

CA INTER

COST & MANAGEMENT ACCOUNTING

CONCEPT DECODER

ONE BOOK. EVERY CONCEPT. EXAM READY!

Crafted with
Creativity,
Designed for
Success!



**Covers 100% ICAI Concepts
(Theory included)**



CA GANESH BHARADWAJ

Concept Decoder

Welcome to this '**One of a Kind**' Concept Book on Cost & Management Accounting.

This book is your single source of Costing preparation as it is meticulously compiled to include all concepts, formulas & core theory areas distinctly — to ensure you have everything you need in one place. This will help you navigate through the subject with ease and help you decode all the concepts quickly. Hence the name 'Concept Decoder'

For the first time ever, I have incorporated a 'Doubt Busters" section where common doubts under respective concepts have been identified along with the possible solution to address it with a distinct colour background to boost your score. The best part is that I have personally improvised the presentation & structuring of the entire subject to enhance your learning experience, making it easy for you to crack your exams. This innovative approach will help you collate concepts faster and practice efficiently.

Study smarter, stay ahead, and ace your exams with confidence.
Remember, a perfect 100/100 in Costing is soon a reality for you.

With Best Wishes,
CA Ganesh Bharadwaj

Dear Students,

We've worked really hard to make this book as accurate and error-free as possible. We even went through multiple rounds of proofreading to ensure everything is clear and correct. But, being human, there's always a chance that some small errors might have slipped through.

If you do come across any, let us know and help us improve future editions of the book!

Thank you for your trust and support and wishing you all clarity, confidence and success

Warm regards,



FOREWORD

In 1999-2000 my son and his group of ten friends who were pursuing the Chartered Accountancy course wanted me to coach them in Cost Accounting and Financial Management to which I agreed.

When they passed the Intermediate level of the course, they wanted me to teach Advanced Management Accounting and Strategic Financial Management for the Final level of the course. That was when my journey in coaching CA Intermediate and Final started.

Since then, I took more than 30 batches for Intermediate and Final students in small groups. To my satisfaction, I have a success rate of more than 90%.

I am satisfied that my students have been well placed in the industry. But to my surprise, I found that none of my students were interested in teaching. With this background, I got a call from Ganesh for an appointment. Ganesh was my student in CA Intermediate and Final level for the subjects Costing and Financial Management.

He told me his desire to enter the teaching profession and wanted my views. Immediately I gave him the consent and gave some tips from my experience to start coaching students.

In Ganesh, I found an enterprising character and an urge to excel in whatever he does. As a student, he learned some finer points and asked pertinent questions. To his advantage, he has a command over technology and is tech-savvy. He keeps himself abreast of the latest technology and uses tech to his advantage.

Ganesh prepared this study material and wanted my views. A casual glance of this study material suggested the hard work and intelligence put in by him in preparing the study material. He has taken micro care in ensuring that this study material covers all the syllabus of the CA curriculum. The chapters are arranged in logical order and the concepts are arranged well from basic fundamental level to high professional level. Also, he has grouped all the similar segments together which will help students to revise similar concepts in a short time span. This idea is definitely one of a kind!

With the well-prepared study material and well-motivated Ganesh, I am absolutely certain that the students will benefit from his coaching sessions. If followed sincerely there is no doubt that students can face the CA exams with courage and determination.

I pray to my Guru to shower his blessings to Ganesh and reward him and his students for the hard work.

Love you all.
V N Prabakar CA, CMA, CS

PREFACE

It gives me immense pleasure to present this Solved Question Bank on Financial Management designed specifically for students pursuing the **Intermediate level** of **Chartered Accountancy (CA)** course as per the New Syllabus.

As per the learning objectives prescribed on the subject by The **Institute of Chartered Accountants of India**, a student at the **Intermediate level** is expected to develop an **in-depth understanding** of basic concepts and applications to establish the **cost** associated with the production of **products** and provision of **services** and apply the same to determine **prices**, develop an understanding of **cost accounting statements** and acquire the ability to apply information for **cost ascertainment, planning, control, and decision making**.

This book is a classroom supplement and contains a **rich collection** of **concepts, formulas & core theory** areas ranging from Easy to Difficult, that covers **100%** of the syllabus prescribed in **ICAI Study Material**. An extensive and in-depth discussion on the concepts along with the background logics will be covered during the lectures thereby making sure that **you need not mug up even a single formula!**

I am forever grateful to my parents (**Shri Seetharaman & Smt Usha Seetharaman**) and my brother **Hari**, for their constant motivation and support in all walks of my life. Many thanks to my friends **Mohit** and **Srinivas** who have stood by me through thick and thin in various phases of my life no matter what. I sincerely thank & appreciate the efforts of my **student Bharathi**, who helped me in editing the contents of this book. Special thanks to **Habib and team** for their complete DTP support.

I dedicate this book to my Costing & FM guru **Shri CA V.N. Prabakar Sir** who not only inculcated me with interest in the subject but was also kind enough to write a foreword to this book.

Finally, none of this would have been a reality without the blessings of **Shri Kanchi Maha Periyava** and I bow down to the great lineage of gurus originating from **Shri Adi Shankaracharya**.

I wish the students the very best in all their future endeavors. As the famous verse from the Bhagavad Gita goes - **"Your right is for action alone, never for the results. Do not become the agent of the results of action. May you not have any inclination for inaction."**

So, give your best and leave the rest. Success will automatically follow.

With Best Wishes,
CA Ganesh Bharadwaj

"Work Hard in Silence. Let your success make all the noise."

INDEX

1	Basic Concepts	01
2	Cost Sheet	04
3	Overheads - Absorption Costing	10
4	Activity Based Costing	22
5	Cost Accounting Systems	32
6	Job Costing	42
7	Unit & Batch Costing	48
8	Material Cost	51
9	Employee Cost & Direct Expenses	83
10	Process Costing	96
11	Joint and By Products	102
12	Service Costing	110
13	Marginal Costing	121
14	Standard Costing	142
15	Budget & Budgetary Control	158
16	Introduction to Cost and Management Accounting	183

CHAPTER 1: BASIC CONCEPTS

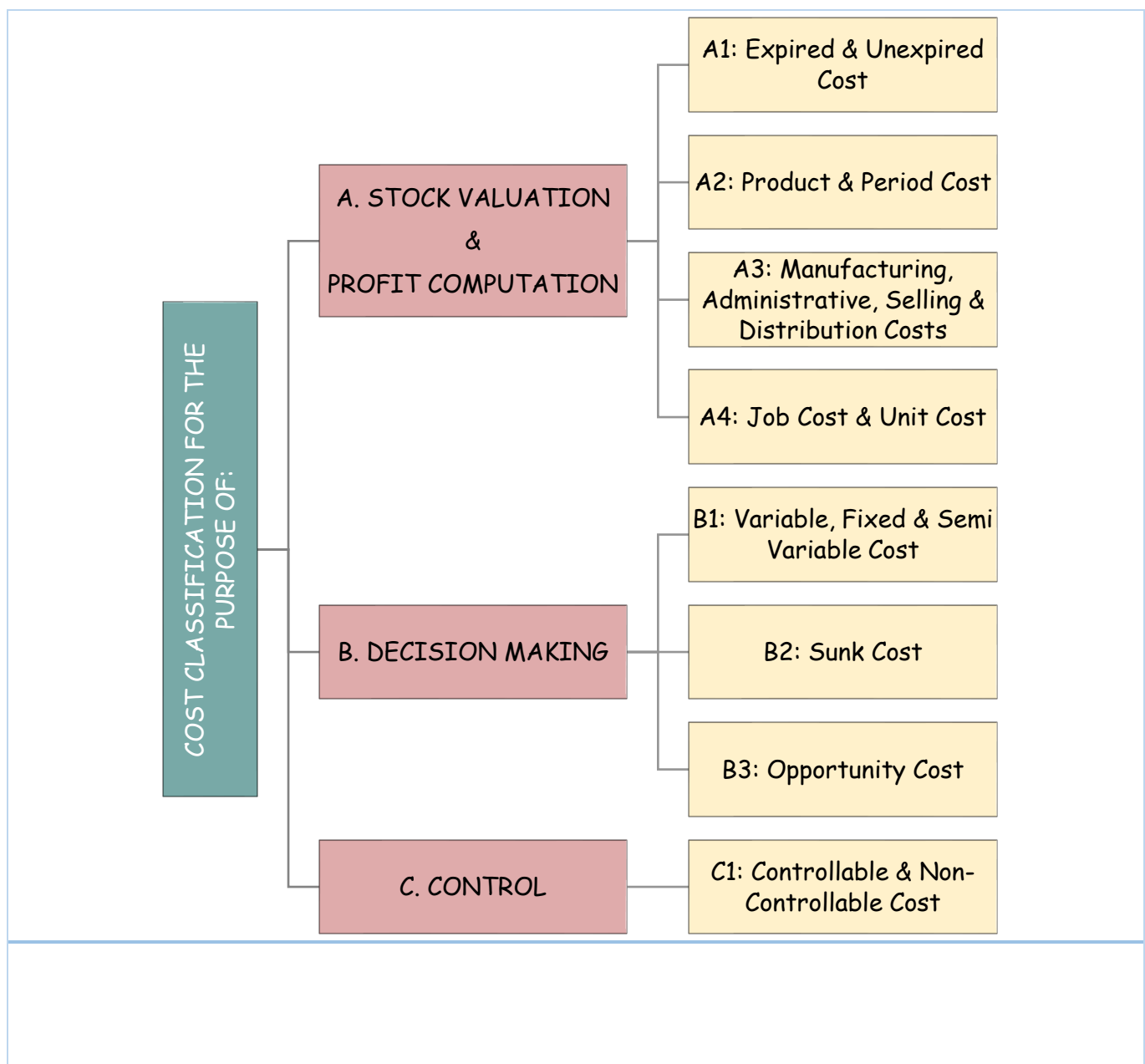


1. What is Cost?

- ✓ Cost means resources **sacrificed** for the purpose of carrying on **business/profession** which can be quantified in **monetary terms**.
- ✓ It should be noted that there are three key terms in the above definition:
 - **Sacrifice** of Resources
 - Relating to **Business/Profession**
 - Quantifiable in **Monetary Terms**



2. Cost Classification



Faculty's Note:

The above Cost Classification & this entire chapter is crafted from the faculty's own perspective and creative approach to enhance the understanding and to simplify the complex concepts covered in the subject and hence may not be present as such in ICAI Study Material.



3. Cost Classification under Stock Valuation & Profit Computation

- ✓ For the purpose of Stock Valuation & Profit Computation, cost can be classified as

A1: Expired Cost & Unexpired Cost

A2: Product Cost & Period Cost

A3: Manufacturing, Administrative, Selling & Distribution Costs

A4: Job Cost & Unit Cost

A1: Expired Cost & Unexpired Cost

- ✓ Expired Costs are those costs which are charged against revenue.
- ✓ Unexpired Costs are those costs which are carried forward to the next accounting period through stocks.

A2: Product Cost & Period Cost

- ✓ Product Costs are those costs which are considered for Stock Valuation.
- ✓ Period Costs are those costs which are not considered for Stock Valuation and expire fully in the current period.

A3: Manufacturing, Administrative, Selling & Distribution Costs

- ✓ Manufacturing Costs are those costs that are incurred from the purchase of Raw Materials till the primary packing of Finished Goods. In other words, Manufacturing Costs are all the costs that are incurred inside the factory and comprise Material Costs, Labour costs & Production Overheads.
- ✓ Administrative Costs are those costs that are incurred in respect of activities relating to the general management and administration of an entity.
- ✓ Selling Costs are the expenses related to the sale of products or services and include all indirect expenses incurred in selling the products or services.
- ✓ Distribution Costs are the costs incurred in handling a product or service from the time it is ready for dispatch or delivery until it reaches the ultimate consumer.

A4: Job Cost & Unit Cost

- ✓ Job Costing is the system that traces costs to specific jobs, contracts, or lots of goods where costs are ascertained on an individual basis.
- ✓ Unit Costing is the system that collects costs incurred in a particular period to produce goods, the per unit cost of which is ascertained on an average basis.



4. Cost Classification under Decision Making

- ✓ For the purpose of **Decision Making**, cost can be classified as

B1: **Variable, Fixed & Semi Variable Cost**

B2: **Sunk Cost**

B3: **Opportunity Cost**

B1: Variable, Fixed & Semi Variable Cost

- ✓ **Variable Costs** are costs that **vary** with a **measure** of **activity**. Variable Costs are costs which tend to **directly vary** with the **volume** of **activity**.
- ✓ **Fixed Costs** are costs which do **not vary** with the **change** in the **volume** of **activity**. They remain **constant** irrespective of the **volume** level.
- ✓ **Semi-Variable Costs** are costs **containing** both **fixed** and **variable** components which get **partly** affected by a **change** in the **level** of **activity**

B2: Sunk Cost

- ✓ These are costs that have been **irreversibly incurred** or **committed** and **cannot**, therefore, be considered **relevant** to a **decision**. Sunk costs may also be termed **irrecoverable costs**.

B3: Opportunity Cost

- ✓ It is the value of the best **alternative course** of **action** that was **not chosen**. In other words, it is what could have been **accomplished** with the **resources** used in the **course of action** if they were employed in the **next best alternative**. It represents **opportunities** for **gone**.



5. Cost Classification under Control

- ✓ For the **purpose** of **Control**, cost can be classified as

C1: **Controllable & Non-Controllable Cost**

C1: Controllable & Non-Controllable Cost

- ✓ **Controllable Costs** are those costs which are **subject** to **direct control** at **some level** of **managerial supervision**.
- ✓ **Non-controllable Costs** are those costs which are **not subject** to **control** at **any level** of **managerial supervision**.

CHAPTER 2: COST SHEET



1. Introduction

- ✓ A **Cost Sheet** or **Cost Statement** is "a document which provides a detailed **cost information**."
- ✓ In a typical cost sheet, cost information is presented on the basis of **functional** classification.
- ✓ However, other classification may **also be adopted** as per the requirements of users of the information.



2. Format of Cost Sheet

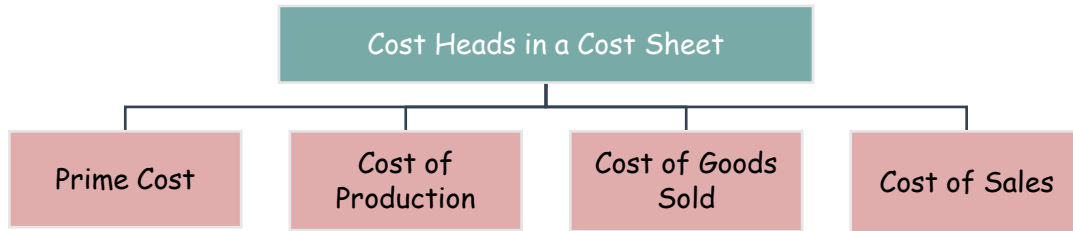
COST SHEET

	Particulars	₹	₹
01	Opening Stock of Raw Materials	XXX	
02	Purchase of Raw Material	XXX	
03	Less: Closing Stock of Raw Material	(XXX)	
04	Direct Material Consumed (1 + 2 - 3)		XXX
05	Direct Labour		XXX
06	Direct Expenses		XXX
07	Prime Cost (4 + 5 + 6)		XXX
08	Production Overheads		XXX
09	Gross Works Cost (7 + 8)		XXX
10	Opening Work in Progress		XXX
11	Less: Closing Work in Progress		(XXX)
12	Factory Cost (9 + 10 - 11)		XXX
13	Quality Control Cost		XXX
14	Research & Development		XXX
15	Administrative Overheads (Related to Production)		XXX
16	Primary Packing Cost		XXX
17	Less: Credit for Recovery / Scrap Income		(XXX)
18	Cost of Production (COP) (12 + 13 + 14 + 15 + 16 - 17)		XXX
19	Opening Finished Goods		XXX
20	Less: Closing Finished Goods		(XXX)
21	Cost of Goods Sold (COGS) (18 + 19 - 20)		XXX
22	Administrative Overheads (General)		XXX
23	Selling Overheads		XXX
24	Cost of Sales (COS) (21 + 22 + 23)		XXX
25	Profit		XXX
26	Sales		XXX



3. Cost Heads in a Cost Sheet

- ✓ The costs as classified on the basis of functions are grouped into the following cost heads in a cost sheet:



4. Cost Sheet Elements

A. Direct Material Cost

- ✓ It is the cost of **direct material consumed**.
- ✓ Few examples of items to be added in the cost of raw material:
 - **Freight** inwards;
 - **Insurance** and other expenditure directly attributable to procurement;
 - **Trade discounts** or rebates (to be deducted);
 - Duties & **Taxes** (if input tax credit is not available/ availed) etc.

Doubt Busters: 💡

Cash Discount is treated as a non-operating expense and hence should not be considered for calculations.

B. Direct Employee (Labour) Cost

- ✓ It is the **total of payment** made to the employees who are **engaged** in the **production of goods** and **provision of services**.
- ✓ **Employee cost** is also known as **labour cost**; it includes the following:
 - **Wages** and **salary**;
 - **Allowances** and **incentives**;
 - **Payment for overtimes**;
 - **Bonus/ ex-gratia**;
 - **Employer's contribution to welfare funds** such as **PF**
 - **Other benefits** (medical, leave with pay, free or subsidised food, leave travel concession and provisions for retirement benefits) etc.

C. Direct Expenses

- ✓ Expenses **other than direct material cost** and **direct employee cost**, which are incurred to **manufacture** a product or for provision of service and can be **directly traced** in an economically **feasible manner** to a cost object.
- ✓ The **following costs** are examples for direct expenses:
 - **Cost of utilities** such as power & fuel, steam etc.;

- Royalty paid/ payable for production or provision of service;
- Hire charges paid for hiring specific equipment;
- Fee for technical assistance and know-how;
- Amortised cost of moulds, patterns, patents etc.;
- Cost for product/ service specific design or drawing;
- Cost of product/ service specific software;
- Other expenses which are directly related with the production of goods or provision of service.

D. Production Overheads

- ✓ It is also known as works/production/ manufacturing Overheads.
- ✓ It includes the following indirect costs
 - Consumable stores and spares;
 - Depreciation of plant and machinery, factory building etc.
 - Lease rent of production assets;
 - Repair and maintenance of plant and machinery, factory building etc.
 - Indirect employees cost related with production activities;
 - Drawing and Designing department cost;
 - Insurance of plant and machinery, factory building, stock of raw material & WIP etc.
 - Amortized cost of jigs, fixtures, tooling etc.
 - Service department cost such as Tool Room, Engineering & Maintenance, Pollution Control etc.

E. Special Items

- ✓ Quality Control Cost:
This is the cost of resources consumed towards quality control procedures.
- ✓ Research & Development Cost:
It includes only those research and development related cost which is incurred for the improvement of process, system, product or services.
- ✓ Administrative Overheads (Related to Production):
It includes only those administration overheads which are related to production. The general administration overhead is not included in production cost.
- ✓ Credit for Recoveries:
The realised or realisable value of scrap or waste is deducted as it reduces the cost of production.
- ✓ Packing Cost (Primary):
Packing material which is essential to hold and preserve the product for its use by the customer.

F. Administrative Overheads

- ✓ It is the **cost** related with **general administration** of the **entity** and includes the following:
 - **Depreciation** and maintenance of, building, furniture etc. of **corporate** or **general management**.
 - Salary of **administrative employees**, accountants, directors, secretaries etc.
 - **Rent, rates & taxes**, insurance, lighting, office expenses etc.
 - **Indirect materials**- printing and stationery, office supplies etc.
 - **Legal charges**, audit fees, corporate office expenses like directors'
 - **Sitting fees**, remuneration and commission, meeting expenses etc.

Doubt Busters: 💡

Bank Charges is treated as AOH.

G. Selling Overheads

- ✓ It is the **cost** related with **sale** of **products** or **services** and includes the following **costs**:
 - **Salary and wages** related with **sales department** and **employees** directly related with **selling of goods**.
 - Rent, depreciation, maintenance and other cost **related** with **sales department**.
 - Cost of **advertisement**, **maintenance** of **website** for online sales, market research etc.
 - **Packing Cost** (secondary): **Packing material** that enables to store, transport, inform the customer, promote and otherwise make the **product marketable**.

H. Distribution Overheads

- ✓ It includes the **cost** related with making the **goods available** to the **customers**.
- ✓ The **costs** are:
 - **Salary and wages** of **employees** engaged in **distribution** of goods.
 - **Transportation** and **insurance costs** related with distribution.
 - **Depreciation**, **hire charges**, **maintenance** and other **operating costs** related with **distribution vehicles** etc.



5. Treatment of various items of Cost in Cost Sheet

- ✓ Abnormal costs:
Any **abnormal cost**, where it is **material** and **quantifiable**, shall not form part of **cost of production** or **acquisition** or **supply** of goods or provision of service.
Examples of abnormal costs are:
 - Cost pertaining to or arising out of a pandemic e.g. COVID-19
 - Cost associated with employees due to sudden lockdown.
- ✓ Subsidy/Grant/Incentives:
Any such type of **payment** received/ receivable are **reduced** from the cost objects to which such amount pertains.

✓ Penalty, fine, damages, and demurrage:

These types of **expenses** are **not** form part of cost.

✓ Interest and other finance costs:

Interest, including any **payment** in the nature of interest for use of **non-equity funds** and **incidental cost** that an entity incurs in arranging those funds. These charges are **not included** in cost of production.

Doubt Busters: 💡

Conversion Cost = Direct Labour + Direct Expenses + Production Overheads



6. Valuation Of Closing FG Under Different Methods

I. FIFO Method (Opening Stock will be sold first)

Cost of Production (COP)	₹ 10,00,000 (10,000 units)
Sold	11,000 units
Opening Stock	₹ 10,00,000 (8,000 units)
∴ Closing Stock	7,000 units
∴ Value of Closing FG (Fully out of Current Production)	$\frac{₹ 10,00,000}{10,000 \text{ units}} \times 7000 \text{ units} = ₹ 7,00,000$

II. LIFO Method (Current Period Production will be sold first)

Cost of Production (COP)	₹ 10,00,000 (10,000 units)
Sold	11,000 units
Opening Stock	₹ 10,00,000 (8,000 units)
∴ Closing Stock	7,000 units
∴ Value of Closing FG = Fully out of Opening Stock	$\frac{₹ 10,00,000}{8,000 \text{ units}} \times 7000 \text{ units} = ₹ 8,75,000$

III. Weighted Average Method (Weighted Average - The combined mix is sold)

	Rate/unit	Units	Total
COP	100	10,000	₹ 10,00,000
Opening Stock	125	8,000	₹ 10,00,000
		18,000	₹ 20,00,000

$$\therefore \text{Weighted Average Rate per unit} = \frac{₹ 20,00,000}{18,000 \text{ units}} = ₹ 111.11$$

$$\text{Value of Closing FG} = ₹ 111.11 \times 7,000 \text{ units} = ₹ 7,77,778$$

Doubt Busters:

When Opening Stock units & Current Period Production units are valued differently only then, stock Valuation issue (FIFO/LIFO/Weighted Average) arises. - Refer Classroom Discussion

**7. Advantages of Cost Sheet**

- ✓ The main advantages of a **Cost Sheet** are as follows:
- It provides the **total cost** figure as well as **cost per unit** of production.
 - It helps in **cost comparison**.
 - It facilitates the preparation of **cost estimates** required for **submitting tenders**.
 - It provides sufficient help in arriving at the figure of **selling price**.
 - It **facilitates cost** control by disclosing **operational efficiency**.

CHAPTER 3: OVERHEADS - ABSORPTION COSTING

METHOD



1. Introduction

- ✓ Overheads are the **expenditure** which **cannot** be conveniently **traced to or identified** with any particular cost unit.
- ✓ Such **expenses** are incurred for **output** generally and **not** for a **particular work order**.
- ✓ Overheads also represent **expenses** that have been incurred in providing certain **ancillary facilities** or services which facilitate or make possible the **carrying out** of the **production process**;
- ✓ Overheads are **incurred not only** in the **factory of production** but also on **administration, selling and distribution**.



2. Steps Involved in Overhead Absorption Costing

- ✓ **Collection & classification** of Overheads.
- ✓ Distribution of Overheads to all departments (**Primary Distribution**)
- ✓ Re-distribution of **service department Overheads** to **production departments** (**Secondary Distribution**)
- ✓ **Absorption** of Overheads to the **products**.



3. Primary Distribution of Overheads

- ✓ Overheads which are **related** to more than **one department** are required to be **distributed** between/ **among the departments**. This distribution of overheads between/ among the departments is called **apportionment**.
- ✓ The example of overheads **may include** e.g. **rent of building, power, lighting, insurance, depreciation** etc.
- ✓ To apportioning these overheads **over different departments** benefiting thereby, it is necessary at first to determine the **proportion of benefit** received by **each department** and then distribute the **total expenditure proportionately** on that basis.
- ✓ But the same basis of apportionment **cannot be followed for different items** of overheads since the **benefit of service** to a department in each case has to be **measured differently**.

A. Basis of Primary Distribution of Overheads

✓ The following is an indicative basis of Primary Distribution of Overheads:

	Overhead Cost	Bases of Apportionment
1.	Rent and other building expenses Lighting and heating (conditioning) Fire precaution service Air- conditioning	Floor area, or volume of department
2.	Perquisites Labour welfare expenses Time keeping Personnel office Supervision	Number of workers
3.	Compensation to workers Holiday pay ESI and PF contribution Perquisites	Direct wages
4.	General overhead	Direct Labour hour, or Direct wages, or Machine hours.
5.	Depreciation of plant and machinery Repairs and maintenance of plant and machinery Insurance of stock	Capital values
6.	Power/steam consumption Internal transport Managerial salaries	Technical estimates
7.	Lighting expenses (Light)	No. of light points, or Area or Metered units
8.	Electric power (machine operation)	Horse power of machines, or Number of machine hour, or value of machines or units consumed.
9.	Material handling Stores overhead	Weight of materials, or volume of materials, or value of materials or unit of materials.

B. Format for Primary Distribution

	Production Departments			Service Departments		
Primary Distribution	Machining	Assembling	Finishing	X	Y	Z
Direct Material	-	-	-	✓	✓	✓
Direct Labour	-	-	-	✓	✓	✓
Direct Expenses	-	-	-	✓	✓	✓
Rent (Floor Area)	✓	✓	✓	✓	✓	✓
Electricity (KWH)	✓	✓	✓	✓	✓	✓
Lighting (Light points)	✓	✓	✓	✓	✓	✓
Indirect Wages (Direct Wages)	✓	✓	✓	✓	✓	✓
Depreciation (Value of Plant)	✓	✓	✓	✓	✓	✓
Overheads as per Primary Distribution	✓	✓	✓	✓	✓	✓

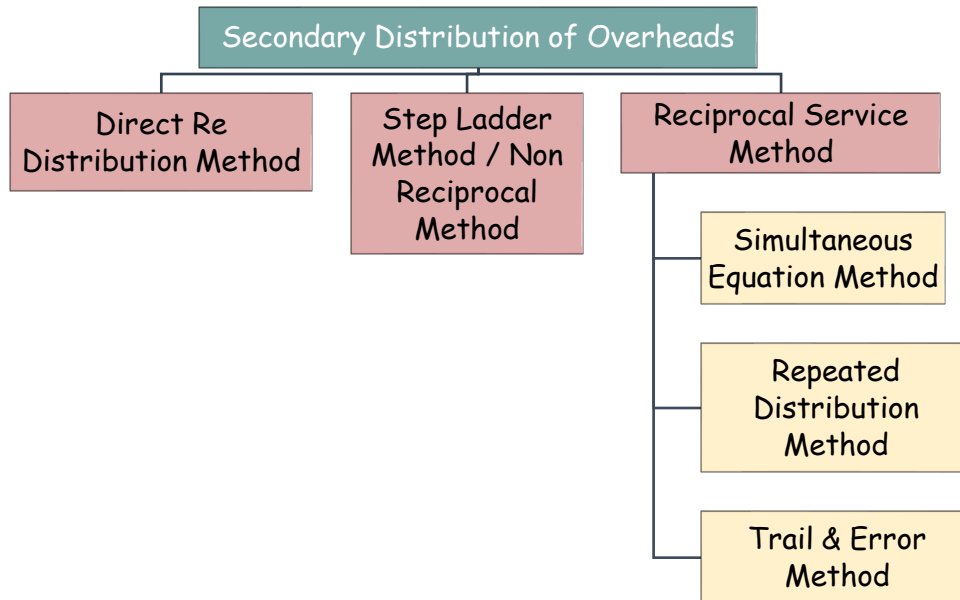
C. Allocation vs Apportionment of Overheads:

Allocation	Apportionment
• Allocation deals with the whole items of cost, which are identifiable with any one department.	• Apportionment deals with the proportions of an item of cost
• Allocation is a direct process of charging expenses to different cost centres	• Apportionment is an indirect process because there is a need for the identification of the appropriate portion of an expense to be borne by the different departments benefited.



4. Secondary Distribution of Overheads

- ✓ At the end of primary distribution, the overheads are totalled for all the departments.
- ✓ The next step is to distribute the service department overheads back to the production departments. This is referred to as secondary distribution or re-distribution of overheads, which can be broadly done under these three methods:



Format Secondary Distribution

	Production Departments			Service Departments		
Secondary Distribution	Machining	Assembling	Finishing	X	Y	Z
X	✓	✓	✓	(✓)		
Y	✓	✓	✓		(✓)	
Z	✓	✓	✓			(✓)
Overheads as per Secondary Distribution	✓	✓	✓	-	-	-

A. Direct Re Distribution Method

- ✓ This method assumes that the service department will provide services only to a production department and will not provide services to other service departments.
- ✓ In reality when such services are in fact provided to other service departments. This method ignores it. (NO TRAFFIC)

B. Step Ladder Method / Non reciprocal Method

- ✓ This method assumes that the **service department** can provide service to **all other department** including other service department but **cannot receive service** from the service department to which it **has provided services** (ONE - WAY TRAFFIC)

C. Reciprocal Service Method

- ✓ This method assumes that a **service department** can provide service to **all the department** including other service department and can also receive service from the service department to which it has provided services. (TWO - WAY TRAFFIC)

(a) Simultaneous Equation Method

- ✓ According to this method firstly, the **costs of service** departments are **ascertained**. These costs are then **re-distributed** to **production departments** on the basis of given **percentages**.

(b) Repeated Distribution Method

- ✓ Under this method, **service departments' costs** are distributed to **other service** and **production departments** on **agreed percentages** and this process continues to be **repeated**, till the figures of service departments are either **exhausted or reduced** to too small a figure.

(c) Trial and Error Method

- ✓ According to this method the **cost of one service cost** centre is **apportioned** to **another service cost** centre. The cost of another service centre plus the **share received** from the first cost centre is **again apportioned** to the **first cost** centre.
- ✓ This process is repeated till the **amount to be apportioned** becomes **negligible**, that means repeated distribution method is followed to the **extent of service departments only**.
- ✓ All **apportioned amounts** for each service cost centre are added to get the **total apportioned cost**.
- ✓ These total service cost centre costs are **redistributed** to the **production departments**.



5. Absorption of Overheads

- ✓ Absorption is the last step in Overheads accounting it is the process through which Overheads in Production department is given to each of product produced.
- ✓ Absorption process has two steps:
 - Step 1: Calculation of Absorption rate

$$(\text{Overheads} \div \text{Base Quantity})$$
 - Step 2: Charging of Overheads to the products

$$(\text{Absorption Rate} \times \text{Base Quantity consumed by the respective product})$$
- ✓ It should be noted that Base Quantity can be different for each of the production department and has to be selected keeping in mind the factor which pre dominantly influences the incurrence of Overheads in that particular department.
- ✓ It is the management discretion to choose an appropriate absorption rate and has to be exercised with at most care since it influences the stock valuation and profit computation.

Doubt Busters: 💡

It should be noted that Production Overheads absorbed and not Production Overheads incurred is considered while preparing cost sheet.



6. Six Types of Absorption Rates

Absorption Rate:	Formula:	Expression:
Labour Hour Rate	$\frac{\text{Overheads}}{\text{Labour Hours}}$	Per Labour Hour
Machine Hour Rate	$\frac{\text{Overheads}}{\text{Machine Hours}}$	Per Machine Hour
Material Cost Rate	$\frac{\text{Overheads}}{\text{Material Cost}}$	% of Direct Material Cost
Labour Cost Rate	$\frac{\text{Overheads}}{\text{Labour Cost}}$	% of Direct Labour Cost
Prime Cost	$\frac{\text{Overheads}}{\text{Prime cost}}$	% of Prime Cost
Production Unit Rate	$\frac{\text{Overheads}}{\text{Production Units}}$	Per Unit



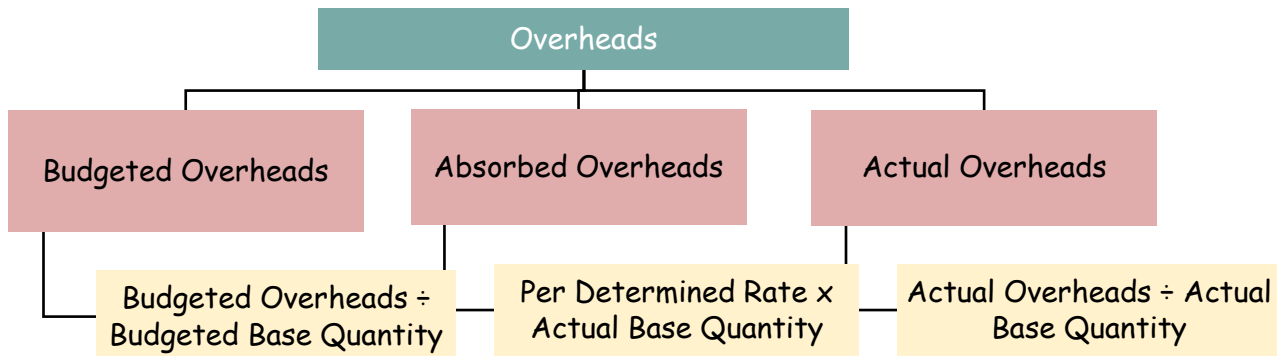
7. Pre-Determined Rate Vs Actual Rate

- ✓ **Pre - Determined rate** is determined in advance by estimating the amount of the overhead for the period in which it is to be used.

$$\text{Pre - Determined rate} = \text{Budgeted Overheads} \div \text{Budgeted Base Quantity}$$

- ✓ **Actual rate** is determined at the year-end by calculating the actual amount of the overhead used during the period.

$$\text{Actual rate} = \text{Actual Overheads} \div \text{Actual Base Quantity}$$



8. Treatment of Under and Over Absorbed Overheads in Cost Accounting

$$\text{Under or Over Absorption} = \text{Actual Overheads} - \text{Absorbed Overheads}$$

- ✓ **Under or Over Absorption** happens due to the use of pre-determined rate for absorption.
- ✓ If Actual Overheads > Absorbed Overheads = Under Absorption
- ✓ If Absorbed Overheads > Actual Overheads = Over Absorption
- ✓ It should be noted that **Production Overheads absorbed** and not **Production Overheads incurred** is considered while preparing cost sheet.
- ✓ Hence at the end of the year **treatment** should be given in **cost sheet** and **cost ledger accounts** for the under or over Absorbed Overheads.
- ✓ There are **two ways** of treating under and over absorption.

Treatment of Under or Over Absorption

Due to Normal Price Level changes
Product CostDue to Inefficiency or Abnormal
reasons Period CostApportion to entire
Production during the year
using Supplementary
Overhead rate.Transfer to Costing Profit
and Loss A/c

Supplementary Absorption Rate

- ✓ When under or over absorption is treated as product cost a portion of it is charged to stocks using supplementary rate.
- ✓ Procedure to Apportion the under or over absorption due to Normal Price Level Changes using Supplementary overhead rate.

Step 1: Apportion to entire production during the period using a Supplementary overhead rate.

Step 2: $\text{Supplementary rate} = \frac{\text{Amount of under or over absorption}}{\text{Quantity Produced}}$

Step 3: $\text{Quantity Produced} = \text{Quantity sold} + \text{Closing Finished Goods} + (\text{Closing W I P} \times \text{Degree of completion})$

Step 4: The apportioned amount is transferred to

Quantity Sold - Cost of Sales A/c

Closing Finished Goods - Finished Goods Control A/c

Closing W I P - W I P Control A/c

- ✓ Journal Entry for under absorption apportionment using supplementary rate.

Cost of Sales A/c	Dr
Finished Goods Control A/c	Dr
WIP Control A/c	Dr
Costing Profit and Loss A/c (Period Cost)	Dr
To Production Overheads A/c.	



9. Blanket Rate Vs Departmental Rate

- ✓ When a **single Overhead Absorption rate** calculated for the **entire factory** such an absorption rate is called as **Factory Wide rate or Plant wide rate or Blanket Absorption Rate**.
- ✓ Blanket rate = $\text{Total Overhead} \div \text{Total Base Quantity}$
- ✓ Suitable for **Multiple products** requiring **different resources** and **Costly but accurate**.
- ✓ When the **Overhead Absorption rate** is calculated for **each production department** using the appropriate **absorption base** it is called as **Departmental rate**.
- ✓ Departmental rate = $\text{Departmental Overhead} \div \text{Departmental Base Quantity}$
- ✓ Suitable for **one product only** or **All products** pass through **all departments** or **processed for same time in each department**



10. Machine Hour Rate Method

A. Direct Machine Hour Rate

- ✓ According to this method, only the **expenses directly or immediately connected** with the **operation of the machine** are taken into account. e.g., power, depreciation, repairs and maintenance, insurance, etc.
- ✓ The **rate** is calculated by dividing the **estimated total** of these **expenses** for a period by the estimated **number of operational hours** of the machines during the period.

B. Comprehensive Machine Hour Rate

- ✓ As per this method, in the expenses stated above there may still be other **manufacturing expenses** such as **supervision charges, shop cleaning and lighting, consumable stores and shop supplies, shop general labour, rent and rates**, etc. incurred for the department as a whole and, hence, **not charged to any particular machine** or group of machines.
- ✓ In order to see that such expenses are **not left out of production costs**, one should include a **portion of such expenses** to compute the machine hour rate.
- ✓ **Steps involved in determining of Machine Hour Rate are as follows:**
 - Step 1: Calculate **total of overheads** apportioned to a production department
 - Step 2: Apportion further these overheads to **machines or group of machines** in the department.
 - Step 3: Allocate **machine specific costs** (directly identifiable with the machine)
 - Step 4: Estimate **total productive hours** for the machine
 - Step 5: **Aggregate overheads** as apportioned in **step-2** and **allocated in step-3** and divide it by **Estimated total productive hours**

Step 6: The resultant figure is machine hour rate



11. Capacity Determination

- ✓ Capacity means the Ability to produce
- ✓ Types of Capacity

Maximum/ Theoretical/ Installed/Rated	Units per Hour x Hours per day x No. of days per year
Practical/Achievable	Working Days = Total Days - Holidays - Weekly off
	Practical Hours = (Practical Days x Hours Per day) - Normal Idle Time
	Practical Units = Practical Hours x Units per Hour
Normal/Average/ Expected	Average of past actual capacity
Actual	Capacity used during the period
Budgeted/Estimated	Used to determine or Rate or for planning
Idle (Budgeted - Actual)	Normal = Maximum - Budgeted
	Abnormal = Budgeted - Actual
Licensed	Approved by an authority



12. Core Theory Topics

Advantages of Classification of Overheads into Fixed and Variable

Advantages	Explanation
Controlling Expenses	Segregating expenses into fixed and variable helps control costs. Fixed costs are policy-related and remain constant regardless of output. Variable expenses change with activity volume and can be controlled by adjusting output.
Preparation of Budget Estimates	Segregating costs into fixed and variable components helps in preparing a flexible budget. It allows for cost estimation at different activity levels and comparison with actual expenses.
Decision Making	Segregation helps in making key decisions like setting prices during tough times, or deciding whether to make or buy products, or shut down or continue operations. Fixed costs and variable costs must be separated for these decisions.

Allocation of Overheads over Various Departments or Departmentalisation of Overheads

Advantages	Explanation
Better Estimation of Expenses	Departmentalization allows for more accurate estimation of expenses. Some costs can be estimated more precisely when related directly to a department.
Better Control	Control is easier when expenses are tracked for each department separately. Knowing how much should be spent and how much is actually spent helps identify over-spending in specific departments.
Ascertainment of Cost for Each Department	To determine the cost of a job, it's necessary to know the expenses incurred in each department that the job passes through. This ensures the correct allocation of indirect expenses.
Suitable Method of Costing	Different costing methods can be used for each department, such as batch costing for manufacturing parts or output costing for assembling products.

Some other basis of apportioning overhead costs:

Basis of Apportioning Overhead Costs	Explanation
Analysis or Survey of Existing Conditions	Sometimes, an analysis of expenditure is required to determine how costs should be apportioned. For example, lighting expenses can be divided based on the number of light points in each department.
Ability to Pay	This method distributes costs based on the income of the paying department, similar to a taxation principle . For example, sales expenses can be distributed based on the sales volume in different territories. However, this method may be inequitable, as it may not reflect the actual effort needed for selling.
Efficiency or Incentives	Under this method, overheads are distributed based on pre-determined levels of production or sales . If the actual production exceeds the planned levels, the cost per unit decreases. Conversely, if the levels are not met, the cost per unit increases.

Advantages and disadvantages of Machine hour rate:

Advantages	Disadvantages
Machine-based overhead charges are ideal when machines are the main factor of production.	Additional data on machine operating time must be recorded and maintained.
Under-absorption of machine overheads shows the extent to which machines have been idle .	Computing a separate machine hour rate for each machine/group adds extra work.
Particularly useful when one operator handles several machines or multiple operators work on a machine (e.g., automatic screw manufacturing or belt press for conveyer belts).	

CHAPTER 4: ACTIVITY BASED COSTING



1. Introduction

- ✓ As discussed in our previous chapter **Overhead**, that is **Traditional Costing System**, overhead costs are **grouped together** under **cost center** and then absorbed into **product costs** on either of the **basis** such as **direct labour hours, machine hours, volume** etc.
- ✓ However, this Traditional Costing System is **not accurate** enough to give adequate information for **pricing purposes** or other **long-run management decision purposes**.
- ✓ Recently, **organizations** have been greatly **benefitted** from the **development of activity-based costing (ABC)**, which is considered as a **modern absorption costing** method, and was evolved to give **more accurate** product costs.
- ✓ **Activity Based Costing** is an accounting methodology that **assigns costs** to **activities** rather than **products or services**.
- ✓ ABC is a **technique** which involves **identification of cost** with **each cost driving activity** and making it as the **basis for apportionment** of costs over **different cost objects/ jobs/ products/customers or services**.



