SRR &CVR Government Degree College (Autonomous), Vijayawada.
Department of Commerce and Business Management
Syllabus of
III Year B. Com (General, CA, BIFS, A&T) Degree Course -V/VI Semester
(w.e.f – 2022-23 Academic Year)
Course Code: CCT N-5102
Title of the Course: COST CONTROL TECHNIQUES
(Skill Enhancement Course (Elective))

No. of lecture hours/week	05	Continuous Internal Assessment (CIA)	40
No. of Credits	04	Semester End Evaluation (SEE)	60
Total numbers of hours	75	Total Marks	100

I. COURSE OUT COMES: On completion of the course the student will be able to
CO1: Differentiate cost control, cost reduction concepts and identify effective techniques.
CO2: Allocate overheads on the basis of Activity Based Costing.
CO3: Evaluate techniques of cost audit and rules for cost record.
CO4: Appraise the application of marginal costing techniques to evaluate performances, fix selling price, make or buy decisions.

II. Syllabus: Total 75hrs (Teaching 60, Training10, Others 05 including IE etc.)

Unit 1: Introduction-Nature and Scope Introduction:
Meaning of Cost Control – Cost control Process – Cost control in individual cost elements - Cost Control Techniques – Requisites of effective Cost Control System – Cost Reduction – meaning – Features of Cost Reduction - essentials for an effective cost Reduction Program – Scope of cost reduction - Difference between Cost Control and Cost Reduction – Management Accountants role in Cost Control and Cost Reduction - Meaning of cost audit – Types of Cost Audit – Auditing techniques. (Theory Only)

Unit 2: Activity Based Costing
Evolution of ABC - Concept of ABC – Characteristics of ABC –Steps to be followed in ABC System – Key words associated with the concept of ABC – Traditional Costing Vs Activity Based Costing– Applicability of Activity Based Costing- Advantages of implementing ABC – Limitations of Activity Based Costing. (Including Problems)

Unit 3: Cost Volume Profit Analysis (CVP Analysis)
Applications of Marginal Costing – Make or Buy Decision, Profit maximization based on Limiting factor or key factor- Selection of Profitable mix/Sales mix – Acceptance of Special Order at lower price – Profit Planning – Evaluation of performance- Fixing Selling Price – Plant Merger. (Including Problems)

Unit 4: Standard Costing and Variance Analysis
Concept of Standard Cost and Standard Costing – Advantages and limitations – analysis of variances-importance of Variance Analysis - computation and application of variances relating to material and labour. (Including Problems)

Unit 5: Application of Modern Techniques
Kaizen Costing – Introduction – objectives – scope –Principles – 5 S (Sort, Set in Order, Shine, Standardize, and Sustain) in Kaizen Costing– Advantages and Disadvantages of Kaizen Costing. Learning Curve Analysis-concept and Application. (Theory Only)

SRR & CVR Government Degree College (A), Vijayawada-570004

Question Paper Format for III-B.Com.

Semester-V/VI: COST CONTROL TECHNIQUES

(w.e.f. 2022-23)

Time: 3 Hours Max. Marks: 60

Section-A [5 X 4=20]

Answer any FIVE of the following questions.

1. Contents of Unit-I
2. Contents of Unit-I
3. Contents of Unit-II
4. Contents of Unit-II
5. Contents of Unit-III
6. Contents of Unit-III
7. Contents of Unit-IV
8. Contents of Unit-IV
9. Contents of Unit-V
10. Contents of Unit-V

Section-B [5 x 8=40]

Answer ALL the questions

11 (a) Contents of Unit-I (Theory)

(OR)

(b) Contents of Unit-I (Theory)

12 (a) Contents of Unit-II (Problem)

(OR)

(b) Contents of Unit-II (Problem)

13 (a) Contents of Unit-III (Problem)

(OR)

(b) Contents of Unit-III (Problem)

14 (a) Contents of Unit-IV (Problem)

(OR)

(b) Contents of Unit-IV (Problem)

15 (a) Contents of Unit-V (Theory)

(OR)

(b) Contents of Unit-V (Theory)

SRR & CVR Govt. Degree College (A), Vijayawada

Dept. of Commerce & Management

Semester-V/VI: COST CONTROL TECHNIQUES

(w.e.f. 2022-23)

Time: 3 Hours Max. Marks: 60

SECTION-A **5 x 4 = 20 Marks**

Answer any *FIVE* of the following Questions

1. Meaning of Cost Control
2. Meaning of Cost Audit
3. Traditional Costing Vs Activity Based Costing
4. Advantages of Activity Based Costing
5. Limiting factor or key factor
6. Make or Buy Decision
7. Standard Cost
8. Direct Material Usage Variance
9. Short notes on Kaizen Costing
10. Applications of Learning Curve Analysis

SECTION-B **5 x 8 = 40 Marks**

Answer the following Questions

11. (a) Difference between Cost Control and Cost Reduction.

(or)

(b) What do you mean by Cost Audit? What are the various types of Cost Audit?

12. (a) A company manufacturing two products furnishes the following data for a year:

Product	Annual Output (Units)	Total Machine hours	Total No. Purchase Orders	Total No. of Set- ups
A	5,000	20,000	160	20
B	60,000	1,20,000	384	44

The annual Overheads are as follows:

	₹
Volume related activity costs	5,50,000
Set-Up related costs	8,20,000
Purchase related costs	6,18,000

You are required to calculate the overhead charge per unit of each product A and B, based on:

(1) Traditional method of charging overheads,
(2) Activity -Based Costing Method.

(OR)

(b) A company produces four products- P,Q,R and S. The data relating to production activity are as under:

Product	Quantity of Production Units	Direct Material Cost per unit ₹	Direct Labour Cost per unit ₹	Machine hours per unit
P	1,000	10	6	0.50
Q	10,000	10	6	0.50
R	1,200	32	24	2.00
S	14,000	34	18	3.00

Production Overheads are as follows:

		₹
i.	Machine related cost	1,49,700
ii.	Material Ordering costs	7,680
iii.	Set- up costs	17,400
iv.	Spare parts cost	34,380
v.	Material Handling cost	30,294

The following further information are available:

Product	Number of Set-ups	Number of Material orders	Number of times Materials Handled	Number of Spare parts
P	3	3	6	6
Q	18	12	30	15
R	5	3	9	3
S	24	12	36	12
Total	50	30	81	36

Required:

a. Select a suitable cost driver for each item of production overhead and calculate overhead charge per unit of respective cost driver.
b. Compute factory cost per unit of each product by recovering overheads using Activity Based Costing.

13. (a) The following particulars are extracted from the records of a company:

Particulars	Product A (per unit)	Product B (per unit)
Sales	₹ 100	₹ 120
Consumption of materials	2 kg	3 kg
Material cost	₹ 10	₹ 15
Direct wages cost	₹ 15	₹ 10
Direct Expenses	₹ 5	₹ 6
Machine hours used	3 hours	2 hours
Overhead expenses:		
Fixed	₹ 5	₹ 10
Variable	₹ 15	₹ 20

Direct wages per hour is ₹ 5. Comment on the profitability of each product (both use the same material) when,

a. Total sales potential in units is limited.
b. Total sales potential in value is limited
c. Raw material is in short supply
d. Production capacity (in terms of machine hours) is the limiting factor.

