

BAFS

Course Title: Cost Terminology and Job Costing

Professional Development Programme on Enriching
Knowledge of the Business, Accounting and Financial Studies
(BAFS) Curriculum <Elective >

Learning Outcomes

PART 1 -Cost Terminology

Upon completion of this course, teacher participants should be able to:

- define and illustrate a cost object
- distinguish between :
 - (i) direct costs and indirect costs
 - (ii) variable costs and fixed costs
 - (ii) product costs and period costs
 - (iv) factory and administrative overheads

Syllabus in HKDSE Examination

- Distinguish between direct and indirect costs, fixed and variable costs, and factory and administrative overheads.

Learning Outcomes

PART 2 - Job Costing

Upon completion of this course, teacher participants should be able to:

- outline the approach to job costing
- identify the treatment of under or over-absorbed manufacturing overhead costs
- apply the principles of cost allocation, apportionment and absorption of job costing

Syllabus in HKDSE Examination

- Explain the job costing system for manufacturing operations
- Illustrate the allocation and apportionment of costs to a single job or product

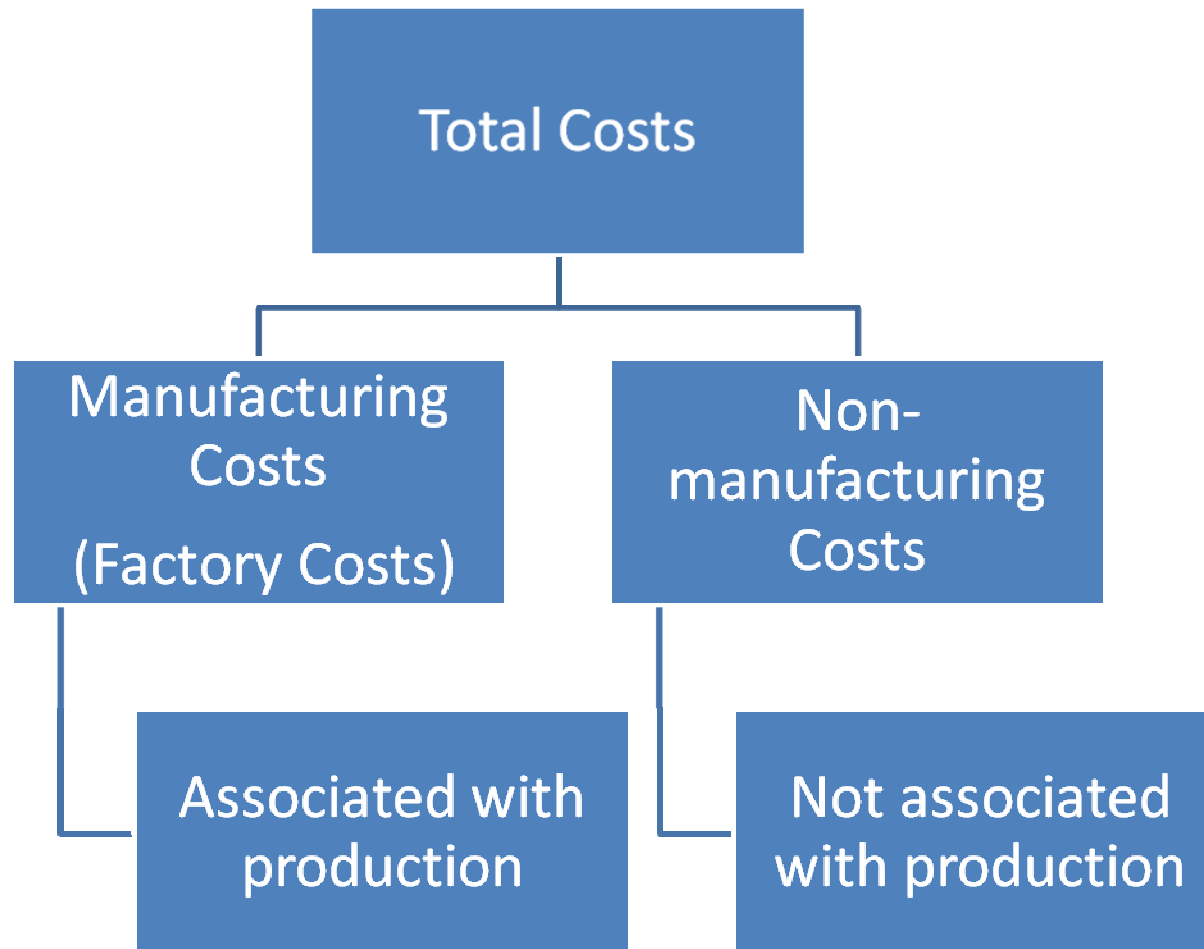
Part 1 – Cost Terminology

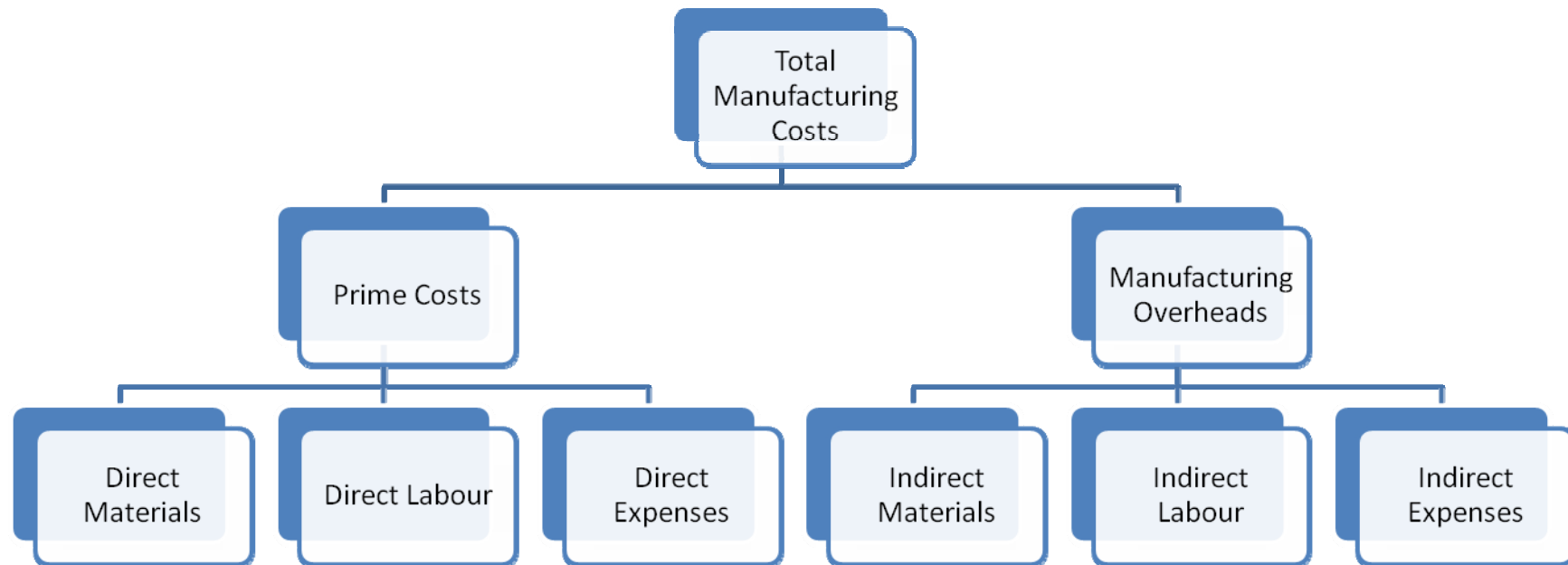
Cost

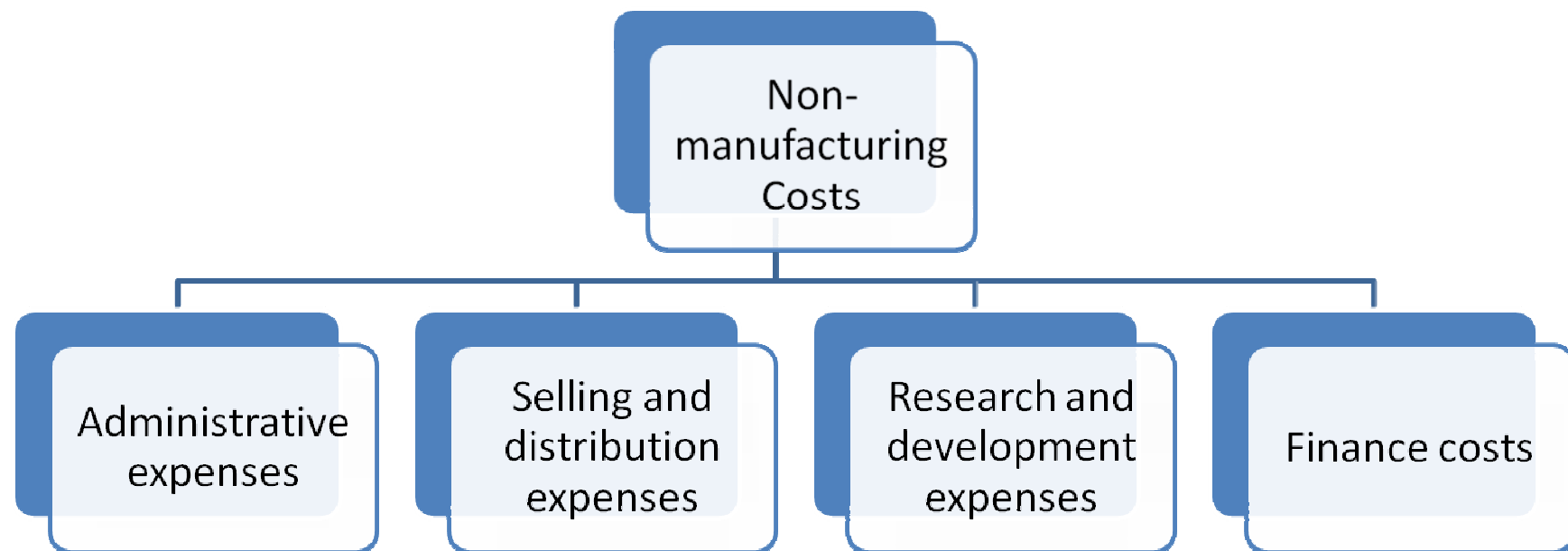
- Cost is a resource sacrificed or forgone to achieve a specific objective.
- It is usually measured as the monetary amount that must be paid to acquire goods and services.

