, salary paid to office staff etc.

#### c. Indirect expenses

Indirect expenses are those, which cannot be allocated but can apportioned to cost centre. For eg: rent and rates, power and fuel, lighting and heating, telephone expenses etc.

### 5.1.3.2 Function wise classification

This classification is on the basis of the function of the business such as production, administration, selling and distribution over heads.

#### ◊ Production/ Factory overhead

The indirect expenses incurred in the factory is clubbed under the head production overhead. It includes all the indirect material, indirect labour and indirect factory expenses. Indirect expenses incurred in the factory or production department is known as factory overhead. It includes all the indirect expenses from the procurement of material to the completion of manufacture but excludes all the expenses relating to the administration, selling and distribution department. The following are some of the examples. Rent, taxes of local authority, depreciation insurance etc. of factory building,

factory lighting, heating and air conditioning, fuel and power.

#### ◊ **Office and Administration overhead**

These overheads are of general nature and consist of all costs incurred in the direction, control and administration of an undertaking, which are not related directly to production or selling and distribution function. Account and audit office expense, Office salaries, Postage and telegram, Legal expenses and incidental expenses etc, General administration, depreciation, insurance, rent, repairs of the office building and equipment and all related expenses.

#### ◊ **Selling and Distribution over head**

The expenses relating to the creation and stimulation of demand for the products and services and to obtain and maintain demand for the products is termed as selling overheads. It includes advertisement, market research and analysis, bad debts and provisions, salaries and commission of sales people. Sales office expenses such as postage and stationary, salaries of sales manager and office staff, sales promotion expenses and related expenses

#### ◊ **Distribution overhead**

The expense relating to the upkeep of finished goods and delivery of goods to customers or to the point of sale fall under this category and includes expenses relating to the packing of materials, carriage outwards and related transport expenses, maintenance, depreciation and repairs of delivery vans and vehicles, all kinds of warehouse expenses including salary of staff, depreciation, insurance and maintenance of warehouse and related expenses, wastage of finished goods and obsolete stock.

### **5.1.3.3 Classification According to behaviour**

This classification of overhead is based on the behaviour or variability of expenses. Here the entire expenses are categorised under the following heads.

1. Variable overhead
2. Semi variable overhead
3. Fixed overhead

#### **Variable overhead**

The variable overheads vary in accordance with the increase or decrease in output/ production. It increases in direct proportion to increase or decrease in production. cost. The examples are indirect material, indirect labour, fuel and power, lightning and heating, overtime tools and stores expenses etc. The total amount of variable overhead expenditure changes in direct proportion to the volume of output, but the cost per unit remains constant or the same.

#### **Semi variable overhead**

The semi variable overhead as the name suggest is partly fixed and partly variable. Generally no costs are truly fixed or truly variable. The semi variable overhead are also

known as semi fixed costs. There is hardly any difference between these two terms. Eg: Telephone charge.

### **Fixed overhead**

The fixed overheads are those which remain constant irrespective of the level of production or period of time. It is not at all affected by variation in output. The fixed costs therefore is also known as period cost. The examples are rent and taxes of the factory building, Insurance charges of plant, machinery, buildings etc. depreciation of building, machines etc where depreciation is based on passage of time.

#### **5.1.3.4 Classification According to Controllability**

Here, the overheads are divided into controllable and uncontrollable costs

Controllable costs are those which can be controlled by some executive actions / by the specified member of the department /organisation. On the other hand, those costs which cannot be controlled through executive action or the action by a specified member of the organisation. For eg; loss by fire, flood, unexpected breakdown of machinery etc.

### **5.1.4 Need for classification of overhead into fixed and variable**

The classification of overhead cost into fixed and variable cost is pertinent for managerial decision making. This division has manifold advantages. They are

#### **1. Fixation of selling price**

The distinction between fixed and variable cost is helpful for the determination of the pricing policy of the concern. The pricing policy is dependent on so many factors. The selling price for the same product may be different in different occasions. However, the lowest selling price of a product is fixed in such a way to cover the prime cost plus variable overheads. The fixed overhead may not be considered in such situations. It may be recovered when the sale price is very high in some favourable situations/ markets. If the selling price of the product is not sufficient to cover the variable cost, it is better not to sell the products in such markets. Similarly, when in times of depression it is better to sell the products at a selling price below the total cost, provided the selling price is more than variable cost. In this way, we can recover a part of fixed cost and thereby minimise the loss.

#### **2. Helpful in Budgetary control**

This classification of expenses is very useful in budgeting. Flexible budgets for various levels of activities can be prepared with the help of this classification, which helps the management in understanding the behaviour of costs.

#### **3. Effective cost control**

The division between fixed and variable cost is very useful for control purpose. As a matter of fact there is no chance to control the occurrence of fixed cost. But through

joint action we can control the variable cost to the minimum.

#### **4. Helpful in management decisions**

For a pertinent management decision regarding any key issue the segregation between fixed and variable cost assumes greater significance such as fixation of selling price in times of depression, for exploring the foreign market, make or buy decisions and a host of other decisions too.

#### **5. Marginal cost and Cost-Volume Profit analysis**

For the application of marginal costing system and break even analysis, the division between fixed and variable cost is very important. It enables the ascertainment of marginal cost, i.e. the cost which can be avoided if a unit of output is given up. It helps in determining the levels of output where all the expenses can be met.

#### **6. For the absorption of overheads**

For the effective recovery of various overhead costs from the cost of production/ selling price, the determination of overhead rate is very important. The division between fixed and variable cost is useful for this purpose. Thus from the above it is clear that the classification of costs into fixed and variable is highly useful for the managerial decision making and for all practical purposes.

### **5.1.5 Segregation of semi-variable costs**

The main purpose of classifying overhead costs into fixed and variable cost is to help the management in decision making and control of expenditure. As such, the semi variable costs may pose some problems and thus the cost accountant must split them into fixed and variable components. In other words, the extent to which an item of semi-fixed or semi-variable cost is fixed or variable has to be determined. The following methods are used for this purpose.

#### **1. High and Low points method**

This approach considers the difference in total cost between two different volumes, and divides the incremental cost by the volume. Under this method, semi variable costs at various level of output are considered. The difference between the highest and lowest volume of output and the difference between the corresponding costs are worked out. Then the variable element per unit of output is calculated by applying the formula.

Variable element per unit = Difference in semi variable costs / Difference in output

#### **Illustration 5.1.1**

Month	Output	Semi-variable cost
January	60	2100
February	40	1600
March	180	1800

April	100	2400
May	240	5000
June	110	2100

### Solution

Highest production is 240 units in May and lowest is 40 units in February

	Output	Semi variable cost
May	240	5000
February	40	1600
Difference	200	3400

Variable element per unit =  $3400 / 200 = 17$  per unit

Variable element in February =  $40 \times 17 = 680$

Fixed element in February = Semi variable cost – variable cost

$$= 1600 - 680 = 920$$

Thus, out of total semi variable cost of Rs. 1600 in February, fixed element is Rs 920 and variable element Rs. 680

In this way fixed and variable contents in semi variable cost can be calculated for each of the six months.

### 2. Method of Averages

Under this method, data given is divided in to two parts. It may be divided in to two. If the data given is for odd months the middle month is ignored. Then average of output and costs is then calculated by the following method;

Variable element per unit = difference in the average costs / difference in average output

### 3. Scatter – Graph method

This is a graphic method. Under this method, the semi variable costs incurred at levels of output are plotted on a graph, the x - axis of which represents the volume of production and y axis, the amount of expenditure. After plotting the points on the graph, a straight line is drawn in such a way as to represent an average of all those points. This is known as the line of best fit or line of regression. The point where this line of best fit interacts the x - axis marks the fixed cost. A line from this point is drawn which is parallel to x axis. This is fixed cost line. The difference between semi-variable cost line and fixed cost line represents variable components.

The scatter –graph is a simple device requiring no complicated formula or calculation. It shows a cost behaviour pattern graphically is easily understood. As a graph it does

not possess a high degree of accuracy. It has within itself a measure of reliability. The important drawback is fitting the trend line by observation introduces a personal bias which can be removed only by fitting the trend line mathematically.

#### 4. Simultaneous equation method

In this method, overhead costs are segregated by means of an equation .thus equation for a straight line is

$$Y = mX + c$$

Y= Total semi variable costs

X = volume of output

C = fixed cost

M= slope of variable cost line i.e., variable costs per unit of output

For the purpose of separating fixed and variable components of the cost, the overhead cost is determined at various levels of output and pairs of values of X and Y are fitted in the above formula in order to compute the values of m and c.