(OR)

(b) An automobile manufacturing company finds that while the cost of making in its own workshop, Part No. 0028 is ₹ 6.00 each, the same is available in market at ₹ 5.60 with an assurance of continuous supply. Write a report to the Managing Director giving your views whether to make or buy this part. Give also your views in case the supplier reduces the price from ₹5.60 to ₹4.60. The cost data is as follows:

	₹
Materials	2.00
Direct Labour	2.50
Other Variable Expenses	0.50
Depreciation and other fixed costs	1.00
Total	6.00

14. (a)The following is the standard specification of materials for production of one unit of a product:

Material A 3 kg at ₹ 12 per kg
Material B 2 kg at ₹ 9 per kg

Production during a month amounted to 1,000 units. The following are the details of materials actually used.

Material A 3,300 kg at ₹ 13.20 per kg
Material B 1,800 kg at ₹ 8.40 per kg

Compute Material Variances.

(OR)

(b) Vijayawada Ltd provides you the following information:

Particular	Standard		Actual	
	Hours	Rate/Hour	Hours	Rate/Hour
Labour A	30	₹20	44	₹25
Labour B	20	₹10	66	₹5
Output	45 kg		90 kg	

Calculate Labour Variances.

15. (a) What is Kaizen Costing? Explain its principles, advantages and disadvantages?

(OR)

(b)Explain the concept and application of Learning Curve Analysis.

QUESTION BANK

Unit 1: Introduction-Nature and Scope Introduction

(Theory Only)

Short Answer Questions:

1. Meaning of Cost Control.
2. Explain briefly Cost Control Process.
3. What are the Cost Control Techniques?
4. Define Cost Reduction
5. Features of Cost Reduction
6. Briefly explain Management Accountant role in Cost Control and Cost Reduction.
7. Meaning of Cost Audit.
8. Scope of Cost Audit.

Essay Questions:

1. What is 'Cost Control'? Explain cost control process. What are the essentials of an efficient system of cost control?
2. What is 'Cost Reduction'? Explain the features and scope of cost reduction. What are the essentials for an effective cost reduction program?
3. Difference between Cost Control and Cost Reduction.
4. What do you mean by Cost Audit? What are the various types of Cost Audit?

Unit 2: Activity Based Costing

Short Answer Questions:

1. Concept of Activity Based Costing.
2. Explain briefly steps to be followed in Activity Based Costing.
3. Write short notes on
   a. Cost Driver
   b. Cost Pools
   c. Cost Object
4. Traditional Costing Vs Activity Based Costing
5. Advantages of Activity Based Costing

PROBLEMS

1. A company manufacturing two products furnishes the following data for a year:

Product	Annual Output (Units)	Total Machine hours	Total No. Purchase Orders	Total No. of Set- ups
A	5,000	20,000	160	20
B	60,000	1,20,000	384	44

The annual Overheads are as follows:

Volume related activity costs (₹)	5,50,000
Set-Up related costs	8,20,000
Purchase related costs	6,18,000

You are required to calculate the overhead charge per unit of each product A and B, based on:

a. Traditional method of charging overheads,
b. Activity -Based Costing Method.

2. XY Co. Ltd., provides you the following information relating to its products R and S:

	Product R	Product S
Yearly output	3,000 units	30,000 units
No. of Machine Hours per unit	4	4
No. of Labour Hours per unit	8	8
Total Machine hours	12,000	1,20,000
Total Labour hours	24,000	2,40,000
No. of Purchase Orders	240	480
No. of Set-ups	120	180

The overhead cost of the activities has been as under:

Volume related	(₹) 3,30,000
Purchase related	3,60,000
Set-up related	6,30,000
	13,20,000

You are required to show the allocation of overhead costs of these activities to the products:

i. On Traditional Absorption Costing Method and
ii. On Activity Based Costing Method.

3. Jumbo Auto Ltd., produces three products P,Q, and R, for which the standard costs and quantities per unit are as follows:

Products	P	Q	R
Output (units)	5,000	15,000	22,500
Direct Material per unit (₹)	100	80	60
Direct Wages per unit (₹)	60	80	100
Labour Hours per unit	3	4	5
Machine Hours per unit	4	4	7
No. of Purchase Requisitions	600	900	1,000
No. of Set-ups	140	110	150

Production Overhead split by departments:

Department A	(₹) 55,000
Department B	(₹) 7,50,000
	13,00,000

Department A is labour intensive while Department B is machine intensive.

Total labour hours in Department A = 55,000
Total machine hours in Department B = 1,50,000

Production overhead split by activity:

Receiving/Inspecting	(₹) 7,00,000
Production Scheduling/Machine Set-up	(₹) 6,00,000
	13,00,000

No. of batches received/Inspected= 2,500
No. of batches for scheduling and set-up = 400

You are required to:

i. Prepare Product Cost Statement under Traditional Absorption Costing and Activity Based Costing Method.
ii. Compare the results under two methods.

4. A company produces three products A, B and C for which the standard costs and quantities per unit are as follows:

Products	A	B	C
Quantity produced	10,000	20,000	30,000
Direct material/per unit (₹)	50	40	30
Direct Labour/per unit (₹)	30	40	50
Labour hours/per unit	3	4	5
Machine hours/per unit	4	4	7
No. of purchase requisitions	1,200	1,800	2,000
No. of set-ups	240	260	300

Production overhead split by Departments:

Department 1= (₹) 11,00,000
Department 2= (₹) 15,00,000

Department 1 is labour intensive and Department 2 is machine intensive.

Total labour hours in Department 1 = 1,83,333
Total machine hours in Department 2 = 5,00,000

Production overhead split by activity:

Receiving/Inspecting	(₹) 14,00,000
Production Scheduling/Machine set-up	(₹) 12,00,000
	26,00,000

Number of batches received/inspected=5,000
Number of batches for scheduling and set-up=800

You are required to:

i. Prepare Product Cost Statement under traditional absorption costing and Activity Based Costing method.
ii. Compare the results under two methods.

5. A company produces four products- P,Q,R and S. The data relating to production activity are as under:

Product	Quantity of Production Units	Direct Material Cost per unit ₹	Direct Labour Cost per unit ₹	Machine hours per unit
P	1,000	10	6	0.50
Q	10,000	10	6	0.50
R	1,200	32	24	2.00
S	14,000	34	18	3.00

Production Overheads are as follows:

		₹
i.	Machine related cost	1,49,700
ii.	Material Ordering costs	7,680
iii.	Set- up costs	17,400
iv.	Spare parts cost	34,380
v.	Material Handling cost	30,294

The following further information are available:

Product	Number of Set-ups	Number of Material orders	Number of times Materials Handled	Number of Spare parts
P	3	3	6	6
Q	18	12	30	15
R	5	3	9	3
S	24	12	36	12
Total	50	30	81	36

Required:

a. Select a suitable cost driver for each item of production overhead and calculate overhead charge per unit of respective cost driver.
b. Compute factory cost per unit of each product by recovering overheads using Activity Based Costing.

Unit 3: Cost Volume Profit Analysis (CVP Analysis)

Short Answer Questions:

1. Write short notes on Applications of Marginal Costing.
2. Make or Buy Decision.
3. Limiting factor or key factor.
4. Selling products at below marginal cost.
5. Plant Merger.