Actual cost -historical cost -past cost	Budget cost -forecasted cost -future cost
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(Horngren et al. 2009, p. 53)







Cost Object

- It is something for which a separate measurement of costs is desired. (Horngren et al. 2009, p. 53)
- It can be a product, a service, a process or a department.

Cost Object

e.g. MINI Cooper Cars

Product	MINI Countryman
Service	Telephone Hotline-24 hours roadside assistance
Process	Research and Development on enhancing the DVD system in MINI cars
Department	Safety Department & Marketing Department

Illustration 1

ABC Company management requests cost information related to their purchasing department. The purchasing department is a

- (A) cost accumulation
- (B) cost driver
- (C) cost assignment
- (D) **cost object**

Direct Costs of a Cost Object

-relates to a particular cost which **can be traced** to the cost object in an economically feasible (cost-effective) way.

Examples

The cost of steel or tires is a direct cost of MINI Cooper	The labour cost in spending work on each MINI Cooper
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Other examples

- (i) **Wood (direct material) of a furniture manufacturer**
- (ii) **Plastic (direct material) of a toy maker**

Indirect Costs of a Cost Object

-relates to a particular cost which **cannot be traced** to its cost object in an economically feasible (cost-effective) way.

Examples

The cost of
quality
control
personnel

The cost of
factory
manager

Other examples

- (i) Rental fee of
factory machine
- (ii) Depreciation of
production equipment

Variable and Fixed Costs

Variable Cost

It changes in total in proportion to changes in the related level of total activity or volume

Fixed Cost

It remains unchanged in total for a given time period, despite wide changes in the related level of total activity or volume

*A specified activity and
for a given time period.*

Variable and Fixed Costs

Variable cost

- The cost per unit is constant.
- The cost increases proportionately when the volume or the activity increases.

Variable and Fixed Costs

Variable Cost

COST DRIVER

the level of activity or volume whose change causes a proportionate change in the cost.

e.g. the number of MINI Cooper Cars assembled is the cost driver of the total cost of steering wheels.

e.g. the number of setup hours is the cost driver of wages of setup workers.

Variable and Fixed Costs

Variable Cost

RELEVANT RANGE

Outside the relevant range, variable cost may NOT change proportionately with changes in production volume.

e.g. discount obtained from the purchase of direct materials above a certain quantity.

Variable and Fixed Costs

Fixed Cost

The cost per unit is smaller as the production increases.

COST DRIVER: irrelevant in short run
but relevant in long run

***e.g cost of testing equipment.
Volume of production .
is NOT a cost driver in short run.
Volume of production
is a cost driver in long run.***

Variable and Fixed Costs

Fixed Cost

RELEVANT RANGE

- Fixed cost remains unchanged despite changes in volume or activity.
- However, fixed cost will increase in a stepwise manner after the volume or activity exceeds the relevant range.

Illustration 2

DEF Graphic Company successfully bid on jobs to print standard notebook covers during the year using the last year price of \$10 per cover. This amount was calculated from prior year costs, noting that no changes in any costs had occurred from past year to the current year. However, a loss was found at the year end.

What could explain the company's loss in the current year?

Illustration 2

- (A) Their costs were all variable costs and the amount produced and sold increased.
- (B) Their costs last year were actual costs but they used budgeted costs to make their bids.
- (C) They used a different cost object this year compared to the last year.
- (D) The costs were mostly fixed costs and the amount produced in this year was less than that of last year.