### Recap

- ◊ Element wise classification refers to classification based on the nature of expense.
- ◊ Indirect material refers to materials which do not directly form part of production .
- ◊ Indirect expenses are those expenses which cannot be allocated but can be apportioned to cost centre.
- ◊ Indirect expenses incurred in the factory or production department are referred to as Factory overheads.
- ◊ Office and Administration overhead are costs incurred in the direction, control and administration.
- ◊ Distribution overhead refers to the expense relating to the upkeep of finished goods and delivery of goods to customers or to the point of sale.
- ◊ The variable overheads vary in accordance with the increase or decrease in output/ production.
- ◊ In High and Low point's method, semi variable costs at various level of output are considered

- ◊ Scatter diagram method is a graphic method
- ◊ In Simultaneous equation method, overhead costs are segregated by means of an equation

## Objective Questions

1. What does element-wise classification of expenses refer to?
2. What type of material is considered as indirect material?
3. What type of expenses cannot be traced directly to a specific product?
4. Which type of overhead relates to the upkeep of finished goods and delivery to the customer?
5. What category typically includes costs related to office and administration overheads?
6. Which type of costs does the High and Low Points method help to analyze?
7. What does factory overhead include?
8. What are selling overheads primarily associated with?

## Answers

1. The classification based on the nature and source of the expense
2. Material that does not form part of production directly
3. Indirect expenses
4. Distribution overhead
5. General costs
6. Semi-variable
7. Indirect material, labour, and indirect factory expenses
8. Creation and stimulation of demand for products and services

## Self-Assessment Questions

1. Explain how this classification helps in cost control and decision-making.
2. What is factory overhead and what types of costs are included under this category?
3. Discuss the role of factory overheads in the overall cost structure of manufacturing.
4. What is the significance of segregating semi-variable costs in cost accounting?
5. Provide a step-by-step process of how this method works using a sample problem.
6. Describe how the Scatter Diagram method can be used to segregate semi-variable costs.
7. Explain the graphical approach and how to analyse the data to separate fixed and variable components.

## Assignments

1. Discuss how overheads impact the pricing and profitability of a product. Provide real-world examples from any industry.
2. Provide a detailed list of all costs considered factory overheads, including indirect materials, indirect labour, and other indirect expense
3. List the typical expenses included under office and administration overheads, and describe their impact on the overall cost structure.
4. Identify common difficulties faced by businesses when separating fixed and variable portions of semi-variable costs. Provide examples and solutions.
5. Given a set of data on semi-variable costs at different levels of production, use the High and Low Points method to determine the fixed and variable portions.
6. Discuss how segregating fixed and variable overheads helps in cost control and decision-making.

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# Unit

## Allocation, Apportionment and Absorption of Overheads

### Learning Outcomes

After completing this unit, the Learner will be able to;

- ◊ get an awareness on the cost allocation of overheads
- ◊ get an insight on the cost apportionment of overheads
- ◊ learn the re-apportionment of service department cost to production departments
- ◊ distinguish between under absorption of overheads and under absorption of overhead

### Prerequisites

Imagine you are a new trainee at a small company that makes handmade candles. Your supervisor, asks you to find out how much it costs to make each candle. You start by adding up the costs of wax, wicks, and essential oils. But then, you wonder how to include other expenses like electricity for the factory, rent, or the salary of the person managing orders. These general costs help make all the candles, so how can you divide them up for each product? You need to learn about allocation, apportionment, and absorption of overheads.

First, think of each department as having its own costs, like wax melting, scenting, and packaging. Some costs, like electricity just for melting wax, go directly to the wax department. This is called allocation. But other costs, like rent or security, benefit all departments. To handle these “shared costs,” you need to split them among departments - a process called apportionment. For example, you might divide the costs based on area size if departments use different amounts of space, or by the number of employees in each department.

Finally, you need to absorb these costs into each candle. The total costs assigned to each department must be spread over each candle they make. For instance, if the wax department's costs are Rs. 1,000 per month and they produce 2,000 candles, each candle "absorbs" Rs 0.50 of wax department costs. This process helps you know the true cost of each candle. In this unit allocation, apportionment and absorption of overheads can be discussed.

## Keywords

Allocation, Apportionment, Absorption

## Discussion

### 5.2.1 Introduction

When all the items are collected under the suitable heads, the next step is the collection and apportionment of such expenses to cost centres/cost units. This is technically called departmentalisation or primary distribution of overhead cost. For the smooth running of the organisation as well as for administrative convenience a factory is divided into various sub department such as repairs department, tools department, cash department, costing department etc. While organising such department the following factors shall be taken into account.

### 5.2.2 Departmentalization

Departmentalization of overheads is the process of dividing and assigning indirect costs to specific departments or cost centres within an organization. This approach allows for a clearer analysis of expenses per department, enabling more accurate tracking of costs and ensuring that each department is accountable for its overhead expenses.

Objectives of departmentalisation

- ◊ Ensure greater accuracy in cost ascertainment
- ◊ Control of overhead costs
- ◊ Use of different methods of absorption
- ◊ Valuation of work in progress
- ◊ Cost of service departments
- ◊ Forecasting and estimating
- ◊ Allocation of overheads

### 5.2.3 Cost Allocation

When items of cost are identifiable directly with some products or departments such costs are charged to cost centres. This process is known as cost allocation. Thus allocation may be defined as the assignment of whole items of cost directly to a cost centre. In other words, allocation is charging to a cost centre those overheads that result solely from the existence of that cost centre. A point to be clearly understood is that allocation can be made only when exact amount of overheads incurred in a cost centre is definitely known. Indirect material on the other hand can be easily allocated to various departments in which they are incurred. Other items which are allocated include indirect wages, overtime and idle time cost, power, depreciation machinery, supervision etc.

Cost of allocation calls for two basic factors;

- Concerned department/Product should have caused the cost to be incurred.
- Exact amount of cost should be computable

### 5.2.4 Cost Apportionment

Cost apportionment is the allotment of proportion of items to cost centres. When items of cost cannot directly charge to or accurately identifiable with any cost centres, they are prorated or distributed amongst the cost centres on some predetermined basis. If it is not possible to charge the overheads to a particular cost centre or cost unit, they are to be apportioned to various departments on some suitable basis. This process is called as Apportionment of overheads.

#### 5.2.4.1 Principles of apportionment

For the apportionment of overheads, we have to follow some principle/basis

##### 1. Service /benefit method

The service or use principle in apportionment allocates overhead expenses based on the actual service received or the extent of use by different departments, products, or cost centres. This method ensures that each unit bears a fair share of costs, depending on how much they benefit from shared resources or services. For example, if departments share utilities like electricity or administrative services, these overheads are distributed according to measurable usage, such as hours of service or energy consumption. The aim is to achieve accurate cost distribution and maintain equity in cost allocation, leading to better financial control and decision-making.

##### 2. Ability to pay method

Under this method the overhead cost is apportioned on the basis of sales capacity /profitability of such department. In overhead cost distribution, those departments which have the largest income may be charged with the largest amount of overheads. This method is generally considered inequitable because it penalise the efficient and profitable departments to the advantage of inefficient ones.

### 3. Survey method

Under this method the overhead cost is apportioned on the basis of a survey among various departments to determine the share of overhead for eg: the lighting charges can be share on the basis of number of light points

### 4. Efficiency method

Here the overhead charge is apportioned on the basis of efficiency of each department. It is fixed on the basis of target for each department and those department achieve the standard target within the conditions stipulated that department is considered efficient and vice versa

#### 5.2.4.2 Basis for apportionment

Suitable bases have to be found out for apportioning the items of overhead to the production and service and then for reapportionment service department cost to other service departments and production departments. The basis adopted should be such by which the expense being apportioned must be measurable by the basis adopted and there must be proper correlation between the expenses and the basis. The common expenses are apportioned on the basis of equitable methods and is known as primary distribution. The following are the main method of apportionment

Basis of apportionment and overheads ---at a glance

Basis of apportionment	Overheads
<ul style="list-style-type: none"><li>1. Direct labour /machine hours</li><li>2. Value of material</li><li>3. Direct wages</li><li>4. No. of workers</li><li>5. Relative areas</li><li>6. Light points</li><li>7. Capital values</li><li>8. Number of female employees</li><li>9. Technical estimates</li></ul>	<ul style="list-style-type: none"><li>1. General overhead</li><li>2. Material handling expenses</li><li>3. Worker's insurance, contribution to provident fund, workers compensation, and fringe benefits etc.</li><li>4. Canteen expenses, welfare and recreation expenses ,time keeping etc</li><li>5. Rent, rate and taxes on building, air conditioning, lighting expenses etc.</li><li>6. Lighting expenses</li><li>7. Depreciation of plant and machinery, repairs and maintenance etc.</li><li>8. Crèche expenses</li><li>9. Works manager's salary, internal transport ,steam, water etc.</li></ul>