PROBLEMS

Make or Buy Decision:

1. A manufacturing company finds that while the cost of making a component part is ₹10, the same is available in the market at ₹ 9 with the assurance of continuous supply. Give your suggestion whether to make or buy this part. Give also your views in case the supplier reduces price from ₹9 to ₹8.
The cost information is as follows:

Particulars	Amount ₹
1.Materials	3.50
2.Direct Labour	4.00
3.Other Variable Expenses	1.00
4.Fixed Expenses	1.50
	10.00

2. A radio manufacturing company finds that while it costs ₹ 6.25 each to make a component X-2370, the same is available in the market at ₹ 5.75, with an assurance of continued supply. The break-down of cost is:

Direct Materials	₹ 2.75
Direct Labour	₹ 1.75
Other Variables	₹ 0.50
Depreciation and other fixed cost	₹ 1.25
	₹ 6.25

(a)Should you make or buy?
(b)What would be your decision if the supplier offers the component at ₹ 4.85 each?

3. ABC Ltd manufactures machine parts. The following cost is incurred for making 1,000 units of a component.

Direct Material	₹ 5 per unit
Direct Labour	₹ 8 per unit
Factory Overhead: Fixed	₹ 5,000
Variable	₹ 6 per unit.

The purchase price of the component is ₹ 22. The fixed overhead will have to be incurred even if the component is bought from the market but ₹ 2,000 will be reduced. Suggest whether it should be made or bought?

Profit maximization based on Limiting factor or key factor

4. From the following data, which product would you recommend to be manufactured in a factory, time being the key factor:

	Product 'A' (per unit) ₹	Product 'B' (per unit) ₹
Direct Material	24	14
Direct Labour at ₹1 per hour	2	3
Variable Overhead at ₹2 per hour	4	6
Selling Price	100	110
Standard time to produce	2 hours	3 hours

5. The following particulars are extracted from the records of a company:

	Product 'A' (per unit)	Product 'B' (per unit)
Sales	₹100	₹120
Consumption of materials	2kg	3kg
Material Cost	₹10	₹15
Direct Wages Cost	₹15	₹10
Direct expenses	₹5	₹6
Machine hours used	3 hours	2 hours
Overhead Expenses:		
Fixed	₹5	₹10
Variable	₹15	₹20

Direct wages per hour is ₹5. Comment on the profitability of each product (both use the same raw material) when,

i. Total sales potential in units is limited.
ii. Total sales potential in value is limited.
iii. Raw material is in short supply.
iv. Production capacity (in terms of machine hours) is the limiting factor.

Selection of Profitable mix/Sales mix

6. The following set of information is presented to you by your client AB Ltd., producing two products X and Y.

	X	**Y**
1.Direct materials per unit (₹)	20	18
2.Direct wages per unit (₹)	6	4
3.Sale price per unit (₹)	40	30

4.Fixed overheads during the period is expected to be ₹1,600. Variable overheads recovered at 100% of direct wages.

5.Proposed Sales mix:

i. 100 units of X and 200 units of Y
ii. 150 units of X and 150 units of Y
iii. 200 units of X and 100 units of Y

As a cost accountant you are requested to present to the management of AB Ltd., the following:

(a). The unit marginal cost and unit contribution

(b). The total contribution and the resultant profit from each of the above sales mixes.

7. Present the following information to the management: (a) The marginal product cost and the contribution per unit; (b) The total contribution and profits resulting from each of the following sales mixtures:

	Product	Per unit (₹)
Direct Materials	A	10
	B	9
Direct Wages	A	3
	B	2
Fixed Expenses ₹ 800		
Sales Price	A	20
	B	15

Variable expenses are allocated to products as 100% of direct wages.

Sales Mixtures:

i. 1000 units of product A and 2000 units of B
ii. 1500 units of product A and 1500 units of B
iii. 2000 units of product A and 1000 units of B

Acceptance of Special Order at lower price

8. A company, producing 80,000 units of product X at 80% capacity receives an order from a foreign dealer for 20,000 units at ₹ 60 per unit although the local price is ₹ 80 per unit. The present cost per unit is given as under:

Material	₹ 25
Labour	10
Variable Expenses	5
Fixed Overheads	20
	60

i. Advise the management whether to accept the order or not.
ii. What will be your advice if the order had come from a local merchant?
iii. If there is temporary fall in demand, what would be the minimum price to be charged?

9. Chola Pen Co. Ltd. Produces and markets Micro tipped pens. The selling price per pen is ₹ 5.50 made up as follows:

	₹
Direct Materials	2.00
Direct Labour	1.50
Variable Overheads	0.50
Fixed Overheads (₹90,000/1,20,000)	0.75
Total Cost	4.75
Profit	0.75
Selling Price	5.50

The installed capacity is 1,50,000 pens per month. At present, it is producing and selling, on an average, 1,20,000 pens per month. The company has received and export order of 30,000 pens per month for two years but at a price of ₹ 4.50. The management is hesitant to accept this order because it does not cover the total cost. There are no government subsidies to meet the deficit. It is unlikely that the domestic market will expand in the next two years. Advise them with necessary supporting data.

10. Due to economic slowdown, a firm is producing and selling 25,000 units which is only 50% of its full capacity.

The present cost details are as follows: Raw materials per unit ₹5, Direct labour ₹4 per unit, Direct expenses ₹3 per unit. Variable Overheads per unit ₹4 and fixed costs ₹5 per unit. Total cost per unit ₹21. The goods are sold in the local market at ₹26 per unit.

The firm receives an export order for 20,000 units at a price of ₹17.50. since the price is below the total cost, the firm hesitates to accept the order fearing this order will result in loss.

As a Cost Accountant advise the firm about the viability of accepting the export order and also state the minimum price the firm may quote for the export order at no profit or no loss basis.

Profit Planning

11. The Janata machine Co. manufactured and sold 10,000 weighing machine last year at a price of 500 each. The cost structure per machine is as follows:

	₹
Materials	100
Labour	50
Variable Overheads	25
Marginal Cost	175
Fixed Overheads	200
Total Cost	375
Profit	125
Sales Price	500

Due to heavy competition price has to be reduced to ₹425 for the coming year. Assuming no change in costs, state the number of machines that would have to be sold at the new price to ensure the same amount of total profits as the last year.

12. The following are the budgeted data relating to AB Ltd., and CD Ltd., producing identical products.

	AB Ltd		CD Ltd	
	₹	₹	₹	₹
Sales		1,50,000		1,50,000
Less: Variable Cost	1,20,000		1,00,000	
Fixed Cost	15,000	1,35,000	35,000	1,35,000
Net Profit		15,000		15,000

a. Calculate break-even points, P/V ratio and margin of safety of each company.
b. State which company is likely to earn greater profits in condition of (i) heavy demand and (ii) low demand of the product.

Evaluation of performance

13. The management of a company considers that product Y, on of its three main lines, is not profitable as the other two with the result that no particular efforts are being made to push its sales. The selling prices and costs of the three products are:

Product	Selling Price	Direct Material	Direct Labour		
			Dept. A	Dept. B	Dept. C
	₹	₹	₹	₹	₹
X	68	10	8	2	2
Y	58	6	2	8	2
Z	64	8	2	2	8

Overhead rates for each department per rupee of direct labour are as follows:

	Dept. A	Dept. B	Dept. C
	₹	₹	₹
Variable Overhead	1.20	0.40	1.00
Fixed Overhead	1.20	2.00	1.40
Total	2.40	2.40	2.40

What advice would you give to the management about the profitability of product Y? Give reasons.