Illustration 3

The shipping department of Elsie Garment Ltd has the following information for 2010:

Salaries	\$750,000 all employees on guaranteed contracts
Packaging	\$300,000 depending on <u>size of item(s)</u> shipped
Postage	\$400,000 depending on the <u>weight of item(s)</u> shipped
Rent of warehouse space	\$300,000 annual fee

The fixed cost should be:

- | | |
|-----------------|-----------------|
| (A) \$700,000 | (B) \$750,000 |
| (C) \$1,050,000 | (D) \$1,750,000 |

Illustration 4

Eva Ltd manufactures plastic coated metal clips. The following are the manufacturing costs in 2011:

Wages	Machine operators	\$200,000
	Maintenance workers	\$40,000
	Plant supervisor	\$80,000
Materials	Metal wire	\$400,000
	Lubricant for oiling machinery	\$20,000
	Plastic costing	\$380,000

What is the direct manufacturing labour cost:

- | | |
|---------------|---------------|
| (A) \$320,000 | (B) \$240,000 |
| (C) \$200,000 | (D) \$280,000 |

Illustration 5

Data same as illustration 4.

The direct materials are:

(A) \$800,000

(B) \$780,000

(C) \$420,000

(D) \$400,000

Product Cost and Period Cost

Manufacturing cost	Non-manufacturing cost
<p>Product cost -prime cost</p> <p>(Direct material cost + Direct manufacturing labor costs + Direct expenses)</p> <p>-conversion cost</p> <p>All manufacturing costs except direct materials (Direct manufacturing labor costs + Direct expenses + Factory overhead costs)</p>	<p>Period cost -all costs in the income statement other than cost of goods sold</p> <p>(e.g. administrative overhead, selling and marketing overhead etc)</p>

Product Cost and Period Cost

Manufacturing cost	Non-manufacturing cost
<p>Product cost</p> <p>-includes all costs of a product that are considered as assets in the balance sheet when they are incurred (RM, WIP & FG under current assets)</p> <p>-becomes cost of goods sold only when the product is sold</p>	<p>Period cost</p> <p>-treated as expenses of the accounting period in which they are incurred (matching concept)</p>

Illustration 6

Product cost is

- (A) a category of costs used only for merchandising companies.
- (B) only found in income statement.
- (C) recorded as an expenses when incurred and later be reclassified as an asset.
- (D) used primarily for consideration of generally accepted accounting principles purposes.

Illustration 7

Which of the following is a period cost?

- (A) Direct materials
- (B) Direct labour
- (C) Direct expense
- (D) Administrative expense

Illustration 8

Period costs are

- (A) defined as the total of manufacturing costs incurred in current period based on the number goods manufactured.
- (B) all other costs in the income statement other than cost of goods sold.
- (C) related to future economics benefits.
- (D) recorded as assets when first incurred.

Illustration 9

Which type of company does not have product costs?

- (A) Non-profit making
- (B) Merchandising
- (C) **Services**
- (D) Manufacturing

Part 2 – Job Costing

Learning Outcomes

PART 2 - Job Costing

Upon completion of this course, teacher participants should be able to:

- Explain what job costing is
- identify the treatment of under or over-absorbed manufacturing overhead costs
- apply the principles of cost allocation, apportionment and absorption of job costing

Job Costing

- Job costing is the method where cost units can be separately identified.
- The job may be a contract for a specific work or a batch of similar articles.

Examples

(i) Home design and renovation project

(ii) Producing a set of hand-made suit

Job Costing vs Process Costing

Job Costing system	Process Costing system
Distinct units of a product or service	Masses of identical or similar units of a product or service

(Horngren et al. 2009, p. 125)

Illustration 10

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A manufacturer produces dentures based on the order from local dentists.
Which kind of costing should the manufacturer adopt for the production?

- (A) Personal costing
- (B) Process costing
- (C) Operations costing
- (D) Job costing

