

Overhead Costing: Theory and Practice

These notes are designed to provide a clear and structured understanding of **Overhead Costing**, covering theoretical concepts, classification, and practical problem-solving as detailed in the sources.

1. Introduction to Overheads

Overheads represent the third essential element of cost for any product or service. They are defined as the sum of all **indirect expenses** that cannot be directly traced to a specific product or service.

Formula:

$$\text{Overheads} = \text{Indirect Materials} + \text{Indirect Labour} + \text{Indirect Expenses} \quad (1)$$

2. Classification of Overheads

Overheads are classified in three main ways, though the syllabus focuses primarily on functional and behavioural classifications.

Table 1: Classification of Overheads

Basis of Classification	Categories	Examples
Element-wise	Indirect Material, Indirect Labour, Indirect Expenses	Lubricants, salary of a foreman, factory rent.
Function-wise	Factory, Office & Administrative, Selling & Distribution	Factory rent (Factory), Office staff salary (Admin), Salesman commission (Selling).
Behaviour-wise	Fixed, Variable, Semi-variable	Factory rent (Fixed), Salesman commission (Variable), Electricity (Semi-variable).

Note on Semi-variable Overheads: These vary with activity levels but not in direct proportion. They can be segregated into fixed and variable portions using the **High-point and Low-point method** or the **Simultaneous equation method**.

3. Apportionment of Overheads

When overhead costs cannot be directly allocated to a specific cost centre, they are **apportioned** (distributed) based on a logical relationship.

Common Bases for Apportionment:

Table 2: Bases for Overhead Apportionment

Type of Expense	Basis of Apportionment
Rent, rates, and taxes	Floor space / Area occupied
Lighting/Electricity	Number of light points, wattage, or space
Depreciation of machinery	Value of fixed assets
Indirect wages / General expenses	Direct wages or working hours
Canteen / Welfare expenses	Number of workers
Power	H.P. of machine $\times$ working hours

4. Practical Problem: Overhead Distribution Statement

Scenario: P. Ltd has three production departments (A, B, C) and two service departments (D, E). We must distribute the overheads based on the following budget data.

Table: Primary Distribution of Overheads

Item of Expenses	Basis	Total (Rs)	A	B	C	D	E
Rent and rates	Floor Space	5,000	1,000	1,250	1,500	1,000	250
General Lighting	Light points	600	100	150	200	100	50
Indirect wages	Direct wages	1,500	450	300	450	225	75
Power	H.P.	1,500	600	300	500	100	—
Depreciation	Asset Value	10,000	2,400	3,200	4,000	200	200
Sundries	Direct wages	10,000	3,000	2,000	3,000	1,500	500
Direct Wages*	Actual	2,000	—	—	—	1,500	500
TOTAL		30,600	7,550	7,200	9,650	4,625	1,575

Working Note 1: Direct wages of production departments are part of the prime cost. However, **direct wages of service departments** are treated as indirect expenses (overheads) because they do not produce goods directly.

5. Re-distribution of Service Department Costs

Once the primary distribution is done, service department costs (D and E) must be re-allocated to the production departments (A, B, C).

Methods of Re-distribution:

1. **Direct Service:** Only to production departments.
2. **One-way Service:** Service departments serve production and only one other service department.
3. **Reciprocal Service:** Service departments serve each other. This is solved via the **Repeated Distribution Method** or **Simultaneous Equation Method**.

6. Absorption of Overheads

Absorption is the process of charging the total departmental overhead cost to the actual units produced.

Common Absorption Methods:

- **Production Unit Method:** For uniform products.
- **Percentage of Direct Labour/Material Cost.**
- **Labour Hour Rate:** For labour-intensive processes.
- **Machine Hour Rate:** For machine-based processes.

7. Practical Problem: Machine Hour Rate and Absorption

Scenario: A machine shop has an estimated annual overhead of Rs 5,55,000. It operates 50 weeks a year, 42 hours per week, with 15 machines. Maintenance takes 5 hours per week per machine.

Working Note 2: Calculation of Effective Machine Hours

Description	Calculation	Result
Total annual hours	50 weeks $\times$ 42 hours $\times$ 15 machines	31,500 hrs
Less: Normal idle time	50 weeks $\times$ 5 hours $\times$ 15 machines	(3,750) hrs
Effective Hours		27,750 hrs

Step 1: Calculate Overhead Rate per Machine Hour

$$\text{Rate} = \frac{\text{Total Estimated Overhead}}{\text{Effective Machine Hours}} \quad (2)$$

$$\text{Rate} = \frac{\text{Rs } 5,55,000}{27,750} = \text{Rs } 20 \text{ per hour} \quad (3)$$

Step 2: Determine Over or Under Absorption (for a 4-week period)

- **Actual Overhead Incurred:** Rs 49,000
- **Actual Machine Hours Worked:** 2,400 hrs
- **Overhead Absorbed:** 2,400 hrs $\times$ Rs 20 = Rs 48,000
- **Result:** Under-absorption of Rs 1,000 (Actual Rs 49,000 – Absorbed Rs 48,000).

8. Summary of Over/Under Absorption Treatment

If the overhead absorbed is less than the actual cost, it is **under-absorption**; if it is more, it is **over-absorption**.

Treatment Methods:

1. **Carry Forward:** Move to the next year (rarely used as it ignores the matching concept).
2. **Costing P&L Account:** Used when the amount is negligible or due to abnormal reasons.
3. **Supplementary Rate:** Used when there is a significant error in estimation. The difference is adjusted against finished goods, work-in-progress, and cost of sales.