Fixing Selling Price

14. Given P/V ratio 40%.
Marginal cost of the product ₹100
What should be the selling price?

15. You are given the following data for a company for the year 2021-22:

Direct Materials	₹20 per unit
Direct Labour	₹16 per unit
Variable Overheads	₹12 per unit
Selling Price	₹65 per unit
Fixed Cost	₹90,000
Sales Volume	10,000 units

Find the new selling price if the company wants to maintain the present profit in the following two situations:

i. Sales volume increases to 13,000 units.
ii. Sales volume decreases to 8,500 units.

Plant Merger

16. A company has two plants at location I and II, operating at 100% and 75% of their capacities respectively. The company is considering the proposal to merge the two plants at one location to optimise available capacity. The following details are available in respect of the two plants, regarding their present performance/operations:

	Location I	Location II
Sales (₹ in lakhs)	200	75
Variable Cost (₹ in lakhs)	140	54
Fixed Cost (₹ in lakhs)	30	14

For decision making purposes you are required to work out the following information:

i. The capacity at which the merged plant will break-even?
ii. The profit of the merged plant working at 80% capacity.
iii. Sales required if the merged plant is required to earn an overall profit of ₹ 22 lakhs.

17. A, B and C are three similar plants under the same management who want them to be merged for better operation. The details are as under:

	Plant A at 100%	Plant B at 70%	Plant C at 50%
	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)
Turnover	300	280	150
Variable Cost	200	210	75
Fixed Cost	70	50	62

Required:

i. Compute the Capacity of the merged plant for break even.
ii. Compute the Profit of the merged plant at 75% capacity.
iii. Compute the Capacity utilisation of the merged plant to earn a profit of ₹ 28 lakhs.

Unit 4: Standard Costing and Variance Analysis

Short Answer Questions:

1. Standard Cost
2. Difference between Standard Cost and Estimated Cost.
3. Characteristics of Standard Costing.
4. Difference between Standard Costing and Budgetary Control
5. What is meant by 'Variance Analysis'?
6. Direct Material Usage Variance
7. Labour Idle Time Variance

PROBLEMS

1. Calculate Direct Material Variances
SP = ₹10/kg AP = ₹12/kg
SQ = 1,000 kgs AQ = 1,200 kgs

2. Calculate Direct Material Variances
STANDARD:
Quantity 2 kg for 1 unit of finished product.
Price = ₹ 2/kg
ACTUAL:
During April, 2022, 10,000 units of finished products are produced.
Raw material consumed = 25,000 kg
Price = ₹ 2/kg

3. Calculate Direct Material Variances
STANDARD:
Quantity 20Lts for 5 Kg of product
Price = ₹ 2.50/Lt
ACTUAL:
Output= 10,000 Kg of product
Actual quantity purchased 42,000Lts at a cost of ₹1,17,600

4. STANDARD:
Quantity for 1 unit of product=20kgs
Price= ₹ 750
ACTUAL:
Production=100 units of product
Purchases=2,500 kgs of Material at a cost ₹20,00,000
Closing stock=250 kgs
Calculate Direct Material Variances

5. STANDARD:
Quantity 2 kgs per unit
Price = ₹ 2/kg
ACTUAL:
Production=10,000 units
Purchases= ₹62,500 for 25,000 kgs
Opening Stock=250 kgs
Closing Stock= 2,250 kgs
Calculate Direct Material Variances

6. Calculate Direct Material Variances

Particulars	STANDARD		ACTUAL	
	Qty (Kg)	Price (₹)	Qty (Kg)	Price (₹)
Material A	400	4	600	3
Material B	600	3	600	4

7.From the following information, compute:
a. Mix b. Price and c. Usage variance

Material	Standard			Actual		
	Qty.,	Unit Price	Total	Qty.,	Unit Price	Total
X	10	2.00	20.00	5	3.00	15.00
Y	20	3.00	60.00	10	6.00	60.00
Z	20	6.00	120.00	15	5.00	75.00
	50	4.00	200.00	30	5.00	150.00

8. From the following data, calculate material variance.

	Consumption for 100 units of product	
Materials	Standard	Actual
X	40 units at ₹50 per unit	50 units at ₹50 per unit
Y	60 units at ₹40 per unit	60 units at ₹45 per unit

9. From the following data, calculate material variance.

	Standard		Actual	
Materials	Quantity	Price	Quantity	Price
A	80	5	60	4.50
B	70	9	90	8.00
Total	150		150	

There is a standard loss at 10%
Actual yield is 125 units.

10. From the following details calculate:
a. Material Cost Variance b. Material Price Variance
c. Material Mix Variance d. Material Usage Variance

	Standard Mix		
Material	Qty	Price	Total
A	500	6.00	3,000
B	400	3.75	1,500
C	300	3.00	900
	1,200		
Less: 10% Normal Loss	120		
	1,080		5,400
	Actual Mix		
Material	Qty	Price	Total
A	400	6.00	2,400
B	500	3.60	1,800
C	400	2.80	1,120
	1,300		
Less: Actual Loss	220		
	1,080		5,400

11. From the following particulars, compute labour variances:
Standard rate of Labour per hour ₹ 50
Actual Rate of Labour per hour ₹ 60
Standard hours required to produce one unit of output 10 Hrs
Actual hours taken to produce one unit of output 8 Hrs

12. Data relating to a job are as under:
Standard rate of wages per hour ₹ 10
Standard hours 300
Actual rate of wages per hour ₹ 12
Actual hours 200
You are required to calculate:
a. Labour Cost Variance b. Labour Rate Variance c. Labour Efficiency Variance.

13. From the following data calculate labour variances for the two departments.

	Dept. A	Dept. B
Actual gross wages (Direct)	₹ 4,000	₹ 3,600
Standard hours produced	8,000	6,000
Standard rate per hour	₹ 0.60	₹ 0.70
Actual hours worked	8,200	5,800

14. Divya manufacturing Co. produces a product, the standard labour cost was ₹ 120 per unit. The details are as follows:

Category of workers	Hours	Rate	Amount
Unskilled	30	₹ 2	₹ 60
Skilled	20	₹ 3	₹ 60

During the period of September 2022, 100 units of the product was produced. The actual cost of which are as follows:

Category of workers	Hours	Rate	Amount
Unskilled	3,200	₹ 1.50	₹ 4,800
Skilled	1,900	₹ 4.00	₹ 7,600

You are required to calculate Labour Variances.

15. Standard cost specification for a production:
Time 15 hours per unit Cost ₹30 per hour.
Actual performance in a cost period:
Production 500 units
Hours taken 7,800 hours
Idle time 200 hours
Total time 8,000 hours
Payment made ₹ 2,48,000.
Calculate Labour Variances.

16. Product 'A' is estimated to require 10 hours per unit. The standard wage rate is ₹ 2 per hour. During May, 2022, 1,000 units were produced. Actual time taken was 9,500 hours and the actual wage rate was ₹ 2.40 per hour. 100 labour hours were lost due to break-down of machinery. Calculate the various labour variances.