2. Steps Involved in Activity Based Costing

- ✓ **Identifying Activities** - Primary activities & support
- ✓ **Cost Pool** of each activity & reapportion the support activities to primary activities
- ✓ Determine the **Cost Drivers**
- ✓ Activity wise **Cost Driver Rate**
- ✓ Activity Cost for the **cost object**.



3. Meaning of Terms used in ABC

A. Activity

- ✓ **Activity**, here, refers to an event that incurs cost.
- ✓ In ABC, the **number of activities** will be much **more**, as **compared to traditional overhead system**.
- ✓ **Some activities** may be listed as follows:-
 - **Production** schedule changes
 - **Customer** liaison
 - **Purchasing**
 - **Production** process set up
 - **Quality** control

- Material **handling**
- Maintenance

B. Cost Pool

- ✓ In **ABC**, overheads are **related to activities** or grouped into **cost pools**.
- ✓ It represents a group of various **individual cost items**. It consists of costs that have same cause and effect relationship.
- ✓ **Relate** the overheads to the **activities**, both **support and primary**, that caused them. This creates '**cost pools**' or '**cost buckets**'.
- ✓ **Support activities** are then spread across the **primary activities** on some suitable base, which reflects the **use** of the **support activity**.
- ✓ Example of **Cost pool** - **Machine set-up**.

C. Cost Drivers

- ✓ It is a **factor** that causes a **change in the cost of an activity**. In other words, a **cost driver** is **what drives** or determines the **amount of cost incurred** for a **specific activity or process**.
- ✓ There are **two categories** of cost driver.
 - **Resource Cost Driver**: It is a measure of the **quantity of resources consumed** by an **activity**. It is used to assign the **cost of a resource** to an activity or **cost pool**.
 - **Activity Cost Driver**: It is a measure of the **frequency and intensity** of demand, placed on **activities** by **cost objects**. It is used to **assign activity costs** to **cost objects**.
- ✓ Examples of Cost Drivers:

Business Functions/Activities	Cost Driver
Research and Development	• Number of research projects • Personnel hours on a project
Design of products, services and procedures	• Number of products in design • Number of parts per product • Number of engineering hours
Customer Service	• Number of service calls • Number of products serviced • Hours spent on servicing products
Marketing	• Number of advertisements • Number of sales personnel • Sales revenue
Distribution	• Number of units distributed • Number of customers

Doubt Busters:

Cost Object is the item for which cost measurement is required. Some examples for cost object are unit of product, service, customer categories, geographical location etc.

D. Cost Driver Rate

- ✓ A **cost driver rate** is a rate used in **activity-based costing (ABC)** to allocate **indirect costs** (overhead) to products, services, or cost objects based on their **usage** of a **particular activity**.
- ✓ **Activity Cost Driver Rate** = Total Cost of Activity (Cost Pool) ÷ Activity Driver (Cost Driver Qty)
- ✓ The **activity cost driver rates** will be **multiplied** by the **different amounts** of **each activity** that each product/other cost object consumes.



4. Format used in ABC for Numerical Problems

Numerical Problems in ABC involve a two-step procedure.

Step 1: Calculation Of Cost Driver Rate:

Activity (1)	Cost Pool (2)	Cost Driver Name (3)	Cost Driver Quantity (4)	Cost Driver Rate (5) = (2 ÷ 4)
Machine	xxx	Machine Hours	xxx	xxx
Setup	xxx	Setup time	xxx	xxx
Inspection	xxx	No of Inspections	xxx	xxx

Step 2: Appropriation of Overheads to the Products:

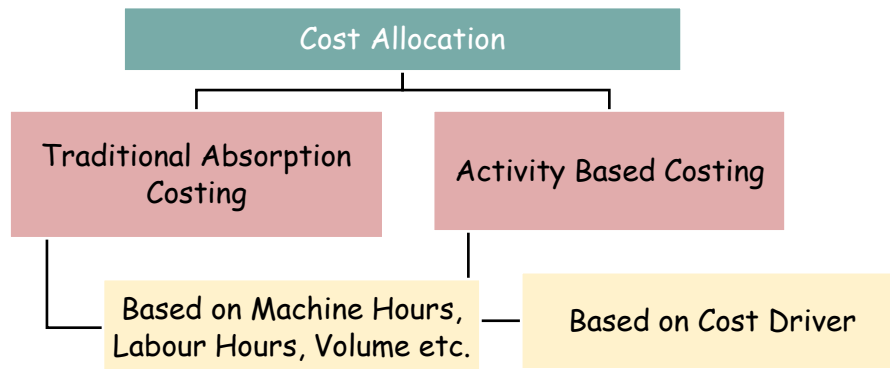
	Product P1		Product P2	
Activities	Cost Driver Quantity Consumed (1)	₹ CDR x (1)	Cost Driver Quantity Consumed (2)	₹ CDR x (2)
Machine	xxx	xxx	xxx	xxx
Setup	xxx	xxx	xxx	xxx
Inspection	xxx	xxx	xxx	xxx
A. Total		xxx		xxx
B. Product (Units)		xxx		xxx
C. OHS p.u (A ÷ B)		xxx		xxx



5. Traditional Absorption Costing Vs ABC

- ✓ In traditional absorption costing overheads are first related to cost centres (Production & Service Centres) and then to cost objects.
- ✓ In ABC overheads are related to activities or grouped into cost pools and then they are related to the cost objects.
- ✓ Difference between Activity Based Costing and Traditional Absorption Costing

Activity Based Costing	Traditional Absorption Costing
1. Overheads are related to activities and grouped into activity cost pools.	1. Overheads are related to cost centres/departments.
2. Costs are related to activities and hence are more realistic.	2. Costs are related to cost centers and hence not realistic of cost behaviour.
3. Activity-wise cost drivers are determined.	3. Time (Hours) are assumed to be the only cost driver governing costs in all departments.
4. Activity-wise recovery rates are determined and there is no concept of a single overhead recovery rate.	4. Either multiple overhead recovery rates (for each department) or a single overhead recovery rate may be determined for absorbing overheads.
5. Cost are assigned to cost objects, e.g. customers, products, services, departments, etc.	5. Costs are assigned to Cost Units i.e. to products, or jobs or hours.
6. Essential activities can be simplified and unnecessary activities can be eliminated. Thus, the corresponding costs are also reduced/ minimized. Hence ABC aids cost control.	6. Cost Centers/ departments cannot be eliminated. Hence, not suitable for cost control.



6. Product Cost Statement under Overhead Absorption Costing & ABC

Product Cost Statement under Overhead Absorption Costing

Particulars	Amount (₹)
Direct Material	xxx
Direct Labour	xxx
Direct Expenses	xxx
Factory Overhead (OH Ab Rate x Actual Base Qty Consumed)	
- Department A	xxx
- Department B	xxx
Total Cost	xxx

Product Cost Statement under ABC

Particulars	Amount (₹)
Direct Material	xxx
Direct Labour	xxx
Direct Expenses	xxx
Factory Overhead (Cost Driver Rate x Cost Driver Qty)	
- Activity 1	xxx
- Activity 2	xxx
- Activity 3	xxx
Total Cost	xxx



Core Theory Topics

Factors prompting the development of ABC

Various factors lead to the development of ABC include:

Factor	Explanation
Growing Overhead Costs	Automation has increased overhead expenses.
Market Competition	Accurate cost allocation is essential for competitiveness .
Product Diversity	A wider range of products helps achieve economies of scope and expand market share.
Lower Information Processing Costs	Advances in IT have made cost data easier and cheaper to manage.

Usefulness/Suitability of ABC

ABC is particularly needed by organisations for product costing in the following situations:

Situation	Usefulness of ABC
High Overhead Costs	ABC is more effective than traditional costing when overhead costs are significant.
Diverse Product Range	ABC is ideal for companies with multiple or varied products.
Non-Volume Related Activities	ABC helps allocate costs for activities like material handling, inspection, and setup , which traditional costing struggles with. It also highlights non-value-adding activities for potential elimination.
Stiff Competition	ABC ensures accurate costing and pricing in competitive markets. It also identifies cost-saving opportunities by eliminating inefficiencies.

Level Of Activities Under ABC Metho- Dology/Cost Hierarchy

Level of Activity	Meaning	Example
Unit-Level Activities	Activities where resource usage depends on the number of units produced .	➤ Indirect materials used increase with production. ➤ Inspection/testing of every item or every 100th item.
Batch-Level Activities	Activities performed for each batch of goods, with costs shared across all units in the batch.	➤ Material ordering for each batch. ➤ Machine setup between different batches. ➤ Inspection of the first item in

		every batch.
Product-Level Activities	Activities that support specific products in a product line.	➤ Product design ➤ Parts specification ➤ Updating technical drawings
Facility-Level Activities	Activities not tied to specific products , but necessary for manufacturing.	➤ Building maintenance ➤ Plant security

Advantages Of Activity Based Costing

The main advantages of using Activity Based Costing are:

- More accurate** costing of products/services.
- Overhead allocation** is done on logical basis.
- It enables better **pricing policies** by supplying **accurate cost** information.
- Utilizes unit** cost rather than just total cost
- Help to identify **non-value added activities** which facilitates cost reduction.
- It is **helpful** to the **organizations** with multiple products.
- It **highlights problem** areas which require attention of the management.

Limitations Of Activity Based Costing

The **main limitations** using Activity Based Costing are:

- It is **more expensive**, particularly in comparison with traditional costing system.
- It is **not helpful** to the small organizations.
- It may **not** be applied to organizations with **limited products**.
- Selection of the **most suitable cost** driver may **not** be easy/ may be **difficult** or **complicated**.

Requirements for ABC Implementation

Stage	Description
Staff Training	Workforce cooperation is crucial for ABC success. Training ensures awareness of ABC's purpose and benefits.
Process Specification	Interviews with key personnel help map production stages, resource commitments, processing times, and bottlenecks .
Activity Definition	Clearly define activities early to manage potential data overload and ensure proper codification .
Activity Driver Selection	Identify the cost driver for each activity to allocate costs accurately.
Assigning Cost	Use a representative activity driver to assign costs from activity pools to cost objects.

Practical Applications Of Activity Based Costing	
Application	Role of ABC in Decision-Making
Performance & Profitability	ABC, combined with other cost management techniques , helps improve organizational performance and profitability.
Wholesale Distribution	Helps correlate costs to activities , aiding decisions on new products or vendor selection.
Facility & Resource Expansion	Assists in evaluating relocation , new facilities , or resource expansion by identifying cost-saving opportunities (e.g., logistics & freight costs).
Human Resource Decisions	Links activities and costs to individuals, aiding financial performance analysis (e.g., branch management or sales teams).
Cost-Based Pricing	Helps companies using cost-plus pricing set competitive prices based on accurate cost allocation.

As Activity Based Management	
Meaning of Activity Based Management	
Term	Meaning
Activity-Based Management (ABM)	ABM is the cost management application of Activity-Based Costing (ABC). It helps manage costs at the activity level.
Focus of ABM	ABM aims to improve efficiency and enhance customer value by managing activities effectively.
Use of ABC in ABM	ABM utilizes cost data from ABC to optimize processes and reduce unnecessary costs.

Various analysis in Activity Based Management		
The various types of analysis involved in ABM are as follows:		
Type of Analysis	Description	Example
Cost Driver Analysis	Identifies factors causing activities to be performed, helping to manage activity costs .	Causal factors influencing costs.
Activity Analysis	Examines activities to determine their value contribution .	➤ Value-Added Activities (VA): Essential for completing the process; customers are willing to pay for them. <i>Example</i>: Polishing furniture in manufacturing. ➤ Non-Value-Added Activities (NVA): Do not

		add value and may increase costs. Example: Material movement, machine setup.
Performance Analysis	Measures activity center performance based on organizational goals.	Reports on efficiency and effectiveness of activities.

Activity Based Management in Business

Activity Based Management can be used in the following ways

Application of ABM	Description
Cost Reduction	Identifies costs per activity and finds ways to reduce or eliminate non-value-adding activities.
Business Process Re-engineering	Evaluates and redesigns business processes to improve efficiency and effectiveness. ABM helps measure performance and costs.
Benchmarking	Compares ABC-derived activity costs across different company segments to find improvement opportunities. Requires uniform activity definitions.
Performance Measurement	Focuses on activity performance to enhance competitiveness and cost management .

Performance Measures in ABM

Area	Measure
Quality of Purchased Component	Zero defects
Quality of Output	% Yield
Customer Awareness	Orders; Number of Complaints

Facilitate Activity Based Budgeting

Activity-Based Budgeting (ABB)

Aspect	Description
Meaning of ABB	ABB analyzes resource input and costs for each activity, helping estimate required resources based on budgeted activity levels .
Comparison & Control	Actual vs. budgeted results are compared to identify discrepancies for potential cost reduction.
Purpose	ABB is a planning and control system that supports continuous improvement and helps create a cost-effective budget aligned with strategic goals.
Process	ABB reverses the ABC process to develop financial plans and budgets.

Key Elements of ABB

Element	Description
Type of Work	Identifies the specific activities required.
Quantity of Work	Determines the volume of work needed.
Cost of Work	Estimates the resource costs for each activity.

Benefits of Activity-Based Budgeting (ABB)

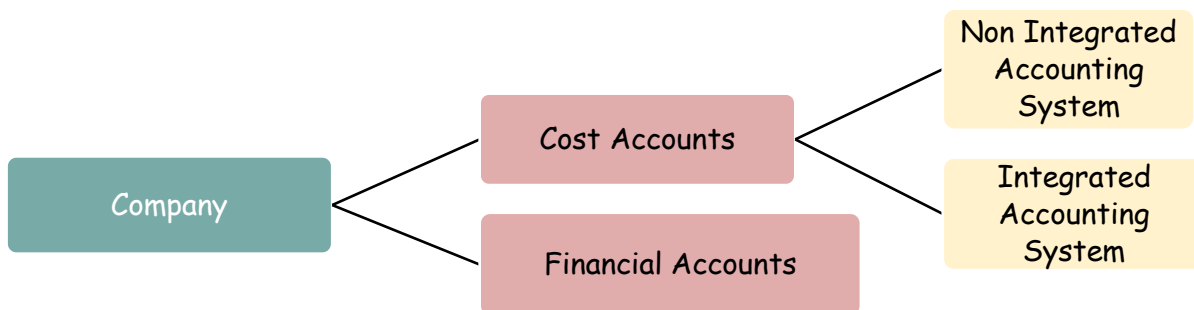
Benefit	Description
Enhanced Financial Accuracy	ABB improves the accuracy of financial forecasts and increases management understanding.
Automated & Efficient Planning	When automated , ABB quickly generates financial plans and models based on different volume assumptions.
Eliminates Rework	ABB reduces unnecessary rework associated with traditional budgeting techniques.

CHAPTER 5: COST ACCOUNTING SYSTEMS

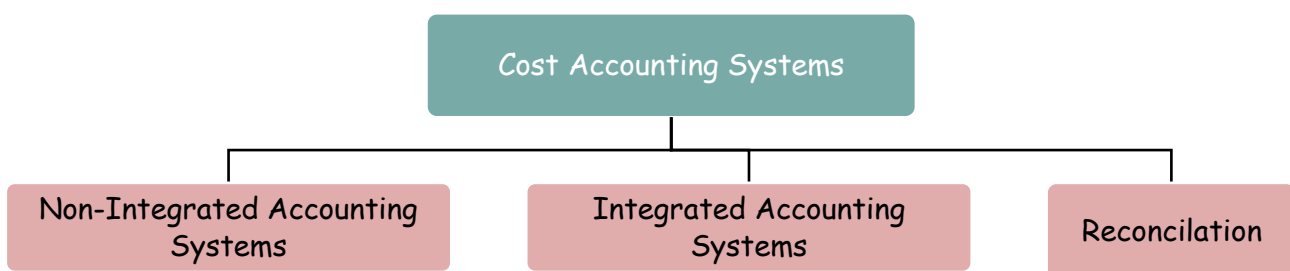


1. Introduction

- ✓ To operate business operations **efficiently** and **successfully**, it is necessary to make use of an **appropriate accounting system**.
- ✓ Where **cost** and **financial** accounting records are **integrated**, the system so evolved is known as **Integrated or Integral** accounting system.
- ✓ In case **cost** and **financial** transactions are **kept separately**, the system is called **Non-Integrated Accounting system** or **Cost Control System**.
- ✓ Hence **cost records** can be maintained under any one of the **two methods**.



- ✓ In case of called **Non-Integrated Accounting system**, since the **costing** and **financial records** are **kept separately**, two **different profits** are **reported** which will have to be **reconciled**. This is covered in the last segment of this chapter.
- ✓ Hence, this chapter is bifurcated into three segments:



PART A: Non - Integrated Accounting System

2. Ledger Accounts under Non - Integrated Accounting System

- ✓ It is a system of accounting under which separate ledgers are maintained for both cost and financial accounts. This system is also known as cost ledger accounting system.
- ✓ Items of expenses which are related to sales, production or other matters of factory management are the ones dealt with in such accounts.
- ✓ Non-Integrated accounting systems contain fewer accounts as compared to financial accounting system due to the exclusion of purchases, expenses and also Balance Sheet items like fixed assets, debtors and creditors.
- ✓ Items of accounts which are excluded are represented by an account known as Cost ledger control account or General Ledger Adjustment
- ✓ List of Ledger Accounts under Non-Integrated Accounting System are:
 1. Stores Ledger control A/c
 2. W I P control A/c
 3. Finished Goods A/c
 4. Wages Control A/c
 5. Production Overheads A/c
 6. Administrative Overheads A/c
 7. Selling and Distribution Overheads A/c
 8. Abnormal Loss A/c
 9. Cost of Sales A/c
 10. Costing Profit and Loss A/c
 11. General Ledger Adjustment or Cost Ledger Control A/c

3. Journal Entries in Non-Integrated Accounting System

A. Journal Entries related to Raw Materials

	Particulars	Debit (₹)	Credit (₹)
1	Purchases of Raw Materials made: Stores Ledger Control A/c Dr To General Ledger Adjustment A/c	xxx	xxx
2	Direct Material Issued for Production: WIP A/c Dr To Stores Ledger Control A/c	xxx	xxx

3	Material Returned to Stores Ledger Control: Stores Ledger Control A/c Dr To WIP A/c	xxx	xxx
4	Raw Material Return made to Supplier: General Ledger Adjustment A/c Dr To Stores Ledger Control A/c	xxx	xxx
5	Direct Material Purchased by Factory (Special Orders): WIP A/c Dr To General Ledger Adjustment A/c	xxx	xxx
6	Indirect Material Issued for Production: Production Overheads A/c Dr To Stores Ledger Control A/c	xxx	xxx
7	Abnormal Raw Material Loss: Abnormal Loss A/c Dr To Stores Ledger Control A/c	xxx	xxx
8	Transfer of Raw Material from one Job to Another Transferee Job A/c Dr To Transferor Job A/c	xxx	xxx

B. Journal Entries related to Wages

	Particulars	Debit (₹)	Credit (₹)
1	Incurrence of Wages: Wages Control A/c Dr To General Ledger Adjustment A/c	xxx	xxx
2	Utilization of wages: WIP A/c Dr	xxx	

Production Overhead A/c	Dr	xxx	
Administrative Overhead A/c	Dr	xxx	
Selling Overhead A/c	Dr	xxx	
Abnormal Loss A/c	Dr	xxx	
To Wages Control A/c			xxx

C. Journal Entries related to Overheads

	Particulars	Debit (₹)	Credit (₹)
1	Production Overhead Incurred: Production Overhead A/c Dr To General Ledger Adjustment A/c	xxx	xxx
2	Administrative Overhead Incurred: Administrative Overhead A/c Dr To General Ledger Adjustment A/c	xxx	xxx
3	Selling Overhead Incurred: Selling Overhead A/c Dr To General Ledger Adjustment A/c	xxx	xxx
4	Absorption of Production Overhead: WIP A/c Dr To Production Overhead A/c	xxx	xxx
5	Absorption of Administrative Overhead: Cost of Sales A/c Dr To Administrative Overhead A/c	xxx	xxx
6	Absorption of Selling Overhead: Cost of Sales A/c Dr To Selling Overhead A/c	xxx	xxx

7	Under Absorption of Production Overheads:		
	Cost of Sales A/c Dr	xxx	
	Finished Goods A/c Dr	xxx	
	W I P A/c Dr	xxx	
	To Production Overheads A/c		xxx
8	Under Absorption of Administrative Overheads:		
	Costing Profit and Loss A/c Dr	xxx	
	To Administrative Overhead A/c		xxx
9	Under Absorption of Selling Overheads:		
	Costing Profit and Loss A/c Dr	xxx	
	To Selling Overhead A/c		xxx

Doubt Busters: 💡

1. In case of Over Absorption, the Journal Entry will be exactly the inverse of Under Absorption Journal Entry.
2. Sometimes, AOH may be considered as a product cost for valuing the Finished Goods. Under/Over Absorption in this case will impact the FG A/c instead of Costing Profit and Loss A/c. (Refer Classroom Discussion)

D. Other Transactions (Transfer Entries)

	Particulars	Debit (₹)	Credit (₹)
1	Completed Goods:		
	Finished Goods Control A/c Dr	xxx	
	To W I P Control A/c		xxx
2	Cost of Sales of Completed Goods:		
	Cost of Sales A/c Dr	xxx	
	To Finished Goods Control A/c		xxx
3	Sale of Completed Goods:		
	General Ledger Adjustment A/c Dr	xxx	
	To Costing Profit and Loss A/c		xxx



PART B: Integrated Accounting System



4. Ledger Accounts under Integrated Accounting System

- ✓ **Integrated Accounts** is the name given to a **system of accounting**, whereby **cost and financial accounts** are kept in the **same set of books**.
- ✓ **Integrated accounts** provide or meet out fully the **information requirement** for **Costing** as well as for **Financial Accounts**.
- ✓ **Integrated accounts** provide relevant **information** which is **necessary** for preparing **profit and loss account** and the **balance sheet** as per the requirement of law and also helps in exercising **effective control** over the **liabilities** and **assets** of its business.
- ✓ List of **Ledger Accounts** under Integrated Accounting System are **same** as **Non-Integrated Accounting System**, **except** that instead of General Ledger Adjustment A/c, the **respective financial A/c** itself is maintained.



5. Journal Entries in Integrated Accounting System

- ✓ The Journal Entries in Integrated Accounting System are **same** as **Non-Integrated Accounting System**, **except** that instead of General Ledger Adjustment A/c, the **respective financial A/c** is **Debited or Credited**.



PART C: Reconciliation of Cost and Financial Accounts

- ✓ When the **cost** and **financial** accounts are **kept separately**, it is imperative that these should be **reconciled** to make the **cost accounts** reliable.
- ✓ It is necessary for **reconciliation** of the **two sets** of **accounts** that sufficient details are available to locate the **differences** and the **reasons** for the **same**.
- ✓ These **items** of **differences** are either **added** or **subtracted** from the **profit** as shown by one of the accounts.
- ✓ The **reconciliation** of the **balances** of **two sets** of **accounts** is possible by preparing a **Reconciliation Statement** or a **Memorandum Reconciliation Account**.



6. Causes of Differences in Financial and Cost Accounts

a) Items included in **Financial Accounts** only-

Purely Financial Expenses:

- **Interest** on loans or bank mortgages.
- **Expenses** and **discounts** on issue of **shares**, **debentures** etc.
- Other **capital losses** i.e., loss by fire not covered by insurance etc.
- **Losses** on the **sales** of **fixed assets** and **investments**
- **Income tax**, **donations**, **subscriptions**
- Expenses of the **company's share transfer** office, if any.

Purely Financial Income:

- **Interest received** on bank deposits, loans and investments
- **Dividends** received
- **Profits** on the **sale** of **fixed assets** and investments
- **Transfer fee** received.
- **Rent** receivables

b) Item included in **Cost Accounts** only (notional expenses):

- Charges in lieu of **rent** where **premises** are owned
- **Interest** on **capital** at notional figure though not incurred
- **Salary** for the **proprietor** at **notional figure** though not incurred
- **Notional Depreciation** on the **assets** fully **depreciated** for which **book value** is nil.

c) Items whose **treatment** is **different** in the two sets of accounts:

- There are chances that **certain items** are treated **differently** in the two sets of accounts.

- Cost accounting may use a **different** method of **depreciation** than what is allowed under **financial accounting**.

d) Varying basis of valuation:

- It is another factor which sometimes is responsible for the difference.
- It financial accounts stock are valued either at cost or market price, whichever is **lower**.
But in **Cost** Accounts, **stocks** are only **valued** at **cost**.



Core Theory Topics

Advantages of Integrated Accounts

Advantage	Description
No Need for Reconciliation	Since there is only one profit figure , there is no need to reconcile costing and financial profit.
Less Effort	Using a single set of books reduces manual effort and simplifies accounting.
Less Time-Consuming	Information is readily available from books of original entry, avoiding delays.
Economical Process	Centralized accounting reduces costs and enhances efficiency.

Essential Pre-requisites for Integrated Accounts

Pre-requisite	Description
Management's Decision on Integration	Decide the extent of integration - whether to merge fully or only up to prime cost/factory cost.
Suitable Coding System	Implement a coding system that serves both financial and cost accounting needs.
Agreed Routine for Adjustments	Establish a clear routine for handling accruals , prepayments , and other adjustments for interim accounts.
Coordination Between Departments	Ensure perfect coordination between financial and cost accounting staff for smooth processing.
No Need for a Separate Cost Ledger	Integrated accounts eliminate the need for a separate cost ledger , but require subsidiary ledgers like: - Stores Ledger - Stock Ledger - Job Ledger

Features of Integrated Accounting System

- ✓ The main points of integrated accounting:
 - Complete analysis of cost and sales are kept.
 - Complete details of all payments in cash are kept
 - Complete details of all assets and liabilities are kept and this system does not use a notional account to represent all impersonal accounts
- ✓ In integrated system, all accounts necessary for showing classification of cost will be used but the cost ledger control account of non-integrated accounting is replaced by use of following accounts:
 - Bank account
 - Receivables (Debtors) account
 - Payables (Creditors) account
 - Provision for depreciation account
 - Fixed assets account
 - Share capital account

CHAPTER 6: JOB COSTING



1. Introduction

- ✓ Job Costing is a method of costing that is used in industries manufacturing Customer Specific Products.
- ✓ CIMA London defines **Job Costing** as "the category of basic costing methods which is applicable where the work consists of **separate contracts**, jobs or batches, **each** of which is authorised by **specific order** or **contract**."
- ✓ According to this method, **costs** are **collected** and accumulated **according to jobs, contracts**, products or **work orders**. Each job or unit of production is treated as a **separate entity** for the purpose of costing.
- ✓ **Job Costing** is carried out for the purpose of ascertaining **cost** of **each** job and takes into account the cost of **materials**, **employees** and **overhead** etc.



2. Job Cost Card / Sheet

- ✓ Each **job order** is asymmetrical to other due to **specific** and **customised** requirements. To ascertain cost of a particular job, it is necessary to record all the **expenditure** related with a **job separately**.
- ✓ For this purpose, **Job Cost card** is used. Job cost card is a **cost sheet**, where the quantity of **materials** issued, hours spent by different class of **employees**, amount of other **expenses** and share of **overheads** are **recorded**.

JOB COST SHEET

Description:			Job No.:		
Blue Print No.:			Quantity:		
Material No.:			Date of delivery:		
Reference No.:			Date commenced:		
			Date Finished:		
Date	Reference	Details	Material	Labour	Overhead
		Total			
Summary of costs		Estimated (₹)	Actual (₹)	For the job	
Direct material cost				Units produced	
Direct wages				Cost/unit	
Production overhead				Remarks	
Production Cost				Prepared by:	
Administration and Selling & Distribution Overheads				Checked by:	
Total Cost					
Profit/Loss					
Selling Price					



3. Collection of Cost for a Job

A. Material Cost

- ✓ An essential requirement of job cost accounting is that **direct materials** and their cost must be **traced** to and identified with specific **job** or **work order**. This segregation of materials cost by jobs or work order is brought by the use of **separate stores requisitions** for **each job** or work order.
- ✓ The summary of materials cost of each job is posted to **individual job cost sheets** or cards in the **Work-in-Progress** ledger. The postings are usually made weekly or monthly.
- ✓ If any **special material** has been purchased for a particular **job**, it is generally the practice to charge such special material **direct** to the **job** concerned without passing it through the Stores Ledger, as soon as it is purchased.

- ✓ If the **surplus material** is utilised on some other job, instead of being **returned** to the **stores first**, a material **transfer note** is prepared the cost thereof can be **adjusted** in the **Work-in-Progress Ledger**.

B. Labour Cost

- ✓ All **direct labour cost** must be analysed according to **individual** jobs or work orders. The analysis of labour according to jobs or work orders is, usually, made by means of **job time cards** or sheets. All direct labour is **booked** against **specific jobs** in the job time cards or sheets.
- ✓ All direct employee cost is accumulated under **relevant job** or work **order** numbers, and the total or the periodical total of each job or work order is then posted to the appropriate job cost card or sheet in **Work-in-Progress ledger**.
- ✓ As regards other items of **indirect labour** cost these are **collected** from the **payrolls** books for the purpose of **posting** against standing order or **expenses** code numbers in the **Overhead Expenses ledger**.
- ✓ All the **idle time** also is booked against appropriate **standing order** expense code number either in the job time card for each job or on a **separate idle time** card for each **worker** (where the job time card is issued job-wise).

C. Overheads

- ✓ **Manufacturing overheads** are collected under suitable standing order numbers and selling and distribution overheads against cost accounts numbers. **Total** overhead **expenses** so collected are **apportioned** to **service** and **production** departments on some **suitable basis**. e.g. **machine hour**; **labour hour**; percentage of **direct wages**; percentage of **direct materials**; etc.
- ✓ It should be remembered that the use of **different methods** will lead to a **different amount** being computed for the works overhead charged to a job hence to **different total cost**.
- ✓ The **problem** of **accurately absorbing**, in each individual job or work order, the overhead cost of different cost centres or departments involved in the manufacture is **difficult** under the **job costing method**.
- ✓ In such **circumstances**, the best that can be done is to apply a **suitable overhead rate** to each individual article manufactured or to each **production order**. This is essentially an **arbitrary method**.

D. Treatment of spoiled and defective work

Circumstances	Treatment
1. Where a percentage of defective work is allowed in a particular batch as it cannot be avoided .	• When a normal rate of defectives has already been established, if the actual number of defectives is within the normal limit or close to it, the cost of rectification will be charged to the

	whole job and spread over the entire output of the batch. However, if the number of defective units substantially exceeds the normal, the excess rectification cost will be written off as a loss in the Costing Profit and Loss Account.
2. Where defect is due to bad workmanship.	- The cost of rectification is considered an abnormal cost, i.e., not a legitimate element of cost, and should be written off as a loss, unless there is an arrangement to recover it as a penalty from the workman concerned. - However, if the management had provided for a certain proportion of defectives as unavoidable due to workmanship issues, that portion is treated as normal and the related rectification cost is charged to the batch.
3. Where defect is due to the Inspection Department wrongly accepting incoming material of poor quality.	The cost of rectification will be charged to the Inspection Department and not included in the cost of manufacture of the batch. This is an abnormal cost and should be written off to the Costing Profit and Loss Account.



Core Theory Topics

Principles of Job Costing

Objective of Costing	To analyze and ascertain the cost of each unit of production .
Cost Control	To control and regulate costs.
Profitability Determination	To determine the profitability of the business.
Applicable Industries	Job costing is applicable to industries such as printing, furniture, hardware, ship-building, heavy machinery, interior decoration, and repairs .

Process of Job Costing

Prepare a Cost Sheet	Create a separate cost sheet for each job .
Cost of Materials	Disclose the cost of materials issued for the job.
Employee Costs	Record employee costs based on bill of material and time cards .
Add Overhead Charges	Once the job is completed, add overhead charges to determine the total expenditure.

Suitability of Job Costing

Jobs for Different Customers	Jobs are carried out for different customers based on their specifications .
Unique Orders	Each order/job is different and requires special treatment .
Work-in-Progress	Work-in-progress changes over time depending on the number of jobs being handled.

Advantages and Disadvantages of Job Costing

Some of the advantages and disadvantages of Job costing are summarised as below:

Advantages	Disadvantages
Cost Details Available	Job costing is a costly and labor-intensive method.
Profitability of Each Job	Due to clerical processes , the chances of error are higher.
Facilitates Production Planning	Not suitable during inflationary conditions.
Budgetary Control and Standard Costing	Previous records of costs become irrelevant with changes in market conditions .
Identifies Spoilage and Defects	

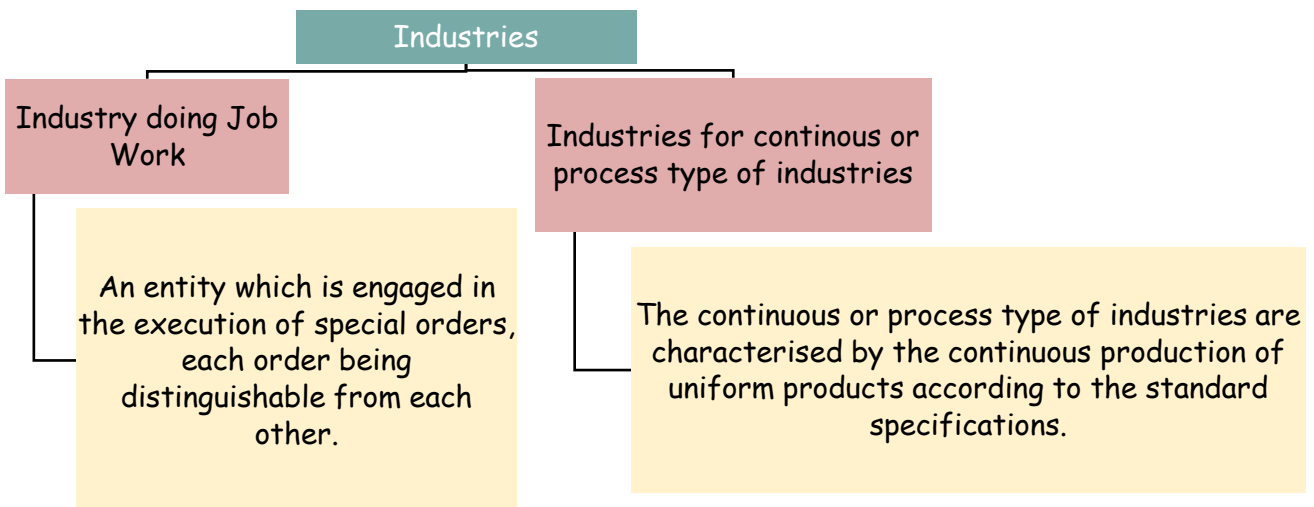
Difference between Job Costing and Process Costing	
Job Costing	Process Costing
Job-based Production	Continuous flow production of homogeneous products.
Costs Determined per Job	Costs are compiled for a period for each process or department.
Independent Jobs	Products lose their individual identity due to continuous production.
Job Number for Cost Collection	Unit cost of process is an average cost for the period.
Costs Computed After Job Completion	Costs are calculated at the end of the period; unit cost is based on total cost divided by output.
Requires More Managerial Attention	Production is standardized, making control easier and more stable.

CHAPTER 7: UNIT & BATCH COSTING



1. Introduction

- ✓ The **objective** of this **chapter** is how the **cost accounting information** can be **presented and used** according to the needs of the **management**.
- ✓ To fulfil the **need of the users** of the cost accounting information, **different methods** of costing are followed according to the **needs and nature of industries**.
- ✓ **Industries** can be **grouped** into **two basic** types i.e. Industries doing **job work** and industries engaged in mass production of a **single product or identical products**.



2. Unit Costing

- ✓ **Unit costing** is that **method of costing** where the **output produced** is **identical** and **each unit** of output requires **identical cost**.
- ✓ Under this **method** costs, are **collected and analyzed element wise** and then **total cost per unit** is ascertained by **dividing the total cost** with the **number of units produced**.
- ✓ This **method of costing** is followed by **industries** which produce **single output** or **few variants** of a single output.
- ✓ $\text{Cost Per Unit} = \text{Total Cost of Production} \div \text{No of Units Produced}$



3. Cost Collection Procedure in unit costing

A. Material Cost

- ✓ **Cost of materials** issued for **production** are collected from **Material Requisition notes** and accumulated for a **certain period** or **volume of activity**.
- ✓ The **cost of material** so accumulated is posted in **cost accounting system**.
- ✓ Through the **cost accounting system**, **cost sheet** for the period or activity is prepared to know cost for the period **element-wise** and **functions-wise**.

B. Labour Cost

- ✓ All **direct employee (labour) cost** is collected from **job time cards** or **sheets** and accumulated for a certain period or **volume of activity**.
- ✓ The **time booked or recorded** in the **job time** and **idle time** cards is valued at **appropriate rates** and entered in the cost accounting system.
- ✓ Other items of **indirect employee (labour) costs** are collected from the **payrolls** books for the purpose of posting against **standing order** or **expenses code numbers** in the overhead expenses ledger.

C. Overheads

- ✓ **Overheads** are collected under suitable **standing orders numbers**, and **selling and distribution** overheads against **cost accounts numbers**.
- ✓ Total **overhead expenses** so collected are **apportioned** to **service and production departments** on some suitable basis.
- ✓ The expenses of **service departments** are finally **transferred** to **production departments**. The total overhead of production departments is then **applied to products** on some **realistic basis**.

D. Treatment of spoiled and defective work

Circumstances	Treatment
Loss due to normal reasons	When a normal rate of defectives has already been established and actual number of defectives is within the normal limit, the cost of rectification or loss will be charged to the entire output . If, on the other hand, the number of defective units substantially exceeds the normal limits, the cost of rectification or loss beyond normal limits are written off in Costing Profit and Loss Account .
Loss due to abnormal reasons	In this case cost of rectification and loss is treated as abnormal cost and the cost of rectification or loss is written off as loss in Costing Profit and Loss Account .



4. Batch Costing

- ✓ **Batch Costing** is a type of **specific order costing** where **articles** are manufactured in **predetermined lots**, known as **batch**.
- ✓ Under this costing method, the **cost object** for cost determination is a **batch** for production rather output as seen in unit costing method.
- ✓ A batch consists of certain number of **units** which are **processed simultaneously** to be for manufacturing operation. Under this method of manufacturing, the inputs are **accumulated** in the assembly line till it reaches **minimum** batch size.

- ✓ For example, in pen manufacturing industry, it would be too costly to manufacture one pen of a particular design at a time to meet the demand of one customer. On the other hand, the production, of say 10,000 pens, of the same design will reduce the cost to a sizeable extent.



5. Economic Batch Quantity (EBQ)

- ✓ As the product is produced in **batches or lots**, the **lot size chosen** will be critical in achieving **least cost of operation**.
- ✓ Primarily, the **total production cost** under batch production comprises of **two main costs**, namely,
 - **Machine Set Up Costs** and
 - **Inventory holding costs**.
- ✓ If the **size is higher**, the **set up cost** may **decline** due to **lesser number of set ups** required; but **units in inventory** will go up leading to **higher holding costs**.
- ✓ If the **lot size is lower**, **lower inventory holding costs** are accomplished but only with **higher set up costs**.
- ✓ **Economic batch quantity** is the **size of a batch** where **total cost of set-up and holding costs** are at **minimum**.

$$\text{✓ Economic Batch Quantity} = \sqrt{\frac{2DS}{C}}$$

Where, D = Annual demand for the product
 S = Setting up cost per batch
 C = Carrying cost per unit of production

Difference Between Job and Batch Costing

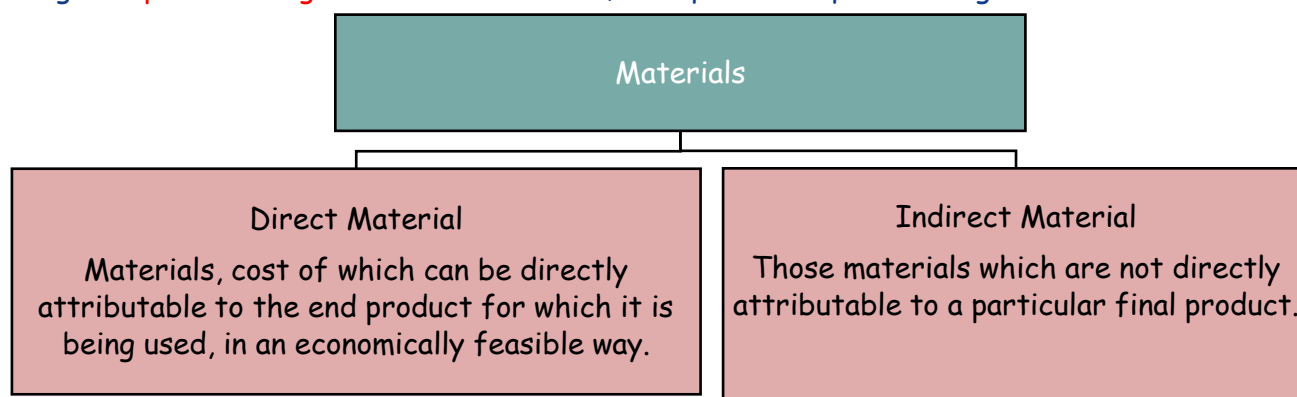
Sr. No	Job Costing	Batch Costing
1	Method of costing used for non-standard and non-repetitive products produced as per customer specifications and against specific orders .	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis .
3	Jobs are different from each other and independent of each other . Each Job is unique .	Products produced in a batch are homogeneous and lack of individuality

CHAPTER 8: MATERIAL COST



1. Introduction

- ✓ The meaning of **material** is all **commodities**/ physical objects used to make the **final product**. It may be **direct** or **indirect**.
- ✓ Direct Materials constitute a significant part for **manufacturing** and **production** of goods.
- ✓ Being an **input** and a **significant cost element**, it requires adequate management attention.