## 5.2.5 Re-Appportionment of Service Department Cost to Production Departments

After having the primary distribution of overhead costs the next step in the overhead accounting is the reapportionment of service department cost to the production department or the cost centres where production is going on. This process is technically known as “secondary distribution”. The following table shows the items of expenses and basis for apportionment

Service department cost	Basis of apportionment
1. Maintenance department	1. Hours worked for each department
2. Pay roll or time keeping	2. Total labour hours / machine hours / number of employees in each department
3. Employment or personnel department	3. Rate of labour turnover or number of employees in each department
4. Store keeping department	4. No. of stores requisitions or value of materials to each department
5. Purchase department	5. No. of purchase orders or value of materials to each department
6. Welfare, recreation, ambulance canteen service etc.	6. No. of employees in each department
7. Building service department	7. Relative area in each department
8. Internal transport cost /overhead crane service	8. Weight, value graded product handled or distance travelled
9. Transport department	9. Crane/ truck hours, truck mileage/ tonnage, no. of packages
10. Power house (electric power cost)	10. Wattage, horse power, machine hours, no. of electric points etc.
11. Power house	11. Floor area, cubic content

### Apportionment of Service Departments Overheads

1. Apportionment to production departments only
2. Apportionment to production and other departments

### Apportionment to production departments only

In this case, cost of each service department is apportioned only to production departments without apportioning it to other service departments.

### Illustration 5.2.1

The following data were obtained from the books of S.R. Engineering Company for the half year ended 30 September 2012. Prepare a departmental distribution summary.

Particulars	Production departments			Service departments	
	A	B	C	X	Y
Direct wages	7000	6000	5000	1000	1000
Direct material	3000	2500	2000	1500	1000
Employees no.	400	300	300	100	100
Electricity	8000	6000	6000	2000	3000
Light points no.	10	15	15	5	5
Asset values	50000	30000	20000	10000	10000
Area occupied	800	600	600	200	200
KWH	16	12	12	4	6

The overheads for 6 months were as under

Stores overhead	400	Depreciation		6000
Motive power	1500	Repairs and maintenance		1200
Electric lighting	200	General over heads		10000
Labour welfare	3000	Rent and taxes		600

Apportion the expenses of department X in the ratio of 4:3:3 and that of department Y in proportion to direct wages, to departments A, B and C respectively

### Solution 5.2.1

Item	Basis of apportionment	Total	Production department			Service department	
			A	B	C	X	Y
Direct wages	Actual	2000	-	-	-	1000	1000
Direct material	Actual	2500	-	-	-	1500	1000
Stores overhead	Direct material	400	120	100	80	60	40
Motive power	kWh	1500	480	360	360	120	180
Lighting	No of points	200	40	60	60	20	20
Labour welfare	No of employees	3000	1000	750	750	250	250
Depreciation	Asset value	6000	2500	1500	1000	500	500
Repairs and maintenance	Asset value	1200	500	300	200	100	100
General overheads	Direct wages	10000	3500	3000	2500	500	500
Rent and taxes	Area occupied	600	200	150	150	50	50
Total		27400	8340	6220	5100	4100	3640
Department X	4:3:3(Given)		1640	1230	1230	(-)4100	
Department Y	Direct wages(7:6:5)		1416	1213	1011		(-)3640
Total		27400	11396	8663	7341	-	-

Direct wages and indirect materials of service departments are indirect costs

### 5.2.5 Apportionment to production and other departments

Quite often, a service department renders services not only to production department but also to other service departments. For example, maintenance department looks after

not only the plant and machinery of production department but also the equipment of other service departments like power house, material handling, etc. similarly, power house supplies electricity not only to production departments but also to service departments. This type of inter service department apportionment may be either on reciprocal basis or non-reciprocal basis.

#### ◊ **Apportionments on non-reciprocal basis (Step ladder method)**

The non-reciprocal basis for apportioning overheads is a method where service department costs are allocated to production departments without recognizing the mutual exchange of services between the service departments. The step ladder method is often used for this, where service departments are ranked based on the extent of services they provide to other departments. The department that offers the most support is ranked first, and its costs are allocated to all other departments. Once its costs are fully apportioned, it no longer receives any allocations. The next-ranked department's costs are then allocated in the same way, and this process continues stepwise until all service department costs are distributed. This method simplifies overhead allocation by ignoring reciprocal relationships between service departments but provides more accuracy than the direct method, which disregards inter-departmental support entirely. It ensures a practical, structured way to allocate overheads, aiding in accurate product costing and internal performance assessments.

#### ◊ **Reciprocal Service Method**

With a view to avoid the limitations of step method, the reciprocal method is developed. The reciprocal method recognises the fact that if a given department receives service from another department, the department receiving such service should be charged. If there are two service departments provides services to each other, each department should be charged for the cost of service rendered by the other. There are three methods available for dealing with the inter departmental service transfer

#### ◊ **Simultaneous Equation Method**

Under this method, the true cost of the service departments are ascertained first with the help of simultaneous equation: these are then redistributed to production department on the basis of a given percentage. It is well clear from the following illustration

#### ◊ **Repeated distribution method**

As the name suggest under this method the service department cost are distributed to production department according to an agreed percentage until it become zero or relatively smaller amount.

Following steps are taken to apportion the service department cost

1. The costs of the first service department are apportioned in the normal way according to the given percentages. This will close the account of the first service department.

2. Then apply the given percentages for the apportionment of second service department costs which include their own costs plus amount apportioned from the first service department. This closes the account of the second service department but reopens the account of the first service departments.
3. The same procedure should be followed in the case of all other service departments. This completes the first cycle of apportionment.
4. The procedure should be repeated starting with the first service department whose total now consists only of amounts apportioned from other service departments. In this way, service department costs keep on reducing with each cycle of distributions because each time, a substantial amount is charged to the production departments.
5. This process is continued until the amounts involved become insignificant.

### Illustration 5.2.3

A company has three production departments and two service departments. Distribution summary of overhead is as follows

Production department		Service departments	
A	3000	X	234
B	2000	Y	3000
C	1000		

The expenses of service departments are charged on a percentage basis which is as follows

	A	B	C	X	Y
1	20%	40%	30%	-	10%
2	40%	20%	20%	20%	-

Find out the total overheads of production departments using the following method

1. Simultaneous equation method
2. Repeated distribution method

### Solution 5.2.3

1. Simultaneous equations method

Let X denotes total overheads of service department 1

Y denotes total overheads of service department 2

Therefore,

To solve the equations, re arrange these and multiply by 10 to eliminate decimals.

$$10x - 2y = 2340 \dots\dots\dots (1)$$

$$-x + 10y = 3000 \dots \dots \dots (2)$$

Multiplying second equation by 10 and adding

$$\begin{array}{r}
 10x - 2y = 2340 \\
 -10x + 100y = 30000 \\
 \hline
 98y = 32340
 \end{array}$$

$$Y = 32340/98$$

Y=330; and X =300

## Secondary distribution summary

	Total	Production department		
		A	B	C
Total as per primary summary	6000	3000	2000	1000
Service departments 1 (90% of 300)	270	60	120	90
Service departments 2 (80% of 330)	264	132	66	66
<b>Total</b>	<b>6534</b>	<b>3192</b>	<b>2186</b>	<b>1156</b>

## 2. Repeated distribution method

Items	Production departments			Service departments	
	A	B	C	X	Y
Total as per primary Summary	3000	2000	1000	234	300
Service dept 1	47	94	70	-234	23
Service dept 2	129	65	65	64	-323

Service dept 1	14	25	19	-64	6
Service dept 2	2	2	2	-	-
Total	3192	2186	1156	-	-

### Trial and error method

The trial and error method is a common approach used in the apportionment of reciprocal basis, a process of allocating costs among interrelated departments or divisions. In this method, an initial allocation is made based on estimated costs, and then the resulting figures are recalculated. By comparing the allocated costs to the actual costs, adjustments are made until a satisfactory level of convergence is achieved. This process involves multiple rounds of calculations, making it time-consuming and potentially prone to human error. However, it can be effective in situations where the interdependencies between departments are complex and difficult to quantify using other methods.

### Cost Absorption

Cost absorption is a method in cost accounting where all the costs associated with the production of a product or service are allocated and assigned to that product or service. This includes both direct costs and indirect costs or overheads. The aim of overhead Accounting is to absorb them in the product units produced by the firm. The Indirect costs or overhead will have to be distributed over the final product so that the charge is complete. This process is called cost absorption or Absorption of overheads.

## 5.2.6 Methods of Absorption of Manufacturing or Factory Overhead

The important methods of absorption of overhead are listed below.