Job Costing - Cost Accumulation

Direct materials

+

Direct labour

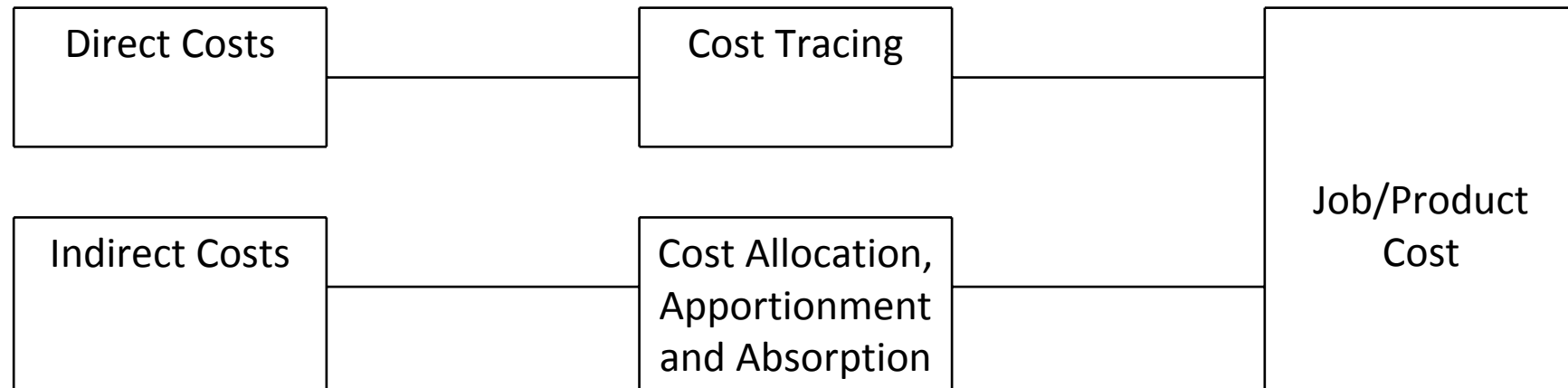
+

Direct expense

+

Manufacturing overhead

Job Costing – Cost Accumulation



Job Costing – Cost Accumulation

1. Identify the chosen cost object
2. Identify the direct costs for tracing to cost object
3. Identify the indirect costs for allocating to cost object
4. Apportion indirect costs to production departments
5. Absorb indirect costs of each production department to the job:
 - (i) Compute indirect-cost rate per unit of cost-absorption base
 - (ii) Compute the amount of indirect costs absorbed to the job:
For each individual cost-absorption base * indirect cost rate

Illustration 11

Which of the following procedures in cost accumulation relates to direct cost?

- (A) Cost allocation
- (B) Cost absorption
- (C) Cost tracing
- (D) Cost apportionment

Illustration 12

The first step for job costing is to

- (A) select the overhead absorption base
- (B) identify the direct cost
- (C) identify the indirect-cost pools associated with the job
- (D) identify the job that is the chosen cost object

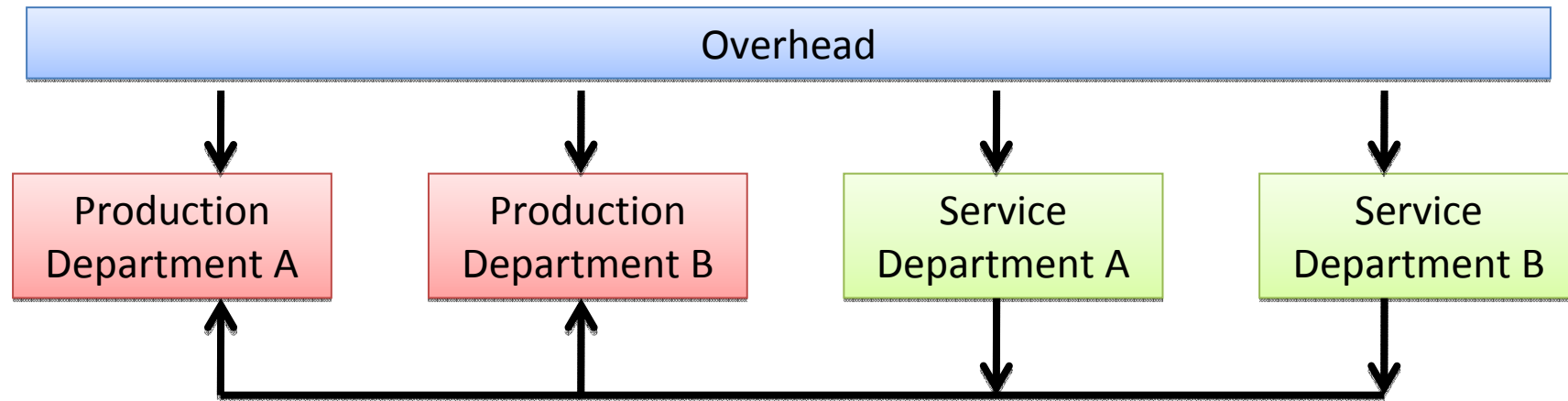
Cost Allocation, Apportionment and Absorption

- **Cost allocation** – charging to cost centres those overheads that are *directly attributable* to the cost centres
- **Cost apportionment** – charging to cost centres *on a fair basis* those overheads that are not directly attributable to the cost centres
- **Cost absorption** – charging overheads to cost units on the basis of *overhead absorption rate*.