2. Valuation of Material Cost

- ✓ Ascertainment of **cost of material purchased** is called **valuation of materials** receipts.
- ✓ Cost of material **includes** cost of purchase (net of trade **discounts**, **rebates**, duty draw-back, **input credit** availed, etc.) and other **costs incurred** in bringing the **inventories** to their **present location** and **condition**.
- ✓ Invoice of material purchased from the market sometime contain items such as **trade discount**, **quantity discount**, **freight**, **duty**, **insurance**, cost of **containers**, **taxes**, cash discount etc.
- ✓ Treatment of items associated with purchase of materials is tabulated as below

S No.	Items	Treatment
Discounts and Subsidy		
(i)	Trade Discount	Trade discount is deducted from the purchase price if it is not shown as deduction in the invoice.
(ii)	Quantity Discount	Quantity discount is deduction from the invoice. It is deducted from the purchase price if not shown as deduction.
(iii)	Cash Discount	Cash discount is not deducted from the purchase price. It is treated as interest and finance item . It is ignored.
(iv)	Subsidy/ Grant/ Incentives	Any subsidy/ grant/ incentive received from the Government or from other sources deducted from the cost of purchase.

Duties and Taxes		
(v)	Road Tax/ Toll Tax	Road tax/ Toll tax, if paid by the buyer, is included with the cost of purchase.
(vi)	Goods and Service Tax (GST)	It is excluded from the cost of purchase if credit for the same is available. Unless mentioned specifically it should not form part of cost of purchase .
(vii)	Custom Duty	It is added with the purchase cost.
Penalty and Charges		
(viii)	Demurrage	Demurrage is a penalty imposed by the transporter for delay in uploading or offloading of materials. It is an abnormal cost and not included with cost of purchase
(ix)	Detention charges/ Fine	Detention charges/ fines imposed for non-compliance of rule or law by any statutory authority. It is an abnormal cost and not included with cost of purchase
(x)	Penalty	Penalty of any type is not included with the cost of purchase
Other expenditures		
(xi)	Insurance charges	Insurance charges are paid for protecting goods during transit. It is added with the cost of purchase.
(xii)	Commission or brokerage paid.	Commission or brokerage paid is added with the cost of purchase.
(xiii)	Freight inwards	It is added with the cost of purchase as it is directly attributable to procurement of material.
(xiv)	Cost of containers	Treatment of cost of containers are as follows: • Non-returnable containers is added with the cost of purchase of materials. • Returnable Containers: If the containers are returned and their costs are refunded, then cost of containers should not be considered in the cost of purchase. • If the amount of refund on returning the container is less than the amount paid, then, only the short fall is added with the cost of purchase.



3. Economic Order Quantity

Meaning	Order Quantity at which the Total Raw Material Inventory Maintenance Cost is minimum.	
Assumptions	Constant & Known 1. Annual Consumption (A) 2. Purchase Price per unit 3. Ordering Cost/order (O) 4. Carrying Cost pu.pa. (C) 5. No closing stock 6. No Lead Time	
Total RM Inventory Cost	Purchase Cost (PC)	$A \times \text{Purchase Price Per Unit}$
	Total Ordering Cost	$\frac{A}{Q} \times O$
	Total Carrying Cost	$\frac{Q}{2} \times C$
EOQ Formula	$EOQ = \sqrt{\frac{2AO}{C}}$	
Total Relevant Cost	$(TOC + TCC) \text{ at } EOQ = \sqrt{2AOC}$	
No. of Orders	$\frac{A}{OQ}$	
Time Gap between 2 orders	$\frac{365/12/52/360}{\text{No. of orders}}$	
EOQ with Different Price Levels	Find total raw material inventory cost at each level by assuming an arbitrary quantity from each range and select the range with minimum cost	



4. Stock Levels (Inventory Control – By Setting Quantitative Levels)

A. Re-order Stock Level (ROL):

Re-Ordering Level (ROL) = Maximum Consumption Per Period × Maximum Lead Time

- ✓ This level lies between **minimum** and the **maximum** levels in such a way that before the material ordered is received into the stores, there is sufficient quantity in hand to cover both normal and abnormal consumption situations.
- ✓ In other words, it is the level at which fresh order should be placed for replenishment of stock.

B. Minimum Stock Level:

Minimum Level = ROL - (Average Rate of Consumption × Average Re-Order-Period)

- ✓ It is **lowest** level of material stock, which must be **maintained** in hand at **all times**, so that there is no stoppage of production due to non-availability of inventory.

C. Maximum Stock Level:

Maximum Level = ROL + ROQ - [Minimum Rate of Consumption × Minimum Lead Time]

- ✓ It is the **highest level** of quantity for any material which can be held in stock at any time. Any quantity beyond this level cause **extra amount** of expenditure due to engagement of fund, cost of storage, obsolescence etc.

D. Average Inventory Level:

$$\frac{\text{Minimum Level (+) Maximum Level}}{2} \text{ or Minimum level} + \frac{1}{2} \times \text{ROQ}$$

- ✓ This is the **quantity** of **material** that is normally held in **stock over** a period. It is also known as normal stock level.

E. Danger level:

Danger Level = Average Consumption × Lead Time for Emergency Purchases

- ✓ It is the level at which **normal issues** of the raw material inventory are **stopped** and emergency issues are only made.



5. Issues Valuation Methods

A. First-in First-out (FIFO) Method:

- ✓ It is a method of pricing the issues of materials, in the **order** in which they are **purchased**. the materials are issued in the order in which they arrive in the store or the items longest in stock are **issued first**.
- ✓ Thus, each **issue** of **material** only recovers the **purchase price** which does **not** reflect the **current market price**.

Date	Receipts			Issues			Balance		
	Q	P	A	Q	P	A	Q	P	A
1	100	2	200				100	2	200
2	500	3	1500				100	2	200
							500	3	1500
3				100	2	200			
				50	3	150	450	3	1350

B. Last-in-First-out (LIFO) Method:

- ✓ It is a **method** of pricing the issues of materials on the basis of assumption that the items of the **last batch** (lot) purchased are the first to be issued. Therefore, under this method the prices of the **last batch** (lot) are used for pricing the issues, **until** it is **exhausted**, and so on.
- ✓ If however, the quantity of issue is more than the quantity of the **latest lot**, **then earlier** (lot) and its price will also be taken into consideration.

Date	Receipts			Issues			Balance		
	Q	P	A	Q	P	A	Q	P	A
1	100	2	200				100	2	200
2	500	3	1500				100	2	200
							500	3	1500
3				150	3	450	100	2	200
							350	3	1350

C. Simple Average Price Method:

- ✓ Under this method, **materials** issued are valued at **average price**, which is calculated by dividing the total of rates at which different lot of materials are purchased by total number of lots.
- ✓ In this method quantity purchased in **each lot** is **ignored**. However, the price of stock of that lot which is completely **sold out** is not considered for taking **average price**.

D. Weighted Average Price Method:

- ✓ Unlike **Simple Average** Price method, this method gives due **weightage** to **quantities** also. Under this method, issue price is calculated by **dividing** sum of products of **price** and **quantity** by total number quantities.

Date	Receipts			Issues			Balance		
	Q	P	A	Q	P	A	Q	P	A
1	100	2	200				100	2	200
2	500	3	1500				600	2.83	1700
3				150	2.83	425	450	2.83	1275

E. Base Stock Method:

- ✓ Minimum quantity of stock under this method is always held at a **fixed price** as reserve in the stock, to meet the state of emergency, if it arises.
- ✓ This **minimum stock** is known as **base stock** and is valued at a **price** at which the first lot of materials is received and remains unaffected by subsequent price fluctuations.

F. Replacement Price Method:

- ✓ Replacement price is defined as the price at which it is possible to purchase an item, identical to that which is being **replaced** or **revalued**. Under this method, materials issued are valued at the replacement cost of the items.
- ✓ This method pre-supposes the determination of the **replacement** cost of materials at the time of each issue; viz., the **cost** at which **identical materials** could be currently **purchased**. The product cost under this method is at **current market price**, which is the main objective of the replacement price method.



6. Supplier Selection

Example:

Find Indifference Point

	Supplier A	Supplier B
Purchase Price/unit (₹)	50	40
Fixed charges p.a. (₹)	-	10,000

$$\therefore \text{Indifference Point} = \frac{\Delta \text{Fixed Cost}}{\Delta \text{Variable Cost Per Unit}} = \frac{10,000}{10} = 1,000 \text{ units}$$

If Expected Quantity	Suggest
> Indifference point	High Fixed Cost = Supplier B
< Indifference point	Low Fixed Cost = Supplier A



7. ABC Analysis

- ✓ This system exercises discriminating control over **different items** of inventory on the basis of the **investment involved**. Usually, the items are classified into **three** categories according to their relative importance, namely, their value and frequency of **replenishment** during a period.
- ✓ '**A**' Category: This category of items consists of only a **small percentage** i.e., about 10% of the total items handled by the stores but require **heavy investment** about **70%** of **inventory value**, because of their high prices or heavy requirement or both.
- ✓ '**B**' Category: This category of items is relatively less important; they may be 20% of the total items of material handled by stores. The percentage of investment required is about **20%** of the **total investment** in inventories. In the case of these items, as the sum involved is moderate, the same degree of control as applied in 'A' category of items is not warranted.
- ✓ '**C**' Category: This category of items does not require much investment; it may be about **10%** of total inventory value but they are nearly **70%** of the total items handled by store.



8. Inventory Turnover Ratio

- ✓ Computation of **inventory turnover** ratios for different **items** of **material** and comparison of the turnover rates provides a useful guidance for measuring inventory performance.
- ✓ **High inventory** turnover ratio indicates that the **material** in the question is a **fast** moving one. A **low turnover** ratio indicates over-investment and locking up of the working capital in inventories.

Inventory Turnover Ratio =

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

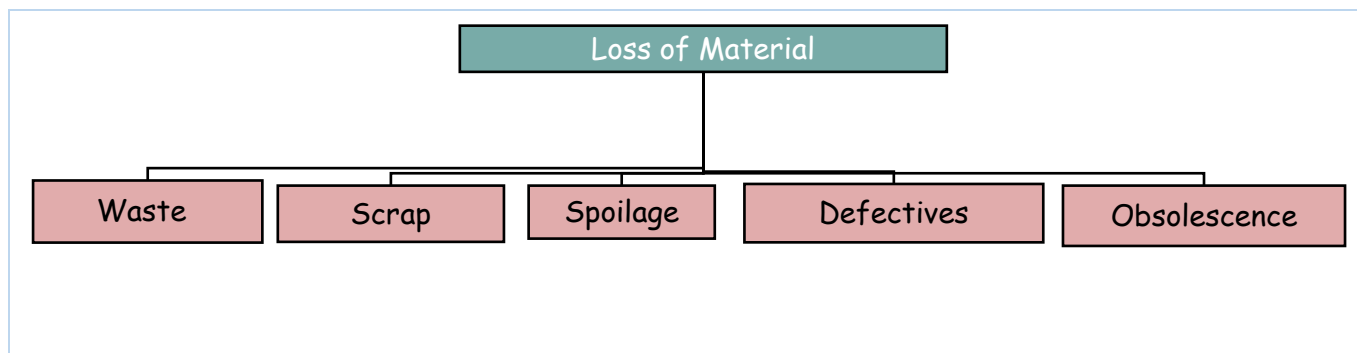
Where,

$$\text{Average stock} = \frac{1}{2} (\text{opening stock} + \text{closing stock})$$

$$\text{Average no. of days of Inventory holding} = 365 \text{ days} / 12 \text{ months} \div \text{Inventory Turnover Ratio}$$



9. Treatment of Losses



A. Waste:

- ✓ The **portion** of **raw material** which is **lost** during **storage** or production and discarded. The waste may or may **not** have **any value**.
- ✓ **Treatment of Waste**
 Normal- Cost of normal waste is **absorbed** by **good production units**.
 Abnormal- The cost of abnormal loss is transferred to **Costing Profit** and **loss account**.

B. Scrap:

- ✓ The **materials** that result from production which are **discarded** and **disposed-off** without further treatment.
- ✓ **Treatment of Waste**
 Normal- The **cost** of **scrap** is borne by **good units** and **income** arises on **account** of **realisable value** is **deducted** from the **cost**.
 Abnormal- The **scrap** account should be **charged** with **full cost**. The **credit** is given to the job or process concerned. The **profit** or **loss** in the **scrap** account, on **realisation**, will be transferred to the **Costing Profit** and **Loss Account**.

C. Spoilage:

- ✓ It is the term used for **materials** which are **badly damaged** in manufacturing operations, that do not meet the specification required by the customers and they **cannot** be **rectified** economically.
- ✓ **Treatment of Waste**
 Normal- Normal spoilage (i.e., which is inherent in the operation) **costs** are **included** in costs, either by **charging** the **loss due to spoilage** to the production order or by **charging** it to the **production overhead** so that it is spread over all the products.
 Abnormal- The **cost** of abnormal spoilage (i.e., arising out of causes not inherent in manufacturing process) is **charged** to the **Costing Profit** and **Loss Account**.

D. Defectives:

✓ Defectives arise due to **sub-standard materials**, bad-supervision, bad-planning, poor workmanship, inadequate-equipment and careless inspection.

✓ Treatment of Waste

Normal- An **amount** equal to the cost less realisable value on sale of defectives are **charged** to material **cost** of **good production**.

Abnormal- Material cost of abnormal defectives are **not included** in material **cost** but treated as **loss** after giving **credit** to the realisable value of such defectives. The material **cost** of abnormal loss is transferred to **costing profit** and **loss** account.

E. Waste Vs Scrap:

Waste	Scrap
1. It is connected with raw material or inputs to the production process.	1. It is the loss connected with the output
2. Waste of materials may be visible or invisible .	2. Scraps are generally identifiable and has physical substance.
3. Generally, waste has no recoverable value.	3. Scraps are termed as by-products and has small recoverable value.

F. Scrap Vs Defectives:

Scrap	Defectives
1. It is the loss connected with the output	1. This type of loss is connected with the output as well as the input .
2. Scraps are not intended but cannot be eliminated due to the nature of material or process itself.	2. Defectives also are not intended but can be eliminated through a proper control system.
3. Generally, scraps are not used or rectified .	3. Defectives can be used after rectification .
4. Scrap have insignificant recoverable value.	4. Defectives are sold at a lower value from that of the good one.

G. Obsolescence:

✓ Obsolescence is defined as "the loss in the **intrinsic value** of an asset due to its supersession".

✓ Treatment

Materials may become obsolete under any of the following circumstances:

- where it is a **spare part** or a **component** of a **machinery** that is used in manufacturing and is now **obsolete**;
- where it is used in the manufacturing of a product which has now become obsolete;

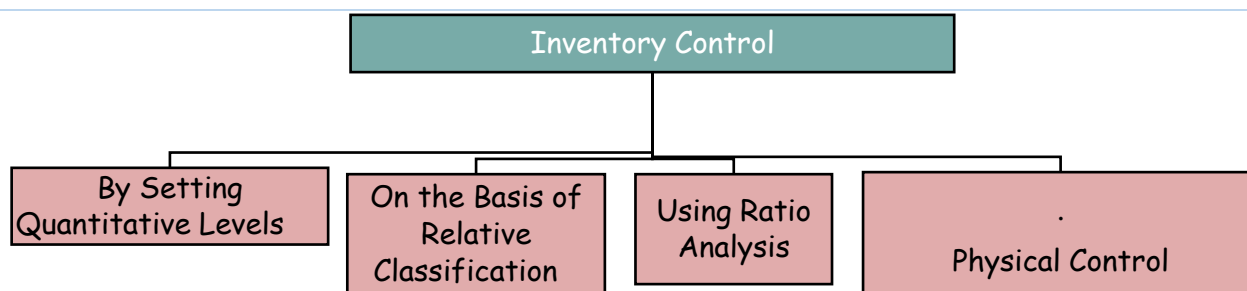
- where the material itself is replaced by another material due to either improved quality or fall in price.



Core Theory Topics

Inventory Control

- ✓ The objective of inventory control is to make a **balance** between **sufficient** stock and **over-stock**. The stock maintained should be sufficient to meet the production requirements so that uninterrupted production flow can be maintained.
- ✓ The main objective of **inventory control** is to maintain a trade-off between **stock-out** and **over-stocking**. Management may adopt the following basis for inventory control:



Importance of proper recording and control of material are as follows:

Point	Importance of Proper Recording and Control of Material
a) Quality of Final Product	The quality of output depends on the quality of input materials.
b) Price of Final Product	Since materials form a major part of the product, the cost of materials directly affects the final price.
c) Production Continuity	To ensure smooth production , firms must maintain enough material stock to avoid interruptions.
d) Cost of Stock Holding and Stock-Out	Holding stock leads to interest/opportunity costs and losses (like evaporation, obsolescence). Under-stocking causes lost revenue and missed commitments.
e) Wastage and Losses	While handling materials, some wastage is normal. Losses are categorized as normal or abnormal depending on material and process. Efficient control is necessary.
f) Regular Resource Information	Regular updates on availability and usage of materials help in timely and informed decision-making .

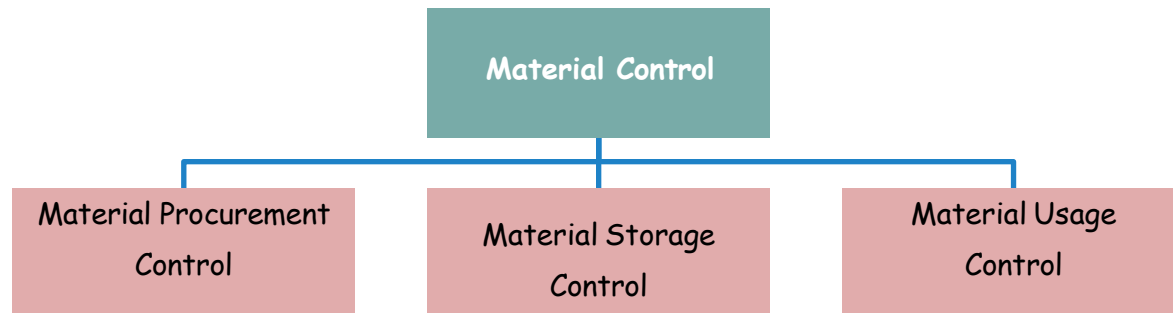
Objective of Material Control System	
Point	Objective of Material Control System
i. Minimising Interruption in Production	Ensures uninterrupted production by keeping all necessary materials available at all times, even if their cost is small.
ii. Optimisation of Material Cost	Aims to reduce total material costs including purchase price, ordering, and holding costs, while ensuring quality and reliable delivery.
iii. Reduction in Wastages	Focuses on avoiding losses from poor storage , quality deterioration, and obsolescence. Note: Production-related losses are managed by the production department.
iv. Adequate Information	Keeps accurate records to provide reliable information on materials, helping detect losses and pilferage, and aiding production planning.
v. Timely Order Completion	Helps in timely fulfillment of orders , improving the firm's goodwill and customer satisfaction.

Requirements of Material Control		
S. No.	Requirement	Simplified Description
1	Department Coordination	Ensure coordination between departments like finance, purchasing, receiving, inspection, storage, accounting, and payment.
2	Purchase Procedure	Follow a clear purchase process to buy materials at the best possible terms after proper inquiry.
3	Standard Forms Usage	Use standardized forms for orders, receipts, and material issues.
4	Material Budgets	Prepare budgets for materials, supplies, and equipment to ensure cost efficiency .
5	Internal Check System	Implement an internal check system so all transactions are properly approved and verified.
6	Proper Storage	Store materials in designated areas with necessary safeguards to avoid damage or loss.
7	Perpetual Inventory	Maintain a continuous inventory system with regular stock checks to know current quantity and value.
8	Stores Control and Issue	Ensure materials are issued timely , in the correct quantity , through a controlled store system.
9	Controlling Accounts & Records	Keep detailed and summary records of material costs, from receipt to consumption.

10	Regular Reports	Generate regular reports on purchases, stock issues, balances, returns, and defective units.
----	-----------------	--

Elements of Material Control

Material control is a systematic control over the procurement, storage and usage of material so as to maintain an even flow of material.

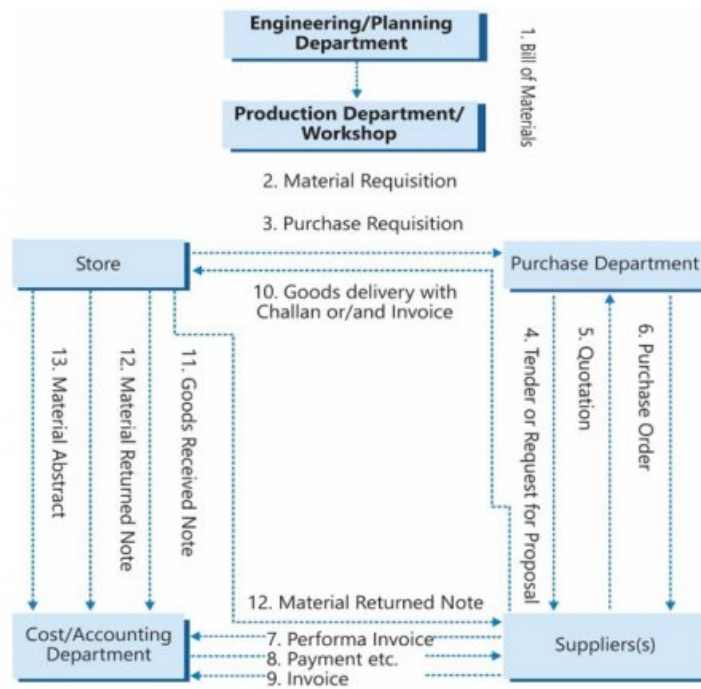


Material control involves efficient functioning of the following operations:

- Purchasing of materials
- Receiving of materials
- Inspection of materials
- Storage of materials
- Issuing materials
- Maintenance of inventory records
- Stock audit

Materials Procurement Procedure

Material procurement procedure can be understood with help of the following diagram. Documents required and the departments who initiate these documents are shown sequentially.



Bill of Materials (BoM)

Aspect	Details
Name	Bill of Materials (BoM) - Also called Materials Specification List or Materials List.
Definition	A detailed list that mentions the standard quantity and quality of materials and components needed to make a product or complete a specific job.
Prepared By	Created by the product development team , usually the engineering or planning department.
Purpose	Helps in accurate material planning and coordination across departments like Marketing, Production, Stores, and Cost/Accounting.
Content	Lists each material/component , along with its specifications , quantity, and sometimes part number or source.
Format	Varies depending on the industry , the management information system (MIS) , and the accounting practices followed.

Uses of Bill of Material

Marketing (Purchase) Dept.	Production Dept.	Stores Dept.	Cost/Accounting Dept.
Materials are procured (purchased) on the basis of specifications mentioned in it.	Production is planned according to the nature, volume of the materials required to be used. Accordingly, material requisition	It is used as a reference document while issuing materials to the requisitioning department.	It is used to estimate cost and profit . Any purchase, issue and usage are compared/verified against this document.

lists are prepared.

Material Requisition Note (MRN)

Aspect	Details
Name	Material Requisition Note (MRN) - Also called Material Requisition Slip .
Definition	A voucher of authority used to request and withdraw materials from the store.
Prepared By	Usually prepared by the production department , based on the Bill of Materials (BoM) or Material Requisition List.
Alternative Preparer	If no BoM is available, the planning department or the requesting department prepares the note.
Purpose	Ensures that materials are issued in an authorised and recorded manner for production or job requirements.
Shared With	Sent to both Store and Cost/Accounting departments for recordkeeping and costing.
Format	May vary depending on industry practices , the Management Information System (MIS) , and the accounting system used.

Difference between Bill of Materials and Material Requisition Note

Bill of Materials	Material Requisition Note
1. It is the document prepared by the engineering or planning dept.	1. It is prepared by the production or other consuming department.
2. It is a complete schedule of component parts and raw materials required for a particular job or work order.	2. It is a document asking Store-keeper to issue materials to the consuming department .
3. It often serves the purpose of a material requisition as it shows the complete schedule of materials required for a particular job i.e. it can replace material requisition.	3. It cannot replace a bill of materials.
4. It can be used for the purpose of quotations .	4. It is useful in arriving historical cost only.
5. It helps in keeping a quantitative control on materials drawn through material requisition.	5. It shows the material actually drawn from stores.

Purchase Requisition

Name	Purchase Requisition
Definition	A formal request document that authorises the purchase department to

	procure the materials specified in it.
Purpose	Ensures co-ordination between production and purchase departments, especially for timely availability of materials.
Prepared By	- Storekeeper for regular materials (routinely stocked items). - Departmental Head or technical team for special materials (not stocked regularly).
Initial Step	A complete materials list should be prepared at the start and periodically reviewed for additions/deletions.
Standing Order Practice	Once a material is on the standard list , the purchase department must replenish stock before depletion.
Consumption Pattern	Any change in usage must be reported to the purchase department for timely action.
Inventory Control	For regular store items, inventory control system helps fix stock levels and order quantities .
Special Materials	For non-standard items , the technical department must provide a detailed material specification list (with quantity, size, type, etc.).
Origin of Requisition	Can come from stores department (for regular items) or technical/production departments (for special items).
Format	Varies depending on industry needs , MIS , and the accounting system used.

Inviting Quotation/ Request for Proposal (RFP)/ Notification Inviting Tender (NIT)

Materials purchase department has to answer the following question before initiating purchasing of materials:

- (i) What to purchase?
- (ii) When to purchase?
- (iii) How much to purchase?
- (iv) From where to purchase?
- (v) At what price to purchase?

The following are the few suggestive steps to answer to the questions:

i. What to purchase?

Materials are purchased as per the **requisition received** from the stores or user departments. In case of materials used **regularly**, the **materials** are **purchased** as per the **standard operating procedures (SOP)**.

ii. When to purchase?

Here's a simplified version of the concept "When to Purchase?" in a clear table format, with key terms highlighted for better understanding and quick reference:

Aspect	Details
Question	When to Purchase?
Core Idea	Materials must be ordered at the right time so they arrive before production needs arise, ensuring uninterrupted production.
Key Factors Influencing Timing	➤ Material availability in the market (supply ease) ➤ Lead time (time from order placement to delivery at production site) ➤ Consumption pattern (rate and regularity of material usage)
Objective	To replenish stock without causing delays in production or overstocking .
Related Concepts	➤ Re-order Stock Level (explains the stock level at which new orders should be placed) ➤ Just-in-Time (JIT) approach (aims to minimise inventory by receiving materials only when needed)

i. How much to purchase?

The quantity of materials to be **ordered depends** on the factors like material consumption pattern, **minimum order size** as offered by the supplier, quantity discount, storage cost and capacity and working capital requirement etc. The concept of **Economic Order Quantity (EOQ)** will be discussed later in this chapter.

ii. Where to purchase?

Aspect	Details
Definition	The process of selecting suppliers from whom materials will be purchased.
Importance	It is a critical and sensitive step, especially for Public Sector Undertakings (PSUs) where public money is involved.
Regulatory Attention	Attracts scrutiny from bodies like: ➤ CVC (Central Vigilance Commission) ➤ CAG (Comptroller and Auditor General) ➤ Auditors and other watchdogs
Why It's Sensitive	Because it must uphold the constitutional value of "Equality of Status and Opportunity", ensuring fair and transparent competition among suppliers.
Starting Point	Begins with: ➤ Enquiry ➤ Request for Proposals (RFP) ➤ Notification Inviting Tender (NIT)
Scope	The RFP/NIT may be issued locally or globally, depending on:

	➤ Material type ➤ Availability ➤ Government procurement guidelines
Mode of Floating Tender	➤ Offline: Manual circulation ➤ Online: Through websites or electronic marketplaces like GeM
What is GeM?	Government e-Marketplace (GeM) is an online portal for government procurement of goods and services.
Purpose of GeM	➤ Promote transparency, efficiency, and speed ➤ Enable e-bidding, reverse e-auction, and demand aggregation ➤ Help government buyers get the best value for money
Mandate	Ministry of Finance has made GeM mandatory for government purchases.

iii. At what price to purchase?

The answer to the question is discussed in the following paragraph where the Lowest bidder (also called L1 bidder) for the material is selected.

Selection of Quotation/ Proposal	
Aspect	Details
Process Name	Selection of Quotation/Proposal
What Happens	After tender invitations, vendors who meet all criteria submit their price quotations/proposals to the purchase department.
Next Step	A comparative statement is prepared to analyze and compare all quotations received.
Key Evaluation Factors	The purchase department considers: ➤ Price ➤ Quantity available ➤ Quality offered ➤ Time of delivery ➤ Mode of transportation ➤ Terms of payment ➤ Reputation of the supplier
Additional Considerations	The purchase manager may gather other necessary information (e.g., previous performance, financial stability) before finalizing the supplier selection.
Purpose	To ensure value for money, reliable delivery, and quality materials through a fair and objective selection process.

Purchase Order Process	
Aspect	Details
Step	Issuing the Purchase Order (PO)
When It's Done	After selecting the best quotation, the purchase manager or concerned officer issues a formal purchase order.
What is a Purchase Order?	A written request sent to the supplier to deliver specified materials, at agreed rates, within a fixed timeframe.
Purpose	Acts as a legal and commercial confirmation of the purchase agreement.
Copies Sent To	➤ Stores or indenting department ➤ Receiving department ➤ Cost/Accounting department
Retention of Copy	A copy of the PO, along with purchase requisitions, is kept in the purchase department for: ➤ Follow-up on delivery ➤ Invoice approval and payment processing
Importance	Ensures all departments are informed and aligned, and supports tracking, accountability, and payment control.

Receipt and Inspection of Materials	
Step	Description
1. Purchase Execution	After the Purchase Order is issued and any advance payment is made (if applicable).
2. Delivery Arrangement	Materials are delivered along with invoice and supporting documents.
3. Receiving Department Role	The receiving/store department takes charge of the delivery and begins inspection.
4. Inspection of Materials	Materials are checked for conformity with the Purchase Order in terms of quality and quantity.
5. If Materials are OK	A Goods Received Note (GRN) is issued, and materials are added to inventory.
6. If Materials are Defective/Incorrect	Materials are returned to the vendor with a Material Returned Note (MRN).

Goods Received Note	
Aspect	Summary
Condition for Preparation	Prepared when materials are received in good condition and match the purchase order.
Prepared By	Receiving Department
Document Names	Known as Receiving Report, Material Inward Note , or Goods Received Note (GRN)
Number of Copies	Four (Quadruplicate)
Copy Distribution	Sent to: 1. Purchase Department 2. Store or Indenting Department 3. Receiving Department 4. Accounting Department
Purpose	Acts as an official record of accepted goods for inventory and accounts.

Material Returned Note	
Material Returned Note	Summary
Material Returned Note	Materials may need to be returned to suppliers after being received in the factory.
Material Returned Note	✓ Materials are not included in the receiving report or store ledgers. ✓ Hence, no accounting adjustment is required.
Material Returned Note	✓ Materials have already been recorded. ✓ A Material Returned Note or Material Outward Return Note must be prepared. ✓ This ensures the value is excluded from the Stores or Material Account.
Material Returned Note	To provide documented proof of the return and ensure accurate inventory and accounting records.

Material Storage & Records	
Aspect	Summary
Importance	Proper storage is crucial to maintain the quality and usability of materials.
Risk of Poor Storage	Even good quality materials can deteriorate if badly stored , leading to greater loss than buying poor-quality materials.
Store-Keeper's Responsibilities	✓ Ensure safe custody of materials ✓ Maintain quality through proper storage conditions ✓ Ensure availability of the right quantity of materials at all times

Purpose	To preserve material value , support smooth production, and avoid stockouts or overstocking .
---------	---

Duties of a Store Keeper	
Duties of Store Keeper	Description
General Control over Store	Oversee all store activities , verify quantities in Goods Received Note with actual materials, and arrange proper storage.
Safe Custody of Materials	Ensure materials are stored in safe conditions to maintain their quality and usability .
Maintaining Records	Keep accurate records of materials received , issued, balance in hand, and any transfers.
Initiate Purchase Requisition	Raise purchase requisitions when stock reaches re-order level for regular items.
Maintain Adequate Stock Level	Ensure stock availability at all times to avoid production delays. Stop purchases when stock hits maximum level and reserve stock when needed.
Issue of Materials	Issue materials only against approved requisition slips , referring to the Bill of Materials (BoM) .
Stock Verification & Reconciliation	Regularly match physical stock with book records, identify any irregularities, pilferage , or abnormal issues .

Types of Store Records			
Type	Maintained By	What It Records	Description
Bin Card	Store Department	Quantity only	A physical card placed on or near the bin (container/storage space). Records receipt , issue , and return of materials. Each bin has its own card.
Stock Control Card	Store Department	Quantity only	A central record showing the overall stock position of each material. Records receipts , issues , returns , stock in hand , and orders placed .
Stores Ledger	Cost/Accounts Department	Quantity & Value	A subsidiary ledger to the cost ledger. Records both quantity and cost of materials received , issued , and in balance . Source documents include GRNs , Material Requisition Notes , etc.

Advantages & Disadvantages of Bin Cards

Advantages	Disadvantages
i. Fewer mistakes - entries are made immediately by the handler.	i. Records are spread across store area , harder to consolidate.
ii. Enables on-the-spot comparison of actual vs book stock.	ii. Cards may get dirty or damaged due to proximity to materials.
iii. Easy identification of materials .	iii. Material handlers may not be trained for clerical work.

Advantages & Disadvantages of Stock Control Cards

Advantages	Disadvantages
i. Records are kept in a central and compact way.	i. No immediate physical stock comparison is possible.
ii. Maintained neatly by staff specialized in clerical work .	ii. Physical identification of materials may be more difficult.
iii. Gives an overall stock view in one place.	-

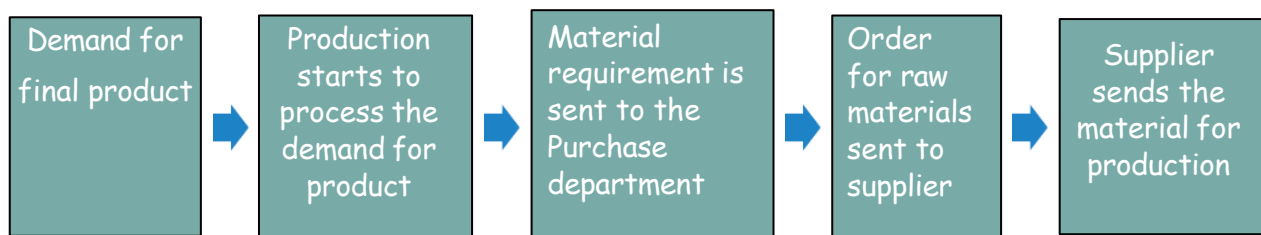
Comparison Between the Records

Criteria	Bin Card	Stock Control Card	Stores Ledger
Department	Store	Store	Cost/Accounting
Content	Quantity only	Quantity only	Quantity + Value
Location	At bin/storage area	Central record room	Accounts office
Purpose	Physical tracking at bin level	Overview of total stock	Financial + quantity tracking
Use for Costing	✗	✗	☑

Bin Card	Stores Ledger
It is maintained by the storekeeper in the store.	It is maintained in cost accounting department .
It contains only quantitative details of material received, issued and returned to stores.	It contains information both in quantity and value .
Entries are made when transaction takes place .	It is always posted after the transaction .
Each transaction is individually posted .	Transactions may be summarized and then posted.
Inter-department transfers do not appear in Bin Card.	Material transfers from one job to another job are recorded for costing purposes .

Just In Time (JIT) Inventory Management

Aspect	Details
Definition	JIT is an inventory management system that aims for zero inventory in stores. Materials are purchased only when needed for production.
Core Principle	Buy and produce only when required, avoiding excess stock.
Also Known As	Demand Pull System or Pull Through Production System
Key Principles	(i) Produce goods only when required (ii) Deliver products only when customers want them
How It Works	➤ Customer places an order ➤ Based on order, production begins ➤ Material requirements are sent to purchase department only at this stage
Objective	➤ Minimise inventory cost ➤ Eliminate waste ➤ Ensure just-in-time delivery of both materials and final products



Advantages of ABC Analysis

Title	Description
Continuity in Production	Ensures smooth production with minimum inventory investment , avoiding stockouts.
Lower Cost	Reduces the cost of ordering, receiving, and storing materials , especially when used with Economic Order Quantity (EOQ).
Less Attention Required	Saves management time by focusing on high-value (A class) items instead of monitoring all items equally.
Systematic Working	Allows routine and organized purchase operations , which can be handled efficiently by subordinate staff.
FSN (Fast, Slow, Non-moving) Inventory Classification	Also known as FNS (Fast, Normal, Slow) system; classifies items based on usage frequency and inventory turnover . Helps in better inventory control .

FSN Inventory Classification Details

Category	Meaning	Storage & Action
Fast Moving	Items with high usage frequency	Kept near the issue point ; stock is frequently reviewed and replenished.
Slow Moving	Items with occasional usage	Stored a bit further ; reviewed periodically for obsolescence and may be shifted to non-moving category.
Non-Moving	Items with no recent usage	Kept for disposal ; reported to management and provision for loss may be created.

Reasons for Slow and Non-Moving Inventories

Cause	Explanation
Lack of Communication	Production management fails to communicate updated material requirements to the store.
Technological Upgradation	New machines or processes make existing materials obsolete.
No Periodic Review	Inventories are not reviewed regularly , leading to accumulation of outdated items.

How to Manage Slow & Non-Moving Inventories

Method	Explanation
Timely Identification	Regular monitoring to detect slow/non-moving items early.
Inventory Turnover Ratio	Calculate and compare actual vs standard turnover to detect inefficiencies.
Minimum Level / JIT	Use of Just-In-Time (JIT) or minimum level control to reduce excess stock.
Management Reporting	Present variance reports to management for better decision-making.

VED Analysis (Vital, Essential, Desirable)

Category	Meaning	Impact & Action
Vital	Essential for production	Unavailability causes production stoppage. Strictly controlled with re-order levels .
Essential	Important but not critical	Lack of item causes reduced efficiency . Reviewed periodically .
Desirable	Optional or substitutable	No impact on production. Controlled with least priority .

Application in Hospital Inventory (Example)

Inventory Type	VED/FSN Use
Life-saving, rare, critical drugs	Vital - Unavailability affects critical services.
Common medicines with substitutes	Desirable - Optional, no loss in efficiency.
Drugs nearing expiry	FSN system helps identify and dispose timely.

HML Inventory Classification (High, Medium, Low Cost)

Category	Basis	Control Focus
High Cost	Individual item cost is high	Tight control and close monitoring needed.
Medium Cost	Moderate cost items	Moderate attention given.
Low Cost	Low-value items	Minimum control, managed in bulk.

Physical Control of Inventory

Method	Description	Key Points
(i) Two Bin System	Inventory is stored in two sections within the same bin: ➤ One for minimum or re-order level stock ➤ Other for usable stock	➤ Issues are made from the larger section - ✓ When stock enters the re-order level section, a new order is placed ✓ Supports bin card and store ledger records
(ii) Inventory Budgeting System	A budget is prepared for inventory needs based on production plans	➤ Controls inventory investment ➤ Prevents overstocking ➤ Based on production schedules and material planning
(iii) Perpetual Inventory System	A system of continuous record-keeping and verification maintained by the store department	Includes: ➤ Bin Cards (quantity tracking) ➤ Store Ledger (quantity + value tracking) Steps for success: - Maintain accurate ledger quantities and values - Maintain stock control cards (bin cards) - Reconcile records regularly - Physically check stock daily by rotation

- e) Investigate discrepancies promptly
- f) Make corrective entries if needed
- g) Eliminate root causes of discrepancies

Advantages of Perpetual Inventory System

Title	Description
Flexible Stock Checking	Physical stock can be verified and book balances adjusted at any time without waiting for full stock-taking.
Quick Profit & Loss Compilation	Prompt stock figures help in fast preparation of interim financial reports like the Profit and Loss Account.
Timely Detection of Discrepancies	Stock differences are easily identified, allowing for quick corrective actions.
Identification of Non-Moving Items	Surplus, obsolete, dormant, or slow-moving stock can be spotted early and controlled or disposed in time.
Better Stock Control	Helps in fixing stock levels, monitoring balances, and initiating timely purchase requisitions to maintain proper inventory.

Advantages of Perpetual Inventory System

Advantage	Description
Flexible Stock Adjustments	Physical stocks can be checked and book balances adjusted anytime without waiting for full stock-taking.
Quick Financial Reporting	Stock data is readily available, allowing for faster preparation of interim Profit and Loss Accounts.
Timely Discrepancy Detection	Stock mismatches are easily identified, allowing prompt corrective action to prevent future errors.
Early Detection of Idle Stock	Surplus, dormant, obsolete, and slow-moving items are identified early, enabling timely remedial actions.
Better Stock Level Control	Helps set stock level limits, and allows storekeepers to initiate purchase requisitions at the right time based on actual usage and stock in hand.

Continuous Stock Verification

Aspect	Details
Definition	Ongoing physical verification of stock items, done periodically without prior notice.
Responsibility	Performed by the internal audit department, independent of store and production teams.

Purpose	Ensures effective material control , detects discrepancies , and maintains element of surprise to avoid manipulation.
Frequency	Done at regular but unannounced intervals for maximum effectiveness.

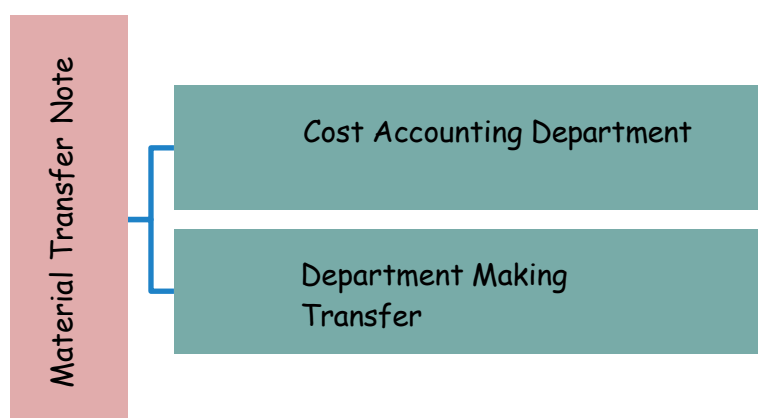
Disadvantages of Annual / Periodic Stock Taking	
Disadvantage	Explanation
Operational Disruption	May require shutting down production to conduct full stock verification.
Time Constraint	Limited time frame forces a rushed or partial verification , reducing accuracy and completeness.
Lower Control	Gaps between stock checks may result in undetected issues like theft, errors, or wastage .