### Direct material cost percentage rate

Under this method the amount of overheads to be absorbed by a cost unit is determined by the cost of direct materials consumed in producing it. This rate is computed by dividing the total overheads by the total cost of direct materials consumed in the department

$$\text{Overhead rate} = \frac{\text{Production overhead}}{\text{direct material}} \times 100$$

### Advantages

The main advantages of this method are

1. Calculation of this rate is simple because cost of direct material is readily available and no additional records are required to be maintained for this purpose

2. This method produces fairly accurate rates where material price do not fluctuate widely and where output is uniform that is only one type of article is produced using the same raw material.

### Disadvantages

Disadvantages of this method are

1. Material prices are often subjective to considerable fluctuations which are not accompanied by similar changes in overheads. This causes misleading results.
2. This method does not distinguish between work done by machines and manual labour and also between work done by skilled and unskilled workers.

### Direct labour cost percentage rate

The overhead rate under this method is computed by dividing the production overheads by the direct labour cost.

$$\text{Overhead rate} = \frac{\text{Production overheads}}{\text{Direct labour cost}} \times 100$$

### Advantages

The main advantages of this method are

1. It gives stable results as labour rates are far more constant than material prices.
2. This method is simple and easy to use as all the data required are easily available without keeping any extra records.

### Disadvantages

This method suffers from the following defects

1. When workers are paid on piece basis, inaccuracies are likely to creep in due to the time factor not being given full consideration. The question of overtime also disturbs the position because higher rates are payable for overtime.
2. It also does not distinguish between production of hand workers and that of machine workers. Machines give rise to certain overheads like depreciation, power etc, which should be charged only to the work done on machines.

### Prime cost percentage rate

This method is based on the premise that both materials and labour give a rise to factory overheads and the thus the total of the two ie. Prime cost should be taken as the base for absorption of factory overheads. In a way, this is a combination of the material cost and labour cost method. Overhead cost in this method is calculated by dividing the production by Prime cost

$$\text{Overhead rate} = \frac{\text{Production overheads}}{\text{Prime cost}} \times 100$$

### Direct labour hour rate method

This is rate per hour and not a percentage rate. It is obtained by dividing the total production overheads by the total number of direct labour hours for the period.

$$\text{Overhead rate} = \frac{\text{Production overheads}}{\text{Direct labour hours}}$$

### Machine power rate

Machine hour rate is the overhead cost of running a machine for one hour. This rate is obtained by dividing the amount of factory overheads apportioned to a machine by the number of machine hours for the period and conservation

### Rate per unit of output

It is the simplest of all the methods. This rate is determined by dividing the total overheads of a department by the number of units produced.

$$\text{Overhead rate} = \frac{\text{Amount of overheads}}{\text{Number of units}}$$

## 5.2.7 Under-absorption of overheads

Under-absorption of overheads occurs when the overheads allocated to products or services are less than the actual overhead costs incurred. This discrepancy usually arises due to inaccurate budgeting, where the estimated production volume or activity levels used to set overhead rates are lower than actual values. Under-absorption may lead to significant implications, as it reflects that the business is not fully covering its costs through its pricing and allocation methods, potentially affecting profitability.

Common causes include an unexpected increase in fixed or variable costs, lower-than-expected production output, or inefficient operational processes. When overheads are under-absorbed, companies may need to adjust future budgets, reassess costing methods, or improve operational efficiencies. Addressing under-absorption requires revising the overhead allocation basis to ensure it more accurately reflects actual costs, thereby aiding in better pricing decisions and cost control. Failure to manage under-absorbed overheads can distort profit margins, mislead management on financial performance, and hinder strategic decision-making.

## 5.2.8 Over-absorption of overheads

Over-absorption of overheads occurs when the overhead costs allocated to products or services exceed the actual overheads incurred. This situation typically arises when actual production volumes are higher than anticipated or when overheads are budgeted conservatively. Over-absorption suggests that the cost assigned to each unit is inflated relative to actual expenses, which can lead to products being priced higher than necessary, potentially affecting competitiveness. Common causes of over-absorption include more efficient operations, higher-than-expected production output, or reduced overhead expenses. For example, if a company budgets overhead costs based on a lower activity level but achieves higher production due to increased demand, the allocated

overheads per unit will be higher than actual costs.

While over-absorption might seem beneficial, as it could indicate cost savings, it can misrepresent financial performance and lead to inaccurate decision-making. Businesses should monitor and adjust their overhead absorption rates to reflect actual costs more closely. By aligning the overhead absorption with actual costs, companies can set more accurate prices, maintain competitive advantage, and achieve better financial planning and control.

## Recap

- ◊ Departmentalization of overheads refers to the process of dividing and assigning indirect costs to specific departments.
- ◊ Allotment of costs to departments is referred to as allocation.
- ◊ Cost apportionment refers to the allotment of a part of overheads to cost centre or units.
- ◊ Apportionment to production departments only-cost of each service department is apportioned only to production departments
- ◊ In Simultaneous Equation Method, the true cost of the service departments are ascertained with the help of simultaneous equation.
- ◊ Trial and error method involves multiple rounds of calculations.
- ◊ Direct labour hour rate is obtained by dividing the total production overheads by the total number of direct labour hours for the period.
- ◊ Under-absorption of overheads -the overheads allocated to products or services are less than the actual overhead costs incurred.
- ◊ Over-absorption of overheads -the overhead costs allocated to products or services exceed the actual overheads incurred.

## Objective Questions

1. What is departmentalization of overheads?
2. What is the process of assigning overheads directly to a specific department or cost center called?
3. What does cost apportionment refer to?
4. What is the method of apportioning service department costs to production departments without recognizing mutual service exchanges known as?
5. What happens when allocated overheads are less than the actual overheads incurred?

6. What does over-absorption of overheads mean?
7. What is the rate per unit called when allocating overheads based on machine time?
8. Which method of overhead distribution takes mutual services between service departments into account?

## Answers

1. Dividing and assigning indirect costs to specific departments
2. Allocation
3. Distributing a part of overheads to different cost centres or units
4. Non-reciprocal basis
5. Under-absorption
6. Overheads allocated exceed actual overheads incurred
7. Machine hour rate
8. Reciprocal basis

## Self-Assessment Questions

1. What is departmentalization of overheads, and why is it important in cost accounting?
2. How does the allotment of costs to departments differ from cost apportionment?
3. Define cost apportionment and explain how it differs from cost allocation.
4. Describe the process of apportioning costs to production departments only. Why are service departments excluded in this step?
5. Explain the simultaneous equation method for overhead allocation. What is its primary purpose?
6. How is the trial and error method used in allocating overhead costs to service departments?
7. What is the direct labour hour rate, and how is it calculated?
8. Describe under-absorption of overheads and its potential impact on product cost and profitability.

9. What is over-absorption of overheads, and how can it affect the financial reporting of a company?
10. Differentiate between allocation and apportionment of overheads with an example.

## Assignments

1. Explain the process of departmentalizing overheads, including the criteria for selecting cost centers. Provide an example scenario and discuss the advantages and challenges of departmentalization in cost control.
2. Research and discuss various cost apportionment techniques and their significance. Create an apportionment schedule for a manufacturing firm with multiple cost centres and demonstrate the steps involved.
3. Develop a case study illustrating the apportionment of service department costs to production departments only. Explain how this method impacts the total production cost and discuss its pros and cons.
4. Prepare a step-by-step guide on using the trial and error method to allocate costs between interdependent service departments. Compare its accuracy and efficiency with the simultaneous equation method.
5. Write a practical assignment that requires students to calculate the direct labour hour rate using hypothetical data for a manufacturing firm. Explain its importance in cost absorption and decision-making.
6. Investigate the causes and consequences of under-absorption of overheads. Design a set of strategies that a company could implement to minimize under-absorption in future periods.
7. Develop a report analysing the impact of over-absorption of overheads on pricing, financial statements, and decision-making. Include a discussion on how it may lead to misleading profit margins.
8. Conduct a comparative analysis of the simultaneous equation method and the trial and error method for overhead allocation. Assess each method's suitability for different types of organizations, and provide recommendations based on specific scenarios.