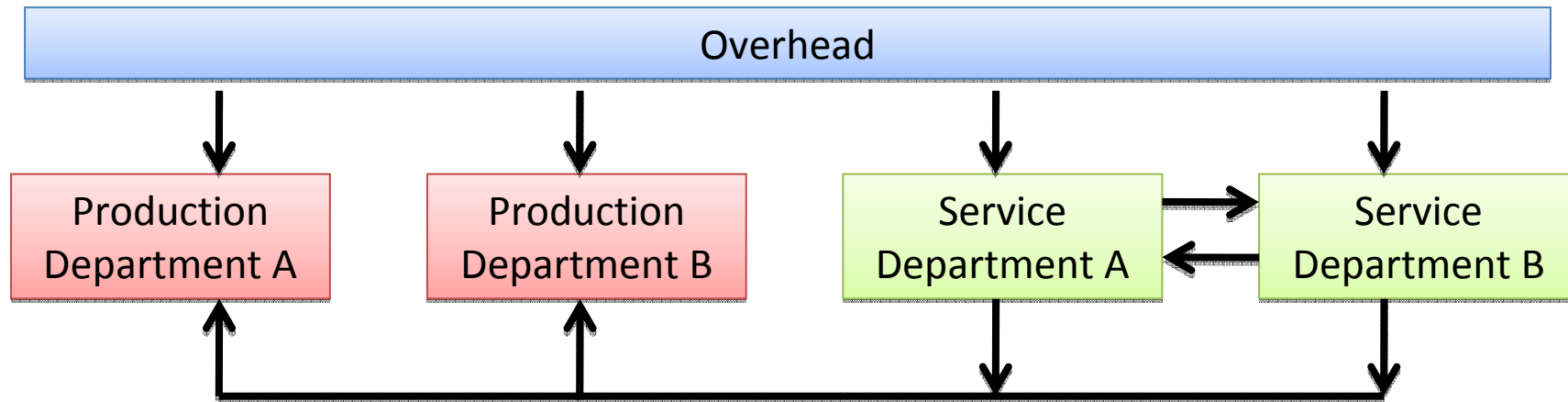
Apportionment of Overheads

- Step 1: **Apportionment** of overheads to all departments , including production departments and service departments
- Step 2: **Re-apportionment** of overheads of service departments to production departments

No Reciprocal Services (No Inter-Service Work Done)



With Reciprocal Services (With Inter-Service Work Done)



Basis of Overhead Apportionment

Overhead Items	Basis of Apportionment
Rent	Floor area
Utilities	Floor area
Insurance for building	Floor area
Depreciation on building	Floor area
Depreciation on plant and machinery	Book value
Insurance on plant and machinery	Book value
Supervisors' salaries	Number of employees

Basis of Overhead Re-apportionment (from service departments to production departments)

Overhead Items	Basis of Re-apportionment
Canteen	Number of employees
Store	Number of material requisitions
Maintenance	Book value of machine Number of maintenance hours Number of machine hours

Illustration 13

A car rental company has the following operational overheads costs:

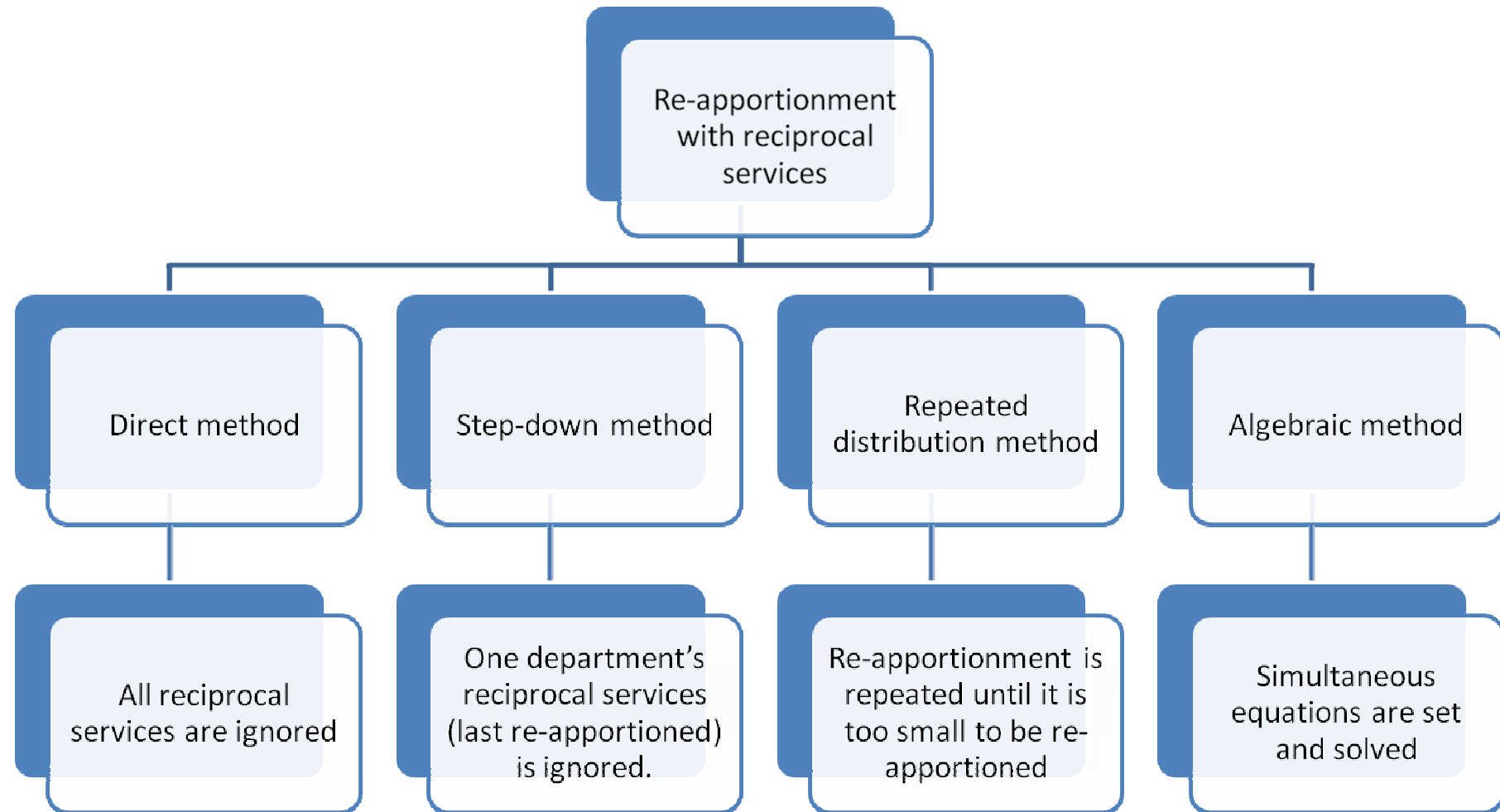
Activities

1	D	Fuel
2	F	Vehicle cleaning
3	E	Vehicle insurance
4	A	Road fund licence
5	C	Administration
6	B	Rent

Basis

A	Number of Car in operation
B	Number of parking bays
C	Number of passengers
D	Kilometres completed
E	Purchase price of the Car
F	Number of seats on Car

Match the **Activities** with the relevant **Basis** .



Overhead Absorption

Actual Costing and Normal Costing

Actual Costing

-all used costs, including absorption of overheads, are actual cost

Normal Costing

-use of actual cost for tracing to cost object DIRECT COST

-use of budgeted manufacturing overhead absorption rate INDIRECT COST

-adjustment on the differences between absorbed cost based on budget rate and actual cost INDIRECT COST

Illustration 14

For normal accounting, charging indirect manufacturing overheads to work in process will be

- (A) done on a more timely basis & quickly instead of waiting to the year end
- (B) journalised at the year end adjustment
- (C) calculated by using the budgeted rate times actual quantity of absorption base
- (D) calculated by using the budgeted rate times budgeted quantity of absorption base

Budgeted Manufacturing Overhead Absorption Rate

$$\text{Budgeted Indirect cost/manufacturing OH absorption rate} = \frac{\text{Budgeted annual indirect costs/manufacturing OH}}{\text{Budgeted annual quantity of the cost-absorption base}}$$

Illustration 15

	Budget	Actual
	\$	\$
Direct materials costs	1,600,000	1,550,000
Direct manufacturing labour cost	1,200,000	990,000
Manufacturing overhead cost	2,160,000	1,870,000

*absorb the manufacturing overhead cost by using the direct manufacturing labour cost

Required:

Compute the budgeted manufacturing overhead absorption rate.

$$\frac{\$2,160,000}{\$1,200,000} = \$1.8 \text{ per } \$1 \text{ of labour cost}$$

Treatment of under or over-absorbed manufacturing overhead cost

Manufacturing Overhead

DR WIP

CR Manufacturing OH

Budgeted rate * actual quantity
(normal costing)

Under-absorbed

DR Cost of sales

CR Manufacturing OH

Over - absorbed

DR Manufacturing OH

CR Cost of sales

Illustration 16

The XYZ Ltd had the following balances at the year end

Work in progress	6,000
Finished goods	30,000
Cost of goods sold	200,000

If the over-absorbed manufacturing overhead was \$8,000 , the cost of goods sold should be adjusted to:

- | | |
|---------------|---------------|
| (A) \$208,000 | (B) \$207,120 |
| (C) \$200,000 | (D) \$192,000 |

Activity

Integrated Illustrative Question 1 (Page 1)

	Machining	Assembly
Manufacturing OH	\$1,900,000	\$3,300,000
Direct labour cost	\$1,500,000	\$2,200,000
Direct labour hours	120,000	180,000
Machine hours	40,000	180,000

<u>Job 958</u>	<u>Machining</u>	<u>Assembly</u>
Direct materials used	\$48,000	\$60,000
Direct labour cost	\$15,000	\$16,000
Direct labour hours	1,200	1,400
Machine hours	2,000	1,000

Activity

Integrated Illustrative Question 1 (Page 2)

ACTUAL	Machining	Assembly
Manufacturing OH costs	\$2,200,000	\$3,800,000
Machine hours	56,000	
Direct labour cost		\$1,800,000

Required:

- Compute the budgeted manufacturing overhead absorption rate for **machining department based on machine hours** and **assembly department based on direct labour cost**.
- Compute the TOTAL manufacturing overhead costs for Job 958.
- Compute the over or under absorbed manufacturing overhead for each department.