Advantages of Continuous Stock-Taking	
Benefit	Description
No Disruption to Operations	Normal functioning of the production or store continues smoothly —no need to halt activities for stock verification.
Early Detection of Discrepancies	Stock mismatches are identified and corrected promptly , unlike annual stock-taking where detection is delayed.
Surprise Element	The unannounced nature of checks creates a sobering effect on store staff, reducing chances of mismanagement.
Better Monitoring of Movements	Close observation by the stores auditor reduces chances of overstocking or obsolete purchases .
Faster Financial Reporting	Final and interim accounts can be prepared quickly due to the availability of up-to-date stock data.

Material Issue Procedure	
Aspect	Details
Authorization	Materials must be issued only against a properly authorised requisition slip .
Who Can Requisition	Typically, a department foreman is authorised to draw materials from the store.
Issuing Basis	Materials should be issued using the First-In, First-Out (FIFO) method to prevent deterioration of older stock.

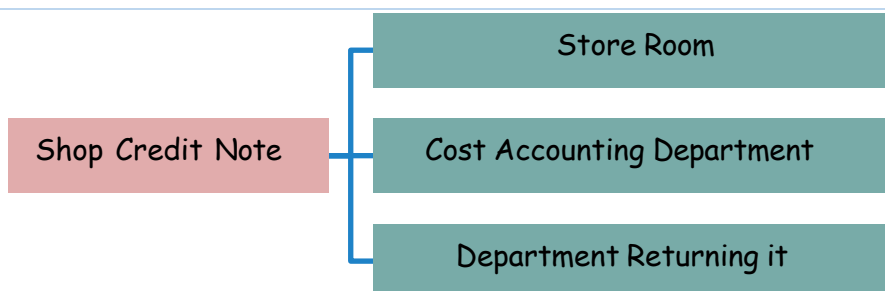
(i) Issue Against Material Requisition Note (MRN)

Details	Explanation
Definition	MRN is a voucher of authority for issuing materials for production or departmental use.
Storekeeper's Role	Verifies that: ➤ MRN is properly authorised ➤ Requested quantity matches Bill of Materials (BoM)
Documentation	After issuing, storekeeper keeps one copy of the MRN for record maintenance.
Format	May vary based on industry, MIS, and accounting system .



(ii) Transfer of Material

Details	Explanation
When Used	When surplus material from one job is not suitable to return to store due to bulkiness, brittleness, or weight.
Usage	Transferred to another job only if appropriate ; direct transfers are generally discouraged .
Document	A Material Transfer Note is prepared in duplicate : ➤ One copy for Cost Accounting Department to update cost ledgers. ➤ No store entry is needed, so store keeps no copy.



(iii) Return of Material

Details	Explanation
Why It Happens	Material may be issued in excess due to estimation errors or technical difficulties.
Importance	Surplus material must be returned promptly to prevent misuse or cost overstatement.
Document Used	A Shop Credit Note or Stores Debit Note , prepared in triplicate by the returning department.
Purpose	Ensures: ➤ Safe custody of surplus ➤ Accurate cost allocation to the correct job
Format	May vary based on industry-specific needs , MIS , and accounting systems .

Valuation of Material Issues

Aspect	Details
General Rule	Materials issued from stores should be valued at the price at which they are carried in stock .
The Challenge	Materials are often purchased at different times and prices (with varying discounts, taxes, etc.), which creates difficulty in assigning a uniform value during issue to production.
Solution	Use a suitable valuation method to price the materials issued to production accurately and consistently.
Responsibility	The cost accountant must choose the appropriate method based on specific criteria.

Factors to Consider in Choosing a Valuation Method

Factor	Explanation
Frequency of Purchases & Price Fluctuations	Consider how often materials are bought and how much prices vary over time.
Frequency & Quantity of Issues	How frequently materials are issued to production and in what quantities.
Nature of Cost Accounting System	Whether the organization follows job costing , process costing , or another system.
Nature of Business & Production Process	The type of industry , e.g., continuous production, custom jobs, etc.
Management Policy on Closing Stock Valuation	Some businesses may prefer FIFO , LIFO , weighted average , etc., depending on how they want to value closing inventory.

Several methods of pricing material issues have been evolved in an attempt to satisfactorily answer the problem. These methods may be grouped and explained as follows:

Specific Price Method - Cost Price Method

Aspect	Details
Definition	Under the Specific Price Method , materials purchased for a specific job or work order are issued at the exact price they were bought.
Storage Requirement	Each lot of material must be stored and tracked separately with its own account.
Best Suited For	Used for non-standard, customized, or specific products where materials are job-specific .

Advantages & Disadvantages of Specific Price Method

Advantages	Disadvantages
Accurate costing: Issues to jobs reflect the actual cost of materials used.	Difficult to operate with frequent purchases and issues.
Ideal for customized or job-specific production.	-

FIFO Method - Advantages & Disadvantages

Advantages	Disadvantages
Simple to understand and easy to operate.	May lead to clerical errors if prices fluctuate frequently .
Material cost charged to production represents actual historical cost .	Cost variation between jobs over time, as issues are based on specific past purchase prices .
In case of falling prices , this method gives better cost results.	In case of rising prices , shows higher book profits while real profits are lower, making future purchases harder .
Closing stock value reflects current market price more accurately.	-

FIFO Method - Advantages & Disadvantages

Advantages	Disadvantages
Simple to understand and easy to operate.	May lead to clerical errors if prices fluctuate frequently.
Material cost charged to production represents actual historical cost.	Cost variation between jobs over time, as issues are based on specific past purchase prices.
In case of falling prices, this method gives better cost results.	• In case of rising prices, shows higher book profits while real profits are lower, making future purchases harder.
Closing stock value reflects current market price more accurately.	-

Simple Average Price Method - Advantages & Disadvantages

Advantages	Disadvantages
Simple to use when materials are ordered in standard lot quantities, as only the price per lot is considered for averaging.	Not suitable when standard purchase quantity is not specified, leading to incorrect stock valuation.
In a stable price environment, gives a reasonable approximation of current market price.	When prices fluctuate and order quantities vary, the calculated price may deviate significantly from the current market price.

Weighted Average Price Method - Advantages & Disadvantages

Advantages	Disadvantages
Smoothens price fluctuations caused by varying purchase prices.	Material cost does not reflect actual cost, which may lead to profit/loss distortions.
No need to recalculate issue price for every issue—only when new lot is received.	Can be complex to compute, as each new purchase requires re-computation of the average price.

Notional Price Methods of Material Issue Valuation

Method	Description	Key Notes
i. Standard Price Method	Materials are issued at a predetermined (standard) price , regardless of actual purchase cost.	➤ Standard price is fixed based on: - Current prices - Expected market trends - Discounts and transport costs ➤ Helps in cost control and evaluating purchase department efficiency. ➤ Difficult to apply with highly fluctuating prices.
ii. Inflated Price Method	Issue price is increased to account for losses in weight due to evaporation, shrinkage, etc.	➤ Common for materials affected by natural/climatic losses. ➤ Adjusted price reflects true cost per usable unit.
iii. Re-use Price Method	Used for rejected or returned materials, or those repurposed for other jobs.	➤ Valued at a different price from original purchase. ➤ No fixed method—valuation is case-specific based on management discretion.

CHAPTER 9: EMPLOYEE COST AND DIRECT EXPENSES



1. Introduction

- ✓ To **manufacture** a product or to make provision for service, the role of **human** exertion is inevitable. The term used for **human resources** may include **workers**, **employees**, labourers, staffs etc. The **compensation** so paid, either in monetary terms or in kind and facility is known as **wages**.
- ✓ **Employee** cost is wider term which includes **wages**, **salary**, **bonus**, **incentives** etc. paid to an employee and charged to a **cost object** as labour cost.



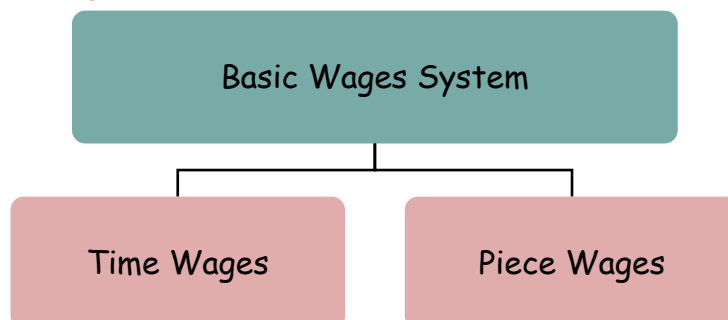
2. Employee Cost Computation

Gross Wages	Basic	✓
	Add: Bonus	✓
	Add: Allowances	✓
	Add: Overtime Premium	✓
Cash Earned by Workers	Gross Wages	✓
	Less: Employee's Contribution to PF and ESI	✓
	Less: Professional Tax	✓
Labour Cost to the Company	Gross Wages	✓
	Add: Employer's Contribution to PF and ESI	✓
	Add: Fringe benefits (Perquisite)	✓
	Cost to the Company	✓
Allocation to Jobs	In the ratio of time given for the respective Job.	



3. Basic Wages System

Basic Wages = **Minimum Wages**



Straight Time Rate System: Under this system, the **workers** are paid on **time basis** i.e. hour, day, week, or month. The amount of wages due to a worker are arrived at by multiplying the **time worked** (including normal idle period) by **rate** for the time.

Straight Piece Rate System: Under this system, **each operation**, job or unit of **production** is termed a **piece**. A rate of payment, known as the **piece rate** or piece work rate is **fixed** for each **piece**.

Time Wages	Hours worked x Wage Rate per hour
Piece Wages	Units Produced x Wage Rate per unit
Guaranteed Time Wages	Motivation for new worker if piece wages < time wages We can pay them a guaranteed time wage.

Doubt Busters:

If the Piece Wage calculation is linked to Time Wage, then the Piece Rate is calculated as follows:

$$\text{Piece Rate} = \text{Standard time per unit} \times \text{Wage Rate per hour}$$

(Refer Classroom Discussion)



4. Bonus Schemes

A. Halsey Premium Plan

- ✓ Under **Halsey** premium plan a **standard time** is **fixed** for each job or process. If there is no saving on this standard time allowance, the worker is paid only his day rate.
- ✓ He gets his **time rate** even if he **exceeds** the **standard** time limit, since his day rate is guaranteed.

$$\text{Wages} = \text{Time Taken} \times \text{Time rate} + (50\% \text{ of Time saved} \times \text{Time rate})$$

B. Rowan Premium Plan

- ✓ According to this system a **standard time** allowance is **fixed** for the performance of a job and **bonus** is **paid** if time is **saved**.
- ✓ Under **Rowan** System the **bonus** is that **proportion** of the time wages as time **saved** bears to the standard time.

$$\text{Wages} = \text{Time Taken} \times \text{Time rate} + \left[\frac{\text{Time Saved}}{\text{Time Allowed}} \times \text{Time Taken} \times \text{Time Rate} \right]$$



5. Overtime Premium and its Treatment

Overtime

- ✓ Work done beyond normal working hours is known as '**overtime work**'. Overtime payment is the **amount** of **wages** paid for working beyond normal working hours.
- ✓ Overtime payment consist of two elements- (i) **Normal wages** for overtime work and (ii)

Premium payment for overtime work.

- ✓ Overtime premium: The rate for overtime work is higher than the normal time rate; usually it is at double the normal rates. The extra amount so paid over the normal rate is called overtime premium.
- ✓ Causes of Overtime and Treatment of Overtime premium in cost accounting

Causes	Treatment
(1) The customer may agree to bear the entire charge of overtime because urgency of work.	(1) If overtime is resorted to at the desire of the customer, then overtime premium may be charged to the job directly.
(2) Overtime may be called for to make up any shortfall in production due to some unexpected development.	(2) If overtime is required to cope with general production programmes or for meeting urgent orders, the overtime premium should be treated as overhead cost of the particular department or cost centre which works overtime.
(3) Overtime work may be necessary to make up a shortfall in production due to some fault of management.	(3) If overtime is worked in a department due to the fault of another department, the overtime premium should be charged to the latter department.
(4) Overtime work may be resorted to, to secure an out-turn in excess of the normal output to take advantage of an expanding market or of rising demand	(4) Overtime worked on account of abnormal conditions such as flood, earthquake etc., should not be charged to cost, but to Costing Profit and Loss Account.



6. Efficiency Rating

- ✓ Efficiency is usually related with performance and may be computed by comparing the time taken with the standard time allotted to perform the given job/task.
- ✓ If the time taken by a worker on a job equals or less than the standard time, then he is rated efficient.
- ✓ In case he takes more time than the standard time he is rated as inefficient.
- ✓ Formula:

$$\text{Efficiency in \%} = \frac{\text{Time Allowed}}{\text{Time Taken}} \times 100$$



7. Employee (Labour) Turnover

- ✓ **Employee turnover** or labour turnover in an organisation is the **rate of change** in the composition of **employee** force during a specified period measured against a **suitable index**.
- ✓ The standard of usual employee turnover in the **industry** or locality or the **employee turnover** rate for a past period may be taken as the index or norm against which **actual turnover rate** is compared.
- ✓ There are **Three Methods** to compute Employee Turnover:

1. Replacement Method:

This method takes into consideration **actual replacement** of **employees** irrespective of number of persons leaving the organisation.

$$\text{Replacement Method} = \frac{\text{No Of Replacement}}{\text{Average No Of Workers}} \times 100$$

2. Separation Method:

In this method employee turnover is measured by **dividing** the total number of **employees separated** during the period by the average total number of employees on payroll during the same period.

$$\text{Separation Method} = \frac{\text{No Of Separations}}{\text{Average No Of Workers}} \times 100$$

3. Flux Method:

This method takes both the **number of replacements** as well as the number of separations during the period into account for calculation of employee turnover.

$$\text{Flux Method} = \frac{\text{No. Of Separations} + \text{No. Of Accessions}}{\text{Average No Of Workers}} \times 100$$

Note:

$$\text{Average No. Of Workers} = \frac{\text{No of Employees at the Beginning} + \text{No of Employees at the end}}{2}$$

Doubt Busters:

Accessions represent the total number of workers joining including Replacements.



8. Idle Time

1. The **time** during which **no production** is carried-out because the worker remains idle but are paid.
2. In other words, it is the **difference** between the **time paid** and the **time booked**. Idle time can be normal or abnormal.
3. The time for which employees are paid includes **holidays**, paid **leaves**, allowable rest or off time etc.

Normal idle time:

It is the time which **cannot** be **avoided** or reduced in the normal course of business.

Abnormal idle time:

Apart from normal idle time, there may be factors which give rise to abnormal idle time. E.g. Lack of **Coordination**, **Power** failure **breakdown** of machines, **fire**, **flood** etc.

**9. Direct Expenses**

- ✓ Expenses other than direct material cost and direct employee cost, which are incurred to **manufacture** a **product** or for provision of service and can be **directly traced** in an economically feasible manner to a **cost** object. The following costs are examples for **direct expenses**:
 - **Royalty** paid/ payable for production or provision of service;
 - **Hire charges** paid for hiring specific equipment;
 - Cost for product/ service **specific design** or **drawing**;
 - Cost of product/ service **specific software**;
 - Other expenses which are **directly** related with the **production** of **goods** or provision of service.
- ✓ The direct expenses are **measured** at **invoice** or **agreed price** net of rebate or discount but includes duties and taxes (for which input credit not available), commission and other directly attributable costs.
- ✓ Direct Expenses form part of the **prime cost** for the product or service to which it can be directly **traceable** and **attributable**.
- ✓ In case of **lump-sum payment** or one- time payment, the cost is **amortized** over the estimated **production volume** or benefit derived.
- ✓ If the **expenses** incurred are of **insignificant** amount i.e. not material, it can be treated as part of **overheads**.



Core theory topics

Employee (Labour) Cost Control

1. Nature of Employee Costs

Employee costs are related to human beings. To manage these costs, it is important to understand human behavior.

2. Meaning of Employee Cost Control

Employee cost control means managing the expenses on employees. It does not mean just reducing the wage bill or paying low wages to each worker.

3. Focus of Cost Control

The focus should be on reducing wages per unit of output, not on reducing wages directly.

4. Role of Compensation

This can be done by giving fair and appropriate compensation to employees to encourage efficiency and achieve optimum output in an effective manner.

5. Importance of Motivation

A well-motivated team can do wonders. So, every organization should aim to increase employee productivity.

6. Early and Collective Effort

Cost control efforts should start from the beginning, with coordinated efforts from all departments involved.

i. Personnel Department

- ✓ Receives employee requisitions from various departments and finds candidates with the required skills and qualifications.
- ✓ Ensures recruited persons have the necessary qualifications.
- ✓ Arranges training for new recruits and workshops for current employees.
- ✓ Maintains personal and job-related records.
- ✓ Conducts regular performance evaluations.

ii. Engineering and Work Study Department

- ✓ Prepares job plans and specifications.
- ✓ Provides training and guidance to employees.
- ✓ Supervises production activities.
- ✓ Conducts time and motion studies.
- ✓ Carries out job analysis.
- ✓ Conducts job evaluations.

iii. Time-keeping Department

- ✓ Maintains attendance records (time keeping).
- ✓ Records time spent by employees on different jobs (time booking).

iv. Payroll Department

- ✓ Prepares payroll for employees.
- ✓ Disburses salary and wages.

v. Cost Accounting Department

- ✓ Responsible for accumulating and classifying employee costs.
- Analyzes and allocates costs to different cost centres or cost objects.

Important Factors for the Control of Employee Cost

i. Assessment of Manpower Requirements

Proper planning of required workforce to avoid shortage or excess.

ii. Control over Time-Keeping and Time-Booking

Ensure accurate attendance records and track actual time spent on jobs.

iii. Time & Motion Study

Analyze work methods and movements to improve efficiency.

iv. Control over Idle Time and Overtime

Minimize unproductive hours and control extra working hours to reduce costs.

v. Control over Employee Turnover

Reduce frequent resignations or exits through better work environment and policies.

vi. Wage and Incentive Systems

Use fair wage structures and performance-based incentives to motivate employees.

vii. Job Evaluation and Merit Rating

Regularly evaluate job roles and assess individual performance fairly.

viii. Employee Productivity

Focus on increasing output per employee through training, support, and motivation.

Collection of Employee Costs

1. Responsible Department

The Cost Accounting Department is responsible for collecting employee costs.

2. Wage Recording

It records wages separately for direct and indirect employees.

3. Effective Wage Analysis

The department calculates effective wages per hour for each department.

4. Wage Cost Classification

Total wages are analyzed into:

- i. Amount included in direct cost of goods or jobs.
- ii. Amount treated as indirect employee cost (part of overheads).
- iii. Amount for idle time, considered a loss

iv. Amount treated as **abnormal loss/gain**, transferred to **Profit & Loss Account**.

5. Purpose

This process helps determine the **cost of various jobs**.

6. Importance of Time Records

Accurate **time recording by employees** is **essential** for correct cost allocation.

Attendance Procedure / Time-keeping

1. Time-Keeping

Refers to **recording total attendance time** of employees in the factory.

2. Time-Booking

Refers to the **breakup of time** spent by employees on **various jobs**.

3. Key Difference

- **Time-Keeping** = Total time present

- **Time-Booking** = Time spent on specific tasks

4. Importance of Time-Keeping

Essential even where **payment is based on output** (e.g., **piece-rate**) to ensure **discipline** and **production levels**.

5. Objectives of Time-Keeping

i. Preparation of **payrolls**

ii. Calculation of **overtime**

iii. Control and analysis of **employee cost**

iv. Determination of **idle time**

v. For maintaining **discipline**

vi. For proper **overhead distribution**



Methods of Time-Keeping

Category	Method	Description (Simplified)	Key Features / Pros	Limitations / Cons
1. Manual Methods	a. Attendance Register Method	Arrival and departure times are recorded in a register by a time keeper.	☒ Simple ☒ Inexpensive ☒ Suitable for small organizations	☒ Prone to time manipulation and backdated entries ☒ Requires manual effort

	b. Metal Disc / Token Method	Each employee is given a metal token with an ID number; deposited with the time keeper on arrival.	☒ Very basic and traditional ☒ Easy identification	☒ Obsolete method ☒ Prone to errors, proxy attendance
2. Mechanical / Automated Methods	a. Punch Card Attendance	Employees use a digital punch card to clock in/out via a card reader.	☒ No time keeper needed ☒ Reduces manipulation and errors ☒ Faster recording	☒ Card may get damaged ☒ Limited security if card is shared
	b. Bio-Metric Attendance System	Attendance marked using physical/behavioral traits (e.g., fingerprint, face, retina).	☒ Highly accurate ☒ Eliminates proxy attendance ☒ Tracks real-time attendance	☒ High setup & maintenance cost ☒ May not suit small organizations



Requisites of a Good Time-Keeping System

1. No Proxy Attendance

The system must **strictly prevent proxy** marking for another employee under any condition.

2. Coverage for Piece-Rate Employees

Should include a way to **record attendance of piece-rate workers** to maintain **discipline** and **steady production flow**.

3. Record Entry and Exit Time

Must capture both **arrival and departure time** to calculate **total hours worked** for wage computation.

4. Prefer Mechanical/Automated Method

Use **mechanical or automated systems** to reduce **disputes** between employees and time-keeper.

5. Strictness for Late-Comers

Late arrivals must be recorded accurately; **no relaxation** should be allowed by the time-keeper to maintain **discipline**.

6. Simple and Fast Process

The system should be **easy to use**, **quick**, and should **avoid queues** during attendance marking.

7. Regular Maintenance and Review

The system should be **periodically checked and updated** to avoid errors and ensure accuracy.



Time-Booking: Meaning & Purpose

1. Definition

Time-Booking records **how much time** an employee spends on **each specific job or task** (unlike time-keeping which only records total attendance time).

2. Purpose

- ✓ For costing: To compute cost of each job/activity.
- ✓ For efficiency: Compare **actual time vs standard time**.
- ✓ For fixation of responsibility: Identify **time variance** and classify as **controllable** or **uncontrollable**; hold concerned person/department accountable.

3. Record Used

A separate document called **Time Card** or **Job Card** is used for recording time booked.



Types of Time/Job Cards

Type	Description	Advantages	Drawbacks
1. Job-Based Card	Separate card for each job or operation . If multiple employees work on the same job, their time is booked on the same card .	☑ Provides total employee hours per job ☑ Helps in accurate job costing	✗ An employee's total time is scattered across multiple cards ✗ Requires periodic abstraction to calculate idle time and reconcile with attendance
2. Employee-Based Card	Separate card for each employee (daily/weekly), recording time spent on each job and idle time.	☑ Complete view of how an employee spent time ☑ Easier reconciliation with attendance records	⚠ Slightly more complex for job-based cost summaries



Payroll Procedure

1. Time & Attendance Details

Time-Keeping Department sends details of days/hours worked (for time-based) or units/percentages (for piece-rate). Time-Booking records help calculate overtime and bonuses.

2. Employee List & Pay Rate

HR/Personnel Department provides a list of authorized employees with their pay rates. Ensures no bogus or unauthorized payments.

3. Wage/Salary Calculation

Based on data from time-keeping and HR, the Payroll Department calculates wages/salaries and prepares pay slips. These are sent to Cost/Accounting Department for deductions and processing.

4. Payment to Employees

Cost/Accounting Department deducts all statutory contributions (PF, ESI, TDS, etc.) and processes final payment.

5. Statutory Liability Deposit

All deductions (employee + employer contributions) are deposited to statutory bodies like EPF, ESI, Tax Department, etc.



Advantages and Disadvantages of Halsey Premium Plan

Advantages	Disadvantages
- Time rate is guaranteed while there is opportunity for increasing earnings by increasing production. - The system is equitable in as much as the employer gets a direct return for his efforts in improving production methods and providing better equipment.	- Incentive is not so strong as with piece rate system. In fact the harder the worker works, the lesser he gets per piece. - The sharing principle may not be liked by employees.



Advantages and Disadvantages of Rowan Premium Plan

Advantages	Disadvantages
- It is claimed to be a fool-proof system in as much as a worker can never double his earnings even if there is bad rate setting. - It is admirably suitable for encouraging moderately efficient workers as it provides a better return for moderate efficiency than under the Halsey Plan.	- The system is a bit complicated. - The incentive is weak at a high production level where the time saved is more than 50% of the time allowed.

3. The sharing principle appeals to the employer as being equitable.

3. The sharing principle is not generally welcomed by employees.



Efficiency Rating Procedures

Step	Description (Simplified)	Key Points / Terminology
1. Determining Standard Time / Performance Standards	First, determine the standard time a worker should take to complete a job or task.	✓ Use Time & Motion Study or Work Study techniques ✓ Consider a heterogeneous group of workers ✓ Add contingency allowances to account for realistic conditions
2. Measuring Actual Performance of Workers	Develop a system to record each worker's actual output and time taken .	✓ Maintain proper records of performance ✓ Capture both quantity produced and time consumed
3. Computation of Efficiency Rating	Calculate each worker's efficiency rating by comparing actual performance with the standard .	✓ Formula generally used: $\text{Efficiency (\%)} = (\text{Standard Time} / \text{Actual Time}) \times 100$ ✓ Helps in performance analysis, incentive planning, and cost control



Need for Efficiency Rating

Point	Description (Simplified)	Key Concepts Highlighted
1. Efficiency-Based Payment	In a payment by results system, a worker's wages are directly linked to the output they produce. So, the firm must calculate the efficiency level of each worker to determine accurate payment.	✓ Output-Linked Wages ✓ Efficiency Rating = Basis for Payment
2. Workforce Planning	Efficiency ratings also help management in preparing manpower budgets or estimating employee requirements for upcoming work/projects.	✓ Employee Requirement Budget ✓ Workforce Optimization



Causes of Employee (Labour) Turnover

Category	Explanation	Key Examples	Remarks / Remedies
a. Personal Causes	These are individual reasons that compel an employee to leave voluntarily.	✓ Job change for betterment ✓ Early retirement (due to health/age) ✓ Family/domestic issues ✓ Discontent with job or environment	☑ First three causes are beyond employer control ☑ Last cause can be managed by creating a positive and healthy work environment
b. Unavoidable Causes	Causes where management is forced to terminate or let go employees due to business or operational issues.	✓ Seasonal business nature ✓ Shortage of raw materials, power, or market demand ✓ Relocation of plant ✓ Employee disability ✓ Disciplinary actions	✗ These causes are inevitable in some industries and often beyond control
c. Avoidable Causes	Causes that can and should be controlled by management with proper attention and care.	✓ Job dissatisfaction (pay, work hours, conditions) ✓ Poor relationships with supervisors or peers ✓ Lack of training or promotion ✓ No recreational or medical support ✓ Low wages/allowances	☑ Can be reduced with timely action, employee engagement, and improved HR policies

CHAPTER 10: PROCESS & OPERATION COSTING



1. Introduction

- ✓ Process Costing is a method of costing used in industries where the material has to pass through two or more processes for being converted into a final product. It is defined as "a method of Cost Accounting whereby costs are charged to processes or operations and averaged over units produced".
- ✓ A separate account for each process is opened and all expenditure pertaining to a process is charged to that process account.



2. Valuation of Output in each Process

Steps involved in calculation of Cost Per Unit of Output

- ✓ Debit The Process Account with All its Expenses.
- ✓ Credit The Process Account with Normal Loss Scrap Income.
- ✓ Find The Estimated Cost Per Unit of Output.
- ✓ Formula:

$$\frac{\text{Total cost} - \text{Normal Loss Scrap Income}}{\text{Input} - \text{Normal Loss units}}$$
- ✓ Find The Value of Abnormal Loss or Abnormal Gain.
- ✓ Adjust The Normal Loss Account with Cash or Abnormal Gain.
- ✓ Transfer The Net Balance of Abnormal Loss or Abnormal Gain to Costing Profit and Loss A/c.



3. Costing Procedure in Process Costing

A. Material

- ✓ Materials and supplies which are required for each process are drawn against Material Requisitions Notes from the stores.
- ✓ The finished product of first process generally becomes the raw materials of second process
- ✓ Under such a situation the account of second process is debited with the cost of transfer from the first process and also with the cost of any additional material used in process.

B. Employee Cost

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

C. Direct Expenses (to the Process)

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

D. Production Overheads

- ✓ Expenses like rent, power expenses, lighting bills, gas and water bills etc. are known as production overheads.
- ✓ These expenses cannot be allocated to a process.
- ✓ Usually, these expenses are estimated in advance and the processes debited with these expenses on a pre-determined basis.



4. Treatment of Normal, Abnormal Loss and Abnormal Gain

A. Normal Process Loss:

- ✓ It is also known as normal wastage. It is defined as the loss of material which is inherent in the nature of work.
- ✓ Such a loss can be reasonably anticipated from the nature of the material, nature of operation, the experience and technical data.
- ✓ Treatment in Cost Accounts: The cost of normal process loss in practice is absorbed by good units produced under the process. The amount realised by the sale of normal process loss units should be credited to the process account.

B. Abnormal Process Loss:

- ✓ It is also known as abnormal wastage. It is defined as the loss in excess of the predetermined loss (Normal process loss).
- ✓ This type of loss may occur due to the carelessness of workers, a bad plant design or operation, sabotage etc.
- ✓ Such a loss cannot obviously be estimated in advance. But it can be kept under control by taking suitable measures.
- ✓ Treatment in Cost Accounts: The total cost of abnormal process loss is credited to the process account from which it arises.

C. Abnormal Process Gain:

- ✓ Sometimes, the **actual production exceeds** the **expected** figures. Under such a situation the **difference** between **actual** and **expected** loss or actual and expected production is known as **abnormal gain** or yield.
- ✓ This arises due to **over- estimation** of process **loss**, **improvements** in work efficiency of workers, use of better technology in production etc.
- ✓ **Treatment in Cost Accounts:** The **process account** under which abnormal gain arises is **debited** with the abnormal gain and **credited** to **abnormal gain account** which will be closed by **transferring** to the **Costing Profit and Loss account**.

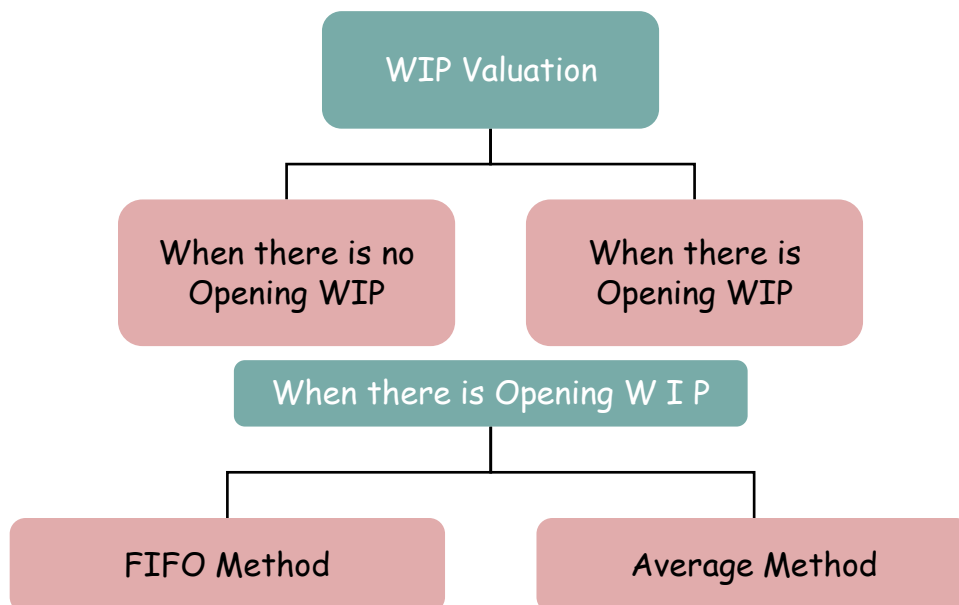
Doubt Busters: 💡

1. Abnormal Loss is valued separately and taken to Costing P/L A/c.
2. Normal Loss is not valued separately but its presence inflates the per unit cost of expected good units. (Refer Classroom Discussion)



5. Valuation of Work in Progress

- ✓ The **valuation** of **work-in-process** presents a good deal of **difficulty** because it has **units** under **different stages of completion** from those in which work has just begun to those which are only a step short of completion.
- ✓ Work-in-process can be valued on **actual basis**, i.e., materials used on the **unfinished units** and the actual amount of labour expenses involved.
- ✓ However, the **degree of accuracy** in such a case **cannot be satisfactory**.
- ✓ An **alternative method** is based on **converting** partly finished units into **equivalent finished units**.



FIFO - First in First Out Method:

- ✓ Under this method the units completed and transferred are taken from both opening work-in-process (WIP) and freshly introduced materials/inputs.
- ✓ The cost to complete the opening WIP and other completed units are calculated separately.
- ✓ The cost of opening WIP is added to cost incurred on completing the incomplete (WIP) units into complete one.
- ✓ The total cost of units completed and transferred is calculated by adding opening WIP cost to cost on freshly introduced inputs.
- ✓ In this method the closing stock of work in process is valued at current cost.

Weighted Average Method:

- ✓ Under this method, the cost of opening work-in-process and cost of the current period are aggregated and the aggregate cost is divided by output in terms of completed units.
- ✓ The equivalent production in this case consists of work-load already contained in opening work-in-process and work-load of current period.
- ✓ The main difference between FIFO method and average method is that units of opening work in process and their cost are taken in full under average method while under FIFO method only the remaining work done now is considered.



6. Steps in Process Costing

Steps to be followed in solving Numerical Problems

Before the start of every sum, analyze of physical flow of production units

Step - 1: Statement of Equivalent units

Input		Output		Equivalent Units	
Particulars	Units	Particulars	Units	%	Units
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx	xxx	xxx

Step - 2: Statement of cost per Equivalent unit

Particulars (1)	Cost (₹) (2)	Equivalent Units (3)	Cost per Equivalent Unit (4) = (2) ÷ (3)
xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx
xxx	xxx	xxx	xxx

Step - 3: Statement of Apportionment of total cost to units completed and W I P

Apportion the costs by using the formula - $\text{Equivalent Units} \times \text{Cost per Equivalent Units}$

Step - 4: Preparation of Process A/c

Plug the figures arrived in Step-3 to the Cr side of Process A/c



7. Inter Process Profits

Inter Process Profits

- ✓ To **control cost** and to **measure performance**, different processes within an organization are designated as **separate profit centres**.
- ✓ In this type of organizational structure, the **output** of one process is **transferred** to the next process not at cost but at market value or **cost plus a percentage of profit**.
- ✓ The **difference** between **cost** and the **transfer price** is known as **inter-process profits**.

(Detailed discussion is covered in the lectures)



8. Core Theory Topics

Advantages and Disadvantages of using Inter Process Profit:

Advantages	1. Easier Comparison: Helps compare output cost with market price at each process stage. 2. Process-wise Profitability: Each process is evaluated individually for its profitability.
Disadvantages	1. Complexity: Using inter-process profit makes the system more complicated. 2. Unrealised Profit: Shows profits that are not yet realised due to unsold stock.

Operation Costing

1.	Definition Used when a company produces multiple product variants with different materials but similar conversion activities.
2.	Also Known As Hybrid Product Costing System
3.	Material Cost Treatment Material costs are accumulated by job, batch, or unit based on the product variant.
4.	Conversion Cost Treatment Conversion costs (i.e., labour & overheads) are accumulated by department or process, not by product variant.
5.	Cost Allocation Conversion costs are applied using a predetermined rate based on budgeted conversion costs. Example Scenario A company makes Product-Deluxe and Product-Regular. Materials differ, but both go through a similar production process.
6.	Industry Examples ✓ Ready-made garments ✓ Shoe manufacturing ✓ Jewellery production

CHAPTER 11: JOINT AND BY PRODUCTS AND BY PRODUCTS



1. Introduction

- ✓ In some industries, **two or more products** of equal or unequal importance are produced either **simultaneously** or in the **course of processing operation** of a main product.
- ✓ **Agricultural product** industries, chemical process industries, sugar industries, and extractive industries are the examples of such industries.
- ✓ In these **industries**, the **management** is **faced** with the **problems** such as, valuation of inventory, pricing of product and income determination, problem of taking decision in matters of further processing of **by-products** and/or **joint products** after a certain stage etc.
- ✓ The problems faced by the management are related to
 - **Apportionment** of **common costs** incurred for various products and
 - Aspects other than mere **apportionment** of **costs** incurred up to the point of **separation**.



2. Joint and By Products

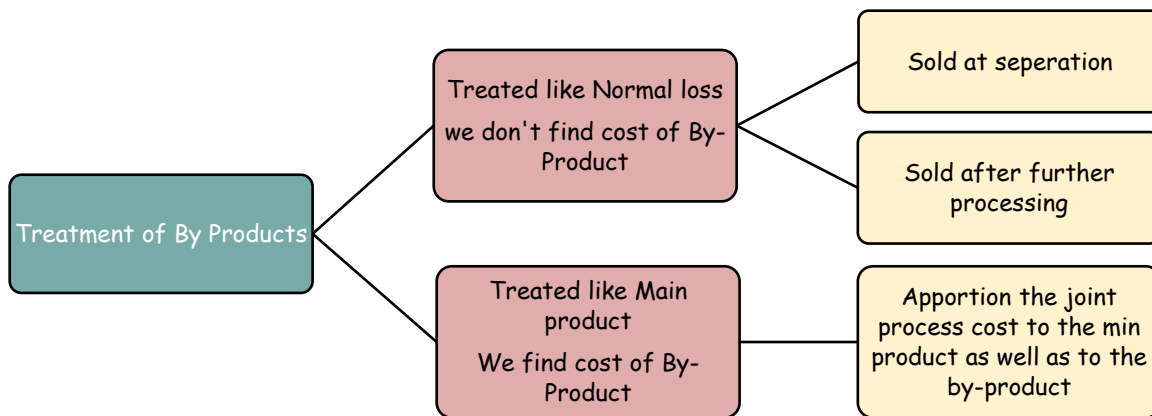
A. Joint Products

- ✓ **Joint products** represent "**two or more products** separated in the course of the same processing operation usually requiring further processing, each product being in such proportion that no single product can be designated as a **major product**".
- ✓ In other words, two or more products of equal importance, produced, **simultaneously** from the same process, with each having a **significant relative sale value** are known as joint products.
- ✓ **For example**, in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum.

B. By Products

- ✓ These are defined as "**products recovered** from **material discarded** in a **main process**, or from the production of some major products, where the material value is to be considered at the time of severance from the **main product**."
- ✓ In a nutshell By-product is a **product** which is **recovered incidentally** from the material used in the manufacture of **main** or **desired products**.
- ✓ Such a by-product having either a **net realisable value** or a **usable value** which is relatively insignificant in comparison with the saleable value of the **main or desired products**.
- ✓ By-product may be further processed to **increase** their **realisable value**
- ✓ Thus by-products emerge as a result of **processing operation** of another product or they are produced from the scrap or waste of **materials of a process**.

✓ Treatment of By Product



3. Apportionment of Joint Cost

- ✓ The **management** of business concerns require **accurate** and **reliable cost** information related with the joint products to make **managerial decisions** such as to process **further** or to **sell at split-off stage**.
- ✓ To arrive at **either decision**, it is necessary to know the **share of joint costs** to be apportioned to the **different joint products**.
- ✓ Joint costs are the **expenditures** incurred upto the point of separation i.e. split-off point Joint Cost is the resources spent by a **manufacturer/producer** for producing more than one product from **processing a common input**.
- ✓ These costs include **raw material, labour, power, fuel, depreciation and overhead costs** towards the production of the joint products.

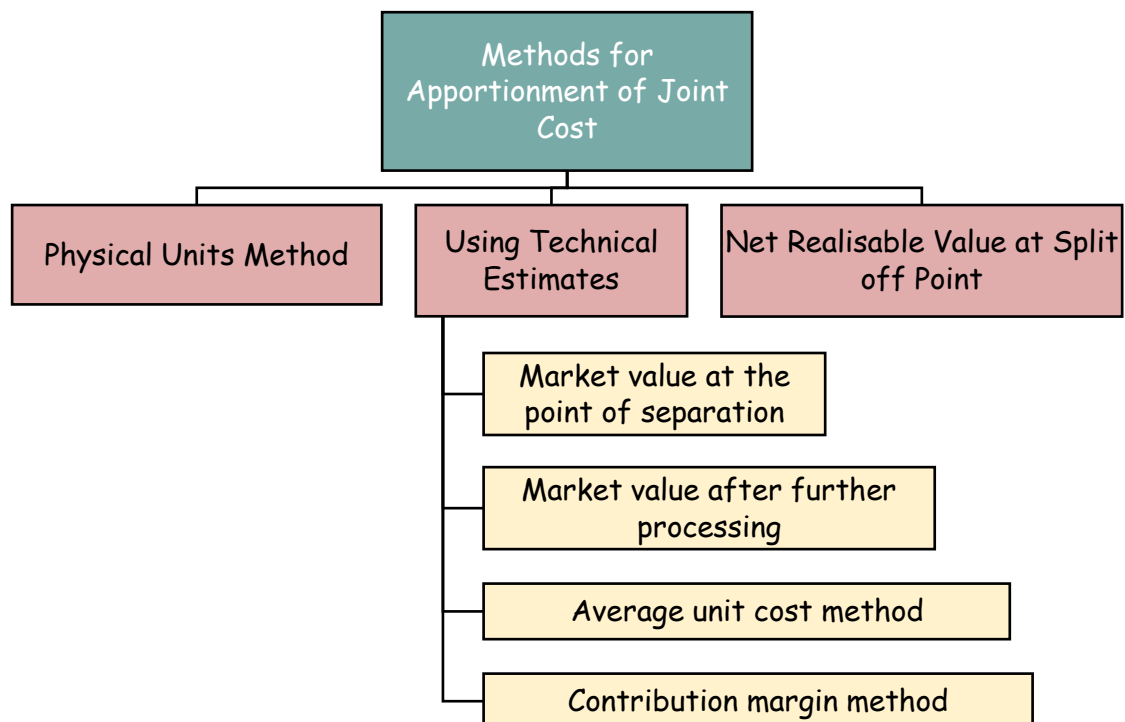
Particulars	Quantity	Amount
Material Input	xx	xx
Add: Indirect Material	xx	xx
Labour	xx	xx
Overhead	xx	xx
Less: Normal Loss Scrap Income	(xx)	(xx)
Less: By-product NRV (if treated like normal loss)	(xx)	(xx)
Joint Cost to be Apportioned	xx	xx

Doubt Busters:

- Split-off Point is a point in the production process where Joint Products emerging from the process gets separately identifiable.
- Split of Point has its importance in the joint product costing as joint cost incurred up to this point only and needs to be borne jointly by the products emerging from the common process.
- Any cost incurred after Split of Point is a product specific cost and to be borne by the product concerned.