17. From the following information, calculate labour variances.

Standard			Actual		
Hours	Rate	Amount	Hours	Rate	Amount
10,000	6	60,000	11,000	8	88,000

Abnormal Idle Time 200 Hours.

Unit 5: Application of Modern Techniques

(Theory Only)

Short Answer Questions:

1. Short notes on Kaizen Costing
2. 5S in Kaizen Costing
3. Advantages of Kaizen Costing
4. Learning Curve Analysis
5. Applications of Learning Curve Analysis

Essay Questions:

1. What is Kaizen Costing? Explain its principles, advantages and disadvantages?
2. What is Kaizen Costing? Explain its process and advantages.
3. Explain the concept and application of Learning Curve Analysis.
4. What is Learning Curve Analysis? What are the advantages and disadvantages of Learning Curve Analysis?

THEORY NOTES

Unit 1: Introduction-Nature and Scope

COST CONTROL

Cost control is the practice of identifying and reducing business expenses to increase profits, and it starts with the budgeting process. A business owner compares the company's actual financial results with the budgeted expectations, and if actual costs are higher than planned, management has the information it needs to take action.

Cost Control aims at achieving the pre-determined cost targets and ends when the targets are achieved. It entails target setting, ascertaining the actual performance and comparing it with the targets, investigating the variances and taking preventive measures.

DEFINITION OF COST CONTROL

"Cost Control is the regulation by executive action of the cost of operating an undertaking particularly where action is guided by cost accounting"- **CIMA, London**

PROCESS OF COST CONTROL

Cost control process involves setting targets and standards, ascertaining the actual performance, comparing the actual performance with standard, investigating the variances and taking corrective action.

i. **Establishing norms:** The first step in cost control is to set norms or standards which may serve as yardsticks for measuring performance. these standards are set on the basis of past performance adjusted for changes in future and on the basis of studies conducted.

ii. **Comparison with actual:** The actual cost incurred are compared with established standard costs to know the level of achievement. The variations are analysed so as to arrive at the causes which are controllable.

iii. **Corrective Action:** Remedial measures are taken to avoid the recurrence of variation in future and for revision of standards wherever necessary.

COST CONTROL IN INDIVIDUAL COST ELEMENTS

These important cost control areas which are given below:

1. **Control of Labour cost:** The standard or estimated time required for an operation are laid down after careful work study. The actual time taken for the operation is recorded and variances from the standard time are highlighted.

2. **Material cost may be controlled:** Standards or estimates of direct material requirements of a job are established both in quantity and price and the actual consumption is compared with the standard.

3. **Overhead may be controlled**: Overhead may be controlled through budgets established in terms of costs for each item and for each shop.

COST CONTROL TECHNIQUES

1. **Budgetary Control:** Budgetary control involves the creation and use of budgets. Budget is an effective cost control tool that is used to plan, execute, and regulate different operations of a business.

2. **Standard Costing:** In standard costing standard costs are previously prepared. They are also compared with the real costs and the variances between them are noted down.

3. **Material control:** Material Control is a system which ensures the provision of the required quantity of material of the required quality at required time with minimum amount of capital investment.

REQUISITES OF EFFECTIVE COST CONTROL SYSTEM

1. **Expectations and frequent review:**
   Before a project is started, all involved must have a clear and specific definition of the project's needs, goals and requirements. These needs, goals and requirements must be reviewed frequently to make sure the project is going in the right direction.
2. **Making accurate Budgets:**
   Creating a realistic, thorough budget helps keep costs down.
3. **Variable evaluation and action:**
   Any unexpected variables in a budget where the actual cost is exceeding the estimated cost by a significant percentage must be addressed immediately for cost control.
4. **Proper information use and communication:**
   One of the key aspects of successful cost control is effective communication among all the parties.

COST REDUCTION

Cost Reduction is a process, aims at lowering the unit cost of a product manufactured or service rendered without affecting its quality by using new and improved methods and techniques. It ascertains substitute ways to reduce the cost of a unit. It ensures savings in per unit cost and maximisation of profits of the organisation.

DEFINITION OF COST REDUCTION

> "Cost reduction is the real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their quality and suitability for the intended use". - CIMA, London

FEATURES OF COST REDUCTION

1. Cost reduction must be a **real reduction** in the unit cost of the product/services through increase in productivity.
2. Cost reduction must be a **permanent reduction** in the unit cost of the product/services.
3. Cost reduction must **not be done sacrificing the quality** of the products/services.
4. Cost reduction should **not impair the suitability** of products/services for the use intended.

ESSENTIALS FOR AN EFFECTIVE COST REDUCTION PROGRAM

1. A cost reduction programme must be appropriate to the organisation.
2. A cost reduction programme should not be taken as a onetime activity.
3. Cost reduction should not be done by arbitrary cost slashing.
4. To make cost reduction programme acceptable to the employees of the organisation.
5. Persons giving innovative ideas for cost reductions should be suitably rewarded by giving raise in wages and salaries, promotion and special awards.
6. A cost reduction programme should be evolved with the idea that, there is always scope for cost reduction in every firm.
7. There should not be any overlap between the cost reduction measures, that is, there should not be double counting of cost reductions.

SCOPE OF COST REDUCTION

Cost reduction programmes can be ideally applied in the following critical areas:

1) Product Design
2) Factory Organisation and Methods
3) Production Planning
4) Administration Areas
5) Marketing Areas
6) Finance Areas

DIFFERENCE BETWEEN COST CONTROL AND COST REDUCTION

S.No.	**Cost Control**	**Cost Reduction**
1	It is management by directive dictating how to do a thing.	It adds thinking to doing at all levels of management.
2	It represents efforts made towards achieving a target/goal.	It represents achievement in reduction of costs in all effort to reach the goal.
3	Cost control is a base of cost reduction.	Cost reduction is an extension of cost control.
4	The process of cost control is to set target, ascertain actual performance, and compare it with target, investigate the variances and correct them.	It is not concerned with maintenance of performance according to standards. It challenges standards.
5	Emphasis is on present and past.	Emphasis is on present and future.
6	It tends to set up a conservative procedure and lacks dynamic approach.	It is a continuous process searching for alternatives all the time & is innovative in nature.

7	Usually limited to items which have standards.	Applicable to every section of the business.
8	It is preventive function; costs are optimised before they are incurred.	It is corrective function and does operate even when a cost control system exists.
9	It seeks to attain lowest cost possible under existing conditions.	Recognises no conditions as permanent, since a change will result in a lower cost.

The two techniques cost control and cost reduction are used by many manufacturing concerns to diminish the cost of production.

MANAGEMENT ACCOUNTANTS ROLE IN COST CONTROL AND COST REDUCTION

- Management Accountants role in cost control and cost reduction is perhaps **central** to his role as a member of the management team.
- Management Accountant plays a **catalytic role** in getting the management team to work together to achieve specific cost control objectives.
- Management accountant guides the company's cost control and cost reduction programmes into **productive lines** and not let it degenerate into a morale damaging axing of petty expenditure.

COST AUDIT

MEANING OF COST AUDIT

Cost audit is an examination of the efficiency of the minute details of expenditure while the work is in progress; it does not constitute a post-mortem examination.