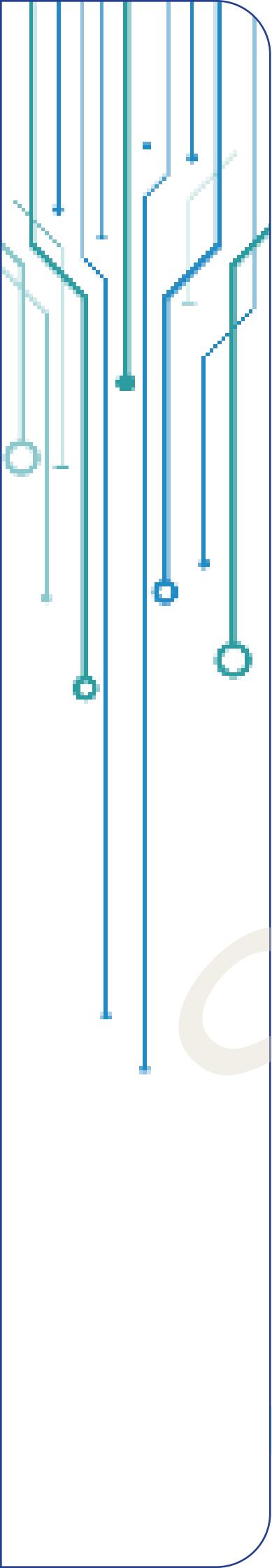
## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
2. Iyengar, S. P., *Cost Accounting*, Sultan Chand & Sons, New Delhi.
3. Maheswari, S.N., *Advanced Cost Accounting*, Sultan Chand & Sons, New Delhi.
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8. Thulsian PC-*Practical Costing*, Vikas Publishing House, New Delhi



6  
BLOCK

# Cost Sheet and Reconciliation Statement



# Unit 1

## Cost Sheet

### Learning Outcomes

After completing this unit, the learner will be able to;

- ◊ get an idea on the objectives of Cost sheet
- ◊ comprehend the preparation of Cost Sheet
- ◊ distinguish between Prime cost and Works cost
- ◊ grasp an awareness on the Cost of production, Cost of sales, Profit

### Prerequisites

Imagine you are running a small artisan furniture workshop. Every day, you and your team craft tables, chairs, and shelves by hand, working with raw materials like wood, nails, and varnish. You know how much you pay for these materials, as well as the wages for the skilled artisans, but have you ever wondered what each piece of furniture truly costs to produce? To find out, you need to know more than just the price of wood or labour; you need a cost sheet to capture all aspects of production costs. But before you dive into cost sheet preparation, it is essential to grasp a few key concepts that lay the foundation.

Start with prime cost, which is the sum of all direct costs - like wood, nails, and artisan wages - directly involved in making each product. This is your starting point, the core of your expenses. Next comes works cost or factory cost, which includes both the prime cost and any additional costs incurred at the production site, like electricity for power tools, workshop rent, and maintenance. As the furniture moves through production to sales, you will also want to understand the cost of production, which includes both factory costs and

administrative expenses. From here, consider the cost of sales, which encompasses all expenses incurred to get the product to the customer, such as packaging, marketing, and delivery fees. Finally, the profit is the reward for all your efforts, representing the difference between your sales revenue and the cost of sales.

With a grasp of these stages, you are ready to create a cost sheet that breaks down expenses from raw materials to the final sale. This document will not only guide pricing decisions but also highlight areas for cost savings, giving you a complete picture of what it takes to keep your workshop profitable.

## Keywords

Cost sheet, Prime cost, Works cost, Cost of production, Cost of sales

## Discussion

### 6.1.1 Introduction

A cost sheet is a comprehensive statement that provides detailed information about the costs involved in producing a product or offering a service. It typically includes a breakdown of all expenses incurred, segmented into different categories like direct materials, direct labour, and overheads. Direct materials are the raw materials used directly in the production process, while direct labour refers to wages for employees directly involved in manufacturing. Overheads encompass indirect costs, such as utilities, rent, and administrative expenses, that support production but are not directly tied to any specific product unit.

The purpose of a cost sheet is to help businesses calculate the total production cost, monitor cost fluctuations, and set competitive pricing strategies. By clearly listing costs, businesses can identify areas for cost control, optimize resource allocation, and enhance profitability. Cost sheets can be used to prepare budgets, forecast future expenses, and evaluate the cost efficiency of various processes. Often prepared on a monthly or quarterly basis, cost sheets also facilitate comparison with historical data, aiding in performance analysis.

In addition to internal use, cost sheets can also be shared with stakeholders or investors to demonstrate transparency in cost management. For managerial accounting, they are a vital tool, helping in decision-making and strategic planning by highlighting areas where operational efficiency can be improved, thus contributing to overall business success.

## 6.1.2 Objectives of Cost sheet

The cost sheet is an essential tool in cost accounting, used by businesses to track and analyze the costs associated with producing goods or providing services. A well-prepared cost sheet provides a detailed breakdown of all expenses incurred in the production process, from raw materials to labour and overhead. Below are the primary objectives of a cost sheet, which help businesses to improve efficiency, control costs, and enhance profitability:

### 1. Determining Total Cost of Production

One of the primary objectives of a cost sheet is to determine the total cost of producing a specific product or service. This calculation includes both direct and indirect costs, such as raw materials, labour, and overheads. By accurately calculating these costs, businesses can establish a baseline for understanding how much it costs to produce each unit of their product, which is essential for setting a reasonable and competitive selling price.

### 2. Setting Competitive Prices

Cost sheets enable businesses to set competitive prices by providing a clear view of production costs. By knowing the exact cost of manufacturing a product, companies can add their desired profit margin to set a competitive price in the market. This process helps ensure that prices are not only attractive to customers but also generate enough revenue to cover costs and produce a profit. Understanding cost structure allows companies to make strategic pricing decisions, such as offering discounts or modifying prices in response to market changes.

### 3. Budgeting and Cost Control

The cost sheet acts as a vital budgeting tool by laying out a detailed summary of all production costs, which helps businesses allocate resources more effectively. This information enables management to identify areas where costs are higher than anticipated and take corrective action to control or reduce expenses. By comparing actual costs with budgeted figures, companies can quickly identify cost variances, enabling proactive cost control measures and improved budget adherence.

### 4. Enhancing Decision-Making

Accurate cost data from a cost sheet supports better decision-making at various levels of management. It provides valuable insights into the cost structure of products, which aids in decisions related to product pricing, discontinuation, or scaling up production. By analyzing the data in a cost sheet, businesses can also make informed decisions about outsourcing, selecting suppliers, and optimizing production processes.

### 5. Supporting Profitability Analysis

A cost sheet is instrumental in conducting profitability analysis, helping businesses

to assess how profitable their products are after accounting for all production costs. By comparing revenue with the cost of production, management can determine the profit margin for each product. This analysis is critical in identifying products that may need further cost optimization or those that should be prioritized due to their higher profitability. Ultimately, this supports the company's goal of maximizing overall profitability.

## 6. Facilitating Inventory Valuation

The cost sheet also aids in accurate inventory valuation, which is essential for financial reporting and tax purposes. By tracking and categorizing all production costs, businesses can assign appropriate costs to the finished goods inventory. This ensures that the valuation of inventory on the balance sheet is accurate, reflecting the true value of unsold products, which is necessary for determining profit and for compliance with accounting standards.

## 7. Promoting Transparency and Accountability

A cost sheet promotes transparency and accountability by providing a comprehensive breakdown of all production costs. This detailed documentation allows different departments, such as production, finance, and procurement, to see where resources are being allocated and how costs are distributed. Transparency in cost data fosters a culture of accountability, where every department understands its role in controlling costs and contributing to the company's financial health.

### SPECIMEN FORM OF COST SHEET OR STATEMENT OF COST

Particulars	Total Cost	Cost per unit
Direct Material	XXX	XX
Direct Labour	XXX	XX
Direct Expenses	XXX	XX
<b>Prime cost</b>	<b>XXX</b>	<b>XX</b>
<i>Add</i> Works overhead	XXX	XX
<b>Works Cost</b>	<b>XXX</b>	<b>XX</b>
<i>Add</i> Administration Overhead	XXX	XX
<b>Cost of Production</b>	<b>XXX</b>	<b>XX</b>
<i>Add</i> Selling and Distribution Overheads	XXX	XX
<b>Total Cost or Cost of Sales</b>	<b>XXXXX</b>	<b>XXX</b>

### Illustration 6.1.1

The following information has been obtained from the records of Modern works Ltd for the year ending 31<sup>st</sup> March 2020. During which 100 units are produced and all the units are sold at the rate of 3000 per unit.