**4. Methods of Apportionment of Joint cost to Joint Products**

- ✓ Proper **apportionment** of joint cost over the **joint products** is of **considerable importance**, as this affects (a) Valuation of closing inventory; (b) Pricing of products; and (c) Profit or loss on the sale of different products.
- ✓ As the relations between **materials**, processes and **joint products** are complex and unobservable, there is no way to **determine** the **cost** of the different production factors used in the **processes** for the **production** of each of the joint products.
- ✓ Therefore, the **costs incurred** in the **manufacture** of each of the joint products **cannot** be **correctly** identified. It can only be **apportioned** to the **joint products** by using some rational methods.



A. Physical Unit Method:

- ✓ This method is based on the **assumption** that the joint products are **capable** of being **measured** in the **same units**.
- ✓ Accordingly, joint costs here are **apportioned** on the basis of some **physical base**, such as weight, numbers etc.
- ✓ In other words, the basis used for **apportioning joint cost** over the joint products is the **physical volume** the joint products at the point of **separation**.
- ✓ In situation where **physical units** are different, the joint products must be **converted** to a **common unit of measurement**.
- ✓ In case, the same **cannot** be converted to a common unit of **measurement**, this method **cannot** be **applied**.

B. Net Realisable Value at Split off Point

- ✓ To arrive at the sales value at the **split-off point**, following are **deducted** from the **sales value** of joint products at final stage i.e. **after processing**:
 - **Directly attributable** Selling and distribution expenses like freight, royalty, commission, etc. and
 - **Post split-off** processing cost.
- ✓ This method has advantage as **relative sales value** serves as a proxy for **relative benefit** received by each product from the joint cost.
- ✓ When **selling prices** for **all products** exist at split off, the sales value at **split off method** is the **preferred technique**.
- ✓ It is a relatively simple technique that depends on a **common basis** for cost **allocation - revenues**

Particulars	Product A (₹)	Product B (₹)	Product C (₹)
Sales Value (Units after processing × Selling Price)	xxx	xxx	xxx
Less: Profit Margin	xxx	xxx	xxx
Less: Selling & Distribution costs	xxx	xxx	xxx
Less: Post split-off cost	xxx	xxx	xxx
Net Realisable Value	xxx	xxx	xxx

C. Market value at the point of separation

- ✓ This method is used for the **apportionment** of joint costs to joint products **upto the split off point**.
- ✓ It is **difficult** to apply this method if the **market value** of the **products** at the **point of separation** is not **available**.
- ✓ It is a useful method when the **realisable** value of joint products at **split-off** (point of separation) is known and where **further processing** costs are **incurred disproportionately**.
- ✓ To determine the **apportionment** of joint costs over **joint products**, a factor known as multiplying factor is determined.
- ✓ This **multiplying factor** on **multiplication** with the sales values of each joint product gives rise to the **proportion** of joint cost.

Multiply in Factor: $(\text{Joint Cost} \div \text{Total Sales Revenue}) \times 100$

(Total Sales Revenue is sum of production quantity multiplied by the market price for each of the joint products.)

D. Market value after further processing

- ✓ The basis of apportionment of joint cost is the **total sales value** of **finished products**.
- ✓ The use of this method is unfair where further **processing costs** after the point of **separation** are **disproportionate** or when all the joint products are **not subjected** to further processing.

E. Average Unit Cost Method:

- ✓ Under this method, **total process** cost (upto the point of separation) is **divided** by total units of joint products produced. On division **average cost per** unit of production is obtained.

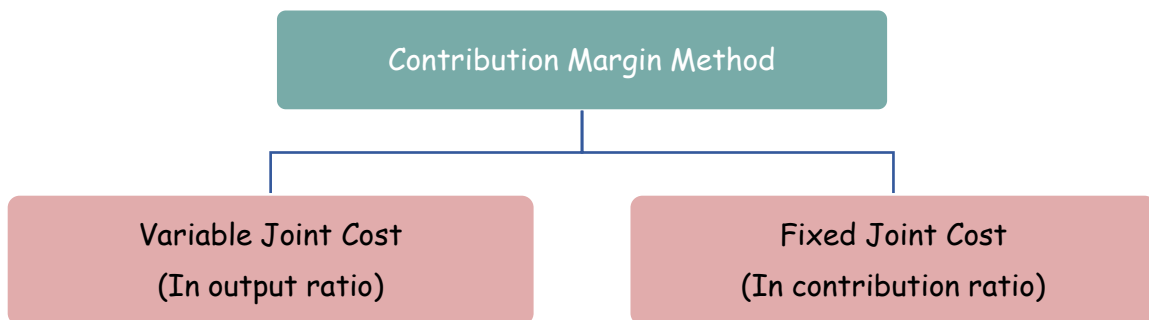
$$\text{Average unit cost} = \text{Total Process Cost} \div \text{Total units of Joint product produced}$$
- ✓ This is a simple method. The effect of **application** of this method is that **all joint products** will have uniform cost per unit. If this method is used as the basis for **price fixation**, then all the products may have **more or less the same price**.
- ✓ Under this method customers of **high quality** items are **benefitted** as they have to pay **less price** on their purchase.

Doubt Busters: 💡

It should be noted that the physical unit method also follows the same steps of calculation as followed under Average unit cost method, ultimately giving the same outcome.

F. Contribution Margin Method:

- ✓ According to this method, joint costs are **segregated** into two parts - **variable and fixed**.
- ✓ The **variable costs** are **apportioned** over the joint products on the basis of **units produced** (average method) or **physical quantities**.
- ✓ In case the products are **further processed** after the point of **separation**, then **all variable cost** incurred be added to the variable costs **determined earlier**.
- ✓ In this way **total variable cost** is **arrived** which is deducted from their **respective sales values** to ascertain their **contribution**.
- ✓ The fixed costs are then **apportioned** over the joint products on the basis of the **contribution ratios**.



5. 'Further Process or Not' Decision

- ✓ In joint or by-product costing, deciding the **next steps** after a product reaches the **split-off** point involves evaluating whether further processing is **beneficial or not**. Here's an outline of the process:
- ✓ The decision to process further depends on the Net Incremental Benefit:

$$\text{Net Incremental Benefit} = \text{Incremental Revenue} - \text{Incremental Cost}$$

- ✓ **Decision Criteria**

If Net Incremental Benefit > 0: Process Further.

If Net Incremental Benefit ≤ 0: Sell at split-off.

(Refer Classroom Discussion)



Core theory Topics

Methods of apportionment of joint costs to by-products

Method	Description
i. Net Realisable Value method	The realisation from the sale of the by-product is deducted from the total cost of production to determine the cost of the main product . If the by-product requires additional processing, expenses for processing and selling, distribution , and administration should be deducted from the realisation to find the net realisations . Separate accounts should be maintained for: (a) Further processing (b) Selling, distribution, and administration expenses.
ii. Standard cost in Technical Estimates	By-products may be valued at standard costs determined by averaging past costs and estimating the raw material units used for the main product and the by-product. This method is used when the by-product is not directly saleable or when comparable prices are unavailable .
iii. Comparative price	The value of the by-product is determined based on the price of a similar or alternative material. For example, in an automobile plant , gas produced in a blast furnace can be valued based on the price the factory would pay to an external gas supplier .
iv. Re-use basis	If the by-product can be reprocessed and used in the same process, its value is considered the same as the materials used in the process. If the by-product is reprocessed in an earlier stage , its value is the same as the materials used in that process .

Treatment Of By-Product Cost In Cost Accounting

Situation	Treatment
When by-products are of small total value	Sales value of the by-products may be credited to the Costing Profit and Loss Account as miscellaneous income or additional sales revenue, with no credit to the Cost Accounts. - The sale proceeds of the by-product may be treated as deductions from total costs, either from the production cost or the cost of sales.
When by-products are of considerable total value	The by-products may be considered as joint products rather than by-products. Costs incurred up to the point of separation should be apportioned over joint products and by-products using a logical basis. Joint costs can be divided using: ➤ Relative market values

	➤ Physical output method (at the point of split-off) ➤ Ultimate selling prices (if sold).
When by-products require further processing	The net realisable value of the by-product at the split-off point is determined by subtracting the further processing cost from the realisable value of the by-product. If the total sales value of the by-product is small at the split-off point, it may be treated as in the case of small value by-products discussed above. If the sales value is considerable, it is treated as described for by-products of considerable value.

CHAPTER 12: SERVICE COSTING



1. Introduction

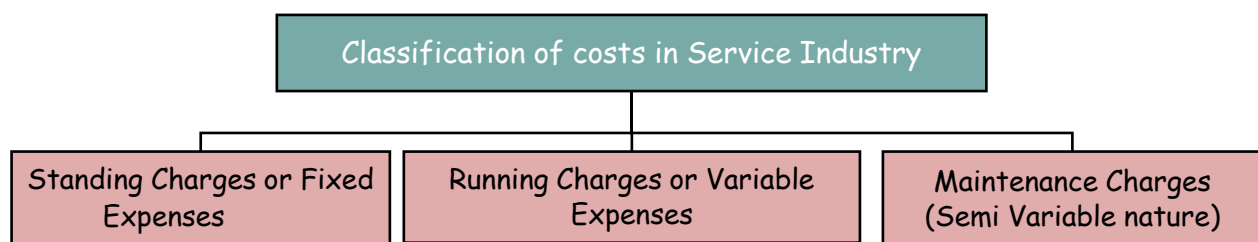
- ✓ **Service sector**, being a **fastest** growing sector and having a significant contribution towards the GDP in India, is a very **important** sector where the **role** of the **cost** and **management** accounting is **inevitable**.
- ✓ Providers of services like **transportation**, **hotels**, financial **services** & **banking**, insurance, **electricity** generation, transmission and distribution etc. are very much cost conscious and thrive to provide services in a **cost-effective** manner. Irrespective of regulatory requirements to maintain cost records and get the records audited, service costing becomes integral and inseparable part of each service entity.
- ✓ In this chapter we will be discussing how costing is done in the following service sectors
 1. Transportation Sector
 - (a) Goods Transportation
 - (b) Passenger Transportation
 2. Hotels & Lodges
 3. Hospitals
 4. Information Technology Enabled Services (ITES)
 5. Toll Roads
 6. Educational Institutes
 7. Insurance
 8. Financial Institutions
 9. Electricity generation, transmission and distribution (Power House)



2. Cost Classification in Service Industry

- ✓ The **cost** statement for **services** may be prepared either on the basis of **functional** classification as done for product costing or on the basis of **variability**. Cost sheet on the basis of **variability** is prepared classifying all the costs into three different heads:
 - **Fixed** costs or Standing charges
 - **Variable** costs or Operating expenses
 - **Semi-variable** costs or Maintenance expenses
- ✓ **Standing Charges** or Fixed costs: These are the fixed costs that remain constant irrespective of the distance travelled. These costs include the following:
 - **Insurance**
 - **License** fees
 - **Salary** to Driver, Conductor, Cleaners, etc if paid on monthly basis

- Garage costs, including garage **rent**
 - **Depreciation** (if related to efflux of time)
 - **Taxes**
 - **Administration** expenses, etc.
- ✓ **Variable** costs or Running costs: These costs are generally associated with the distance travelled. These costs include the following:
- **Petrol** and Diesel
 - Lubricant **oils**,
 - **Wages** to Driver, Conductor, Cleaners, etc. if it is related to operations
 - **Depreciation** (if related to activity)
 - Any other variable costs identified.
- ✓ **Semi-Variable** Costs or Maintenance Costs: These costs include the following:
- **Repairs** and maintenance
 - **Tyres**
 - **Spares**, etc.



3. Service Cost Unit

- ✓ To compute the Service cost, it is **necessary** to **understand** the **unit** for which the **cost** is to be **computed**.
- ✓ All the **costs incurred** during a period are **collected** and **analysed** and then expressed in terms of a **cost per unit** of service.
- ✓ One specific issue with service costing is the **difficulty** in defining a **realistic cost** unit that represents a **suitable** measure of the **service provided**.
- ✓ Sometime **two measurement** units are combined together to know the cost of service or operation. These are called **composite cost** units.
- ✓ The cost unit to be applied needs to be defined carefully and frequently, a **composite cost unit** may be deemed more appropriate.
- ✓ Typical cost unit that may be used include:

Service industry	Unit of cost (examples)
Transport Services	Passenger- km., (In public transportation) Quintal- km., or Tonne- km. (In goods carriage)
Electricity Supply service	Kilowatt- hour (kWh)
Hospital	Patient per day, Room per day or Bed per day
Canteen	Per item, per meal etc.
Cinema	Per ticket
Hotels	Guest Days or Room Days
Bank or Financial Institutions	Per transaction, per services (e.g. per Loan)
Educational Institutes	Per course, per student, per batch, per lecture etc.
IT & ITES	Cost per project, per module etc.
Insurance	Per policy, Per claim, Per TPA etc.

Equivalent Service Unit

- ✓ To calculate **cost or pricing** of two more different **grade of services** which uses common resources, each grade of service is assigned a weight and converted into equivalent units.
- ✓ **Converting services** into **equivalent units** make different grade of services equivalent and comparable.

(Refer Classroom Discussion)



4. Transport Industry

A. Goods Transport Industry

- ✓ In a Transport Industry, Composite unit may be computed in two ways.
 1. Absolute (Weighted Average) basis.
 2. Commercial (Simple Average) basis.
- 1. Weighted Average or Absolute basis
It is a summation of the products of **qualitative and quantitative factors** and is calculated as follows:

$$\Sigma(\text{Weight Carried} \times \text{Distance})_1 + (\text{Weight Carried} \times \text{Distance})_2 + \dots + (\text{Weight Carried} \times \text{Distance})_n$$
- 2. Simple Average or Commercial Basis
It is the product of **average qualitative and total quantitative** factors and is calculated as follows:

$$\Sigma(\text{Distance}_1 + \text{Distance}_2 + \dots + \text{Distance}_n) \times \left[\frac{W_1 + W_2 + \dots + W_n}{n} \right]$$

B. Passenger Transport Industry

- ✓ Cost unit for **Passenger** transport organization is Passenger- Kilometer - that means cost of carrying one Passenger over a distance of one kilometer.

Passenger Transport ↓ Cost unit = Passenger - Km	Kms Per Annum	$\begin{aligned} &\text{Kms per trip} \times \text{No. of trips per day} \times \\ &\text{Days per month} \times \text{Months per year} \times \\ &\text{No. of buses operating} \end{aligned}$
	Passenger - Kms	$\begin{aligned} &\text{Kms p.a.} \times \text{Average No. of Passenger} \\ &\quad \downarrow \\ &[\text{Bus Capacity} \times \text{Average Occupancy}] \end{aligned}$

Doubt Busters: 💡

1. For goods transport, we generally follow absolute basis of cost unit whereas for passenger transport, we follow commercial basis.
2. One round trip = To & From = 2 one-way trips
3. In general, we assume the following:
 - For Goods Transport = One side of a round trip is empty.
 - For Passenger Transport = Both sides of a round trip is occupied.
4. Operating cost of any service should NOT include Finance Cost and Abnormal Cost (like fines)



5. Costing of Hotels and Lodges

- ✓ **Service** costing is an effective tool in respect of **hotel** industry.
- ✓ Hotels are run on **commercial** basis. Hence it is necessary to compute the cost - to fix the price of various services provided by the hotel and to find out the profit or loss at the end of a particular period.
- ✓ In this case, the **costs** associated with **different** services offered should be **identified** and cost per unit should be worked out.
- ✓ The cost unit may be **Guest-day** or **Room Day**.
- ✓ For calculation of cost per Guest Day or Room Day, estimated occupancy rate - at different point of time, for example - **Peak season** or **lean season**, are taken in to account.



6. Costing of Hospitals

- ✓ A **Hospital** is providing various types of medical services to the patients. Hospital costing is applied to decide the cost of these services.
- ✓ A hospital may have **different departments** catering to varied services to the patients - such as
 - **Out Patient**

- In Patient
- Medical services like X-Ray, Scanning, etc.
- General services like Catering, Laundry, Power house, etc.
- Miscellaneous services like Transport, Dispensary, etc.
- ✓ . Common unit of costs of various departments are as follows:
 - Out Patient - Per Out-patient
 - In Patient - Per Room Day
 - Scanning - Per Case
 - Laundry - Per 100 items laundered
- ✓ The cost of hospital can be divided in to fixed costs and variable costs.
- ✓ Fixed costs are based on timelines and irrespective of services provided. For example, Staff salaries, Depreciation on Building and Equipment, etc.
- ✓ Variable costs vary with the level of services rendered. For example, laundry charges, Cost of food supplied to patients, Power, etc.

Doubt Busters: 💡

1. Cost unit = Bed Days Occupancy or Patient Days Occupied
= [No. of Beds or Patients x Days Operated per year x Occupancy (%)]
2. Generally, there is no season in hospitals.



7. Costing of IT & ITES

- ✓ The services of IT and ITES organizations may be used for - provision of services to outside customers or provision of services internally.
- ✓ In general - IT & ITES industries, the jobs undertaken are considered as Project. Each project is unique in nature and varies in size, functionality requirements, duration and staffing requirements.
- ✓ software implementation project, three to four levels of man-power would be directly engaged, as mentioned below: -
 - Software Engineers / Functional Consultants / Business Analysts
 - Project Leaders
 - Project Manager
 - Program Manager, etc
- ✓ Parameters in Computation of Total Cost
 - A. Hardware and software costs involved
 - B. Travel and training costs
 - C. Effort costs which includes
 - Costs of providing, heating and lighting office space

- Costs of support staff such as **accountants**, **administrators**, system managers, cleaners and technicians
- Costs of **networking** and communications
- Costs of central facilities such as a **library** or recreational facilities
- Costs of **Social Security** and **employee benefits** such as pensions and health insurance, etc.



8. Costing of Toll Roads

- ✓ Highway economic analysis is a **technique** whereby the cost and benefit from a scheme are quantified over a selected time **horizon** and evaluated by a common **yardstick**.
- ✓ The economic analysis involves **comparison** of project costs and benefits under the "**with**" and "**without**" project conditions.
- ✓ The **capital cost** consists of cost incurred during the **construction** period. Generally, this sort of road construction projects run across **multiple** financial **years**.
- ✓ **Construction** expenses can be broadly classified as follows:
 - **Preliminary** and pre-operative expenses
 - Land **Acquisition**
 - Materials
 - Labour
 - **Overheads** incurred in the course of actual construction
 - Contingency **allowance**
 - **Interest** during construction period
- ✓ **Operating** and Maintenance Costs
 - **Annual maintenance** cost includes primary maintenance of wearing surface, railings, roadside furniture, etc.
 - Periodic maintenance cost includes the **cost of overlays** (wearing coats), painting of railings, etc.
 - Toll collection expenses
 - Administrative expenses for day-to-day **operation**.
 - Maintenance expenses, which include **routing** and periodic maintenance.
 - Interest expenses incurred for servicing **term loans**.
- ✓ **Toll Rate** should have a direct relation with the benefits that the road users would gain from its improvements. The benefits to road users are likely to be in terms of **fuel savings**, **improvement** in travel time and good **riding quality**.

Build Operate Transfer (BOT) Approach

- ✓ In recent years a growing trend emerged among Governments in many countries to solicit investments for public projects from the private sector under **BOT** scheme. BOT is an option for the Government to outsource **public projects** to the private sector.
- ✓ With BOT, the private sector **designs, finances, constructs** and operate the facility and eventually, after specified concession period, the ownership is transferred to the Government. Therefore, BOT can be seen as a developing technique for infrastructure projects by making them amenable to private sector participation.
- ✓ The fundamental principle in determining user levy is, 'if the **price** for a **transport** facility is set at a **level** that **reflects** the benefit, each user gains from improvements in the facility, it will result in traffic flow levels that equate social costs with user benefits.'



9. Costing of Educational Institutions

- ✓ **Educational** institutions like **schools**, colleges, technical institutes for education and training, are run to impart education and training to students. The objective of running these institutions may be 'Not-for profit' or 'For profit'.
- ✓ **Income** of the Educational Institutions
 - One-time fees
 - Recurring fees
 - Other incomes
- ✓ **Expenditure** of the Educational Institutions
 - The **salary** of the teaching and non-teaching staff
 - Laboratory maintenance charges
 - **Computer** maintenance and internet charges,
 - Building maintenance,
 - Repairs and **maintenance** of equipment,
 - Administrative expenses,
 - **Finance** charges etc.
 - Research and Development Cost
 - Cost of **Publication** of research and other materials.



10. Costing in Insurance Companies

- ✓ **Insurance** or assurance industry operates in providing **social security** to the persons who subscribe for the policy. The insurance companies are need to analyse it various insurance product for **profitability**. The product offered by insurance companies may include:
 - **Life** Insurance policies- with or without maturity benefits
 - **General** insurance- **Health**, Fire, Property, Travel Insurance etc.

- Others services- **Re-insurance**, Fund management- Pension, Gratuity and other etc.
- ✓ **Income** of insurance companies may include
 - **Premium** on policy (periodic or onetime)
 - **Commission** on re-insurance
 - Fund **administration fee** and return on investment of funds etc.
- ✓ The **Expenditure** of an insurance company can be classified as **direct** and **indirect** to a policy or product.
- ✓ Direct- **Commission** paid to **agents**, claim settlement, cost of **valuation**, premium for re-insurance, legal and other costs etc.
- ✓ Indirect Cost - **Actuarial** fees, market and **product development** costs, administration cost, asset management cost etc.



11. Costing in Financial Institutions

- ✓ In the past two-decade **financial institutions** have undergone major changes - in terms to increased regulations, competition from new entrants from both locally and globally, innovation of **new products** and services, technological advancement and increased expectations of **new generation customers**, etc.
- ✓ If the financial institution is to survive under the present challenging **economic conditions**, it will have to add **value** to its products and services. It is imperative to note that the financial institution needs to know the contribution of its **products**, **services** and customers to value creation.
- ✓ The **objectives** of cost measurement include -
 - Understand the **profitability** by products offered and by customers
 - Establishing a **mechanism** for pricing the products, by identifying the product level and activity level unit costs
 - Understanding **productivity** issues and their **relationship** with strategic **goals** of the organization.



12. Costing for Power Houses

- ✓ Power houses are engaged either in electricity generation or steam generation use the concepts of service costing i.e., '**Powerhouse Costing**.' Service cost statement can be prepared by identifying the costs associated with the power generation or steam generation.
- ✓ Cost unit is different for **electricity** generation and steam generation.
- ✓ The cost unit for electricity generation organization is cost per **kilowatt-hour** (kWh) - that means cost of generating one kilowatt of power per hour. Please note that kWh is commonly known as a "**Unit**".



Core Theory Topics

Application of Service Costing	
Type of Service	Description
Internal Service	Service costing is needed for in-house services provided by a service cost center to support other responsibility centers. Examples: ➤ Canteen and hospital for staff, ➤ Boiler house supplying steam to production departments, ➤ Captive Power generation unit, ➤ Fleet of vehicles for transporting raw materials or finished goods, ➤ IT department services used by other departments, ➤ Research & Development, Quality Assurance, and Laboratory services.
External Service	Service costing applies when services are provided to outside customers as a profit center, aligning with the organization's objectives. Examples: ➤ Passenger transport services by transporters, ➤ Hospitality services by hotels, ➤ Services by financial institutions, insurance and IT companies, etc.
Cost Accumulation	In both internal and external services, all costs are: ➤ Collected and accumulated over a specific period or volume, ➤ Recorded in the cost accounting system, ➤ Expressed in terms of a cost unit of service.

Service Costing vs Product Costing		
Aspect	Service Costing	Product Costing (e.g., Job or Process Costing)
i. Tangibility	Services are intangible and cannot be stored. No inventory for services.	Products are tangible and can be stored as inventory .
ii. Cost Units	Uses composite cost units to measure and express the volume of outputs.	Uses individual cost units like a specific product or batch.
iii. Material vs Employee Cost	Employee (labour) cost constitutes a major cost element, often higher than material cost.	Material cost plays a significant role in product costing, alongside labour cost.

iv. Traceability of Costs	Indirect costs like administration overheads have a significant proportion in service costs. Traceability to a service may not be economically feasible .	Costs are more easily traceable to products as each product or batch has its own direct costs.
---------------------------	---	---

Key Performance Indicators (KPIs)

Industry	KPI	Meaning
Transportation	Number of Shipments	Monitors the number of orders shipped out of the warehouse.
	Truck Turnaround Rate (Truck Turning)	The time from when a delivery truck enters the warehouse to when it exits after delivering or collecting products.
	Lead Time (Order Cycle Time)	The amount of time between order placement by customer and receipt of order.
	On-Time and In-Full (OTIF)	Measures the number of orders delivered according to the schedule and specified quantity .
Hotel Industry	Cost per Occupied Room (CPOR)	The average cost per occupied room.
	Occupancy Rate	The ratio of rented or used rooms to the total available rooms.
	Revenue per Available Room (RevPAR)	The average revenue per available room day.
Healthcare Industry	Bed Occupancy Rate	The proportion of hospital beds in use at any time.
	Staff-To-Patient Ratio	The number of staff members per patient in a hospital over a certain period of time.
	Average Treatment Charge	The average amount charged to a patient for treatment.
IT & ITES Sector	Gross Burn Rate	The rate at which the company uses up its available cash for operating expenses.
	Customer Acquisition Cost (CAC)	The amount spent to attract new customers .
	Customer Lifetime Value (CLV)	The net profit generated by a company over the entire life cycle of a customer.
	Monthly Recurring Revenue (MRR)	The amount earned each month through subscription renewals, new sales, upsells, and fluctuations.
	Churn Rate	The percentage of customers who cancel their recurring subscriptions over a given period.

	Cost Per Feature	The cost of a specific feature based on usage and cloud costs.
Telecom	Average Return Per User (ARPU)	The revenue generated from each user of the telecom service.
	Subscriber Acquisition Cost (SAC)	The costs involved in acquiring new subscribers.
	Network Operating Cost	The expenditure incurred for the continual upkeep of the telecom network.
	Gross Revenue Retention (GRR)	Measures how well a company retains its customers based on factors like sales price increases and organic customer growth.
Education Sector	Instructional Costs	The cost of part-time and full-time faculty members.
	Administrative Costs Per Student	The amount spent on administrative services per student.
	Tuition Costs	The costs accrued by students on a semester or annual basis .
	Student-to-Faculty Ratio	The number of students per faculty member, campus-wide or by department.
Insurance Sector	Average Cost Per Claim	The average cost of each claim made.
	Components of Claim Costs (CCC)	The costs associated with a claim, including legal fees, time to settle, administration costs, and report delays.
	Cost Per Quote	The costs incurred to provide a quote to a potential client.
	Administrative Costs Per Policy	The cost of policy administration for the number of policies outstanding.
	Average Policy Size	The total amount of premium collected divided by the number of policies issued for a given time period.

CHAPTER 13: MARGINAL COSTING



1. Introduction

- ✓ **Marginal Costing** is a technique of cost and management accounting used to analyze the relationship between cost, volume, and profit.
- ✓ **Marginal cost** in economics refers to the incremental cost of producing one additional unit of a product.
- ✓ **Variable costs** have a direct relationship with the volume of output, while **fixed costs** remain constant irrespective of the volume of production. Therefore, **marginal cost** is measured by the total **variable cost** for one additional unit.
- ✓ **Marginal costing** is a system where products or services and **inventories** are valued at **variable costs** only, and **fixed costs** are not considered.
- ✓ This system of costing is also known as **direct costing** since only **direct costs** are included in the **product** and **inventory cost**. Costs are classified based on the **behavior of costs** (i.e., **fixed** and **variable**) rather than their functions as done in **absorption costing**.



2. Marginal Costing Income Statement

- ✓ For the determination of cost of a product or service under marginal costing, costs are classified into **variable** and **fixed**.
- ✓ All the **variable costs** are part of the **product** and **services**, while **fixed costs** are charged against the **contribution margin**.
- ✓ **Marginal Cost Statement**

Particulars	Amount (₹)
Sales	XXX
Less: Variable Cost	(XXX)
Contribution	XXX
Less: Fixed Cost	(XXX)
Profit	XXX

- ✓ $\text{Selling Price Per Unit} = \text{Variable Cost Per Unit} + \text{Contribution Per Unit}$
- ✓ $\text{Contribution Per Unit} = \text{Selling Price Per Unit} - \text{Variable Cost Per Unit}$



3. Basic Concepts in Marginal Costing

Contribution

- ✓ Contribution or contribution margin is the difference between sales revenue and total variable costs, regardless of whether the costs are manufacturing or non-manufacturing.
- ✓ It is obtained by subtracting variable costs from sales revenue.
- ✓ It can also be defined as the excess of sales revenue over the variable costs.
 - Contribution Per Unit = SP Per Unit - VC Per Unit
 - Total Contribution = Sales x PV Ratio
 - Total Contribution = Contribution Per Unit x Units Sold
 - Total Contribution = Total Sales - Total Variable Cost
 - Total Contribution = Fixed Cost + Total Profit

Profit Volume Ratio (PVR)

- ✓ This ratio shows the proportion of sales available to cover fixed costs and profit.
- ✓ Contribution represents the sales revenue after deducting variable costs. This ratio is usually expressed as a percentage.
- ✓ A higher contribution to sales ratio implies that the rate of growth of contribution is faster than that of sales.
- ✓ This is because, once the break-even point is reached, profits will grow at a faster rate compared to a product with a lower contribution to sales ratio.

$$\bullet \text{ PV Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\bullet \text{ Total Sales (₹)} = \frac{\text{Fixed Cost} + \text{Profit}}{\text{PV Ratio}}$$

Dividing both the sides by Selling Price Per Unit we get,

$$\bullet \text{ Sales (units)} = \frac{\text{Fixed Cost} + \text{Profit}}{\text{Contribution Per Unit}}$$

$$\bullet \text{ PV Ratio} = \frac{\Delta \text{ Contribution}}{\Delta \text{ Sales}}$$

Break Even Point (BEP) and Cash BEP

- ✓ The word contribution is used because it literally contributes towards the recovery of fixed costs and the generation of profits.
- ✓ The contribution grows along with the sales revenue until it covers the fixed costs.
- ✓ The point where neither profits nor losses have been made is known as the break-even point.

✓ This means that in order to **break even**, the amount of **contribution** generated should be exactly equal to the **fixed costs** incurred.

- Break Even Sales (units) = $\frac{\text{Fixed Cost}}{\text{Contribution Per Unit}}$
- Break Even Sales (₹) = $\frac{\text{Fixed Cost}}{\text{PVR}}$
- Break Even Sales (₹) = Break Even Sales (units) × SP Per Unit

✓ When **break-even point** is calculated only with those **fixed costs** that are payable in **cash**, it is known as the **cash break-even point**.

✓ This means that **depreciation** and other **non-cash fixed costs** are **excluded** from the **fixed costs** when computing the **cash break-even point**.

- Cash Break Even Sales (units) = $\frac{\text{Cash Fixed Cost}}{\text{Contribution Per Unit}}$
- Cash Break Even Sales (₹) = $\frac{\text{Cash Fixed Cost}}{\text{PVR}}$

Note: Cash Fixed Cost = Total Fixed Cost - Non - Cash Exp (E.g., Depreciation)

Doubt Busters: 💡

At Cash BEP, there will be a loss which is exactly equal to Non - Cash Exp (Depreciation)

Margin of Safety (MOS)

- ✓ The **margin of safety** can be defined as the difference between the **expected level of sale** and the **break-even sales**.
- ✓ The **margin of safety** can also be calculated by identifying the difference between the **projected sales** and **break-even sales** in **units**, then multiplying that by the **contribution per unit**.
- ✓ This is possible because, at the **break-even point**, all the **fixed costs** are recovered, and any further **contribution** goes into the generation of **profits**.

- Margin of Safety (units) = $\frac{\text{Profit}}{\text{Contribution Per Unit}}$

Multiplying by Selling Price Per Unit we get,

- Margin of Safety (₹) = $\frac{\text{Profit}}{\text{PVR}}$

Doubt Busters: 💡

Larger the margin of safety, the higher is the chances of making profits. Hence, MOS is nothing but Profit generating Sales.

CVP Pairs

- Break Even Sales + Margin of Safety = Sales
- $\frac{BES}{Sales} + \frac{MOS}{Sales} = \frac{Sales}{Sales}$
- Break Even Sales Ratio + MOS Ratio = 1
- Break Even Sales Ratio = 40%
- Margin of Safety Ratio = 60%

Similarly,

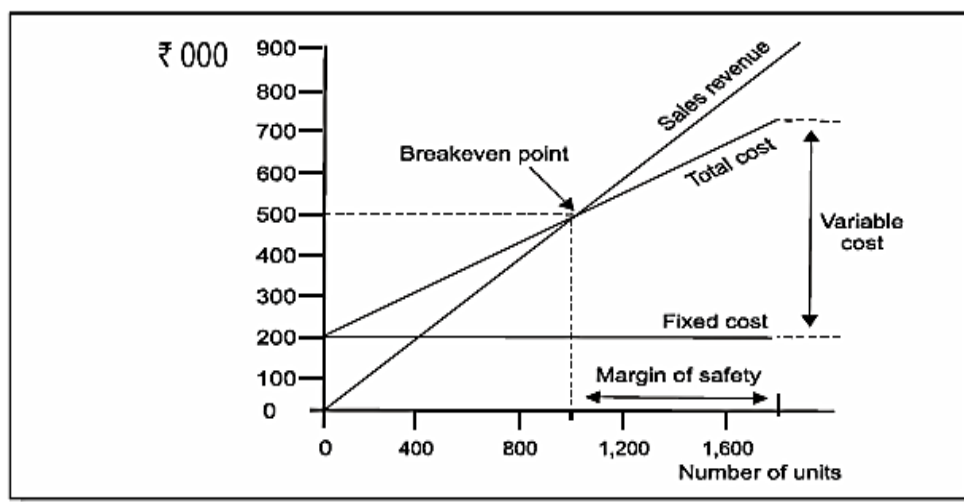
- VC + Contribution = Sales
- VC Ratio + PV Ratio = 1
- PVR = 45%, VC Ratio = 55%



4. Some Graphs in Marginal Costing

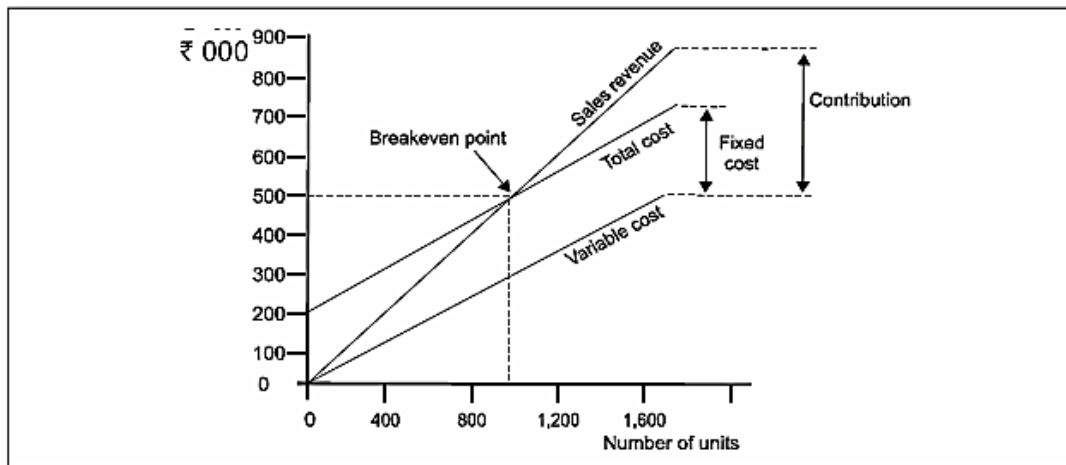
Break Even Chart

- ✓ A break-even chart records costs and revenues on the vertical axis (Y-axis) and the level of activity on the horizontal axis (X-axis).
- ✓ To create the break-even chart, you need to select appropriate axes. Then, mark costs/revenues on the Y-axis, while the level of activity is traced on the X-axis.
- ✓ The break-even point is the point where the sales revenue line intersects the total cost line. Other measures like the margin of safety and profit can also be derived from the chart.



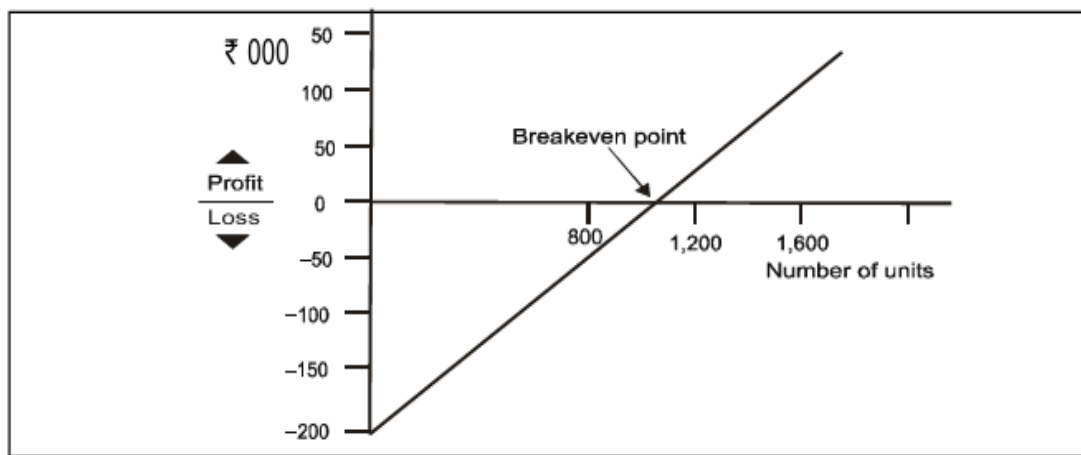
Contribution Break Even Chart

- ✓ It is not possible to use a **break-even chart** to measure **contribution**, which is a major limitation, especially since **contribution analysis** is essential in **marginal costing**.
- ✓ To overcome this limitation, accountants often create a **contribution break-even chart**. This chart follows the same principles as the conventional break-even chart, except that it shows the **variable cost line** instead of the **fixed cost line**. The lines for **total cost** and **sales revenue** remain the same.
- ✓ The **break-even point** and **profit** can be read off the **contribution chart** in the same way as with a conventional chart. However, it also allows for the reading of the **contribution** at any level of activity.



Profit-Volume Chart

- ✓ This is also very similar to a **break-even chart**. In this chart, the **vertical axis** represents **profits and losses**, and the **horizontal axis** is drawn at **zero profit or loss**.
- ✓ In this chart, each level of activity is considered, and **profits** are marked accordingly. The **break-even point** is where the profit line intersects the **horizontal axis**.





5. Indifference Point

- ✓ Indifference = No difference = Equal
- ✓ Indifference point = The level of sales where total cost or total profit under two options are equal.
- ✓ Situation:

Two mutually exclusive option (SP must be constant)

Cost Structure	Option 1	Option 2
FC	High	Low
Variable Cost Per Unit	Low	High

$$\text{Indifference point} = \frac{\text{Change in Fixed Cost}}{\text{Change in Variable Cost Per Unit}} \text{ or } \frac{\text{Change in Fixed Cost}}{\text{Change in Contribution Per Unit}}$$

- ✓ Interpretations

Expected Volume	Recommendations
< Indifference point	Low Fixed Cost option
= Indifference point	Any option
> Indifference point	Low Variable Cost option



6. Volume Analysis

- ✓ When the **Cost** or **Profit** data for **two volume levels** are given, the analysis of the same refers to **Volume Analysis**.
- ✓ In this situation, the following formulas can be used

- $\text{PV Ratio} = \frac{\Delta \text{ Profit}}{\Delta \text{ Sales}}$
- $\text{Contribution p.u} = \frac{\Delta \text{ Profit}}{\Delta \text{ Units}}$
- $\text{VC Ratio} = \frac{\Delta \text{ Cost}}{\Delta \text{ Sales}}$
- $\text{VC p.u} = \frac{\Delta \text{ Cost}}{\Delta \text{ Units}}$



7. Sales Mix

- ✓ In a **multi-product environment**, where more than one product is manufactured by using a common **fixed cost**, the **break-even point** formula needs some adjustments.
- ✓ The **contribution** is calculated by taking weights for the products.
- ✓ The **weights** may be of **sales mix quantity** or **sales mix values**.

Overall Break Even Sales

Case 1: Sales Quantity mix is known

$$\begin{aligned} &\downarrow \\ &\text{Total Contribution} \\ &= \text{Sales Quantity} \times \text{Weighted Contribution Per Unit} \end{aligned}$$

Case 2: Sales Value mix is known

$$\begin{aligned} &\downarrow \\ &\text{Total Contribution} \\ &= \text{Sales Value} \times \text{Weighted PVR} \end{aligned}$$

Sales Value Mix Is Known

Example:

Particulars	A	B	Total
Sales Mix	70%	30%	1,00,000
P/V Ratio	50%	40%	
Total Fixed Cost			4,70,000

Find BEP.

Weighted Average PVR

	A	B	Total
Sales	₹ 70,000	₹ 30,000	₹ 1,00,000
P/V Ratio	50%	40%	-
Contribution	35,000	12,000	47,000
Weighted Average PV Ratio			$\frac{47,000}{1,00,000} = 47\%$

$$\therefore \text{Overall BES} = \frac{\text{Total Fixed Cost}}{\text{Weighted Average PV Ratio}} = \frac{4,70,000}{47\%} = ₹ 10 \text{ Lakhs}$$

$$\text{Sales Value of A} = ₹ 10,00,000 \times \frac{70}{100} = ₹ 7,00,000$$

$$\text{Sales Value of B} = ₹ 10,00,000 \times \frac{30}{100} = ₹ 3,00,000$$



8. Limiting Factor or Key Factor Analysis

- ✓ **Limiting factor** is anything that **limits the activity** of an entity. It is a key factor in determining the **level of sales** and **production**, and is also known as the **Key factor**.
- ✓ From the **supply side**, the limiting factor could be **Men** (employees), **Materials** (raw materials or supplies), **Machines** (capacity), or **Money** (availability of funds or budget). From the **demand**

side, the limiting factor could be the demand for the product, other factors like the nature of the product, and regulatory or environmental requirements.

- ✓ The management's goal while making decisions is to optimize the key resources to the maximum possible extent.
- ✓ The limiting factor is also called the principle budgeting factor because it limits production, and the entire production process must be planned according to its availability.
- ✓ It is also referred to as the critical factor, bottleneck, or constraint.