The cost auditor can be appointed by the board of directors by taking prior permission of the central government. The cost auditor enjoys all the rights of a financial auditor.

Ultimately, cost audits are valuable for decision-making, price determination, internal control and internal efficiency.

DEFINITION OF COST AUDIT

The **Institute of Cost & Works Accountants of India** defines a cost audit as follows: "An audit of efficiency of minute details of expenditure … Cost audit is mainly a preventive measure, a guide for management policy and decision … and a barometer of performance."

The **Institute of Cost & Management UK** defined cost audits as "the verification of the correctness of cost accounts and a check on the adherence to the cost accounting plan."

According to **Smith and Day**, a cost audit involves "detailed checking of the costing system, techniques, and accounts to verify their correctness and to ensure adherence to the objective of cost accounting."

SCOPE OF COST AUDIT

The scope of cost audit has two important aspects:

A. **Propriety Audit**
This aspect of a cost audit is concerned with the actions and plans of management that affect the finance and expenditure of the business concern.

Under this aspect, the cost auditor is required to ensure that an item of expenditure is sanctioned or approved by the proper authority. It is done with the help of documents and vouchers.

B. **Efficiency Audit**
This aspect of a cost audit focuses on performance evaluation.

The efficiency aspect of a cost audit involves examining the plan prepared in the form of budgets and the comparison of the actual performance with the budgeted performance. The reasons for any variance are also analysed.

TYPES OF COST AUDIT

1. **Cost Audit on behalf of Management:** The principal object of the audit is to see that the cost data placed before the management are verified and reliable and they are prepared in such detail as will serve the purpose the management in taking appropriate decisions.

2. **Statutory Audit:** Statutory Cost Audit is a system of audit introduced by the Government of India for the review examination and appraisal of the cost accounting record and added information required to be maintained by specified industries.

3. **Cost Audit by the Government:** Government may order cost audit to satisfy itself the genuineness of the industry seeking the assistance and to establish fair price of any product, government may order cost audit.

4. **Cost Audit by Contractee:** In case of cost-plus contracts, the buyer or contractee insists on cost audit to satisfy himself about the correct ascertainment of cost.

5. **Cost Audit by Tribunals:** To settle labour disputes on wages, bonus, profit sharing, etc., the Tribunals may ask for cost audit of the concerned businesses. Similarly, Income-tax Tribunals may direct cost audit for assessment of tax based on profits of a manufacturing concern.

6. **Cost Audit by Trade Associations:** Where activities of trade association include maintenance of price of the products manufactured by the member units or where pooling or contribution arrangements, the trade association require accuracy of costing information submitted by member units checked.

COST AUDIT PROCEDURES

Cost audit comprises following three steps

- Review
- Verification
- Reporting

TECHNIQUES OF COST AUDIT

- Before commencement of audit, the costing method and technique adopted should be examined.
- The list of various sheets, documents, schedules, statements, etc., related to cost and cost records and books should be obtained.
- It should be examined whether the work of internal control is effectively being done.
- It should also be seen that what is the object for conducting the audit, scope of audit, nature and size of business. In case if the size of the business is very large, then the function of book-keeping and accounting and internal control system should be very effectively organized.
- After examining the above aspects, the cost auditor makes his cost audit programme which is similar to that of financial audit. The work of vouching, checking and ticking is also similar to financial audit.
- Generally, the technique of cost audit should be as follows:

1. All the receipts and payments should be vouched i.e., each transaction should have a voucher, so as to verify the reliability of transactions.
2. All the calculations, postings should be verified. For this special tick mark should be adopted. If the work is more and time is less then test check should be applied.
3. The items of suspense account should be examined very carefully. All the adjustment entry should be well examined.
4. The comparison of actual data with budgeted data should be made and any variance should be carefully analysed.
5. As regards to technique the following points are to be considered:
   (i) Physical Examination, (ii) Physical Count, (iii) Confirmation, (iv) Examination of original document, (v) Scanning, (vi) Enquiry.
6. He should note down all those points in his note book which he considers reasonable.

Unit 2: Activity Based Costing

Evolution of ABC:

Professors Robin Cooper and Robert S. Kaplan of Harvard Business School have developed Activity Based Costing in order to overcome the inadequacies of conventional methods of overhead absorption:

i. The traditional basis of segregating costs into fixed and variable elements on the basis of their behaviour is generally considered to be unrealistic.
ii. Overhead resources used by various products are very different in amounts
iii. Production overhead costs are high in comparison to various direct costs.
iv. Product range of the organisation is highly diverse.
v. Volume or quantity of production is not primary driving force for the consumption of overhead resources.

Concept of ABC:

Activity Based Costing (ABC) is an accounting methodology that focuses on activities as the fundamental cost objects rather than products or services. ABC is based on the basic premise that

i. Activities consume resources.
ii. Products use activities.

"ABC Systems calculate the costs of individual activities and assign costs to cost objects such as products and services on the basis of the activities undertaken to produce each product or service" **- R. Cooper and R.S. Kaplan**

"Activity Based Costing is a process of attributing indirect costs to cost units on the basis of benefits received from indirect activities (e.g., ordering, selling up, assuring quality, etc)"
- CIMA, LONDON

Characteristics of ABC:

i. ABC System is a tool for refining a costing system.
ii. It involves the creation of smaller cost pools linked to different activities.
iii. Cost collection is made on the basis of a measurement of activity performed by each activity-cost pool.
iv. Costs in each cost pool have a cause and effect relationship with the cost allocation base over a period of time.
v. Some of the costs in a cost pool can also be traced directly to products which leads to improvement in cost accuracy.

Steps to be followed in ABC System:

Designing an activity-based costing system entails three main steps:

1. Identify activities and resource costs.

2. Assigning resource costs to activities.

3. Assigning activity costs to cost objects.

Detailed Steps involved in computation of ABC:

Step 1: ***Identify*** the various significant ***Activities*** within the firm.

Step 2: Relate the Overheads to the activities using ***Resource Cost Drivers***.

Step 3: Determine the ***Activity Cost Drivers*** for each Activity /Cost Pool.

Step 4: Calculate ***Activity Cost Driver Rate*** using the formula

Total Cost of Activity (Cost Pool) /Activity Cost Driver

Step 5: ***Assign costs to the Cost Objects*** using the formula

Resources Consumed X Activity Cost Driver Rate

Key words associated with the concept of ABC:

1. **Cost Driver:** It is the factor that causes a change in the cost of an activity. Cost Drivers can be classified into:
   a) **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.
   b) **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.

2. **Cost Pools:** Costs are grouped into pools according the activities which drive them. Cost pool is the total cost assigned to an activity.
3. **Cost Object:** It refers to an item for which cost measurement is required e.g., a product, a service or a customer.

Traditional Costing Vs Activity Based Costing:

S.No.	Traditional Costing	Activity Based Costing
1	Cost of production cannot be determined accurately.	Actual cost of production and cost of related services can be determined accurately.
2	Cause and effect relationship to objectively allocate costs are not possible.	Cause and effect relationship to objectively allocate costs are possible.
3	No concept of "cost driver"	Concept of "Cost Driver" plays a vital role.
4	No linkage between activities and the costs.	Linkage between activities and the costs.
5	Division of fixed and variable cost may not be realistic.	Division of fixed and variable cost are realistic.
6	Simple system	Complex System.
7	Beneficial for small organisations	Beneficial for big organisations.