Opening stock of raw material	18,000
Closing stock of raw material	21,000
Material purchased	1,62,000
Carriage on purchases	3,000
Depreciation of plant	6,000

Repairs to plant	2,000
Factory rent and insurance	7,000
Indirect material	11,000
Indirect labour (factory overhead)	9,000
Direct labour	28,000
Depreciation on furniture	3,000
Printing and stationary	1,500
Office salary and allowance	14,500
Warehouse rent	2,400
Advertising	2,000
Salesman salary and commission	2,600

Prepare a cost sheet showing

- Prime cost
- Works cost
- Cost of production
- Cost of sales
- Profit

### Solution 6.1.1

#### a. Prime cost

Particulars	Amount (₹)
Direct Material Consumed	
Opening Stock of Raw Material	18,000
Add: Material Purchased	1,62,000
Add: Carriage on Purchases	3,000
Less: Closing Stock of Raw Material	21,000
Total Direct Material Consumed	1,62,000
Direct Labour	28,000
Prime Cost	1,90,000

#### b. Works cost

Particulars	Amount (₹)
Prime Cost	1,90,000
Add: Factory Overheads	
Depreciation of Plant	6,000
Repairs to Plant	2,000
Factory Rent and Insurance	7,000
Indirect Material	11,000
Indirect Labor	9,000
<b>Total Factory Overheads</b>	<b>35,000</b>
<b>Works Cost</b>	<b>2,25,000</b>

#### c. Cost of production

Particulars	Amount (₹)
Works Cost	2,25,000
Add: Office Overheads	
Depreciation on Furniture	3,000

Printing and Stationary	1,500
Office Salary and Allowance	14,500
<b>Total Office Overheads</b>	19,000
<b>Cost of Production</b>	2,44,000

**d. Cost of sales**

Particulars	Amount (₹)
<b>Cost of Production</b>	2,44,000
Add: Selling & Distribution Overheads	
Warehouse Rent	2,400
Advertising	2,000
Salesman Salary and Commission	2,600
<b>Total Selling &amp; Distribution Overheads</b>	7,000
<b>Cost of Sales</b>	2,51,000

**e. Profit**

Particulars	Amount (₹)
Sales Revenue	3,00,000
Less: Cost of Sales	2,51,000
<b>Profit</b>	<b>49,000</b>

**Illustration 6.1.2**

Calculate Prime cost, Factory cost, Cost of Production, Cost of sales and profit from the following particulars.

	Rs		Rs
Direct materials	50,000	Depreciation:	
Direct wages	12,500	Factory plant	250
Direct expenses	2,500	Office premises	625
Wages of foreman	1,250	Consumable stores	1,250
Electric power	250	Manager's salary	2,500
Lighting; Factory	1,250	Director's fees	625
Office	250	Office stationary	250
Store keeper's wages	500	Telephone charges	75
Oil and water	250	Postages and telegram	125
Rent: Factory	2,500	Salesmen's salaries	625
Office	1,250	Travelling expenses	250
Repairs and renewals:		Advertising	625
Factory plant	1,750	Warehouse charges	250
Office premises	250	Sales	94,700
Carriage outward	250	Income tax	5,000
Transfer to reserve	500	Dividend	1,000
Discount on shares written off	250		

### Solution

Cost Component	Particulars	Amount (Rs)
Prime Cost	Direct materials	50000
	Direct wages	12500
	Direct expenses	2500
<b>Prime Cost</b>		<b>65000</b>
<i>Add factory overheads</i>	Wages of foreman	1250
	Electric power	250
	Lighting (Factory)	1250
	Store keeper's wages	500
	Oil and water	250

	Rent (Factory)	2500
	Repairs and renewals (Factory plant)	1750
	Depreciation (Factory plant)	250
	Consumable stores	1250
<b>Factory Cost</b>		<b>74250</b>
<i>Add Administration overheads</i>		
	Rent (Office)	1250
	Lighting (Office)	250
	Repairs and renewals (Office premises)	250
	Depreciation (Office premises)	625
	Manager's salary	2500
	Director's fees	625
	Office stationary	250
	Telephone charges	75
	Postages and telegram	125
<b>Cost of Production</b>		<b>80200</b>
	Salesmen's salaries	625
	Travelling expenses	250
	Advertising	625
	Warehouse charges	250
	Carriage outward	250
<b>Cost of Sales</b>		<b>82200</b>
<b>Sales</b>		<b>94700</b>
<b>Profit</b>	<b>Sales - Cost of Sales</b>	<b>12500</b>

## Recap

- ◊ Cost sheets arrive at the cost per unit of a product by dividing the total cost by total units produced.
- ◊ A cost sheet is a comprehensive statement that provides detailed cost information.
- ◊ Direct materials refer to raw materials that are used directly in the production process.
- ◊ Direct labour refers to wages paid to employees who are directly involved in the production process.
- ◊ Overheads refers to indirect costs, such as utilities, rent, and administrative expenses.
- ◊ Cost sheet help businesses calculate the total production cost, monitor cost fluctuations, and set competitive pricing strategies
- ◊ Cost sheets help to prepare budgets, forecast future expenses, and evaluate the cost efficiency of various processes
- ◊ Cost sheet presents a detailed breakdown of all expenses incurred in the production process, from raw materials to labour and overhead.
- ◊  $\text{Prime Cost} = \text{Direct Materials} + \text{Direct Labour} + \text{Direct Expenses}$
- ◊  $\text{Factory Cost} = \text{Prime Cost} + \text{Factory Overheads}$

## Objective Questions

1. What is a cost sheet primarily used for?
2. The sum of direct materials, direct labour, and direct expenses is known as:
3. Overheads in a cost sheet typically include:
4. What is the formula to determine the cost per unit?
5. Which cost is added to Prime Cost to calculate Factory Cost?
6. The wages paid to factory supervisors are classified under:
7. The cost incurred to sell and deliver a product to customers is known as:
8. What is added to the Factory Cost to arrive at the Cost of Production?
9. The final total in a cost sheet, after all expenses, is referred to as:

## Answers

1. Calculate total production cost and cost per unit
2. Prime Cost
3. Indirect costs like rent, utilities, and administration
4. Total Cost / Total Units Produced
5. Factory overheads
6. Indirect labour
7. Selling and Distribution Cost
8. Administrative overheads
9. Cost of Sales

## Self-Assessment Questions

1. Explain the concept of a cost sheet and discuss its primary purpose in manufacturing. How does it help in determining the cost per unit of a product?
2. What are direct materials and why are they considered a crucial component of a cost sheet? Describe the process of tracking direct materials costs and their impact on total production costs.
3. Define direct labour and discuss its importance in production cost calculation. How does direct labour differ from indirect labour, and why is this distinction essential on a cost sheet?
4. Explain the concept of overheads in a cost sheet. Provide examples of typical overhead costs and discuss how they support the production process despite not being directly tied to a specific product unit.
5. Discuss how a cost sheet assists businesses in setting competitive pricing strategies. What are the benefits of knowing the detailed breakdown of production costs when setting prices?
6. Explain the role of a cost sheet in monitoring cost fluctuations. How can businesses use cost sheets to analyse changes in direct and indirect costs over time and respond strategically?

## Assignments

1. Prepare a detailed cost sheet for a hypothetical or real manufacturing company. Include all components, such as direct materials, direct labour, overheads, and calculate the Prime and Factory Cost.
2. Choose a company or create a hypothetical case study where cost sheets are used to control production costs. Identify the specific areas where costs can be reduced and how these reductions impact the overall budget and pricing strategies.
3. Create a budgeting and forecasting model for a company using cost sheets. Include projected costs for direct materials, labour, and overheads, and develop a financial forecast based on different production scenarios.
4. Analyse how cost sheets assist businesses in setting prices for new products. Discuss the role of cost sheets in evaluating market competition, production costs, and target profit margins.
5. Prepare a cost sheet for a service-based company (e.g., consulting, transportation, healthcare) and compare it with cost sheets for manufacturing firms. Identify the unique cost components for service-based businesses.

## Suggested Readings

1. Jain, S.P., & Narang, K.L., *Advanced Cost Accounting*, Kalyani Publishers, New Delhi.
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8. Thulsian PC-*Practical Costing*, Vikas Publishing House, New Delhi

# Reconciliation of Cost and Financial Accounts

## Learning Outcomes

After completing this unit, the Learner will be able to;

- ◊ get an awareness on the meaning and need for reconciliation of cost accounts and financial accounts
- ◊ explain the reasons for difference in profit or loss as per cost and financial accounts
- ◊ understand the method of preparing a reconciliation statement or a memorandum reconciliation account

## Prerequisites

Let's imagine Arun, a small business owner who runs a café. He has two types of records he needs to manage: Cost Accounts and Financial Accounts. The Cost Accounts track every expense related to producing the café's goods - such as the cost of coffee beans, milk, sugar, and labour. These records also include overhead costs like electricity bills and rent, directly linked to making the café's products. On the other hand, Arun's Financial Accounts focus on the overall financial health of his business. They track all revenues (like customer payments) and expenses (such as the salaries of staff and utility bills) without distinguishing between costs incurred in production and general operational expenses. Initially, these records are kept separately because the cost accounts provide detailed information for pricing and profitability, while the financial accounts are used to prepare the business's financial statements, including the profit and loss statement, and for tax purposes.