Steps to Deal with Key Factor:

1. Identify the Key Factor: The key factor is the one whose requirement is greater than its availability.
2. Best Use of Available Quantity of Key Factor:
 - a. Ranking of Products: Rank the products based on comparative profitability, using the formula Contribution per Key Factor.
 - b. Optimum Mix: Allocate the available key factor to products based on the rank.

(Refer Classroom Discussion with Numerical Problems)



9. Shut Down Point

- ✓ Applicable under situation of off season or recession.
- ✓ A company may need to evaluate whether it should - (a) Shut down (temporary closure) (b) continue the operation
- ✓ Non-Financial factors influencing the decision-
 - Loss of goodwill
 - Availability of labour
 - Supplier relationships
 - Security reasons
 - Reopening hassles
 - Laws & Regulations

✓

Financial factors	Shut down	Continue
Total Fixed Cost		
- Unavoidable fixed cost	xx	xx
- Avoidable fixed cost	-	xx
- Extra cost of shut down - Total	xx	-
Fixed Cost	xx	xx

✓ **Shut Down Point** - It is the **level of sales** where the company is able to recover the **additional fixed cost** of continuing the operations. It is the **indifference point** between **Shut down & Continue option**.

✓ Shut down point =
$$\frac{\text{Avoidable Fixed Cost} - \text{Extra Shutdown Cost}}{\text{Contribution Per Unit}}$$

✓ Interpretation

Expected sales	Recommendations
< Shut down point	Shut down (Low Fixed Cost Option)
= Shut down point	Shut down or Continue
> Shut down point	Continue (Low Variable Cost Option)

Doubt Busters: 💡

The Shut Down Point Concept is based on Indifference Point Concept and the formula is derived from the Indifference Point formula
$$\frac{\text{Change in Fixed Cost}}{\text{Change in Contribution Per Unit}}$$



10. Merger of Plants

Example:

₹ in lakhs	Company A	Company B
Capacity	60%	90%
Sales (₹)	300	540
VC Ratio	50%	70%
Fixed Cost (₹)	30	75

Assume both have merged. Find BEP of the merged company.

1) PVR of Merged Company (Assuming 100% Capacity of each)

	A	B	Total (₹)
Sales	500 (300 ÷ 60%)	600 (540 ÷ 90%)	1,100
Less: Variable Cost	250	420	670
Contribution	250	180	430
PVR	-	-	(430 ÷ 1100) = 39.09%

2) BEP =
$$\frac{\text{Total Fixed Cost of merged company}}{\text{PV Ratio of merged company}} = \frac{30 + 75}{39.09\%} = 268.61 \text{ Lakhs}$$

3) Sales required in merged company to earn profit of ₹ 20 Lakhs

$$= \frac{\text{Fixed Cost} + \text{Profit}}{\text{PV Ratio}} = \frac{105 + 20}{39.09\%} = ₹ 319.77 \text{ Lakhs}$$



11. Sensitivity Analysis

- ✓ **Sensitivity Analysis** is the study of **rate of change** in one **variable**, with respect to change in another variable, Keeping other **variables constant**.

(Refer Classroom Discussion with Numerical Problems)



12. Marginal Costing Vs Absorption Costing

Absorption Costing	Marginal Costing
Product Cost = Direct Material + Direct Labour + Direct Expenses + Production Overheads	Product Cost = Direct Material + Direct Labour + Direct Expenses + Variable Production Overheads
Period Cost = Admin & Selling OH	Period Cost = Fixed Production Overheads, Fixed Admin & Selling OH
Fixed production overheads are charged as product costs.	Fixed Overheads are not charged to products. They are taken as period cost on actual basis.
Step 1: Overheads Absorption Rate $= \frac{\text{Total Budgeted Overheads}}{\text{Total Budgeted Basis}}$ Step 2: Overheads absorbed $= \text{Overheads absorption rate} \times \text{actual basis}$ Step 3: Actual Overheads Step 4: Under/over absorption of Overheads	No concept of Absorption

- ✓ The presentation of information to management under the two costing techniques is as under:

Income Statement (Absorption costing)

Particulars	Amount (₹)
Sales	XXX
Production Costs:	
Direct material consumed	XXX
Direct labour cost	XXX
Variable manufacturing overhead	XXX
Fixed manufacturing overhead	XXX
Cost of Production	XXX
Add: Opening stock of finished goods	XXX

(Value at cost of previous period's production)

Less: Closing stock of finished goods

XXX

(Value at production cost of current period)

XXX

Cost of Goods Sold

XXX

Add: (or less) Under (or over) absorption of fixed
Manufacturing overhead

XXX

XXX

Add: Administration costs

XXX

Selling and distribution costs

XXX

Total Cost

XXX

Profit (Sales - Total cost)

Income Statement (Marginal costing)

Particulars	Amount (₹)
Sales	XXX
Variable manufacturing costs:	
- Direct material consumed	XXX
- Direct labour	XXX
- Variable manufacturing overhead	XXX
Cost of Goods Produced	XXX
Add: Opening stock of finished goods	XXX
(Value at cost of previous period)	XXX
Less: Closing stock of finished goods (Value at current variable cost)	XXX
Cost of Goods Sold	
Add: Variable administration, selling and dist. overhead	XXX
Total Variable Cost	XXX
Add: Selling and distribution costs	XXX
Contribution (Sales - Total variable costs)	XXX
Less: Fixed costs (Production, admin., selling and dist.)	XXX
Net Profit	XXX

Profit Reconciliation

Particulars	Amount (₹)
Profit as per Absorption Costing	✓
Add: Opening Stock overvalued in Absorption Costing	✓
Less: Closing Stock overvalued in Absorption Costing	(✓)
Profit as per Marginal Costing	✓

- ✓ It is evident from the above that under **marginal costing** technique the **contributions** of various products are pooled together and the **fixed overheads** are met out of such total **contribution**.
- ✓ The total contribution is also known as **gross margin**. The **contribution** minus **fixed expenses** yields **net profit**. In **absorption costing** technique cost includes **fixed overheads** as well.



Core Theory Topics

Characteristics Of Marginal Costing

1. Classification of Costs

All costs are split into **fixed** and **variable** parts. Even **semi-variable costs** are broken down into **fixed** and **variable** elements.

2. Product Costs

Only **marginal (variable) costs** like **direct materials**, **direct labour**, and **variable factory overheads** are treated as **product costs**.

3. Inventory Valuation

Finished goods and **work-in-progress (WIP)** are valued using **only variable costs**. **Variable selling and distribution costs** are excluded. **Fixed costs** are not used to value closing stock.

4. Fixed Costs Treatment

Fixed costs are treated as **period costs**. They are charged to the **Profit & Loss Account** of the period in which they are incurred.

5. Pricing

Prices are set based on **marginal cost** and the **contribution margin**.

6. Profitability Analysis

Profitability of **products** and **departments** is judged based on their **contribution margin**.

Facts About Marginal Costing

1. Not a Distinct Costing Method

Marginal costing is **not a standalone method** like **job costing** or **process costing**. Instead, it's a **technique** used for **managerial decision-making**. It helps interpret cost data and assess **profitability** of different products, processes, or departments. It can be combined with other methods like **standard costing** or **budgetary control**.

2. Cost Ascertainment by Nature

Costs are analyzed based on their **nature and behavior** (i.e., **fixed** or **variable**), rather than just function. This technique focuses on how costs behave and how they affect **profitability**.

3. Helps in Better Decision-Making

Unlike **traditional costing**, which treats all costs functionally (like material, labour, admin, selling overheads), **marginal costing** focuses on how costs change with output. In **total cost method**, per-unit cost keeps changing due to fluctuations in **output** and **fixed expenses**. This can lead to inconsistent cost data (e.g., ₹20 one day, ₹18 the next), making decisions unreliable. Marginal costing solves this by providing **stable and relevant cost information** for sound managerial decisions.

Absorption Costing

1. Definition

Absorption costing charges **all costs**, both **variable** and **fixed**, to operations, processes, or products.

2. Classification of Expenses

In **absorption costing**, expenses are classified based on their **function** (e.g., production, administration), while in **marginal costing**, they are classified based on the **nature** (variable vs fixed).

3. Fixed Expenses Distribution

Fixed costs are distributed over products based on a **pre-determined output level**. Since fixed costs are constant, this method may lead to **over** or **under-recovery** depending on actual output (if the actual output differs from the estimate).

4. Difference from Marginal Costing

This issue does not occur in **marginal costing**, as the **contribution margin** is used to cover fixed expenses, ensuring no over or under-recovery.

Advantages of Marginal Costing

1. Simplified Pricing Policy

Marginal cost per unit is constant, making it easier to set prices. If **fixed costs** are included, unit cost changes with output volume, making pricing decisions more complex.

2. Proper Recovery of Overheads

In marginal costing, **overheads** are recovered without the problem of **under** or **over-recovery** that can occur when **fixed overheads** are based on **pre-determined rates**.

3. Shows Realistic Profit

Marginal costing shows the true profit by valuing **finished goods** and **WIP** at **marginal costs** and treating **fixed expenses** as **period costs**.

4. Helps Determine Production Levels

Break-even analysis in marginal costing helps determine the impact of changes in production on **profitability**.

5. More Control Over Expenditure

Segregating expenses as **fixed** and **variable** allows management to better control spending and take corrective actions through **variance analysis**.

6. Helps in Decision Making

Marginal costing aids in business decisions such as **make or buy**, **discontinuing products**, and **machine replacements**.

7. Short-term Profit Planning

Marginal costing assists in **short-term profit planning** through **break-even point (BEP)** analysis.

Limitations of Marginal Costing

1. Difficulty in Classifying Costs

It's hard to categorize all costs as either **fixed** or **variable** because some costs are **semi-variable** or neither fixed nor variable.

2. Dependence on Key Factors

The **contribution** from a product may not reflect **optimum profitability** unless linked with the **key factor** affecting production.

3. Scope for Low Profitability

Sales staff may mistakenly use **marginal cost** as the **total cost**, leading to **losses** or **low profits**.

4. Faulty Valuation

Fixed overheads must be included when valuing **work-in-progress (WIP)**, especially for large contracts, which **marginal costing** ignores.

5. Unpredictable Nature of Cost

Assumptions about costs (like fixed costs remaining constant) may not hold true in real-life situations, where **fixed costs** and **variable costs** can fluctuate.

6. Ignores Time Factor and Investment

Marginal costing ignores factors like time taken or cost of machinery, which may affect the **true cost** of a job.

7. Understating of WIP

Marginal costing tends to **understate** the value of **work-in-progress** stocks, affecting the accuracy of financial reporting.

Cost-Volume-Profit (CVP) Analysis

1. Meaning of CVP Analysis

Cost-Volume-Profit (CVP) Analysis is a managerial tool used to understand the relationship between **cost**, **selling price**, and **volume of activity**. It examines how changes in these factors affect **profit**.

2. Three Key Variables

CVP analysis focuses on the relationship between **cost**, **volume**, and **profit**.

3. Purpose

The aim of CVP analysis is to measure how changes in **cost** and **volume** impact **profit**. It helps in understanding the financial effects of different levels of **activity** and the resulting **profitability**.

Assumptions of CVP Analysis:

1. Revenue and Cost Drivers

Revenue drivers (e.g., number of units sold) and **cost drivers** (e.g., production volume) are the only factors affecting **revenue** and **costs**. A **revenue driver** affects **revenues**, while a **cost driver** affects **costs**.

2. Separation of Costs

Total costs can be broken into two parts: **fixed costs** (don't change with output) and **variable costs** (change with output). Both **direct** and **indirect** costs are included for each type of cost.

3. Graphical Representation

When plotted on a graph, both **total revenue** and **total costs** follow a **linear** pattern within a **relevant range** (and time period).

4. Known Variables

Selling price, **variable cost per unit**, and **total fixed costs** are **known** and **constant** within the relevant range and time period.

5. Single or Multiple Products

CVP analysis can be done for **one product** or assumes **constant product proportions** when selling multiple products as the total sales volume changes.

6. No Time Value of Money Consideration

CVP analysis assumes that all **revenues** and **costs** are directly comparable without considering the **time value of money**.

Importance of CVP Analysis

1. Behaviour of Cost

CVP analysis helps understand how **costs** change with **volume** (production or sales).

2. Break-even Volume

It helps determine the **volume** of production or sales at which the business will **break-even** (no profit or loss).

3. Profit Sensitivity

CVP analysis shows how **profits** are affected by changes in **output** (production/sales levels).

4. Profit at Projected Sales

It provides an estimate of the **profit** for a given **sales volume**.

5. Target Profit Volume

It helps determine the **quantity** of production and sales needed to achieve a **target profit**.

Impact of Various Changes on Profit

1. Changes in Selling Prices

Changes in selling price impact **revenues** and affect the **profitability**.

2. Changes in Sales Volume

Altering the **sales volume** directly affects the **total profit**.

3. Changes in Variable Costs

Changes in **variable costs** (cost per unit) will influence the **profit margin**.

4. Changes in Fixed Costs

Fixed costs (e.g., rent, salaries) remain constant but affect **overall profitability**.

Limitations Of Break-Even Analysis

1. Unrealistic Assumptions

Assumptions like **costs behaving linearly** and **sales revenue being constant** at all sales levels are unrealistic and don't reflect real business conditions.

2. Constant Stocks Assumption

The assumption that **stocks remain constant** from period to period doesn't align with real-world inventory changes.

3. Only Activity Level Influences Costs

CVP assumes that **only activity level** affects costs, ignoring other factors like **inflation** and external influences that also impact costs.

Application Of CVP Analysis In Decision Making

1. CVP Analysis in Managerial Decision Making

CVP Analysis is a useful tool for evaluating **short-term decisions** in business.

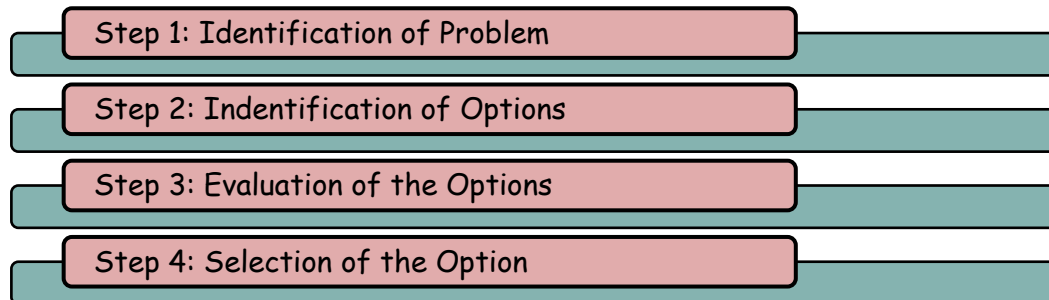
2. Purpose in Decision Making

The main focus is on using **CVP analysis** to assess how decisions impact **cost**, **volume**, and **profit** in the short term.

3. Decision Making Framework

Before diving into examples, it's important to understand the **framework** used for making short-term decisions with **CVP analysis**.

Framework for Decision Making



Decision-Making Framework Using CVP Analysis

Step 1: Identification of Problem

Every organization has its goals. The first step is identifying **problem areas** that need attention to reach these goals. For example, **Arnav Ltd.** aims to become a **cost leader** by reducing production costs.

Step 2: Identification of Options

Once the problem is identified, explore all possible **options** to solve it. For **Arnav Ltd.**, options could include **buying locally**, **making in-house**, **bulk purchases**, or **investing in efficient machinery**.

Step 3: Evaluation of Options

Evaluate each option based on **financial** (profit/loss, ROI) and **non-financial** factors (customer satisfaction, ethics). This involves identifying the **costs** and **benefits** of each option.

Step 4: Selection of Option

After evaluation, the **best option** is selected and **implemented**.

Principles for Identifying Costs and Benefits

i. Controllability	Costs and benefits that arise due to the choice of an option .	Only costs and benefits directly linked to the decision are considered.
ii. Relevance	Only future costs that differ between options are relevant for decision making.	Controllable costs are relevant only if they differ between options. For example, if raw materials cost the same for both in-house production and outsourcing, it's not relevant to the decision.

Below is an analysis of few costs for its relevance:

Cost Type	Relevance	Reason
i. Historical Cost	Irrelevant	Already incurred , does not affect future decisions. Example: Book value of machinery .
ii. Sunk Cost	Irrelevant	Costs already paid for goods or services, and cannot be recovered. Example: Purchased raw materials in store.
iii. Committed Cost	Irrelevant	Pre-agreed costs that cannot be changed, similar to sunk costs. Example: Material cost as per agreements, employee salaries .
iv. Opportunity Cost	Relevant	Represents the forgone benefit from choosing one option over another. Example: Benefit missed by rejecting a profitable option .
v. Notional/Imputed Cost	Relevant	Relevant if the company loses benefits by using resources in one option over another. Example: Interest on internal funds that could have been invested.

Principles of Estimation of Costs and Benefits

Principle	Explanation	Simplified Example
i. Variability	Variability refers to how much a cost or benefit changes with different levels of activity or volume.	Variable costs change with volume or activity (e.g., employee cost for labor). Fixed costs remain the same, regardless of activity level (e.g., rent).
ii. Traceability	Traceability refers to the degree to which a cost can be linked to a specific option or decision.	Direct costs (e.g., employee labor cost) can be easily traced to the option. Indirect costs (e.g., machinery cost) need to be apportioned reasonably across options.

Short-term Decision-Making using concepts of CVP Analysis

i. Decisions with Excess Supply

These decisions address situations where there is **more supply** than demand for available resources.

a. Processing of Special Orders

Accepting orders that may not meet the regular sales price, but help utilize **excess supply**.

b. Price for Stimulating Demand

Setting prices that can **increase demand** without hurting regular pricing.

c. Local vs Export Sale

Deciding whether to sell locally or in the **export market** based on **demand** and **profitability**.

d. Minimum Price for Quotations

Setting the **minimum price** for specific **quotations**, considering the cost structure.

e. Shut-down or Continue Decision

Deciding whether to **shut down** operations temporarily or continue, depending on **marginal cost** and **contribution**.

ii. Decisions with Excess Demand

These decisions address situations where **demand exceeds supply** or resources are limited.

a. Make or Buy/ In-house vs Outsourcing

Deciding whether to **make in-house** or **outsource** based on **cost efficiency** and **capacity**.

b. Product Mix Decision Under Resource Constraints

Choosing the best **product mix** when limited resources (e.g., labour, machinery) are available.

c. Sales Mix Decisions

Deciding on the optimal **sales mix** when resources are constrained to maximize **profitability**.

d. Sale or Further Processing

Deciding whether to **sell immediately** or **process further** based on the **additional cost** and **profit** from further processing.

Main Points of distinction between Marginal Costing and Absorption Costing

Aspect	Marginal Costing	Absorption Costing
1. Product Costing & Inventory Valuation	Only variable costs are considered for product costing and inventory valuation .	Both fixed and variable costs are considered for product costing and inventory valuation .
2. Treatment of Fixed Costs	Fixed costs are period costs . Profitability is judged by the P/V ratio of products.	Fixed costs are included in the cost of production , affecting the profitability of each product.
3. Cost Data Presentation	Focuses on total contribution of each product, highlighting its contribution margin .	Presented in a conventional pattern . Net profit is calculated after deducting both variable and fixed costs .
4. Impact of Stock Changes on Cost	Changes in opening and closing stock do not affect the unit cost of production.	Changes in opening and closing stock affect unit cost due to fixed costs being apportioned.
5. Unit Cost Behaviour	Unit cost remains constant regardless of production level, as it is based on variable cost only.	Unit cost decreases with increased production, as fixed costs are spread over more units, though variable costs remain unchanged.

Difference in Profit under Marginal and Absorption costing		
Scenario	Explanation	Profit Comparison
1. No Opening and Closing Stock	When there is no opening stock or closing stock, the profit under both marginal costing and absorption costing will be the same.	Profit under both approaches will be equal.
2. Opening Stock = Closing Stock	If opening stock equals closing stock, the profit will be the same under both approaches, provided the fixed cost in both stocks is identical.	Profit under both approaches will be equal.
3. Closing Stock > Opening Stock	If production exceeds sales, then absorption costing will show a higher profit than marginal costing. This is because part of the fixed overhead in the closing stock is carried forward.	Absorption costing will show higher profit.
4. Opening Stock > Closing Stock	If sales exceed production, marginal costing will show a higher profit than absorption costing. This is because part of the fixed cost from the previous period is included in opening stock.	Marginal costing will show higher profit.

CHAPTER 14: STANDARD COSTING



1. Introduction

- ✓ **Cost control** is one of the **objectives** of cost management. Management of an organisation setups predetermined cost to **compare** the **actual** cost with the **predetermined** cost.
- ✓ **Standard** costing is a method of cost and management accounting which starts with setting of standards and ends with reporting of **variances** to management for taking **corrective actions**.
- ✓ The Official Terminology of **CIMA**, London defines standard costing as "**Control technique** that reports variances by comparing **actual costs** to pre-set **standards** so facilitating action through management by **exception**."



2. What is a Standard or Standard Cost?

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



3. Types of Variances

A. Controllable and Uncontrollable Variances

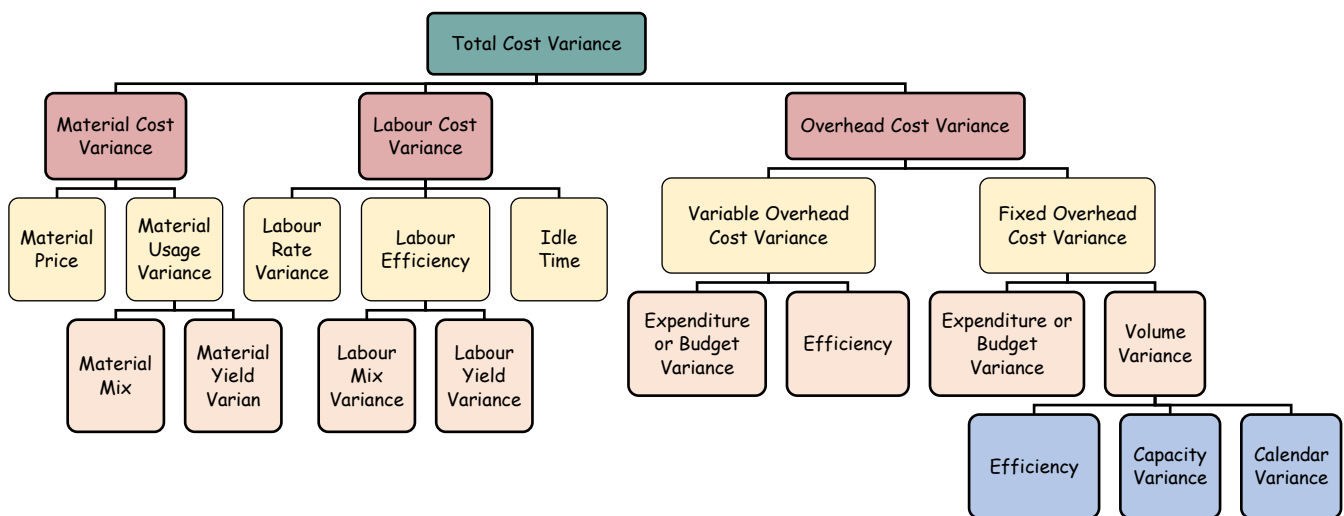
- ✓ For **effective** cost control it is necessary to **investigate** into the **reasons** for cost variances and to take **corrective actions**.
- ✓ For this purpose, variances are classified as **controllable** and **uncontrollable** variances.
- ✓ **Controllable** variances are those which can be **controlled** under the **normal operating** conditions if a **responsibility** centre takes preventive **measures** and acts prudently.
- ✓ **Uncontrollable** variances are those which occurs due to conditions which are beyond the control of a responsibility centre and **cannot** be **controlled** even though all **preventive measures** are in place.
- ✓ Responsibility centres are answerable for all **adverse variances** which could have been controlled.
- ✓ **Controllability** is a subjective matter and varies from situation to situation. If the **uncontrollable** variances are of significant **nature** and are **persistent**, the standard may need revision.

B. Favourable and Adverse Variances

- ✓ **Favourable** variances are those which are **profitable** for the company and **adverse** variances are those which causes **loss** to the company.
- ✓ While computing cost variances favourable variance means **actual** cost is **less** than **standard** cost.
- ✓ On the other hand, **adverse** variance means **actual** cost is **exceeding** **standard** cost.
- ✓ The situation will be **reversed** for sales variance. **Favourable** variances mean **actual** is **more** than **budgeted** and **adverse** when actual is **less** than **budgeted**.
- ✓ Favourable variance in short denoted by capital '**F**' and adverse variances by capital '**A**'.



4. Classification of Variances



5. Computation of Material Variances

Material Cost Variance (MCV)

- ✓ **Material cost** variance is the **difference** between **standard** cost of materials used and the **actual** cost of materials.

$$\text{Material Cost Variance} = [\text{Standard Cost} - \text{Actual Cost}]$$

Or

$$[(\text{Standard Quantity} \times \text{Standard Price}) - (\text{Actual Quantity} \times \text{Actual Price})]$$

Reasons for variance:

Material cost variance arises mainly because of either difference in **material price** from the standard price or difference in **material consumption** from standard consumption or **both** the reasons.

Material Price Variance (MPV)

- ✓ It measures **variance** arises in the material cost due to **difference** in **actual** material purchase price from **standard** material price.

$$[\text{Standard Cost of Actual Quantity} - \text{Actual Cost}]$$

Or

$$\text{Actual Quantity (AQ)} \times \{\text{Standard Price (SP)} - \text{Actual Price (A)}\}$$

Or

$$(\text{SP} - \text{AP}) \times \text{AQ}$$

Reasons for variance:

Material price variance can also be calculated taking material used as **actual** quantity instead of material **purchased**. This method is also correct but does not serve the purpose of **variance** computation. Material price variance may arise from **variety** of **reasons** out of which some may be **controllable** and some may be beyond the control of the purchase department. If price variance arises due to **inefficiency** of purchase department or any other reason **within** the **control** of the company, then it is very important to report variance as early as possible and this can be done by taking **purchase quantity** as actual quantity for **price** variance computation.

Doubt Busters: 💡

Here actual quantity means actual quantity of material purchased. If in the question material purchase is not given, it is taken as equal to material consumed.

MPV can also be calculated taking material consumed as actual quantity instead of material purchased if both the figures are available. This method is also correct but does not serve the purpose of variance computation. Students should write a note in this regard in exams.

Material Usage Variance (MUV)

- ✓ It measures **variance** in material cost due to **usage/ consumption** of materials.

$$[\text{Standard Cost of Standard Quantity for Actual Production}$$

-

$$\text{Standard Cost of Actual Quantity*}]$$

Or

$$\text{Standard Price (SP)} \times \{\text{Standard Quantity (SQ)} - \text{Actual Quantity (AQ)}\}$$

Or

$$(\text{SQ} - \text{AQ}) \times \text{SP}$$

*Here actual quantity means actual quantity of material consumed only.

Reasons for variance:

Actual material **consumption** may differ from the **standard** quantity either due to **difference** in proportion used from standard proportion or due to difference in **actual** yield from **standard** yield.

Material Mix Variance (MMV)

- ✓ Variance in **material consumption** may arise due to difference in **proportion** actually used from the standard **mix/ proportion**.

[Standard Cost of Actual Quantity in Standard Proportion

-

Standard Cost of Actual Quantity]

Or

Standard Price (SP) × {Revised Standard Quantity (RSQ) - Actual Quantity (AQ)}

Or

SP × (RSQ - AQ)

Note: (RSQ) can alternatively be stated as Revised Actual Quantity (RAQ)

Material Yield Variance or Material Sub-usage Variance (MYV)

- ✓ Variance in **material consumption** which arises due to **yield** or productivity of the inputs. It may arise due to use of **sub- standard** quality of materials, **inefficiency** of workers or due to wrong processing.

[Standard Cost of Standard Quantity for Actual Production

-

Standard Cost of Actual Quantity in standard proportion]

Or

Std. Price (SP) × {Std. Quantity (SQ) - Revised Standard Quantity (RSQ)}

Or

SP × (SQ - RAQ)

Note: (RSQ) can alternatively be stated as Revised Actual Quantity (RAQ)

Verification Of Material Variances

1. MCV = MPV + MUV (If material purchased quantity and material consumed quantity is same)
2. MUV = MMV + MYV



6. Computation of Labour Variances

Labour Cost Variance (LCV)

- ✓ Amount paid to **employees** for their labour is generally known as employee or **labour** cost. In this chapter labour cost is used to denote employee's cost. Labour (employee) cost variance is the difference between **actual** labour cost and **standard** cost.

$$\text{Labour Cost Variance} = [\text{Standard Labour Cost} - \text{Actual Labour Cost}]$$

Or

$$[(SH \times SR) - (AH^* \times AR)]$$

*AH refers to Actual Hours Paid

Reasons for variance:

Difference in labour cost arises either due to difference in the **actual** labour rate from the standard rate or difference in numbers of hours worked from **standard** hours.

Labour Rate Variance (LRV)

- ✓ **Labour rate** variance arises due to **difference** in **actual** rate paid from **standard** rate. It is very similar to material **price** variance.

$$[\text{Standard Cost of Actual Time} - \text{Actual Cost}]$$

Or

$$\text{Actual Hours (AH}^*) \times \{\text{Standard Rate (SR)} - \text{Actual Rate (AR)}\}$$

Or

$$(\text{SR} - \text{AR}) \times \text{AH}^*$$

*AH refers to Actual Hours Paid

Reasons for variance:

Generally **labour** rates are influenced by the **external** factors which are beyond the control of the organisation. However, **personnel manager** is responsible for labour **rate** negotiation.

Labour Efficiency Variance (LEF)

- ✓ Labour **efficiency** variance arises due to deviation in the **working hours** from the **standard** working hours.

$$[\text{Standard Cost of Standard Time for Actual Production} - \text{Standard Cost of Actual Time}]$$

Or

$$\text{Standard Rate (SR)} \times \{\text{Standard Hours (SH)} - \text{Actual Hours (AH}^*)\}$$

Or

$$(\text{SH} - \text{AH Worked}) \times \text{SR}$$

*AH refers to Actual Hours Worked

Reasons for variance:

Efficiency variance may arise due to **ability** of the workers, **inappropriate** team of workers, **inefficiency** of production manager or foreman etc..

Idle Time Variance (LITV)

✓ It is calculated for the **idle hours**. It is **difference** between **paid** and **worked** hours.

$$[\text{Standard Rate per Hour} \times \text{Actual Idle Hours}]$$

Or

$$\text{Standard Rate (SR)} \{ \text{Actual Hours Paid} - \text{Actual Hours Worked} \}$$

Or

$$[(\text{AH} \times \text{SR}) - (\text{AH} \times \text{SR})]$$

Or

$$(\text{AH Worked} - \text{AH Paid}) \times \text{SR}$$

Or

$$\text{Idle Time} \times \text{SR}$$

Labour Mix or Gang Variance (LGV)

✓ Labour **efficiency** variance which arises due to change in the **mix** or combination of different skill set i.e. number of **skilled** workers, **semi-skilled** workers and **un-skilled** workers.

[Standard Cost of Actual Time Worked in Standard Proportion - Standard Cost of Actual Time Worked]

$$\text{Standard Rate (SR)} \times \{ \text{Revised Standard Hours (RSH)} - \text{Actual Hours Worked (AH)} \}$$

Or

$$[(\text{RSH} \times \text{SR}) - (\text{AH} \times \text{SR})]$$

Or

$$\text{SR} \times (\text{RSH} - \text{AH Worked})$$

Note: (RSH) can alternatively be stated as Revised Actual Hours (RAH)

Labour Yield Variance (LYV)

✓ Labour **efficiency** variance which arises due to **productivity** of **workers**.

[Standard Cost of Standard Time for Actual Production - Standard Cost of Actual Time Worked in Standard Proportion]

Or

$$\text{Standard Rate (SR)} \times \{ \text{Standard Hours (SH)} - \text{Revised Standard Hours (RSH)} \}$$

Or

$$[(\text{SH} \times \text{SR}) - (\text{RSH} \times \text{SR})]$$

Or

$$\text{SR} \times (\text{SH} - \text{RSH})$$

Note: (RSH) can alternatively be stated as Revised Actual Hours (RAH)

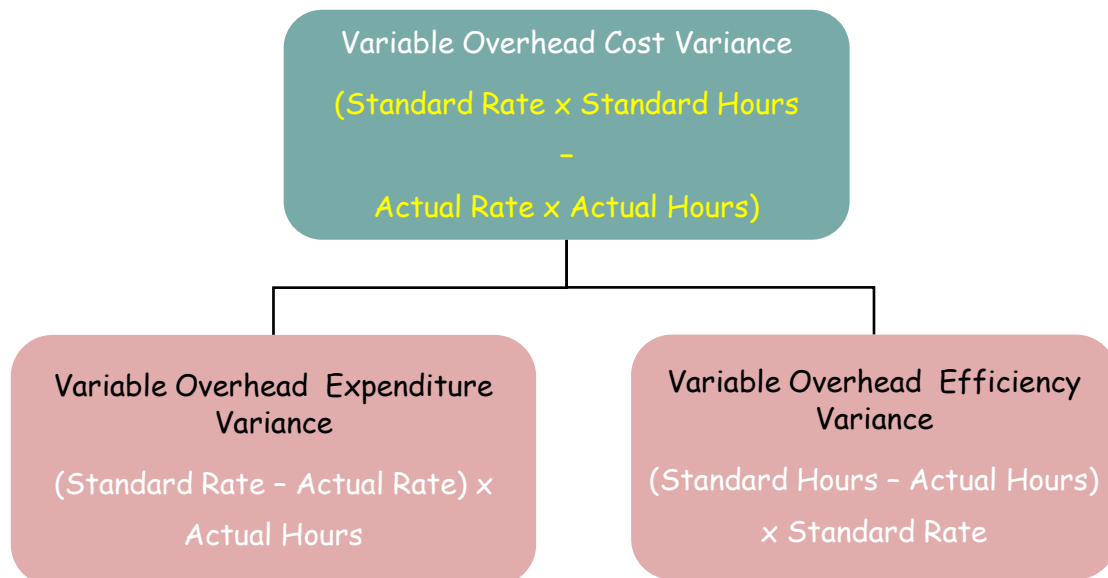
Verification Of Labour Variances

1. $LCV = LRV + LEV + LITV$
2. $LEV = LGV + LYV$



7. Computation of Variable Overhead Variances

- ✓ Variable overheads consist of **expenses** other than direct **material** and direct **labour** which vary with the **level** of **production**. If variable overhead consist of **indirect** materials, then in this case it varies with the direct material used. On the other hand, if variable overhead is depending on **number** of **hours worked** then in this case it will vary with labour hour or **machine** hours. If nothing is mentioned specifically then we take **labour hour** as basis. Variable overhead cost variance calculation is similar to labour cost variance.



Doubt Busters: 💡

In Variable Overhead Cost Variances AH always represent AH Worked.



8. Computation of Fixed Overhead Variances

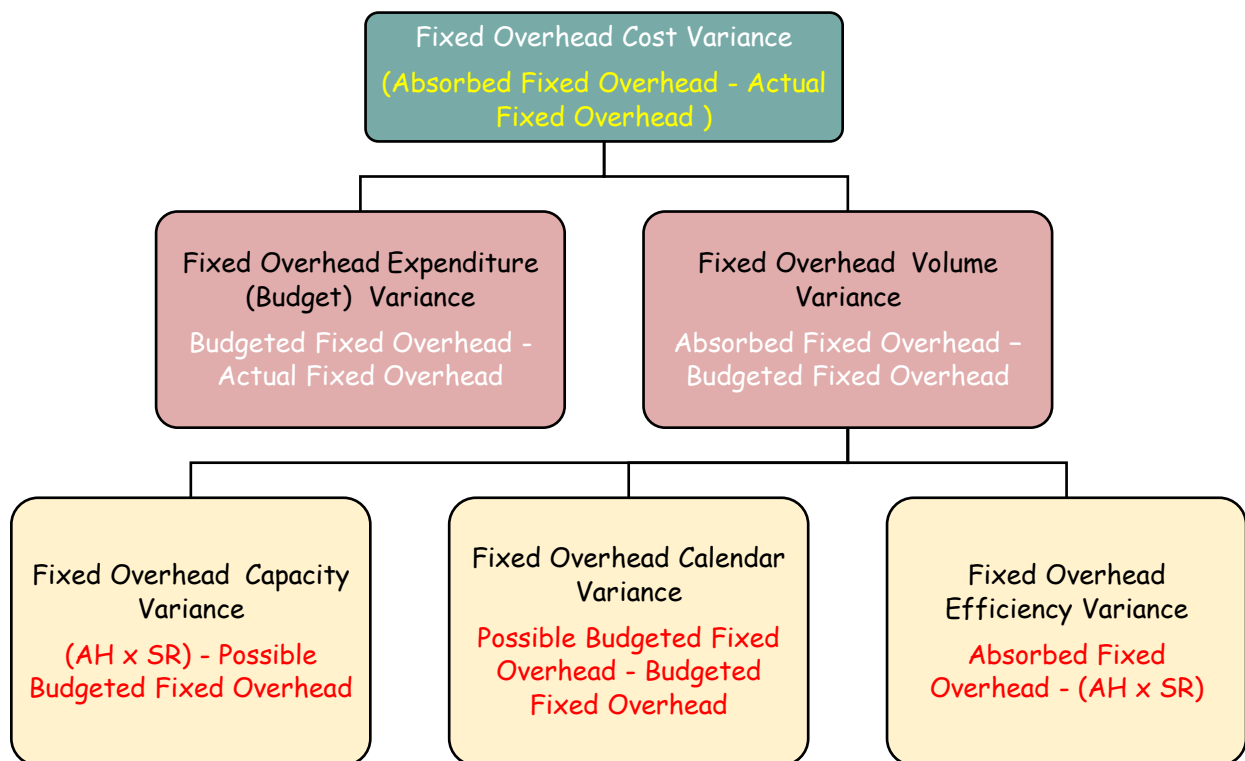
- ✓ **Fixed Overhead Cost Variance:** Fixed overhead cost variance is the **difference** between **actual** fixed overhead and **absorbed** fixed overhead. Fixed overhead variance is divided into two parts (A) Fixed Overhead **Expenditure** Variance and (B) Fixed Overhead **Volume** Variance.
- ✓ **Fixed Overhead Expenditure Variance:** This is the difference between the **actual** fixed overhead incurred and **budgeted** fixed overhead.
- ✓ **Fixed Overhead Volume Variance:** Variance in fixed overhead which arise due to the **volume** of production is called **fixed** overhead **volume** variance.
- ✓ Fixed overhead volume variance is further divided into the **three** variances:

- Efficiency Variance
- Capacity Variance and
- Calendar Variance

(A) Fixed Overhead Efficiency Variance: This is the difference between fixed overhead absorbed and standard fixed overhead.

(B) Fixed Overhead Capacity Variance: This is the difference between standard fixed overhead and budgeted overhead.

(C) Fixed Overhead Calendar Variance: This variance arises due to difference in number of actual working days and the standard working days.



Where:

Absorbed Fixed Overhead = $SH \times SR$

SH = Standard Hours

SR = Standard Rate per Hour

AH = Actual Hours

Possible Fixed Overheads = $\text{Budgeted Fixed Overhead} \times \text{Actual Days} \div \text{Budgeted Days}$



9. Core Theory Topics

Why Standard Costing is Needed?

a) Prediction of Future Cost for Decision Making

Standard costs are based on current conditions and future expectations. They serve as estimated future costs for evaluating cost feasibility and profitability of projects or orders.

b) Provide Target to be Achieved

Standard costs function as target costs for various responsibility centres. Performance is monitored by comparing actual costs to standards, and variances are analyzed for corrective actions.

c) Used in Budgeting and Performance Evaluation

Budgets are developed based on standard costs. Managerial performance is judged by comparing actual outcomes with these standards, ensuring accountability and quality control.

d) Interim Profit Measurement and Inventory Valuation

Used for estimating profit during the period before final accounts. Also helps in inventory valuation when actual cost data isn't available.

Types Of Standards

Type of Standard	Meaning	Key Features	Limitations / Criticism
1. Ideal Standards	Represent the best possible performance, with most favourable prices, maximum efficiency, and minimum cost.	✓ Aim for maximum output under ideal conditions. ✓ Used as a benchmark for perfect performance.	✓ Often unattainable, so not taken seriously. ✓ Variances from these don't reflect realistic performance gaps. ✓ No clear way to dispose of such variances.
2. Normal Standards	Set for normal operating conditions over a period of years. Reflect average expected performance.	✓ Based on normal efficiency, sales, and production volume. ✓ Require forecasting. ✓ Suitable for long-term planning.	✓ Difficult to set due to forecasting needs. ✓ If actual performance is abnormal, large variances occur.

			✓ May need frequent revision.
3. Basic (Bogey) Standards	Fixed standards for long-term comparison like a base year in price indices. Not meant for current use.	✓ Rarely revised. ✓ Actual and current costs are shown as percentages of the basic cost. ✓ Good for trend analysis over time. ✓ Best suited for few products and long runs.	✓ Do not show current performance goals. ✓ Variances are not calculated. ✓ Require additional current standards for performance analysis.
4. Current Standards	Reflect anticipated actual costs for the current period.	✓ Based on expected prices, usage, and planned output. ✓ Show efficiency variances, price differences, and volume deviations.	✓ Need regular updates as cost conditions change. ✓ Variances depend heavily on accurate forecasting.

The Process of Standard Costing

i. Setting of Standards

Define the standards that need to be achieved. This involves setting target costs for each cost component.

ii. Ascertainment of Actual Costs

Collect actual costs from sources like books of accounts, material invoices, wage sheets, and charge slips.

iii. Comparison of Actual with Standard Costs

Compare the actual costs to the standard costs and identify variances.

iv. Investigation of Variances

Investigate reasons for variances to assess performance and take corrective action.

v. Disposition of Variances

Transfer the variances to the costing profit & loss account or relevant accounts based on the chosen accounting method.

Setting-Up of Standard Cost

1. Basis of Standard Cost

Set based on management's estimation using input from engineering or production experts (like production engineers).

2. Factors Considered

- ✓ Historical data
- ✓ Current production plan
- ✓ Expected future conditions

3. Cost Elements for Standard Setting

Standards are set for each element of cost:

- a) Material
- b) Labour
- c) Variable Overheads
- d) Fixed Overheads

4. Sales Standards

Standards are also set for:

- ✓ Sales Quantity
- ✓ Sales Value Called as Budgeted Sales.