Applicability of Activity Based Costing:

1. **Activity Based Management (ABM):** ABM describes management decisions that use activity- based costing information to satisfy customers and improve profitability.

2. **Pricing and Product Mix Decisions:** An ABC system gives managers cost information that is helpful for making and selling diverse products. With this information, managers can make pricing and product mix decisions.

3. **Cost Reduction and Process Improvement Decisions:** The core of ABC approach is the analysis of activities to focus on how and where to reduce cost.

4. **Design Decisions:** Management can evaluate how its current product and process designs affect activities and costs as a way to identify new designs to reduce costs.

5. Many companies are using ABC system for **Planning and managing activities.**

6. ABC is originally developed in the manufacturing sector, but it is now also applied in **service and merchandising companies** also.

Advantages of implementing ABC:

i. ABC helps in the ascertainment of more ***accurate cost information*** for product and services.
ii. ABC assists in overcoming the problems of over-costing and under costing as a result the management can make more ***judicious pricing policies***.
iii. The analysis of overhead costs with reference to activities is considered to be more ***realistic.***
iv. ABC system is very helpful in making the evaluation of new process technologies in ***multi-product concerns***.
v. ABC helps the management in ***taking better decisions*** relating to product strategies, product designs, product mix and marketing.
vi. ABC system makes available a ***systematic report*** on the resource spending as well as on resource consumption.

Limitations of Activity Based Costing:

i. ABC system is more ***time consuming*** due to the fact that the number of activities to which the overhead resources of an organisation have to be related, is very large.
ii. It involves **high cost of operation** and can be used only by large organisations. It is not suitable for small scale units.
iii. In some cases, the establishment of cause and effect relationship between cost driver and costs ***may not be a simple affair***.

Unit 3: Cost Volume Profit Analysis (CVP Analysis)

Applications of Marginal Costing

The technique of Marginal Costing is a very valuable aid to management in taking many managerial decisions. It is a useful tool for making policy decisions, profit planning and cost control. Marginal costing helps management in decision making in respect of the following crucial managerial problems:

i. Make or Buy Decision
ii. Profit maximization based on Limiting factor or key factor
iii. Selection of Profitable mix/Sales mix
iv. Acceptance of Special Order at lower price
v. Profit Planning
vi. Evaluation of performance
vii. Fixing Selling Price
viii. Plant Merger.

Make or Buy Decision:

A decision as to whether to make the component of product or to buy from outside is called Make or Buy Decision and this decision can be taken on the basis of Marginal Costing.

If it is purchased, then the marginal cost of manufacturing that component should be compared with its purchase price.

Make the Product	Buy the product
If Marginal Cost < Purchase price	If Marginal Cost > Purchase price

Assumptions:

i. Fixed Cost remains constant throughout.
ii. Production facilities cannot be employed more profitably.
iii. There will be uninterrupted supply of the product from the supplier.
iv. Quality of product will be maintained.
v. Supplier will not demand for more price for a long period.

Profit maximization based on Limiting factor or key factor

Key factor is a limiting factor which puts a limit on the production activities at a particular point of time. Thus, profit is affected.

A limiting factor may be shortage of material, labour, plant capacity or market. When there is a limiting factor, the selection of profitable product will be on the basis of contribution per unit of limiting factor.

$$\text{Profitability} = \frac{\text{Contribution per unit}}{\text{Key Factor per unit}}$$

A profitable product is one contributing maximum contribution in terms of per unit of limiting factor.

Selection of Profitable mix/Sales mix

A concern which manufactures more than one product may have to decide in what proportion should these products be produced or sold. In the absence of any limiting factor, contribution under various mix will be found out and the mix which gives the highest contribution will be the most profitable one.

Acceptance of Special Order at lower price

Bulk order may be received from large scale buyers or foreign dealers offering only a price below market price. This calls for a decision to accept or reject the order.
If the price is below total cost, it may tempt to reject the offer. But the marginal costing takes a different view. It recommends for accepting the order, provided the quoted price is more than the marginal costs. Its reasons that since the local market price provides contribution sufficient to recover fixed costs and provide a margin of profit, any contribution from the foreign offers would be net addition to profits. But, if the price quoted is less than the marginal cost, it is not advisable to accept the order.

Profit Planning

Profit planning is the planning of future operations to attain maximum profit or to maintain a specified level of profit. Whenever there is change in sales price, variable costs or product mix, the required amount of sale for attaining a desired amount of profit will be ascertained with the help of P/V ratio.

Evaluation of performance

Marginal costing presents the comparative profitability of each part or segment of the business to the management in an analysed form. Thus, the management can know the efficiency or inefficiency of each segment of the business and can plan in such a way that the profits made by an efficient segment of the business are not eaten away by some inefficient segment.

Fixing Selling Price

Fixing selling price of the product is very important decision because it directly affects the profitability of product. The selling price is influenced by number of internal and external factors. The goal of every firm is to maximise its profit. The price should cover total cost. But, according to marginal costing, price of a product should be fixed that sales should exceed its marginal cost to contribute towards recovering its fixed cost and profits. Therefore, price should be fixed more than variable cost or at least equal to variable cost.

- ***Selling products at below marginal cost:*** Pricing at or below marginal costs may be considered desirable for a shorter period under special circumstances given below:

i. To introduce a new product in the market.
ii. To explore foreign market.
iii. To popularise a product.
iv. To eliminate a competitor from the market.
v. To dispose off products of perishable nature.
vi. To dispose off surplus stock.
vii. To help the sale of joint products.
viii. To utilise idle capacity.
ix. To keep plant and machinery in running condition.
x. To avoid retrenchment of employees.
xi. To avoid extra losses by closing down the business.

Plant Merger

Whenever management decides to merge two or more plants/companies operating at same or different capacity level, first the sales, variable cost, contribution and fixed cost of each individual plant should be calculated at 100% capacity and then these figures should be totalled so as to calculate sales, variable cost, contribution and fixed cost of the merged plant.

$$\text{P/V Ratio} = \frac{\text{Total Contribution of all plants at 100\% Capacity}}{\text{Total Sales of all plants at 100\% Capacity}}$$

Unit 4: Standard Costing and Variance Analysis

INTRODUCTION

Standard costing is a technique of cost control and not a method of costing like job costing or process costing. It can be applied to all types of business and can be introduced very easily in industries engaged in mass production.

STANDARD

Standard is a predetermined norm or yardstick established by a scientific analysis of the factors of production for measuring performance and cost.

STANDARD COST

Standard cost is the cost what should have been under a given set of operating conditions.

Difference between Standard Costs and Estimated Costs

PARTICULARS	**STANDARD COSTS**	**ESTIMATED COSTS**
1. NATURE	Standard Costs point out what costs ought to be.	Estimated Costs show what costs will be.
2. DETERMINATION	Standard Costs are determined on scientific basis.	Estimated Costs are determined by adjusting past figures to possible future changes.
3. PURPOSE	Standard Costs serves the purpose of cost control.	Estimated Costs are not useful for cost control, but are used for giving estimates of costs and prices.
4. APPLICABILITY	Standard Costs can be used by a firm which has standard costing system.	Estimated Costs can be used by a firm which has adapted historical costing system for cost ascertainment.