However, Arun begins noticing discrepancies between these two records. For example, his cost accounts show higher

expenses for the month due to an inventory loss from spoilage, while his financial accounts show a smaller figure. The difference in these accounts occurs because the financial records only reflect the amount spent, not the wastage, and the cost accounts have not yet included the amount received from a recent equipment sale. This is where Reconciliation of Cost and Financial Accounts becomes important. By reconciling these accounts, Arun ensures that his financial statements reflect the true cost of production and the actual profit his café has earned. He compares both sets of accounts, making necessary adjustments for missing or incorrect entries, such as the accounting for inventory adjustments or fixed asset sales. For instance, if his cost accounts show an inflated expense for raw materials but his financial accounts haven't recorded the sale of a piece of equipment, he will make the necessary adjustments to balance the two. Reconciliation helps Arun get a clear picture of both his café's profitability from an operational standpoint and his business's financial position. This process is crucial for accurate financial reporting, effective decision-making, and ensuring tax compliance. By reconciling the two accounts, Arun can confidently move forward with making informed decisions about pricing, cost control, and future investments.

## Keywords

Reconciliation statement, Memorandum reconciliation statement

## Discussion

### 6.2.1 Need for reconciliation

As we noted earlier cost accounting is distinct branch of accounting with concrete principles for its practical application. It is quite natural that certain organizations may follow both financial accounting and cost accounting system for all practical accounting purposes. In such situations it is quite natural that the cost accounting system restricts itself to record only to those product or service being provided. Thus, eventually it will lead to the recording of certain items with different amounts. Similarly, their chances to omit certain items from recording.

Thus, if a concern maintains both cost and financial accounts and records all transactions with same figures, the profit disclosed by one account may differ from the other. Thus, it attracts the attention for reconciliation between both accounts. Thus, in short, the following are the reasons for reconciliation.

1. To find out the reasons for the difference between the profit or loss as disclosed by cost and financial accounts. It also ensures that no income or expenditure item has been omitted and that there is no under or over recovery of overheads.

2. To ensure mathematical accuracy and authenticity and reliability in the cost figures for the purpose of cost ascertainment, cost control and to have a check on its accuracy on financial accounts.
3. To contribute for the standardization of policies regarding stock valuation, depreciation, and overheads.
4. To facilitate coordination and promote better cooperation between various departments.

## 6.2.2 Reasons for difference in profit

There may be a host of reasons for the disagreement for the profit as disclosed by cost and financial accounts

### 6.2.2.1 Items shown only in financial accounts

There are lot of items expenditure and incomes which are included in the financial accounts but have no place in the costs accounts which are exclusively financial in nature.

#### a) Purely financial charges

1. Loss from sale of assets
2. Loss from sale of investments
3. Discount on shares
4. Interest on bank loan, mortgages, and debentures
5. Expenses in connection with issue of shares
6. Penalties and fines
7. Losses due to demolition of machineries
8. Excess of remuneration paid to the proprietor in addition to the normal one prevailing in the industry.

#### b. Appropriation of profit:

1. the appropriations made by the firm such as
2. payment of dividend,
3. dividend and commission received transfer to reserves
4. payment of taxes
5. Provision for depreciation and any other type of appropriations.

#### c. Writing off of intangible and fictitious assets

The amortization process also considered as a common reason for difference in profit, such as



1. writing off goodwill
2. patent right
3. preliminary expenses
4. Discount on issue of shares and debentures etc.

#### **d. Purely financial incomes**

Certain incomes, which are purely financial in nature, also lead to disagreement in profit such as

1. Rent receivable
2. Profit on sale of fixed assets
3. Transfer fees received
4. Dividend and commission received etc.

#### **6.2.2.2 Items shown only in cost accounts**

A notable reason for the difference in cost and financial accounts may be due to the treatment of certain items which appear only on cost accounts.

1. Notional rent i.e., charge in lieu of rent when premises are owned and no rent is payable.
2. Interest on capital employed but not actually paid, i.e. the notional cost of employing capital
3. Notional salaries
4. Depreciation on fully depreciated assets still in use

#### **6.2.2.3 Under absorption and over absorption of overhead**

Another important reason for the difference in both the accounts is due to the difference in the treatment of overhead cost. Normally in cost accounts the overhead cost are absorbed as fixed percentage or as an estimation of certain items such as direct material, direct labour etc. but in reality this amount may be lesser or higher than the actual. Thus there may be a considerable difference in both the accounts.

#### **6.2.2.4 Difference in stock valuation**

The method of valuation of stock is also a notable reason for the difference in cost and financial accounts. In financial accounts the stocks are valued on the strict adherence of accounting principle i.e. Cost or markets price whichever is less. But whereas in case of cost accounting it is valued on the basis of method of issue of stock such as FIFO or LIFO or NIFO as the case may be. Thus, it leads to a major difference in the both the accounts.

### 6.2.2.5 Different methods of charging depreciation

The method of charging depreciation is yet another cause for the difference in both the accounts. For example, the straight-line method or diminishing balance method is followed in financial accounting (as per the provision of companies act) whereas in cost accounting machine hour rate production hour or unit method is used.

### 6.2.3 Method of Reconciliation

The reconciliation between cost and financial accounts can be made either by using the following methods.

- i) Reconciliation statement
- ii) Memorandum reconciliation statement

#### 6.2.3.1 Reconciliation statement

In this case, profit from one set of books can be taken as a base profit and the items of difference are either added or deducted from it to arrive at the figure shown by the other set of books of accounts

1. Ascertain the points of difference between cost accounts and financial accounts.
2. Start with the profit as per cost accountants.
3. (a) Regarding items of expenses and losses:  
Add: Items over-charged in cost accounts  
Deduct: Items under charged in cost accounts
- (b) Regarding items of income and gains:  
Add: Items under-record for not recorded in cost accounts  
Deduct: Items over-recorded in cost accounts
- (c) Regarding valuation of stock:  
(1) Opening stock- Add: Amount of over- valuation in cost accounts  
Deduct: Amount of under-valuation in cost accounts  
(2) Closing stock- Add: Amount of under-valuation in cost accounts  
Deduct :Amount of over valuation in cost accounts
4. After making all the above additions and deductions in costing profit, the resulting figure shall be the profit as per financial books.

### Pro forma or Reconciliation Statement

		Rs	Rs
Add	Profit as per Cost Accounts		
	1. over – absorption of overheads		
	2. financial incomes not recorded in cost books		
	3. Items charged only in cost accounts (notional rent and interest on capital, etc)		
	4. over valuation of opening in cost books		
	5. under valuation of closing stock in cost books		
Less	1. under absorption of overheads		
	2. purely financial charges		
	3. under valuation of opening stock		
	4. over valuation of closing stock in cost books		
<b>Profit as per financial accounts</b>			

#### 6.2.3.2 Memorandum Reconciliation Accounts

Pro forma Memorandum Reconciliation Account			
To financial expenses		<i>BY profit as per cost accounts</i>	
“Discount		“Financial income:	
“Fines and penalties		“Rent	
“Bank interest		“Interest	
“Underwriters commission		“Dividend	
“Donations		“Profit on sale of asset	
“Goodwill written off		“Items charged in cost accounts	
“Under absorption of overheads		“Rent on own building	
“Over absorption of closing stock in cost accounts		“Interest on own building	
“Undercharge of depreciation in cost accounts		“Over absorption of overheads	
<b>Profit as per financial accounts</b>		“Under valuation of closing stock	
		“Over valuation of opening stock	
		“Over charge of depreciation	

Another method available for reconciliation between cost and financial accounts is to prepare a memorandum revaluation account. This is only a memorandum account and not form part of double entry system. Here the base profit is taken a base and items which need adjustment are either debited or credited as the case may be.