5. Measurement Units

Standards are measured in:

- ✓ Quantities (units)
- ✓ Hours
- ✓ Cost (price or rate)

6. Main Components of Standard Cost

- 1. Direct Material Cost
- 2. Direct Employee (Labour) Cost
- 3. Overheads

7. Form of Standards

Standards are defined in both:

- ✓ Physical Terms (e.g. units, hours)
- ✓ Monetary Terms (e.g. cost, rate)

Physical Standards

1. Meaning

Physical standards refer to standards expressed in units or hours for a product or service.

2. Purpose

- Achieve economies of scale

- Help in pricing and quotation

3. Responsibility

Set by the Industrial Engineering Department in manufacturing organisations.

4. Factors Considered While Setting Physical Standards

- Company's operating plan (budgets)
- Expected final output
- Material specifications (quality & quantity) from engineering dept.
- Proportion of materials in multi-input products
- Method of production: automated, semi-automated, or manual
- Worker skill levels and availability
- Working conditions and internal factors
- External regulations (Labour Law, Factories Act, Govt. policies)

Procedure Of Setting Material Quantity Standards

a) Standardisation of Products	Decide what products to produce based on the production plan and customer orders.	✓ What to produce? ✓ Which type to produce? ✓ How much to produce?
b) Product Study	Detailed analysis and study of the product by the engineering department or consultants.	✓ How can it be produced? ✓ Pre-requisites for production? ✓ Types of materials needed? ✓ Market acceptability of the product?
c) Preparation of Specification List	Create a specification list mentioning: ✓ Type and quantity of materials ✓ Substitutes ✓ Material proportion ✓ Process steps ✓ Pre-requisites and conditions ✓ Expected wastage Should allow for future changes.	✓ Focus on material quality and quantity ✓ Include wastage allowance ✓ Ensure flexibility for updates
d) Test Runs	Conduct sample production runs under specified conditions and test the output for quality and quantity. Update specification list if deviations are found.	✓ Identify gaps in quality or quantity ✓ Revise specification list accordingly

Procedure Of Setting Labour Time Standards

- a) Standardisation of Product & Product Study
Initial standardisation and analysis of the product as previously described.
- b) Labour Specification
Identify types of labour required and time standards. Based on past records and includes normal time wastage.
- c) Standardisation of Methods
Define proper sequence and methods of operations using appropriate machines.
- d) Manufacturing Layout
Develop an operation plan for each product that lists the sequence of tasks to be performed.
- e) Time and Motion Study
Study to determine the best method of completing a job. Sets standard time considering:
 - ✓ Worker efficiency
 - ✓ Learning curve
 - ✓ Motion economy
- f) Training and Trial
Train workers, conduct trial runs, and record time taken to adjust or finalize standards.

Procedure Of Setting Overheads Time/ Quantity Standards

Type of Overhead	Basis of Estimation	Key Points Highlighted
Variable Overheads	Estimated based on specifications provided by the engineering department. Usually calculated based on: ✓ Direct material quantity, or ✓ Labour hours (most commonly used).	✓ Often linked to labour time worked ✓ Tied to production activity levels
Fixed Overheads	Estimated based on budgeted production volume.	✓ Not directly affected by actual production ✓ Based on planned output

Problems faced while setting physical standards

- a) New Product Line
Workers may lack experience, making it difficult to set accurate standard time. Adjustments must be made for inexperience.
- b) Technology Change
Introduction of sophisticated machines creates difficulty in estimating output and efficiency standards until conditions stabilize.

c) Product Diversification

Requires re-setting production facilities and new tooling, which complicates standard time setting.

d) Material Availability

Even if material standards are set, if materials as per specification are not available, standards become unrealistic.

e) Choice of Labour Standard

Dilemma in choosing between:

1. Maximum efficiency (2 hrs/unit)
2. Attainable good performance (2.10 hrs/unit)
3. Average past performance (2.60 hrs/unit)

The choice affects unit cost, variance, and control visibility.

f) Waste Standards

Uncertainty whether to consider only unavoidable wastage or average past wastage—each affecting the standard cost differently.

Price or Rate Standards

a) Actual Average or Mean Price

Based on the average price expected to prevail during the upcoming period, typically one year.

b) Normal Price Over a Cycle

Based on normal prices expected over a cycle of seasons, usually spanning multiple years.

Procedures Of Setting Material Price Standards

a) Stock on hand and the prices at which they are held.

b) Prices of future delivery orders already placed.

c) Minimum Support Price (MSP) fixed by government or authority.

d) Anticipated price fluctuations based on market trends.

Challenges When Price Fluctuations Are High or Unsystematic

Type of Fluctuation	Problem	Examples
Month-to-month	Difficult to choose a stable reference price.	Short-term volatility
Seasonal	Prices vary across seasons; buying timing impacts cost.	Harvest-based or demand-based pricing

Year-to-year	Long-term changes or secular trends may lead to rising/falling prices.	Inflation, market cycles
--------------	---	---------------------------------

Suggested Solutions for Setting Standard Prices Under Fluctuations		
Scenario	Recommended Standard Price Approach	Key Notes
Monthly fluctuations	Use yearly average prices , adjusted for known trends .	Smooths short-term variation
Seasonal prices (one-time bulk purchase)	Use weighted average of likely prices to be paid.	Based on projected cost at time of purchase
Seasonal prices (spread-out purchases)	Use weighted average of actual/expected yearly prices .	Reflects actual cost pattern over the year
Year-to-year fluctuation	Use statistically estimated price expected to prevail next year .	Requires data analysis and forecasting

Procedures Of Setting Wage Rate Standard	
Basis for Setting Standard Wage Rates (Skilled & Unskilled Labour)	
1. Type of Labour	The skill level required (skilled/unskilled) is the most important factor in determining wage rate.
2. Time Taken per Unit	Based on the time required to complete one unit of production.
3. Industry Rate	Wage rates based on prevailing time or piece rate in the industry.
4. Wage Agreements	Rates influenced by agreements between management and labour union.
5. Labour Laws	Legal framework like Minimum Wages Act, Bonus Act, etc., must be considered.

Procedure for Setting Overhead Expense Standards	
1. Determine Output Level	Fix budgeted output based on practical capacity and anticipated sales demand.
2. Classify Expenses	Expenses are budgeted and classified into: ✓ Fixed Overheads ✓ Variable Overheads
3. Compute Standards	

Calculate overhead standards based on chosen output level and corresponding budgeted expenses.

4. Use Flexible Budget (if needed)

If production is seasonal or fluctuates, prepare a flexible budget to enable meaningful comparison with actuals.

CHAPTER 15: BUDGET & BUDGETARY CONTROL



1. Introduction

- ✓ An **organization** has its **long-term** objectives to achieve. The objectives are broken down into achievable **goals** and **targets**. When these goals and targets are translated into business plans, it is necessary to **express** the plans into **quantifiable** terms to make it **achievable**.
- ✓ **Budget** is a commonly used business language that expresses the business plans in **quantifiable** terms
- ✓ A budget is an **instrument** of **management** used as an aid in the **planning, programming** and **control** of business activity.
- ✓ The Chartered Institute of Management Accountants (**CIMA**), UK defines budget as "A **financial** and/or **quantitative** statement, prepared and approved prior to a defined **period** of **time** of the policy to be **pursued** during that period for the **purpose** of attaining a given objective.
- ✓ It may include **income**, expenditure and employment of **capital**" The budget is a **blue-print** of the projected **plan** of action expressed in **quantitative** terms for a specified **period** of time.



2. Fixed/Static Budget

- ✓ A **budget** prepared on the basis of standard or **fixed level** of activity is known as **fixed budget**. It does **not** change with a **change** in the **level** of activities.
- ✓ According to **CIMA**, "a fixed budget is a budget designed to **remain unchanged** irrespective of the **level** of **activity** actually attained".
- ✓ A **fixed** budget shows the expected results of a **responsibility center** for only one activity level.
- ✓ Once the **budget** is prepared, it is not changed, even if the **level** of **activity** **changes**. Fixed budgeting is used by many **service companies** and for some **administrative** functions of manufacturing companies, such as **purchasing, engineering, and accounting**.
- ✓ **Fixed Budget** is used as an **effective tool** of cost control.



3. Flexible Budget

- ✓ A **flexible budget** is a budget which, by recognising the **difference** in behaviour between **fixed** and **variable** costs in relation to fluctuations in **output**, turnover, or other variable factors, is designed to change **appropriately** with such **fluctuations**.
- ✓ According to **CIMA**, "a **flexible** budget is defined as a budget which, by recognizing the difference between **fixed, semi-variable** and **variable** costs is designed to **change** in relation to

the **level** of **activity** attained." Unlike static (fixed) budgets, the **flexible** budgets show the expected results of a **responsibility center** for different activity levels.

- ✓ While preparing a **flexible budget**, the expenses are classified into **three** categories viz.
 - Fixed,
 - Variable
 - Semi-variable.



4. Classification on the basis of Function

- ✓ A **functional** budget is one which is related to function of the **business** as for example, **production** budget relating to the **manufacturing** function. **Functional** budgets are prepared for each function and they are subsidiary to the **master budget** of the business.
- ✓ The various types of **functional** budgets to be prepared will vary according to the **size** and **nature** of the business.
- ✓ The various commonly used **functional budgets** are:
 - (i) **Sales** Budget
 - (ii) **Production** Budget
 - (iii) **Plant** Utilisation Budget
 - (iv) Direct - Material **Usage** Budget
 - (v) Direct - Material **Purchase** Budget
 - (vi) Direct **Labour** (Personnel) Budget
 - (vii) Production or Factory **Overhead** Budget
 - (viii) Production **Cost** Budget
 - (ix) Ending **Inventory** Budget
 - (x) Cost of Goods Sold Budget
 - (xi) **Selling** and Distribution Cost budget
 - (xii) **Administration** Expenses Budget
 - (xiii) **Research** and **Development** Cost Budget
 - (xiv) **Capital** Expenditure Budget
 - (xv) **Cash** Budget

A. Sales Budget

- ✓ **Sales** forecast is the commencement of **budgeting** and hence sales budget assumes primary importance. The quantity which can be sold may be the principal budget factor in many **business** undertakings. In any case in order to chalk out a realistic **budget** programme, there must be an **accurate sales forecast**.
- ✓ In estimating the **quantity** of sales for each **product**, past sales volumes are often used as a **starting point**. Once an estimate of the sales volume is obtained, the expected sales revenue can be determined by multiplying the **volume** by the expected unit **sales price**.
- ✓ The **sales budget** is prepared for each product. This includes:
 - the **quantity** of estimated sales and
 - the expected unit **selling price**. These data are often reported by **regions** or by **sales representatives**.

B. Production Budget

- ✓ **Production Budget** is a forecast of the **production** for the budget period of an organisation. Production budget is prepared in two parts, viz. production **volume** budget for the physical units of the products to be manufactured and the **cost of production** or manufacturing budget detailing the budgeted cost under **material**, labour, and factory **overhead** in respect of the products.
- ✓ Production budget is normally stated in **units of output**. Production should be carefully **coordinated** with the sales **budget** to ensure that production and sales are kept in balance during the period. The number of units to be manufactured to meet **budgeted sales** and **inventory** needs for each product is set forth in the production budget.
- ✓ Example of **production budget**:

XYZ COMPANY

Production budget in units for the year ending March 31, 20....

	Products	
	A	B
Budgeted sales		
Add : Desired closing stock		
Total Quantity Required		
Less : Opening stock		
Units to be produced		

C. Plant Utilisation Budget

- ✓ Plant **utilisation** budget represents, in terms of **working hours**, weight or other convenient units of plant **facilities** required to carry out the **programme** laid down in the production budget.
- ✓ The **main purposes** of this budget are:
 - To determine the load on **each process**, cost or groups of machines for the budget period.
 - To indicate the processes or **cost centres** which are overloaded so that corrective action may be taken such as: (i) **working overtime** (ii) sub- **contracting** (iii) **expansion** of production facility, etc.
 - To dovetail the **sales production** budgets where it is not possible to **increase** the **capacity** of any of the overloaded processes.
 - Where **surplus capacity** is available in any of the **processes**, to make effort to boost sales to utilise the **surplus** capacity.

D. Direct Material Usage Budget

- ✓ The **steps** involved in the compilation of direct materials usage budget are as under:
 - The **quality** standards for each **item** of **material** have to be specified. In this connection, standardisation of size, quality, colour, etc., may be considered.
 - **Standard** requirement of **each item** of **materials** required should also be set. While setting the standard quality, **consideration** should be given to **normal loss** in process. The standard allowance for normal loss may be given on the basis of **past performance**, **test runs**, **technical estimates** etc.
 - Standard prices for each item of **materials** should be set after giving consideration to **stock** and **contracts** entered into.

E. Direct Material Purchase Budget

- ✓ The **production budget** is the starting point for determining the estimated quantities of direct materials to be **purchased**.
- ✓ Multiplying these **quantities** by the expected unit **purchase price** determines the total cost of **direct materials** to be **purchased**.
- ✓ Two important considerations that govern **purchase** budgets are as follows:
 - **Economic order quantity**.
 - **Re-order point** with safety stocks to cover fluctuations in demand.
- ✓ The **direct material** purchases budget helps management maintain inventory levels within reasonable limits. For this purpose, the **timing** of the direct materials purchases should be **coordinated** between the purchasing and **production** departments.

F. Direct Labour Budget

- ✓ Once **sales** budget and **Production** budget are compiled and plant **utilisation** budget is decided detailed amount of the various **machine operations** involved and services required can be calculated. This will facilitate preparation of an estimate of **different grades** of **labour** required.
- ✓ From this, the **standard hours** required to be worked can be calculated the **total labour** component thus budgeted can be divided into **direct** and **indirect labour**. Standard **rates** of wages for each grade of labour can be introduced and then the direct and indirect **labour cost budget** can be prepared.

G. Cash Budget

- ✓ **Cash budget** represents the cash requirements of the business during the budget period. It is the plan of **receipts** and **payments** of **cash** for the budget period, **analysed** to show the **monthly** flow of cash drawn up in such a way that the balance can be forecasted at **regular** intervals.
- ✓ The **cash budget** is one of the most important **elements** of the budgeted balance sheet. Information from the various operating budgets, such as the **sales** budget, the direct **materials** purchases budget, and the **selling** and administrative expenses budget, affects the **cash** budget.
- ✓ In addition, the **capital expenditures** budget, dividend policies, and plans for equity or **long-term debt financing** also affect the **cash** budget.

H. Master Budget

- ✓ CIMA, London, defines it as "the **summary** budget, incorporating its component functional budgets, which is finally approved, adopted and employed."
- ✓ When all the necessary **functional** budgets have been prepared, the budget officer will prepare the master budget which may consist of budgeted **profit** and **loss** account and budgeted **balance sheet**.
- ✓ These are in fact the budget summaries. When the **master budget** is approved by the **board of directors**, it represents a standard for the **achievement** of which all the departments will work.



5. Budget Ratio

- ✓ Ratio is a **mathematical relationship** between two or more related **figures**. Budget ratios provide information about the performance level, i.e., the extent of **deviation** of **actual** performance from the **budgeted** performance and whether the **actual** performance is **favourable** or **unfavorable**.
- ✓ If the ratio is **100%** or **more**, the performance is considered as **favourable** and if ratio is **less**

than 100% the performance is considered as **unfavourable**.

- ✓ **Capacity Usage Ratio:** This **relationship** between the **budgeted** number of working hours and the **maximum possible number** of working hours in a budget period.
- ✓ **Standard Capacity Employed Ratio:** This ratio **indicates** the extent to which **facilities** were **actually utilized** during the budget period.
- ✓ **Level of Activity Ratio:** This may be defined as the number of **standard hours** equivalent to work produced expressed as a **percentage** of the **budget** of **standard hours**.
- ✓ **Efficiency Ratio:** This ratio may be defined as **standard hours** equivalent of **work produced** expressed as a **percentage** of the **actual hours** spent in producing the work.
- ✓ **Calendar Ratio:** This ratio may be defined as the **relationship** between the number of **working days** in a period and the number of working as in the relative **budget** period.
- ✓ **Budget Ratios:**
 1. **Efficiency Ratio =**
$$(\text{Standard Hours} \div \text{Actual Hours}) \times 100$$
 2. **Activity Ratio =**
$$(\text{Standard Hours} \div \text{Budgeted Hours}) \times 100$$
 3. **Calendar Ratio =**
$$(\text{Available Working Days} \div \text{Budgeted Working Days}) \times 100$$
 4. **Standard Capacity Usage Ratio =**
$$(\text{Budgeted Hours} \div \text{Maximum Possible Working Hours in the Budgeted Period}) \times 100$$
 5. **Actual Capacity Usage Ratio =**
$$(\text{Actual Hours Worked} \div \text{Maximum Possible Working Hours in the Period}) \times 100$$
 6. **Actual Usage of Budgeted Capacity Ratio =**
$$(\text{Actual Working Hours} \div \text{Budgeted Hours}) \times 100$$



Core Theory Topics

Essential Characteristics of a Budget

1. Time-Bound
A budget is prepared for a definite future period.
2. Written Document
It is a formal, documented plan.
3. Detailed Economic Plan
Covers all economic activities of the business.
4. Departmental Cooperation
Requires coordination and input from all departments.
5. Means to an End
A tool to achieve business goals, not an end itself.
6. Dynamic and Continuous
Must be updated and controlled regularly as per changing conditions.
7. Tool for Management Functions
Aids in planning, coordination, and control.
8. Industry-Specific
Different types of budgets are prepared based on business needs.
9. Acts as a Business Barometer
Reflects the business health and future direction.
10. Based on Past Experience
Past data and performance are used as a foundation.
11. Management Endeavour
Budgeting is a continuous and proactive activity of management.

Essential Steps for Preparing a Budget

1. Define Organisational Structure
Clearly define responsibilities and assign them to specific units or departments.
2. Set Clear Objectives & Targets
Establish reasonable goals aligned with the organisation's long-term plan.
3. Communicate Responsibilities
Ensure that objectives and responsibilities are well communicated to all concerned.
4. Future-Oriented Planning
Budgets should reflect the expected course of actions for future periods.
5. Maintain Flexibility
Budgets should be flexible to allow mid-term revisions for unexpected changes.
6. Organisational Commitment

Full commitment from all levels of the organisation is essential for success.

7. Quantifiable Budgets

Budgets should be measurable, and the master budget should be divided into functional budgets.

8. Monitoring and Variance Analysis

Regularly monitor performance, compare with budgeted figures, analyse variances, and fix responsibility.

9. Link to Reward System

Performance-based budgeting should be tied to rewards and incentives to motivate staff.



Functions of Budgeting: Planning, Directing & Coordinating, Controlling

Function	Explanation	Key Points Highlighted
1. Planning	Planning is the starting point of any business activity. It sets the objectives and outlines how, when, and what should be done to achieve them. Budgeting begins with setting specific performance targets and creating plans to meet those targets.	✓ Planning includes both short-term and long-term goals. ✓ Targets are set for the entire business and individual units. ✓ Planning is part of management, execution is the directing function.
	Planning in budgeting includes: ✓ Preparing budget in sync with corporate objectives and strategy. ✓ Individual unit plans should align with the organisational plan. ✓ Budget reflects plans, so planning comes first. ✓ Responsibilities are assigned to those executing the plan. ✓ Budget helps communicate goals, even in recession. ✓ Planning also motivates employees and improves decision-making.	Corporate alignment, unit-level integration, goal communication, motivation, risk identification

	✓ Options and risks are identified during this phase.	
2. Directing & Coordinating	After planning, budgets help in directing and coordinating operations to achieve the targets.	✓ Business activities are complex and require formal coordination. ✓ Budget is used as a tool for guiding actions across departments. ✓ Organisation is divided into responsibility centres. ✓ Each centre is headed by a manager with authority and accountability. ✓ Objectives and expectations are communicated clearly to each unit.
3. Controlling	Control means monitoring and correcting actual performance to meet the planned targets. It is achieved through feedback.	✓ Actual vs. planned results are compared. ✓ Feedback helps employees adjust their performance. ✓ Budget reports from responsibility centres show unit performance. ✓ Budgets are updated to reflect real performance. ✓ Prevents unplanned expenses and helps prioritise spending.

Budgetary Control: Simplified Overview

1. Definition (CIMA)

Budgetary control is the establishment of budgets relating to responsibilities of executives and continuous comparison of actual results with budgeted results to achieve policy objectives or revise the policy.

2. Meaning

A system of management control where operations are planned and forecasted in advance, and actuals are compared with these plans.

Components of Budgetary Control

1. Establishment of Budgets

Creating budgets based on expected performance.

2. Continuous Comparison

Regularly comparing actuals vs. budget to check achievement.

3. Budget Revision

Modifying budgets when circumstances change.

4. Fixation of Responsibility

Identifying who is responsible for deviations.

Objectives of Budgetary Control System

1. Define Business Aims & Targets

Sets clear performance targets for departments.

2. Define Responsibility

Every executive knows what is expected and how performance is judged.

3. Compare Actuals with Targets

Helps in variance analysis and corrective action.

4. Optimum Use of Resources

Ensures maximum efficiency within constraints.

5. Coordination & Delegation

Ensures coordination, centralised control, and decentralised responsibility.

6. Promote Planning & Dynamism

Encourages forethought, goal setting, and dynamic action.

7. Policy Revision

Provides a base for updating current/future policies.

8. Long-Range Planning

Enables accurate strategic planning.

9. Performance Measurement

Acts as a yardstick to evaluate actual results.

Steps for Establishing Budgetary Control System

1. Define objectives for the budget period and related policies.

2. Identify activities required to meet these objectives.

3. Create a plan of operations (quantitative & monetary) for each activity.

4. Set up a system to compare actuals with budgets and determine causes of variance.

5. Take corrective action or revise the plan if targets are not met.

Conditions for Effective Budgetary Control

1. Standard Costing System

A reliable measurement base is needed to assess efficiency.

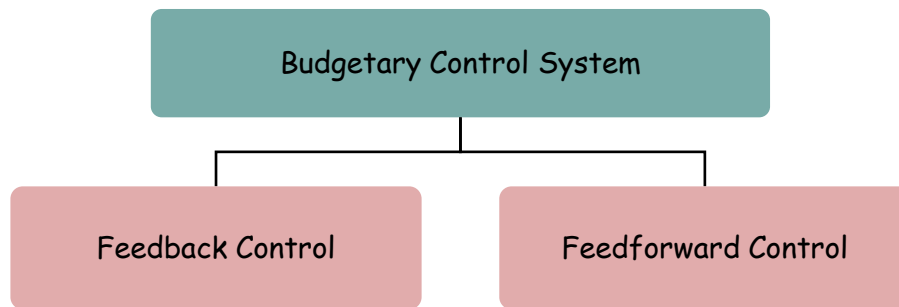
2. Defined Authority & Responsibility

Organisation should clearly outline duties from top to bottom.

3. Well-Planned Organisation Structure

Proper separation of functions and division of responsibility is essential.

Feedback and Feedforward Control



Type	Feedback Control	Feedforward Control
Meaning	An Ex-post Corrective control system. Actual results are compared with budget after the period ends.	An Ex-ante Preventive control system. Actual results are monitored continuously during the budget period.
Timing of Action	After the budget period.	During the budget period.
Process	1. Collect actual results after budget period ends. 2. Compare with budgeted figures. 3. Identify variances. 4. Take corrective actions. 5. Fix responsibility. 6. Revise future targets based on experience.	1. Set budgets at the beginning. 2. Monitor continuously. 3. Compare actuals with budget in real time. 4. Revise targets if needed.
System Dependency	Used in organisations with weak MIS or where data is available post finalisation of accounts .	Requires strong MIS and integrated ERP system for real-time data.
Cost	Less expensive to maintain.	Costly , due to infrastructure and system requirements.
Suitability	Suitable for static environments or small organisations .	Best for dynamic environments where data and speed provide a competitive edge.
Limitation	Delayed response ; may lead to missed opportunities.	High cost , requires skilled personnel and advanced systems.

Budget Committee & Budget Officer: Roles and Responsibilities

1. Budget Committee

A group comprising representatives of various functional departments to **ensure** coordination in setting mutually agreed targets.

2. Purpose of the Committee

Changes in one department's targets impact others, so discussion and coordination are **essential** for a realistic and unified programme.

3. Chief Executive's Role

The Chief Executive holds final responsibility for the budget, but day-to-day supervision can be assigned to a Budget Officer.

4. Budget Officer's Qualifications

Should possess technical knowledge of the business and report directly to the CEO or President.

Key Responsibilities of Budget Committee / Budget Officer

1. Assist in Departmental Budget Preparation

Coordinate between Accounts Department and Functional Departments (Sales, Production, Maintenance, etc.).

2. Distribute Budgets

Forward final budgets to department heads and guide them in implementation.

3. Prepare Periodical Budget Reports

Create and circulate regular budget updates to the relevant individuals.

4. Follow-Up Actions

Ensure follow-up measures based on the budget reports.

5. Overall Budget Report

Prepare summary reports for Budget Committee meetings and ensure implementation of suggestions.

6. Report to Board

Submit comparative reports (Budgeted vs. Actual) for Profit & Loss Account and Balance Sheet to the Board.

Important Notes on Budgetary Control Implementation

1. Discussion with Functional Heads

All budgets must be discussed thoroughly with departmental heads before finalisation.

2. Timely Reporting

Budget Officer must ensure periodic reports are delivered on time for remedial action.

3. Efficiency Measure

Success of Budget Officer and Committee is judged by:

1. Smooth system functioning
2. Close match between budgeted and actual results

4. Performance Incentives

Budgets can serve as a basis for rewarding better performance. Budget Officer must ensure attention is drawn to deviations and appropriate action is taken.

Advantages of Budgetary Control System

1. Efficiency

Budgetary control helps the management to conduct business activities in a more efficient manner.

2. Control on Expenditure

Acts as a powerful tool to control expenditure and serves as a yardstick for measuring and evaluating departmental and individual performance.

3. Finding Deviations

Helps in identifying variances by comparing actual results with budgeted figures and reporting them to management.

4. Effective Utilisation of Resources

Ensures optimal use of men, materials, machinery, and money, as production is planned accordingly.

5. Revision of Plans

Facilitates review of current trends and supports future policy planning.

6. Implementation of Standard Costing System

Creates a suitable environment for applying the standard costing system in the business.

7. Cost Consciousness

Promotes awareness of cost and encourages optimal use of resources.

8. Credit Rating

Companies with well-organised and well-executed budgets earn better credit ratings from credit agencies.

Limitations of Budgetary Control System

1. Based on Estimates

Budgets rely on estimates based on prevailing or expected conditions. If those conditions change, plans must be revised.

2. Time Factor

Budgets need preliminary steps before implementation and require time and attention from management. Initial results may not meet expectations.

3. Cooperation Required

In decentralised organisations, units may resist control. Success depends on staff cooperation, coordination, and teamwork.

4. Expensive

Budgeting is a costly process as it involves organisational planning, data collection, and performance evaluation, requiring qualified resources.

5. Not a Substitute for Management

Budget is just a tool. It must be intelligently applied and cannot replace effective management.

6. Rigid Document

Budgets are often seen as rigid, but real conditions are uncertain. Budgets should be flexible to adapt to internal and external changes.

Components of Budgetary Control System

1. Physical Budgets

Budgets that provide information in quantitative terms, like units of sales, production, inventory, and manpower.

Example

- ✓ Sales Quantity Budget
- ✓ Production Quantity Budget
- ✓ Inventory Budget
- ✓ Manpower Budget

2. Cost Budgets

Budgets that give details about costs related to various functions such as manufacturing, administration, selling, and R&D.

Example

- ✓ Manufacturing Cost Budget
- ✓ Selling & Distribution Cost Budget
- ✓ Administrative Cost Budget
- ✓ R&D Cost Budget

3. Profit Budgets

Budgets that help in determining the profitability of the business.

Example

- ✓ Sales Budget
- ✓ Profit & Loss Budget

4. Financial Budgets

Budgets that show the financial position of the business.

Example

- ✓ Cash Budget
- ✓ Capital Expenditure Budget
- ✓ Budgeted Balance Sheet

Motivational Aspects in Budgeting Process

Introduction

Motivation acts like fuel that drives efforts toward achieving goals. This applies equally to individuals and business entities. A budget converts objectives into quantifiable targets, which

are communicated to executives to strive for. However, implementation can face challenges due to **human behavior**. Hence, motivation must be **built into the budgeting process**.

Key Considerations to Make Budgeting Motivational

a) Performance Measurement

- ✓ Budgets must be **clearly communicated** to executives.
- ✓ Expected performance should be known.
- ✓ Achievement should impact **performance evaluation** at individual and departmental levels.
- ✓ Motivators include **promotion, increment, performance-related pay, bonus, etc.**

b) Achievable Targets

- ✓ Targets must be **realistic**, considering **resource availability** and **practical challenges**.
- ✓ Targets should be **neither too easy nor too difficult**.
- ✓ **Unrealistic targets** can **demotivate** employees.

c) Optimum Utilisation of Resources

- ✓ Overly easy targets may **underutilise resources**.
- ✓ Moderate pressure can drive **innovation** and **performance beyond comfort zone**.
- ✓ Targets should challenge the team within their **effort zone**.

d) Involvement in Budgeting Process

- ✓ **Participative budgeting** encourages **ownership** and **motivation**.
- ✓ Involving all departments helps align with their **requirements**.
- ✓ **Early involvement** increases acceptance of targets.
- ✓ But **over-involvement** can **distort objectives**—a **balanced approach** is needed.

Preparation Of Budgets

1. Defining Organisational Objectives

Budget is a plan to achieve objectives. Objectives must be clearly defined, documented, and areas of control, revenue, and expenditure should be specified.

2. Identification of Key Budget Factor

A key factor is one that limits total activity (e.g., power shortage, low demand). It must be identified and its impact estimated for accurate budgeting.

3. Appointment of Budget Controller/Officer

A senior executive is appointed as Budget Officer, supported by the Budget Committee (includes all department heads and MD as Chairman).

4. Budget Manual

A budget manual outlines the objectives, responsibilities, procedures, and forms required for budgetary control. Defined by CIMA as a document guiding the budget process.

Typical Contents of a Budget Manual

- i. Organisational objectives and how they align with budgeting.
- ii. Roles and responsibilities of executives in budgeting.
- iii. Approval procedures with authority levels specified.
- iv. Organisation chart showing responsibilities.
- v. Timetable for budget preparation.
- vi. Scrutiny methods and personnel responsible.
- vii. Required forms, reports, and records.
- viii. Accounts classification system to maintain consistency.
- ix. Reporting of remedial actions.
- x. Procedures for budget revision and top management approval.
- xi. Avoiding delays due to dependency on one budget.
- xii. Form templates and completion guidelines.
- xiii. Account code list with usage instructions.
- xiv. Key assumptions to be used (e.g., inflation, exchange rates).

Budget Period

1. Definition
The budget period is the duration covered by the budget. Typically, a calendar or financial year is used, broken down into monthly or quarterly segments.
2. Determined By
The Budget Committee.
3. Considerations
Trading cycle, financial reporting needs.

Standard of Activity / Output

1. Key Idea
Budgets should not rely solely on past data. Targets must reflect progressive growth and current business potential.
2. Sales Budget Factors
 - ✓ Economic trends
 - ✓ Salesperson/customer inputs
 - ✓ Pricing effects
 - ✓ Advertisement plans
 - ✓ Plant capacity

Essential Conditions for Budgeting (Fixed Budgets)

1. **Business** is non-seasonal
2. Stable demand **and** predictable supply
3. Domestic or stable export **market**
4. **No need for** special labour or material
5. Stable input availability
6. Stable pricing trend

Merits & Demerits of Fixed Budgets

Merits	Demerits
1. Simple to understand	1. Not suitable for dynamic organisations
2. Less time-consuming	2. May lead to misleading results
	3. Not suited for long periods or changing conditions
	4. Accurate estimates are difficult

Suitability for Flexible Budgets

1. **Businesses with** seasonal sales/production (**e.g., soft drinks**)
2. **Frequent** product changes or innovation
3. **Make-to-order industries** (**e.g., shipbuilding**)
4. **Fashion-sensitive industries**
5. **Businesses with** frequent sales fluctuations

Merits and Demerits of Flexible Budgets

Merits	Demerits
1. Calculation of Sales, Costs, and Profit: A flexible budget allows easy calculation of sales, costs, and profits at various levels of production capacity.	1. Requires Proper Accounting System: Flexible budgeting needs a well-maintained accounting system and comprehensive knowledge of production factors and business conditions.
2. Easy Adjustment: It allows for simple adjustments based on changes in business conditions.	2. Requires Standard Costing System: A standard costing system is required for flexible budgeting.
3. Helps in Production Level Determination: Shows budgeted costs and sales at various activity levels, helping management choose a	3. Expensive & Labour-Intensive: Flexible budgeting can be costly and labour-intensive to implement.

production level that ensures the desired profit.	
4. Determines Quantity for Profit: It shows the quantity of products needed to achieve the predetermined profit.	

Difference between Fixed and Flexible Budgets:		
Sl. No.	Fixed Budget	Flexible Budget
1. Change with Activity Level	Does not change with the actual volume of activity achieved. Known as rigid or inflexible.	Can be recast based on the actual activity level. Not rigid.
2. Level of Activity	Operates on one level of activity and assumes no changes in conditions. Unrealistic for dynamic environments.	Consists of budgets for various levels of activity, adjusting for changes.
3. Cost Analysis	Variance analysis is less useful since costs (fixed, variable, semi-variable) are tied to one activity level.	Provides useful variance analysis, with costs analyzed based on their behaviour (fixed, variable, semi-variable).
4. Activity Level Difference	If actual and budgeted activity levels differ, cost and price fixation may be inaccurate.	Facilitates accurate cost ascertainment, price fixation, and quotations at different activity levels.
5. Comparison with Actual Performance	Comparison with actual performance is meaningless, especially if activity levels differ.	Provides a meaningful comparison between actual performance and budgeted targets, even with varying activity levels.

Types of Budgets and Their Merits	
1. Direct Labour (Personnel) Budget	✓ Defines the labour force required, both direct and indirect. ✓ Helps in recruitment and training, minimizing labour turnover. ✓ Reveals labour costs for manufacturing, aiding in cost and cash budgets.
2. Production / Factory Overhead Budget	✓ Includes indirect materials, labour, and expenses (e.g., power, fuel, depreciation). ✓ Helps in determining overhead recovery rates and departmental costs.

3. Production Cost Budget

- ✓ A forecast of production for the budget period.
- ✓ Includes production volume and cost of production (material, labour, overhead).

4. Ending Inventory Budget

- ✓ Shows cost of closing stock (raw materials, finished goods).
- ✓ Helps in preparing cost-of-goods-sold and financial statements.

5. Selling and Distribution Cost Budget

- ✓ Forecasts selling and distribution costs.
- ✓ Divides selling costs into fixed, variable, and semi-variable.
- ✓ Handles issues with advertising and sales promotion.

6. Administrative Expenses Budget

- ✓ Estimates fixed expenses like board meetings, office equipment, insurance, etc.

7. Research & Development Cost Budget

- ✓ Forecasts costs for research and development to prevent product obsolescence.
- ✓ Includes pure and applied research.

8. Capital Expenditure Budget

- ✓ Forecasts spending on fixed assets (land, buildings, machinery).
- ✓ Requires strict management control.

9. Cash Budget

- ✓ Estimates the cash position resulting from planned operations.
- ✓ Helps in arranging borrowings or investments.

Merits and Advantages of Cash Budget

1. Cash Position Assessment

Assesses excess or shortage of cash for planned operations, aiding in borrowing or investment decisions.

2. Coordination with Working Capital

Helps coordinate cash with working capital, sales, and debt.

3. Control Basis for Cash Position

Establishes a sound basis for credit control and managing cash.

4. Reveal of Cash Effects

Shows the effect of seasonal demands, stock levels, and receipt delays on the cash position.

Merits and Demerits of Fixed Budgets

Merits	Demerits
1. Simple to Understand	1. Unsuitable for dynamic organisations, may provide misleading results.
2. Less Time-Consuming	2. Not suitable for long periods or changing conditions.

3. **Inaccurate estimates**, difficult to predict changing business conditions.

Suitability for Flexible Budgets

1. Seasonal sales/production (e.g., soft drinks)
2. **Companies with** frequent product changes
3. Make-to-order businesses (e.g., shipbuilding)
4. **Industries influenced by** fashion
5. **Businesses with** fluctuating sales

Classification on the basis of Time Period

1. **Long-Term Budget**
Prepared for a period **greater than one year**, typically spanning **three to ten years**. Used for long-term planning in industries with a **long gestation period** (e.g., machinery, electricity).
2. **Short-Term Budget**
Prepared for **one or two years**, typically in **monetary terms**. Common in industries like **consumer goods** (e.g., sugar, cotton, textiles).
3. **Current Budget**
Covers **short periods** like **months** or **weeks**. Relates to **current activities** and conditions. CIMA defines it as a budget for **short-term use**, related to **current conditions**.

Zero - Based Budgeting (ZBB)

1. **Definition**
Zero-based Budgeting (ZBB) requires each **cost element** to be **justified** even if the activity is not new. Without proper justification, the budget allowance is **zero**.
2. **Difference from Traditional Budgeting**
Unlike traditional budgeting that starts with **historical data** or previous year's figures, ZBB starts with the assumption that the budget is **zero** and each **activity** needs to justify its **cost**.
3. **Budgeting Process**
ZBB focuses on **activity-based budgeting**, where each **activity** is justified by its **cost-benefit**. Activities are evaluated and prioritized based on alignment with **organisational objectives**, **fund availability**, and **regulatory requirements**.
4. **Suitability**
ZBB is suitable for **both corporate** and **non-corporate entities**.
 - ✓ For **non-corporate** entities (e.g., **government** departments), it helps justify expenditures on **social programs**.
 - ✓ For **corporate entities**, it is ideal for **discretionary costs** like **R&D**, **advertising**, and **training**.

Stages in Zero-based Budgeting

i. Identification and Description of Decision Packages

Decision packages are **programmes** or **activities** requiring decisions. These are described based on **technical specifications**, **cost-benefit analysis**, and **other factors** like environmental, regulatory, and social issues.

ii. Evaluation of Decision Packages

After identification, **decision packages** are evaluated based on **alignment with organisational objectives**, **fund availability**, and **regulatory requirements**.

iii. Ranking (Prioritisation) of Decision Packages

After evaluation, **decision packages** are ranked based on their **priority**. This makes ZBB a form of **priority-based budgeting**.

iv. Allocation of Resources

Once ranked, resources are **allocated** to the decision packages. **Budgets** are prepared as if starting from **zero**, with no reference to previous budgets.

Advantages of Zero-Based Budgeting (ZBB)

1. Systematic Evaluation

Provides a **systematic approach** to evaluate and **rank activities** for resource allocation.

2. Ensures Critical Functions

Ensures all activities are **critical for organizational objectives** and performed in the **best possible way**.

3. Cost-Benefit Analysis

Allocates resources after **cost-benefit analysis**, preventing **arbitrary cuts or increases**.

4. Identifies Wasteful Expenditure

Helps identify and eliminate **wasteful expenditure**.

5. Link to Corporate Objectives

Departmental budgets are closely aligned with **corporate objectives**.

6. Management by Objectives

Facilitates the **introduction of Management by Objectives (MBO)** system.

Why Zero-Based Budgeting is Superior to Traditional Budgeting

1. Systematic Evaluation

ZBB provides a **systematic approach** to evaluate activities.

2. Ensures Critical Functions

Ensures that activities are essential for **achieving objectives**.

3. Cost-Benefit Analysis

Allows resource allocation only after **cost-benefit analysis**.

4. Identification of Waste

Helps in identifying and **eliminating wasteful expenditures**.

5. Departmental Linkage

Promotes **close linkage** between **departmental budgets** and **corporate objectives**.

6. Management by Objectives

Supports the **implementation of MBO** for achieving organizational goals.

Difference between Traditional Budgeting and Zero- based budgeting

Aspect	Traditional Budgeting	Zero-Based Budgeting (ZBB)
Approach	Accounting-oriented , focuses on previous expenditure levels .	Decision-oriented , requires all programs (old or new) to compete for scarce resources .
Reference Point	Starts with past spending levels and adjusts for inflation or new programs.	Focuses on decision packages that have priority over others.
Budget Requests	Managers may inflate budget requests to secure desired amounts after cuts.	Rational analysis of proposals; managers who inflate requests are likely to be exposed .
Clarity and Responsiveness	Less clear and less responsive.	More clear and responsive .
Decision Responsibility	Top management decides why a certain amount is spent on each decision unit .	Responsibility is shifted to managers of the decision units.
Approach	Routine approach , mainly based on past data.	Straightforward approach , highlights priority decision packages .

Limitations of Zero-Based Budgeting (ZBB)

1. Time-Consuming

Involves a **tedious process** of creating and ranking decision packages based on **new data**.

2. Dependency on Functional Departments

Activities for ZBB are based on **traditional functional departments**, which may hinder **proper implementation**.

Performance Budgeting (PB)

1. Definition

Evaluates the **performance** of an organization against both **specific and overall objectives**.

2. Management Responsibility

Responsibility for each level of management is **predefined** in terms of **expected results** and **authority**.

3. Budgeting Approach

PB links **inputs** (costs) with **outputs** (expected results), presenting **quantitative data** for each program.

4. Functionality

PB connects **physical and financial aspects** of each budget item, focusing on **costs** and **revenues** related to functions, programs, and activities.

Traditional Budgeting vs. Performance Budgeting

Aspect	Traditional Budgeting	Performance Budgeting (PB)
1. Emphasis	Focuses more on the financial aspects than on physical aspects or performance .	Focuses on establishing a relationship between inputs (costs) and outputs (performance).
2. Budget Basis	Prepared with a focus on items of expenditure like salaries, materials, taxes , etc.	Emphasis is on functions, programs , and activities to achieve organizational objectives.

Steps in Performance Budgeting

1. Establishing Functional Programme

Create a meaningful **functional programme** and **activity classification** for government operations.

2. Align Accounting System

Align **accounting** and **financial management** systems with the established programme and activity classification.

3. Evolving Norms and Yardsticks

Develop **performance norms, work units**, and **unit costs** for each programme and activity for **reporting and evaluation**.

Functions

Programme

Activity

Project

Key Elements in Performance Budgeting (PB) - ARC Report Step

1. Define Objectives

Clearly define the **objectives** of the enterprise.