Activity

Integrated Illustrative Question 1 (Page 3)

- (a) Compute the budgeted manufacturing overhead absorption rate for each department.

$$\text{Machining OH} \frac{\$1,900,000}{40,000} = \$47.5 \text{ per machine-hour}$$

$$\text{Assembly OH} \frac{\$3,300,000}{\$2,200,000} = \$1.5 \text{ per \$1 of direct manufacturing labour cost}$$

Activity

Integrated Illustrative Question 1 (Page 4)

- (b) Compute the TOTAL manufacturing overhead costs for Job 958

	\$
Machine OH (2,000 hours * \$47.5)	95,000
Assembly OH (\$16,000 * 1.5)	24,000
	<hr/>
TOTAL manufacturing OH absorbed to <u>Job 958</u>	119,000

Activity

Integrated Illustrative Question 1 (Page 5)

(c) Compute the over or under absorbed manufacturing overhead for each department

	Machining	Assembly
ACTUAL	\$2,200,000	\$3,800,000
Manufacturing overhead absorbed		
56,000 * \$47.5	\$2,660,000	
1,800,000 * 1.5		\$2,700,000
Under absorbed (Over absorbed)	(\$460,000)	\$1,100,000

Activity

Integrated Illustrative Question 2 (Page 1)

	Machining	Finishing
Manufacturing OH	\$9,000,000	\$6,300,000
Direct labor cost	\$800,000	\$3,000,000
Direct labor hours	30,000	150,000
Machine hours	150,000	22,000

<u>Job 489</u>	<u>Machining</u>	<u>Finishing</u>
Direct materials used	\$13,000	\$2,800
Direct labor cost	\$500	\$1,050
Direct labor hours	20	40
Machine hours	140	8

Activity

Integrated Illustrative Question 2 (Page 2)

	Machining	Finishing
Manufacturing OH costs INCURRED	\$11,800,000	\$7,800,000
Direct manufacturing labour cost	\$940,000	\$3,900,000
Machine hours	210,000	33,000

*Job 489 consisted of 125 units of product

Required:

- (a) Compute the budgeted manufacturing overhead absorption rate for **machining department based on machine hours** and **finishing department based on direct labour cost**.
- (b) Compute the TOTAL manufacturing overhead costs for Job 489.
- (c) Compute the UNIT product cost of Job 489.
- (c) Compute the over or under absorbed manufacturing overhead for each department.

Activity

Integrated Illustrative Question 2 (Page 3)

- (a) Compute the budgeted manufacturing overhead rate each department.

$$\text{Machining OH} \frac{\$9,000,000}{150,000} = \$60 \text{ per machine-hour}$$

$$\text{Finishing OH} \frac{\$6,300,000}{\$3,000,000} = \$2.1 \text{ per \$1 of direct manufacturing labour costs}$$

Activity

Integrated Illustrative Question 2 (Page 4)

(b) Compute the TOTAL manufacturing overhead costs for Job 489

	\$
Machine OH (140 hours * \$60)	8,400
Finishing OH (\$1,050 * 2.1)	2,205
TOTAL manufacturing OH absorbed to <u>Job 489</u>	<hr/> 10,605

Activity

Integrated Illustrative Question 2 (Page 5)

(c) Compute the UNIT product cost of Job 489

Direct cost	\$	
Direct materials-Machining	13,000	
-Finishing	2,800	
Direct manufacturing labour – Machining	500	
– Finishing	1,050	17,350
Indirect cost		
Machine OH (140 hours * \$60)	8,400	
Finishing OH (\$1,050 * 2.1)	2,205	10,605
TOTAL COST		27,955

The per-unit product cost is $\$27,955 / 125 \text{ unit} = \223.64 per unit

Activity

Integrated Illustrative Question 2 (Page 6)

(d) Compute the over or under absorbed manufacturing overhead for each department

	Machining	Finishing
ACTUAL	\$11,800,000	\$7,800,000
Manufacturing overhead absorbed		
210,000 * \$60	\$12,600,000	
\$3,900,000 * 2.1		\$8,190,000
Under absorbed (Over absorbed)	(\$800,000)	(\$390,000)

TOTAL **OVER** absorbed overhead = \$800,000 + \$390,000 = \$1,190,000

Answers for the illustrations 1-17

- (1) D
- (2) D
- (3) C
- (4) C
- (5) B
- (6) D
- (7) D
- (8) B
- (9) C
- (10) D
- (11) C

(12) D

(13)

1	D
2	F
3	E
4	A
5	C
6	B

(14) C

(15) 1.8

(16) D

Further Readings

Burgstahler, D., Horngren, C., Schatzberg, J., Stratton, W., & Sundem, G. (2008). ***Introduction to Management Accounting***, 14th ed. Upper Saddle River: Prentice Hall. Chapters 2, 3 & 12-14.

Drury, C. (2008). ***Management and Cost Accounting***, 7th ed. London: South-Western Cengage Learning. Chapters 2-4.

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Lucey, T. (2009). ***Costing***, 7th ed. London: South-Western Cengage Learning. Chapters 9, 12 & 18