### Illustration 6.2.1

From the following figures prepare a reconciliation statement

Net profit as per financial books	63780
Net profit as per costing books	66760
Factory overheads under recovered in costing	5700
Administration overheads recovered in excess	4250
Depreciation charged in financial books	3660
Depreciation recovered in costing	3950
Interest received but not included in costing	450
Income tax provided in financial books	600
Bank interest credited in financial books	230
Stores adjustments (credited in financial books)	420
Depreciation of stock charged in financial accounts	860
Dividends appropriate in financial accounts	1200
Loss due to theft and pilferage provided only in financial books	260

### Solution 6.2.1

#### Reconciliation Statement

Profit as per costing book		66760
Add	Administration overheads recovered in excess	4250
	Depreciation recovered in costing (3950-3660)	290
	Interest received but not included in costing	450
	Bank interest credited in financial books	230

	Stores adjustments (credited in financial books)	420	5640
			72400
Less	Factory over heads under recovered in costing	5700	
	Income tax provided in financial books	600	
	Dividends appropriate in financial accounts	1200	
	Depreciation of stock charged in financial accounts	860	
	Loss due to theft and pilferage provided only in financial books	260	8620
<b>Profit as per financial books</b>			63780

### Illustration 6.2.2

The profit as per cost accounts is Rs150000.the following details are ascertained on comparison of cost and financial accounts

	Cost accounts (Rs)	Financial accounts (Rs)
(a) Opening stock		
Material	10000	15000
Finished goods	18000	16000
(b) Closing stock		
Materials	12000	13000
Finished goods	20000	17000
(c) Interest charged but not paid Rs 10000		
(d) Write off: Preliminary expenses Rs 500; Goodwill 1500		
(e) Dividend on unit trust of India received Rs 1000		
(f) Indirect expenses charged in financial accounts Rs 80000 but Rs 75500 recovered in cost accounts		

Find out the financial profit by preparing a memorandum reconciliation account.

### Solution 6.2.2

Memorandum Reconciliation Accounts

	Rs.		Rs.
Opening stock of material (undervalued cost accounts)	50000	Profit as per costs accounts	150000
Closing stock of finished goods (over valued in cost accounts)	3000	Opening stock of finished goods (over valued in cost accounts)	2000
Preliminary expense written off	500	Closing stock of materials (under valued in cost accounts)	1000
Goodwill written off	1500	Interest charged only in cost accounts	10000
Overheads under recovered	4500	Dividend received	1000
Profit as per financial accounts	149500		
	164000		164000

## Recap

- ◊ Reconciliation is done to find out the reasons for the difference between the profit and loss as disclosed by cost and financial accounts.
- ◊ Reconciliation helps to ensure mathematical accuracy and authenticity and reliability in the cost figures.
- ◊ Notional rent is the charge in lieu of rent when premises are owned and no rent is payable.
- ◊ In Reconciliation statement, profit from one set of books can be taken as a base profit
- ◊ Another method available for reconciliation between cost and financial accounts is to prepare Memorandum revaluation account.
- ◊ Memorandum revaluation account does not form part of double entry system

## Objective Questions

1. What is the main purpose of reconciliation between cost and financial accounts?
2. In which scenario is notional rent charged?
3. What does a memorandum revaluation account help with in reconciliation?
4. What is included in a reconciliation statement to adjust for differences in profits?
5. What does a reconciliation statement ensure?
6. What type of statement is prepared to reconcile cost accounts with financial accounts?
7. What is the primary reason for differences between profit in cost accounts and financial accounts?
8. What type of profit is adjusted to match the base profit in a reconciliation statement?

## Answers

1. To find reasons for differences in profit and loss
2. When premises are owned and no rent is payable
3. Reconciling cost and financial accounts
4. Non-operating income and expenses
5. Consistency between cost and financial accounts
6. Reconciliation statement
7. Inclusion of non-operating items in financial accounts
8. Net profit

## Self-Assessment Questions

1. Explain the process of reconciliation between cost accounts and financial accounts. Why might these accounts show different profit figures, and what are some common reasons for these discrepancies?
2. Analyze the role of notional rent in cost accounting. How does it help in cost control and decision-making, and what are the potential drawbacks of including hypothetical costs in accounts?
3. Evaluate the significance of a reconciliation statement. How does it help to improve financial accuracy and reliability in reporting? Discuss its role in managerial decisions and external reporting.
4. Describe the key components of a reconciliation statement. How are non-operating expenses, stock valuation differences, and overhead absorption typically handled in reconciliation?
5. Discuss the purpose of a memorandum revaluation account. How does it assist in adjusting stock values and maintaining accurate cost records? Explain how it differs from standard revaluation in financial accounting

## Assignments

1. Identify common causes of these discrepancies, such as stock valuation, overhead absorption, and treatment of non-operating items. Prepare a sample reconciliation statement to illustrate these differences.



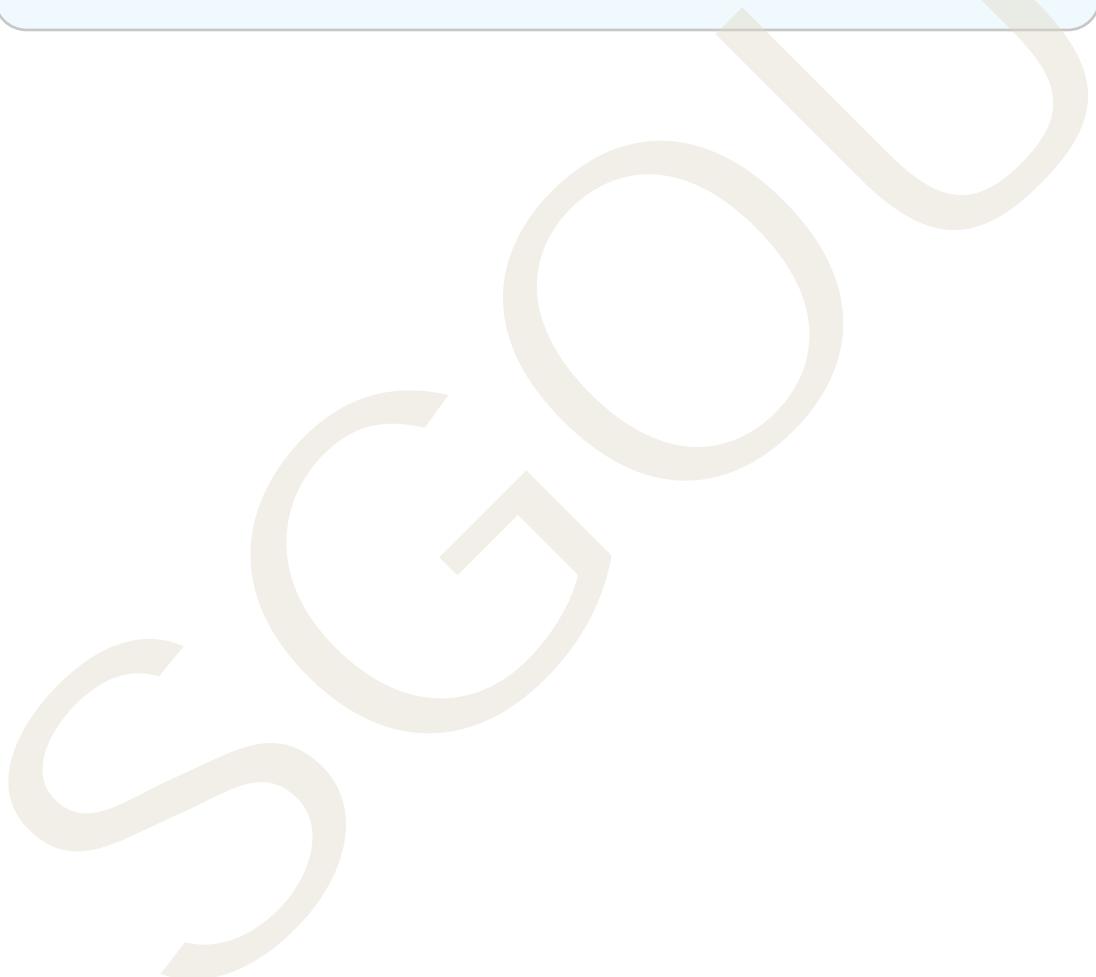
2. Discuss the importance of notional costs in reflecting the true cost of resources. Include examples and explore how these costs affect reconciliation. Provide arguments for and against the inclusion of such costs in cost accounting.
3. Explain the concept of a memorandum revaluation account and why it does not form part of the double-entry system. Provide examples of situations where it is used, and discuss its impact on reconciliation accuracy.
4. Research how manufacturing companies handle reconciliation between cost and financial accounts. Highlight industry-specific issues, such as direct vs. indirect costs and stock valuation, and propose recommendations for improving reconciliation accuracy.
5. Discuss how reconciliation supports managerial decision-making, financial transparency, and stakeholder confidence. Provide examples of how reconciled accounts impact budgeting, forecasting, and performance evaluation.

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Govt. Arts and Science College  
Meenchantha, Kozhikode,  
Kerala, Pin: 673002  
Ph: 04952920228  
email: rckdirector@sgou.ac.in

### Thalassery

Govt. Brennen College  
Dharmadam, Thalassery,  
Kannur, Pin: 670106  
Ph: 04902990494  
email: rctdirector@sgou.ac.in

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Sreenarayananaguru Open University

Kollam, Kerala Pin- 691601, email: info@sgou.ac.in, www.sgou.ac.in Ph: +91 474 2966841

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