2. Translate Objectives

Translate objectives into **specific functions, programmes, activities**, and **tasks** for different levels of management, within fiscal constraints.

3. Set Norms and Standards

Develop **realistic and acceptable norms, yardsticks, standards**, and **performance indicators** in **quantifiable physical units**.

4. Decentralized Responsibility

Adopt a **decentralized responsibility structure** for management.

5. Accounting and Reporting System

Develop an **accounting and reporting system** for **monitoring, analysis, and review** of actual performance against budgets.

Performance Reporting at Various Management Levels

1. Significance

Ensure **reliable facts** in reports and ensure they **demonstrate the effect** of actions or prompt action.

2. Timeliness

Determine the **earliest time** at which the information is useful, and how **frequently** it is needed.

3. Accuracy

Decide on the **acceptable level of inaccuracy** that does not alter the **significance** of the information.

4. Appropriateness

Ensure the **right person** receives the report and has the necessary **supporting information**.

5. Discrimination

Consider if **omitting** any information will affect the report's value or clarity.

6. Presentation

Ensure the report is **clear, unbiased**, and formatted appropriately for the **subject** and the **recipient**.

1. Top Management (Board of Directors, Financial Managers)

- ✓ **Balance Sheet**
- ✓ **Profit & Loss Statement**
- ✓ **Stock Position - Disposition of Funds/Working Capital**
- ✓ **Capital Expenditure and Project Progress**
- ✓ **Cash-flow Statements**
- ✓ **Sales, Production, and Other Statistics**

2. Sales Management

- ✓ **Compare Actual Sales with Budgeted Sales by:**
 - **Products**
 - **Territories**
 - **Individual Salesmen**
 - **Customers**
- ✓ **Standard Profit and Loss by Product**
- ✓ **Selling Expenses vs Budget**

- ✓ Analyze Bad Debts, Slow Accounts, and New/Doubtful Customers

3. Production Management

- ✓ To Buyer: Price Variations by commodity.
- ✓ To Foreman:
 - Operational Efficiency
 - Labour Utilization and Lost Time
 - Indirect Shop Expenses vs Standard
 - Scrap Report
 - To Works Managers:
 - Departmental Operating Statement
 - Works Operating Statements (General expenses)
 - Plant Utilization Report
 - Scrap Report
 - Material Usage Report

4. Special Reports

Prepared at the request of management or as needed for detailed information:

- ✓ Taxation Impact on Profits
- ✓ Earnings Capacity of New Projects
- ✓ Break-even Analysis
- ✓ Capital Equipment Replacement
- ✓ Special Pricing Analysis
- ✓ Make or Buy Decisions
- ✓ Bonus Payments based on the Labour Appellate Tribunal Formula

CHAPTER 16: INTRODUCTION TO COST AND MANAGEMENT ACCOUNTING



Introduction

Theory	Michael E. Porter, in his theory of Generic Competitive Strategies, described three strategic dimensions to gain competitive advantage: ➤ Cost Leadership ➤ Product Differentiation ➤ Focus (or Niche)
Cost Leadership	Cost Leadership means producing goods or providing services at the lowest possible cost while still maintaining quality. This helps offer competitive prices in the market.
Business Environment	In a competitive business world, where every company aims to reach the top position in both domestic and global markets, it is important to adopt one of the three strategies mentioned above.
Relevance to Cost and Management Accounting	The strategy of Cost Leadership is closely related to the subject of Cost and Management Accounting. It can be effectively achieved if the organization has a strong Cost and Management Accounting system.
Chapter Focus	In this chapter, we will explore the different aspects of Cost and Management Accounting and how it is applied in both manufacturing and service industries.



1. Meaning and Definition

Term	Meaning
Cost	➤ Cost is the amount of resources given up to get goods or services. ➤ As a noun: It means expenditure (actual or estimated) on a specific product, activity, or item. ➤ As a verb: It means to find out the cost of something.
Costing	➤ Costing is the technique and process of finding or ascertaining costs. ➤ As per CIMA, it is the foundation of internal financial information systems for planning, control, and decision-making.
Cost Accounting	Cost Accounting is the process of recording costs, starting with income and expenses and ending with reports and statements to ascertain and control costs.

Cost Accountancy	Cost Accountancy applies the principles and methods of costing and cost accounting to the practice of cost control and finding profitability. ◊ It also involves giving useful information for managerial decisions.
Management Accounting	➤ As per CIMA, Management Accounting uses accounting and financial management principles to create, protect, preserve, and increase value for stakeholders. ➤ It supports planning, organising, controlling, and decision-making.
Cost Management	Cost Management uses management accounting techniques to collect, analyze, and present data needed to plan, monitor, and control costs.



2. Objectives Of Cost Accounting

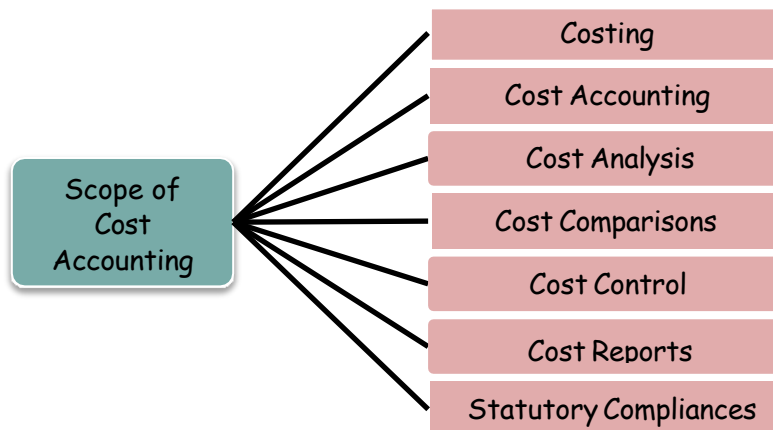
Objectives of Cost and Management Accounting	
Objective	Explanation (Simplified)
Ascertainment of Cost	The primary aim is to collect and calculate cost for a cost object (e.g., product, job, department, etc.). Cost data is accumulated, assigned, and ascertained accurately.
Determination of Selling Price and Profitability	Helps in fixing selling prices and evaluating profitability. Though prices depend on market, cost data supports price decisions and rate negotiations.
Cost Control	Ensures expenditures remain within planned limits. Control is exercised through: a) Setting standards or targets (Standard Costing) b) Measuring actual performance c) Comparing actuals with standards d) Analyzing variances and taking corrective action
Cost Reduction	Aims at permanently lowering unit cost without affecting quality or utility. Actions include: a) Identifying non-value-added activities and eliminating them b) Continuous research and process improvement Assumes: ➤ There's a cost saving ➤ Saving is permanent ➤ Product/service quality is maintained or improved
Assisting in Decision Making	Provides relevant cost information for planning, control, and evaluation. Helps management make better decisions by delivering both internal and external insights.

Difference Between Cost Control and Cost Reduction

Point	Cost Control	Cost Reduction
1	Focuses on maintaining costs as per set standards.	Focuses on reducing costs by challenging existing standards and improving them.
2	Aims to achieve the lowest cost under current conditions.	Believes no condition is permanent—looks for better ways to reduce cost.
3	Emphasis is on the past and present .	Emphasis is on the present and future .
4	It is a preventive function —tries to keep costs in check.	It is a corrective function —works even if cost control is already in place.
5	Stops once the target is achieved .	Is a continuous process —no fixed endpoint.



3. Scope Of Cost Accounting



Scope of Cost Accounting

Function	Simplified Explanation
i. Costing	Technique and process of ascertaining cost of products/services. Governed by costing principles using methods like historical cost , standard cost , process cost , etc.
ii. Cost Accounting	The formal process of recording, classifying, and reporting costs—from expenditure recording to cost statements/reports for control and decision-making.
iii. Cost Analysis	Identifies reasons for cost variances between actual and budgeted costs. Helps in fixing responsibility and aids in cost management and strategic decisions .
iv. Cost Comparisons	Compares costs for: ➤ Different technologies

	➤ Different products/activities ➤ Same product over time Helps in choosing the most economical alternative.
v. Cost Control	Examines each cost to ensure it's justified by its benefit. Checks if costs are within budget and if further reduction is possible.
vi. Cost Reports	Final outcome of cost accounting—reports for management. Useful for planning, control, performance appraisal, and decision making.
vii. Statutory Compliances	Ensures maintenance of cost records as per statutory requirements. Covers materials, labour, and overhead costs as per relevant laws and rules.



4. Relationship Of Cost And Management Accounting With Other Related Disciplines

Cost and Management Accounting as a discipline is interrelated and dependent on other disciplines of accounting.

Cost Accounting vs. Management Accounting

Basis	Cost Accounting	Management Accounting
i. Nature	Records only the quantitative aspects.	Records both quantitative and qualitative aspects.
ii. Objective	Focuses on recording the cost of producing goods/services.	Provides information to management for planning and co-ordination.
iii. Area	Limited to cost ascertainment.	Broader scope—includes financial accounting, budgeting, taxation, and strategic planning.
iv. Recording of Data	Uses past and present figures.	Focused on future projections and forecasting.
v. Development	Evolved during the industrial revolution.	Evolved due to the needs of modern business for strategic decision-making.
vi. Rules and Regulations	Follows specific principles and procedures for cost recording.	Not bound by any fixed rules or regulations. It is flexible and decision-oriented.

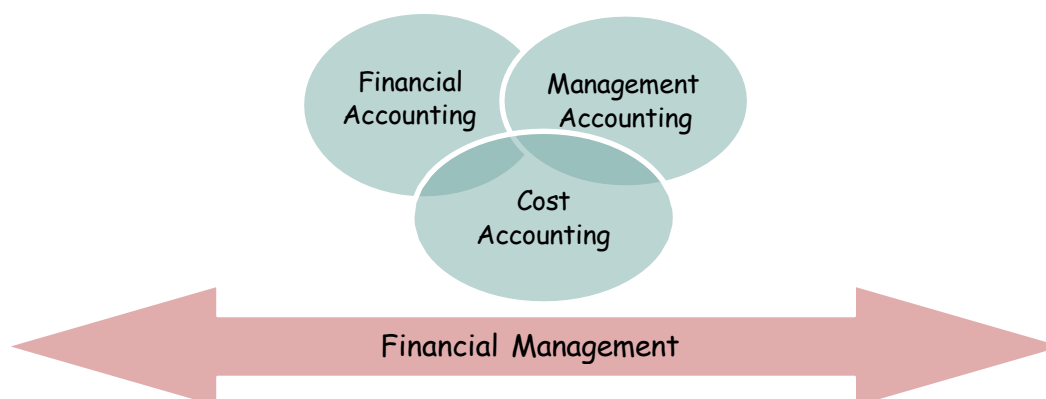
Difference Between Financial Accounting and Cost Accounting

S. No.	Basis	Financial Accounting	Cost Accounting
(i)	Objective	Provides information on the financial performance of an entity.	Focuses on ascertaining costs for cost control and decision making .
(ii)	Nature	Records, classifies, and interprets transactions in monetary terms.	Classifies and presents costs in a meaningful and analytical manner.
(iii)	Recording of Data	Based on historical data .	Uses both historical and pre-determined (standard) costs.
(iv)	Users of Information	Used by external users like shareholders, creditors, analysts, and government agencies.	Mainly used by internal management ; sometimes also by regulatory bodies.
(v)	Analysis of Cost & Profit	Shows overall profit or loss, sometimes segment-wise.	Provides detailed cost data for each cost object (product, job, process, etc.).
(vi)	Time Period	Statements are usually prepared annually .	Reports are prepared as and when needed .
(vii)	Presentation of Information	Follows a standard format (as per regulations).	No fixed format ; presentation is as per management's needs.

Cost and Management Accounting with Financial Management

Cost and Management Accounting is an **application of Financial Management** for **decision making purposes**.

The relationship among **Cost Accounting**, **Management Accounting**, **Financial Accounting** and **Financial Management** can be understood with the help of the following diagram.





5. Role of Cost and Management Accounting

Purpose	Explanation
1. Decision Making	Provides relevant and timely information to management for informed decisions.
2. Business Planning & Control	Assists in planning, measuring, evaluating, and controlling business activities.
3. Cost Allocation	Helps in allocating cost to products and inventories for both internal and external users.

Note: While **Cost Accounting** focuses on cost **accumulation** and **allocation**, **Management Accounting** is broader, focusing on internal **decision-making support**.

Functions of Cost and Management Accounting		
S. No.	Function	Explanation
(i)	Cost Collection	Collects and accumulates costs for each element of cost (materials, labour, overheads, etc.).
(ii)	Cost Assignment	Assigns costs to cost objects (products, services, departments) to ascertain total cost .
(iii)	Budgeting and Cost Control	Sets budgets and standards , compares with actuals, identifies variances, and reports for cost control .
(iv)	Decision Support via MIS	Establishes a Management Information System (MIS) to deliver timely and relevant data for decisions like: - Cost optimisation - Price setting - Process or product planning
(v)	Performance Evaluation	Measures performance of responsibility centres by tracking: - Time taken - Wastage - Idle time Prepares reports and recommends corrective actions .



6. Users of Cost and Management Accounting Information

Cost and Management Accounting information is used by both **internal** and **external** stakeholders.

Internal Users	
User Group	Purpose of Information Use
(a) Policy Makers	Use information to: • Formulate strategies to achieve short- and long-term goals • Position the organisation in the competitive market • Design structure for policy implementation
(b) Managers	Use information to: • Know cost of cost objects/cost centres • Decide product/service pricing • Measure performance of

	responsibility centres • Analyse profitability (product, department, customer-wise) • Evaluate strategic options and make decisions
(c) Operational Staff (Supervisors, Foremen, Team Leaders)	Use information to: • Understand objectives and performance goals • Know product/service specifications (volume, quality, process) • Understand performance parameters • Monitor divisional profitability
(d) Employees	Interested in: • Attendance and time records • Incentive structures • Performance standards

External Users	
User Group	Purpose of Information Use
(a) Regulatory Authorities	Use cost data for: • Tariff determination • Subsidy provision • Rate fixation, based on prescribed formats and standards
(b) Auditors	Require costing information for: • Audit of financial accounts • Cost audits and reviewing management reports
(c) Shareholders	Concerned with information about: • Business performance affecting investments • Updates via annual reports, shareholder communication about orders, product expansion, market share, etc.
(d) Creditors and Lenders	Focus on: • Entity's ability to repay loans • Debt position, stock balances , especially when funding is secured against inventories or receivables



7. Essentials Of A Good Cost Accounting System

Essential Features of a Good Cost Accounting System	
Feature	Simplified Explanation
(a) Informative and Simple	The system should be tailor-made , practical , and easy to use . It must serve the specific needs of the business without including unnecessary or confusing details .
(b) Accurate and Authentic	The data used must be accurate and verified , as inaccurate data can lead to wrong decisions.
(c) Uniformity and Consistency	There must be consistent classification and treatment of cost data. This ensures comparability across time periods and units (useful for benchmarking and analysis).
(d) Integrated and Inclusive	The system should be well-connected with other systems like Financial Accounting, Taxation, Statistics, and Operational Research for a comprehensive view .
(e) Flexible and Adaptive	It should be able to adjust to changes in technology , reporting standards , and regulations without major disruptions.

(f) Trust on the System	Management must have confidence in the system and actively support its development. Reliable information leads to better decision-making .
-------------------------	---



8. Installation Of Costing System

Key Considerations Before Setting Up a Cost Accounting System

Factor	Simplified Explanation
(a) Objective	Identify the purpose of the costing system—whether it's for price fixation, cost control, or decision-making .
(b) Nature of Business/Industry	Costing methods should match the industry's requirements . E.g., process costing in an oil refinery to track cost by process (like crude refinement).
(c) Organisational Hierarchy	The system must cater to all levels of management : ➤ Top-level: strategy and policy ➤ Middle-level: pricing, diversification ➤ Operational: resource usage, idle time
(d) Knowing the Product	The type and nature of the product decides the system: ➤ By-products need separate tracking ➤ Perishable items may need marginal costing to assess contribution and minimum sale price
(e) Understanding the Production Process	Detailed technical knowledge is required to assign costs accurately based on resource consumption and process characteristics .
(f) Information Synchronisation	➤ The costing system must meet inter-departmental needs. ➤ E.g., • Accounts department for stock reports to banks ➤ Tax department for inventory disclosures
(g) Method of Maintenance of Cost Records	Decide how Cost and Financial Accounts will be maintained—either separately or integrated, and how control accounts will help in reconciling them.
(h) Statutory Compliances and Audit	Ensure compliance with Cost Accounting Standards , legal provisions , and maintain records for audit and reporting purposes.
(i) Information Attributes	The system must generate information that is: ➤ Complete ➤ Accurate ➤ Timely ➤ Relevant to support an effective MIS (Management Information System).



9. Cost Accounting With The Use Of Information Technology (It)

Role of Information Technology in Cost and Management Accounting	
Area of Impact	Simplified Explanation
i. ERP Integration	ERP systems integrate all functions. A single data entry can generate custom reports for multiple purposes. Reconciliation between cost and financial systems becomes simple and efficient.
ii. Paperless Environment	Documents like Bill of Materials, Goods Received Notes, and Labour Reports are shared digitally, avoiding the need for physical copies and saving time and resources.
iii. Digital Procurement & Mobility	Intranet/extranet helps in material movement and supplier communication without paperwork. Enables Just-in-Time (JIT) inventory and production practices.
iv. Automated Cost Assignment	Cost centres and cost objects are coded; related costs are automatically assigned using codes. Reports can be generated job-wise, batch-wise, or process-wise, as needed.
v. Uniformity Across Functions	ERP software ensures standardized budgeting, reporting, and costing, regardless of location, currency, or language.
vi. Real-Time Variance Reporting	Cost and revenue variances are tracked in real time, enabling immediate corrective actions by management.
vii. Process Monitoring & Value Analysis	IT allows close monitoring of manufacturing/service processes to identify and eliminate non-value-added activities and improve efficiency.
Digital Costing System - Simplified Overview	
Aspect	Details
Definition	A Digital Costing System performs all functions of a conventional costing system—data collection, classification, accounting, and information processing—but does so using digital tools.
Key Difference	The difference lies in the method of data collection, storage medium, analysis techniques, and reporting formats—which are all digitally enabled.
Integration	It connects business functions like production, procurement, and inventory with systems of suppliers, customers, and the market through data sharing and network integration.

Information Provided by Digital Costing System	
Key Information	Purpose / Benefit
i. Cost on Cost Object	Tracks real-time cost for specific jobs, products, or services .
ii. Time Spent	Records operational time for better efficiency analysis .
iii. Resource Consumption	Tracks use of materials, labor, and utilities —supports cost control.
iv. Current Market Prices	Provides updated rates of raw materials and final products for pricing and sourcing decisions.
v. Lead Time & Availability	Monitors supply timelines and material availability for inventory planning .
vi. Demand & Trend Analysis	Offers insights into product demand, customer behavior, and market trends .

Benefits of Digital Costing System	
Benefit	Simplified Explanation
i. Accurate Cost Ascertainment	Enables precise costing of a cost object, helping in cost allocation and apportionment analysis .
ii. Time-Based Activity Analysis	Tracks time spent per activity to design incentive plans and improve work efficiency .
iii. Material Planning & Zero Wastage	Supports Material Requirement Planning (MRP) , Just-in-Time (JIT) inventory, and resource optimisation by analysing consumption data.
iv. Elimination of Non-Value-Added Activities	Identifies and helps remove non-value-adding processes , improving cost-effectiveness .
v. Standard Setting & Variance Analysis	Uses real-time data to set standards and monitor variances , improving cost control .
vi. Market-Based Cost Estimation (M2M)	Uses current market prices of raw materials and consumables to estimate cost and set standards on a Marked to Market (M2M) basis.
vii. Demand Prediction & Budgeting	Uses customer behavior data to predict market demand , aiding in budget preparation and production planning .
viii. Improved Cost-Benefit Analysis	Enhances understanding of cost behavior , improving decision-making through accurate cost-benefit analysis .



10. Cost Objects

Cost object is anything for which a **separate measurement** of cost is required. **Cost object** may be a product, a service, a project, a **customer**, a **brand category**, an **activity**, a department or a programme etc.

Examples of cost objects are:

Product	Smart phone, Tablet computer, SUV Car, Book etc.
Service	An airline flight from Delhi to Mumbai, Concurrent audit assignment, Utility bill payment facility etc.
Project	Metro Rail project, Road projects etc.
Activity	Quality inspection of materials, Placing of orders etc.
Process	Refinement of crudes in oil refineries, melting of billets or ingots in rolling mills etc.
Department	Production department, Finance & Accounts, Safety etc.

Cost object remains in nucleus of **cost classification** and **analysis** of the **cost behaviour**. Classification of a cost element as **direct**, **indirect**, **fixed** or **variable**, all **depends** on cost object.

Cost Units

Aspect	Details
Definition	A Cost Unit is a unit of product , service , time , or a combination of these, in relation to which costs are ascertained or expressed .
Examples	➤ Per ton of steel ➤ Per ton ➤ kilometre for transport ➤ Per machine hour for machine use ➤ A specific contract or order ➤ A batch of items maintaining identity through production
Measurement Basis	Cost units are generally based on physical measurements, such as: ➤ Number ➤ Weight ➤ Area ➤ Volume ➤ Length ➤ Time ➤ Value

A few typical examples of cost units are as follows:

Industry or Product	Cost Unit Basis
Automobile	Number
Cement	Ton/ per bag etc.
Chemicals	Litre, gallon, kilogram, ton etc.
Power	Kilo-watt hour (kWh)
Steel	Ton
Transport	Passenger- kilometer
Gas	Cubic feet

Some examples from the CIMA terminology are as follows

Industry Sector	Cost unit
Brewing	Barrel
Brick-making	1,000 bricks
Coal mining	Tonne/ton
Electricity	Kilowatt-hour (kWh)
Engineering	Contract, job
Oil	Barrel, tonne, litre
Hotel/Catering	Room/meal
Professional services	Chargeable hour, job, contract
Education	Course, enrolled student, successful student
Hospitals	Patient day
Activity	Cost unit
Credit control	Accounts maintained
Selling	Customer call, value of sales, orders taken
Materials storage/handling	Requisition unit issued/received, material movement, value issued/received
Personnel administration	Personnel record

Cost Driver

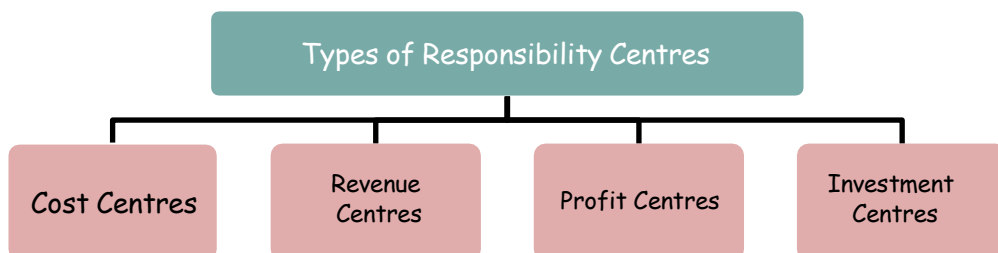
Aspect	Details
Definition	A Cost Driver is a factor or variable that influences the level of cost . It is typically an activity responsible for the incurrence of cost .
CIMA Definition	According to CIMA , a cost driver is a: " Factor influencing the level of cost. " Commonly used in Activity Based Costing (ABC) to link activity resource

	consumption to product outputs .
Nature of Activities	A cost driver can be an event , task , or unit of work that affects costs.
Examples	➤ Number of machine setups ➤ Number of purchase orders ➤ Hours spent on product inspection ➤ Number of tests performed



11. Responsibility Centres

Responsibility Centres - Simplified Overview	
Aspect	Details
Organisational Growth	As an organisation expands , its functions , structure , and operations become more complex.
Need for Delegation	To manage this complexity, management delegates authority and responsibility to various departments or individuals.
Definition	These departments or individuals are called Responsibility Centres . They are accountable for their performance in specific areas.
Performance Metrics	Responsibility Centres are evaluated based on: ➤ Expenditure ➤ Revenue ➤ Profitability ➤ Return on Investment (ROI)
Evaluation Method	Performance is compared against: ➤ Set standards (e.g., budgets, input-output ratios) ➤ Organisational goals and targets



Types of Responsibility Centres			
S. No.	Responsibility Centre	Definition & Key Points	Examples
(i)	Cost Centres	A responsibility centre accountable for incurring and controlling costs . Performance is measured against budgets or standards .	-
	Two Types:		
	(a) Standard Cost Centre	➤ Output is measurable ➤ Input-output ratio can be defined ➤ Costs are compared with standard cost ➤ Variances are classified into controllable and uncontrollable	Manufacturing Unit, Assembly Line
	(b) Discretionary Cost Centre	➤ Output can't be measured in monetary terms ➤ No clear input-output ratio ➤ Inputs are compared to budgeted costs	R&D Dept., Advertising Dept.
(ii)	Revenue Centres	➤ Centres responsible for revenue generation, usually through sales. ➤ Limited or no control over costs ➤ May handle direct selling expenses like commissions	Sales Department
(iii)	Profit Centres	➤ Centres accountable for both revenues and costs. ➤ Measured on the basis of profitability ➤ Managers are evaluated on cost and revenue performance	Branch Offices, Divisions
(iv)	Investment Centres	➤ Centres responsible for profitability and investment decisions. ➤ Performance is measured by Return on Investment (ROI) ➤ Greater autonomy in capital budgeting	Maharatna, Navratna, Miniratna PSUs



12. Limitations Of Cost Accounting

Limitations of Cost Accounting	
Limitation	Simplified Explanation
Expensive	Cost accounting requires additional efforts for activities like overhead analysis, allocation, and absorption, which results in extra cost for the organisation.
Need for Reconciliation	The results from cost accounts often differ from financial accounts, so a reconciliation statement is needed to ensure accuracy and consistency.
Duplication of Work	Organisations usually maintain both Cost Accounts and Financial Accounts, which leads to duplication of efforts and increased workload.



13. Classification Of Costs

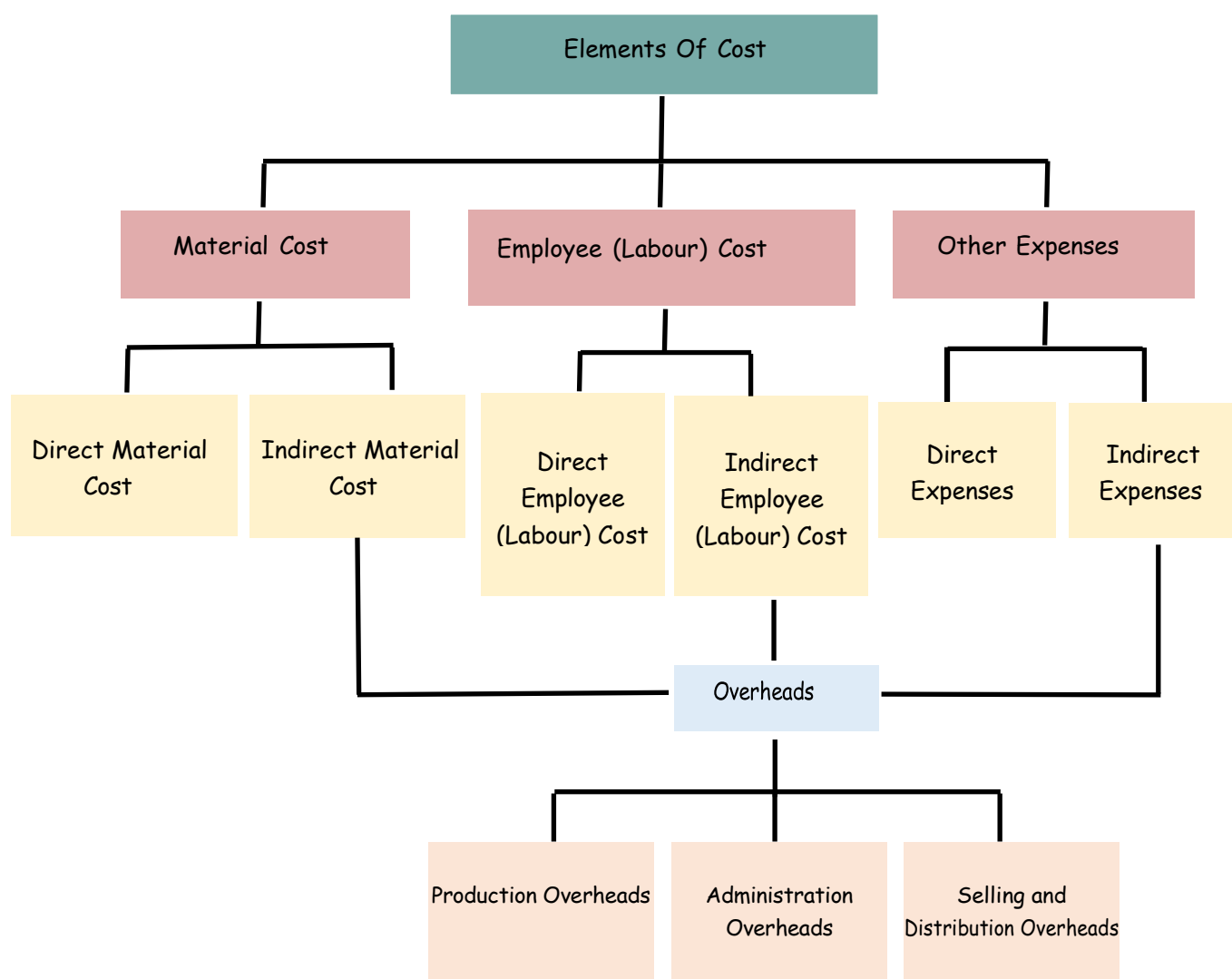
It means the grouping of costs according to their common characteristics. The important ways of classification of costs are:

- (i) By Nature or Element
- (ii) By Functions
- (iii) By Variability or Behaviour
- (iv) By Controllability
- (v) By Normality
- (vi) By Costs for Managerial Decision Making

By Nature or Element

Under this type of classification of cost, total cost of a cost object is classified on the basis of element of cost i.e., material, labour, other expenses and overheads.

A diagram as given below shows the elements of cost described as under:



Key Elements of Cost		
Element	Simplified Explanation	Examples
Material	➤ Material cost refers to the cost of raw materials used to produce finished goods. ➤ If directly traceable to a cost object → Direct Material ➤ If used in small quantity or not directly traceable Indirect Material	Direct: Cloth in garment-making Indirect: Lubricants, nails
Labour	Wages paid to workers for converting raw materials into finished goods . ➤ If directly involved :Direct Labour ➤ Others :Indirect Labour	Direct: Machine operator Indirect: Supervisor
Other Expenses	All expenses not classified as material or labour but incurred for a specific cost object .	Hire of special machinery, cost of defective work
Overheads	The total of indirect materials , indirect	See below

labour, and indirect expenses. Subdivided as:

Types of Overheads		
Type of Overhead	Description	Examples
Production/Works Overheads	Incurred in the factory for production operations	Factory rent, power, depreciation
Administration Overheads	Related to business management and office operations	Office rent, lighting, telephone
Selling Overheads	Incurred to promote and sell the product	Advertising, sales commission
Distribution Overheads	Incurred to deliver or dispatch goods	Warehouse charges, packing, loading

By Functions

Under this classification, costs are divided according to the function for which they have been incurred. It includes the following:

- (i) Production/ Manufacturing Cost
- (ii) Administration Cost
- (iii) Selling Cost
- (iv) Distribution Cost
- (v) Research and Development cost etc.

Classification of Costs: Fixed, Variable & Semi-Variable

Type of Cost	Definition	Behaviour	Examples
(a) Fixed Costs	Costs that remain unchanged within a certain range of activity or time period, regardless of production levels.	Do not change with increase or decrease in output.	Rent, insurance, salaries of administrative staff
(b) Variable Costs	Costs that change directly in proportion to the level of activity or output.	Increase or decrease with changes in production.	Direct material cost, direct labour cost, power used in production
(c) Semi-Variable Costs	Costs that have both fixed and variable components. A portion stays fixed, and the rest varies with activity.	Partly fixed, partly variable depending on usage or output.	Telephone bills, electricity, maintenance charges

Graphical Representation

- Fixed Costs: **Horizontal line** (constant at all activity levels)
- Variable Costs: **Diagonal line** starting from origin (increases proportionally)
- Semi-Variable Costs: **Line starts** above origin (fixed part), then slopes upward (variable part)

Methods of segregating Semi-variable costs into fixed and variable costs

The segregation of semi-variable costs into **fixed** and **variable costs** can be carried out by using the following methods:

- Graphical method
- High-Low method
- Analytical method
- Comparison by period or level of activity method
- Least squares method

Graphical Method of Cost Classification (Fixed & Variable Cost Separation)

Step	Action	Purpose / Explanation
(i)	Plot observations	Plot total cost at various output levels on a graph.
(ii)	Set axes	X-axis = Output level, Y-axis = Total cost
(iii)	Draw Line of Best Fit	Use judgment to draw a line that best fits the plotted points. This shows the cost behavior .
(iv)	Identify Fixed Cost	The point where the line intersects the Y-axis = Total Fixed Cost .
(v)	Draw Fixed Cost Line	Draw a line from the Y-axis intersection point parallel to the X-axis —this represents the fixed cost across all levels.
(vi)	Find Variable Cost	At any output level:

Variable Cost = Total Cost - Fixed Cost. This gives the **variable portion** at that output level.

High-Low Method - Simplified Overview

Aspect	Explanation
Method	The High-Low Method is used to find the variable cost rate by comparing cost and sales data at two levels of activity : the highest and the lowest .
Purpose	To determine the rate of variable cost in relation to sales value .

Analytical Method - Simplified Overview

Aspect	Explanation
Method	The Analytical Method is used to separate semi-variable costs into fixed and variable parts based on the judgment of an experienced cost accountant .
Approach	The cost accountant empirically estimates the degree of variability in each semi-variable expense .
Example	Some expenses may be 20% variable and 80% fixed , while others may be the opposite.
Ease of Use	Though estimating exact variability is difficult , the method is easy to apply using professional experience and observation.

Comparison by Period or Level of Activity Method - Simplified Overview

Aspect	Explanation
Method	This method identifies the variable overhead by comparing expenses at two different levels of output or over two different periods.
Assumption	The fixed cost remains constant , so any change in total overhead is due to the variable component.
Approach	By comparing the difference in cost and the difference in output , the variable cost per unit can be determined.
Formula	$\text{Variable Cost per Unit} = \frac{\text{Change in Total Cost}}{\text{Change in Output}}$

Where:

- Change in Total Cost = Total cost at higher output - Total cost at lower output
- Change in Output = Higher output - Lower output

Least Square Method - Simplified Overview

Aspect	Explanation
Method	The Least Square Method is a statistical technique used to accurately split semi-variable costs into fixed and variable components.
Why It's Used	It is considered the most precise method , as it finds the line of best fit through a set of cost and output data points.
Approach	It uses the linear cost equation :
	$Y = mx + c$ Where: • y = Total cost • x = Volume of output • m = Variable cost per unit (slope) • c = Fixed cost (intercept)

Classification of Costs by Controllability

Type	Definition	Explanation / Examples
(a) Controllable Costs	Costs that can be influenced or regulated by a manager of a cost, profit, or investment centre.	These are costs incurred within a responsibility centre and can be controlled by the manager of that centre. Examples: Direct labour, direct materials, direct expenses, and some overheads controllable by factory manager or shop floor supervisor.
(b) Uncontrollable Costs	Costs that cannot be influenced by the actions of a specific individual or manager.	These costs are outside the control of a specific person in the organisation. Example: Tool room expenses are controllable by the tool room foreman, but the share of those costs apportioned to the machine shop is not controllable by the machine shop foreman.

Classification of Costs by Normality

Type	Definition	Explanation / Treatment
(a) Normal Cost	Cost that is normally incurred at a given level of output under regular operating conditions .	These are expected and recurring costs associated with standard production. Example: Routine material, labour, and utility expenses. Treatment: Included in cost of production.
(b) Abnormal Cost	Cost that is not normally incurred at the given level of output under usual conditions.	These are unexpected, unusual, or non-recurring costs. Example: Losses due to accidents, floods, or machinery breakdowns. Treatment: Charged to Costing Profit and Loss Account, not included in cost of production.

Classification of Costs for Managerial Decision-Making

Type of Cost	Simplified Explanation
(a) Pre-determined Cost	A cost calculated in advance before production begins, based on known factors.
(b) Standard Cost	A pre-determined cost based on expected efficiency and used for cost control and price setting .
(c) Marginal Cost	The extra cost incurred by producing one more unit of output.
(d) Estimated Cost	The expected cost of making or buying something, computed before actual production .
(e) Differential Cost (Incremental/Decremental)	The change in total cost (increase or decrease) due to a change in activity level , method, or technology.
(f) Imputed Cost	A notional cost without cash outflow, like interest on owned capital ; similar to opportunity cost .
(g) Capitalized Cost	A cost initially treated as an asset , then gradually expensed (e.g., installation charges added to machine cost).
(h) Product Cost	Costs linked to manufacturing or purchasing products (e.g., material, labour, overheads). These are inventoriable costs .
(i) Opportunity Cost	The benefit foregone by choosing one option over another (e.g., lost interest on withdrawn funds).
(j) Out-of-Pocket Cost	A cost involving actual cash outflow (e.g., wages, raw material); important in short-term decisions .
(k) Shut Down Cost	Costs that continue even when production is temporarily halted (e.g., rent, depreciation).
(l) Sunk Cost	Past costs already incurred that cannot be recovered ; not relevant for current decisions.
(m) Absolute Cost	The total cost of a product or process, shown in exact monetary value , used for further analysis.
(n) Discretionary Cost	Costs based on management decisions without direct link to output (e.g., advertising, training).
(o) Period Cost	Non-manufacturing costs charged directly to the period's revenue (e.g., admin, selling expenses).
(p) Engineered Cost	Costs that have a clear cause-effect relationship between input and output (e.g., direct labour).
(q) Explicit Cost	Also called out-of-pocket cost , involving immediate cash

	payment (e.g., rent, salaries).
(r) Implicit Cost	Costs with no immediate cash payment , not recorded in books (e.g., owner's time, internal resources).



14. Methods Of Costing

Different Methods of Costing (Industry-wise Application)		
Method	Description	Suitable For
1. Single or Output Costing	The cost of producing a single product is calculated.	Industries producing one type of product in bulk (e.g., bricks, coal, cement).
2. Batch Costing	An extension of job costing where a batch of identical units is costed together. $\diamond$ $\text{Cost per unit} = \text{Total batch cost} \div \text{Number of units in batch}$	Factories producing in small lots or batches (e.g., toy manufacturing, pharmaceuticals).
3. Job Costing	The cost of each job is calculated separately based on customer order.	Suitable for custom jobs like printing presses, motor repair shops, tailoring, etc.
4. Contract Costing	The cost of each contract is recorded separately .	Used in large construction projects like buildings, roads, bridges, etc.
5. Process Costing	Cost is calculated at each stage/process of production. In mechanical jobs, it becomes operation costing.	Ideal for continuous production industries (e.g., paper, chemicals, textiles).
6. Operating Costing	Used when services—not goods—are provided. It focuses on service unit cost.	Applied in transport, retail, utilities (water, electricity, etc.).
7. Multiple Costing	A combination of two or more methods . Parts may use batch/job costing, while final product uses output costing.	Suitable for complex manufacturing , E.g., bicycle manufacturing (components + assembly).

various methods of costing applied in different industries:

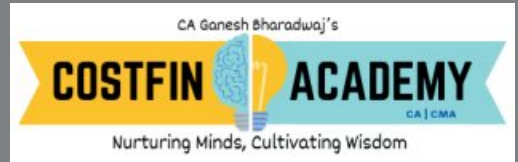
Nature of Output	Method	Cost	Examples of Industries
A Series of Processes	Process costing or Operation Costing	For each process	Sugar
Construction of building	Contract Costing	For each contract	Real estate
Similar units of a Single Product, produced by Single Process	Unit or output or Single Costing	For the entire activity, but averaged for the output	Cold Drinks
Rendering of Services	Operating Costing	For all services	Hospitals
Customer Specifications: single Unit	Job Costing	For each order/ assignment/job	Advertising
Consisting of multiple varieties of activities and processes	Multiple Costing	Combination of any method	Car Assembly



15. Techniques Of Costing

Techniques	Description
Uniform Costing	When a number of firms in an industry agree among themselves to follow the same system of costing in details, adopting common terminology for various items and processes they are said to follow a system of uniform costing. Advantages of such a system are: (i) A comparison of the performance of each of the firms can be made with that of another, or with the average performance in the industry. (ii) Under such a system, it is also possible to determine the cost of production of goods which is true for the industry as a whole. It is found useful when tax-relief or protection is sought from the Government.
Marginal Costing	It is defined as the ascertainment of marginal cost by differentiating between fixed and variable costs. It is used to ascertain effect of changes in volume or type of output on profit.

Standard Costing and Variance Analysis	It is the name given to the technique whereby standard costs are pre-determined and subsequently compared with the recorded actual costs. It is thus a technique of cost ascertainment and cost control. This technique may be used in conjunction with any method of costing. However, it is especially suitable where the manufacturing method involves production of standardised goods of repetitive nature.
Historical Costing	It is the ascertainment of costs after they have been incurred. This type of costing has limited utility. • Post Costing: It means ascertainment of cost after production is completed. • Continuous costing: Cost is ascertained as soon as the job is completed or even when the job is in progress.
Absorption Costing	It is the practice of charging all costs, both variable and fixed to operations, processes or products. This differs from marginal costing where fixed costs are excluded.



I've put my heart into crafting this material to guide you, but your dedication is what will truly bring it to life. Success is a team effort, and together, we can conquer FM and crack this exam. You bring the determination, and I'll provide the direction— together, let's make it happen!" Remember, a perfect 100/100 in Costing is soon a reality for you.

With ❤ Ganesh

Know your Faculty

CA Ganesh Bharadwaj is a highly regarded faculty for Costing and Financial Management in CA & CMA courses, known for his engaging and student-friendly teaching style.

He has been recognized as one of the top performers in India in the subjects Costing & FM for an impressive score of 94% in his CA exams.

He has been on a mission to teach Costing & FM in simple English with crystal clear explanations and real-life examples, aiming for both exam success and conceptual understanding.

A firm believer in Conceptual Learning, his teaching philosophy aligns with his powerful quote: **"Stop Mugging Up. Start Learning."**