STANDARD COSTING

Standard Costing involves the preparation of standard costs and applying them to measure the variations from actual costs and analysing the causes of variations with a view to maintain maximum efficiency in production.

"The preparation and use of standard costs, their comparison with actual costs and the analysis of variances to their causes and points of incidence". – ICMA, London.

CHARACTERISTICS OF STANDARD COSTING

1. A careful determination of standards
2. Comparison of actual performance with standards by preparing appropriate report showing
   difference between actual and standard performance.
3. Identifying the reasons for the difference between actual performance and standard performance through variance analysis.
4. Taking appropriate action i.e., takes corrective action or revise future standards.

Distinction between Standard Costing and Budgetary Control

Particulars	**STANDARD COSTING**	**BUDGETARY CONTROL**
1.CONTROL	Standard Costing involves comparing actual costs with standard costs of actual output in respect of material, labour, overhead and sales.	Budgetary Control is exercised by comparing actual figures with budgeted figures in respect of sales, production, purchase etc.
2.SCOPE	Scope of Standard Costing is comparatively narrow. It covers mainly production costs.	Range of Budgeting is wider. It relates to all business operations.
3.OBJECTIVE	Standard Costing is concerned with the ascertainment and control of each element of cost.	Budgetary Control is concerned with overall profitability and financial position of a business.
4.PROJECTIONS AND ESTIMATIONS	Standard Costing is confined to the projection of cost accounts only.	Budgetary Control includes projection of financial accounts as well as cost accounts.
5.PARTS OR AGGREGATES	It is not possible to operate standard costing in parts. All items of expenditure included in cost units are to be accounted for.	It is possible to carryout budgetary control even in parts or for particular type of expense depending upon the requirement of management.

ADVANTAGES OF STANDARD COSTING

1. Basis for measuring operating performance and cost control.
2. Aids Price fixation.
3. Provides a basis for evaluation of actual performance.
4. Facilitates the estimation of the cost of new products with greater accuracy.
5. Serves as a basis for inventory valuation
6. Makes management by exception possible.
7. Control and elimination of wastages and losses
8. Helps in Standardisation of products, operations and processes.

LIMITATIONS OF STANDARD COSTING:

1. Improper Standards
2. Frequent revision of Standards.
3. Difficulty in fixing responsibility.
4. Not suitable for small firms.
5. Requires co-operation at all levels.

VARIANCE ANALYSIS

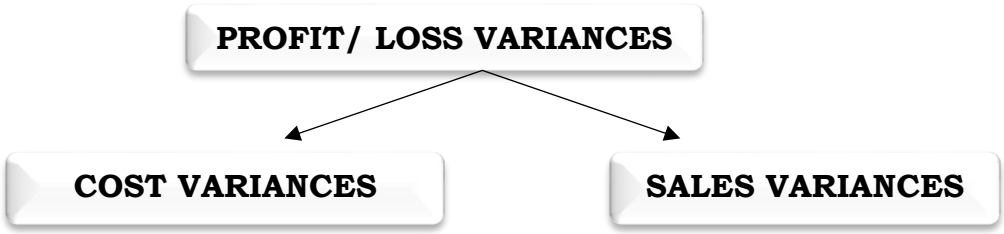
VARIANCE:

Difference between the standard and actual is known as variance.

VARIANCE ANALYSIS:

Variance Analysis is the process of analysing variances by sub-dividing the total variance in such a way that management can assign responsibility for any deviation from standard performance.

TYPES OF VARIANCES:



1. **Profit Variance**: It is the difference between total cost variance and the sales variance.

2. **Cost Variance:** Cost variance is the difference between standard cost and actual cost.

3. **Sales Variance:** It is the difference between budgeted value of sales predetermined and the actual value of sales achieved in a given period.

Variance may be adverse or favourable. When actual results are better than the standard, the variance is favourable. On the other hand, when actual results are worse than the standard the variance is said to be adverse or unfavourable.

USES OF VARIANCE ANALYSIS:

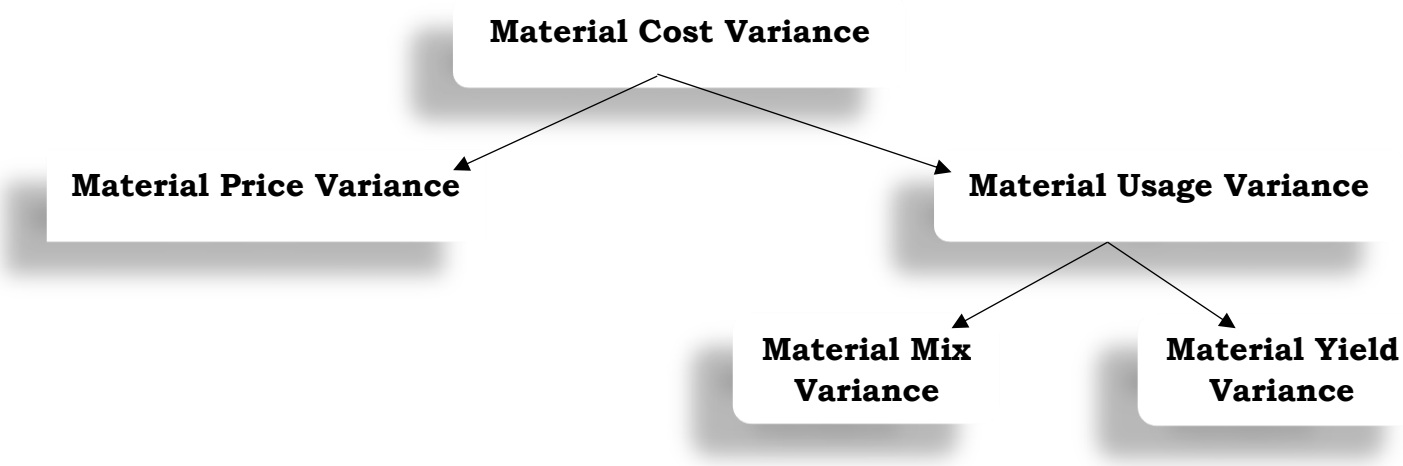
i. It indicates the areas where variance arises. This facilitates management by exception.
ii. It indicates the causes for variances. This helps to assign the responsibility for the variance to a particular department.
iii. It can be used as an effective tool of cost control.
iv. It helps to compare the performance of different departments.
v. It helps in future planning and in formulating policies.

COST VARIANCES:

Cost variances is the difference between standard cost and actual cost. There are three categories of cost variance. They are:

I. Material Variance
II. Labour Variance
III. Overhead Variance

MATERIAL VARIANCES



1. **Material Cost Variance:** Material Cost Variance (MCV) is the difference between the Standard Cost of Direct Materials specified for the output achieved and the Actual Cost of Direct Materials consumed.

MCV = SPSQ - APAQ

2. **Material Price Variance:** Material Price Variance (MPV) is that portion of the material cost variance which is due to the difference between the standard price specified and the actual price paid.

MPV = SPAQ - APAQ

3. **Material Usage Variance:** Material Usage Variance (MUV) is that portion of the material cost variance which is due to the difference between the standard quantity specified and the actual quantity consumed.

MUV = SPSQ - SPAQ

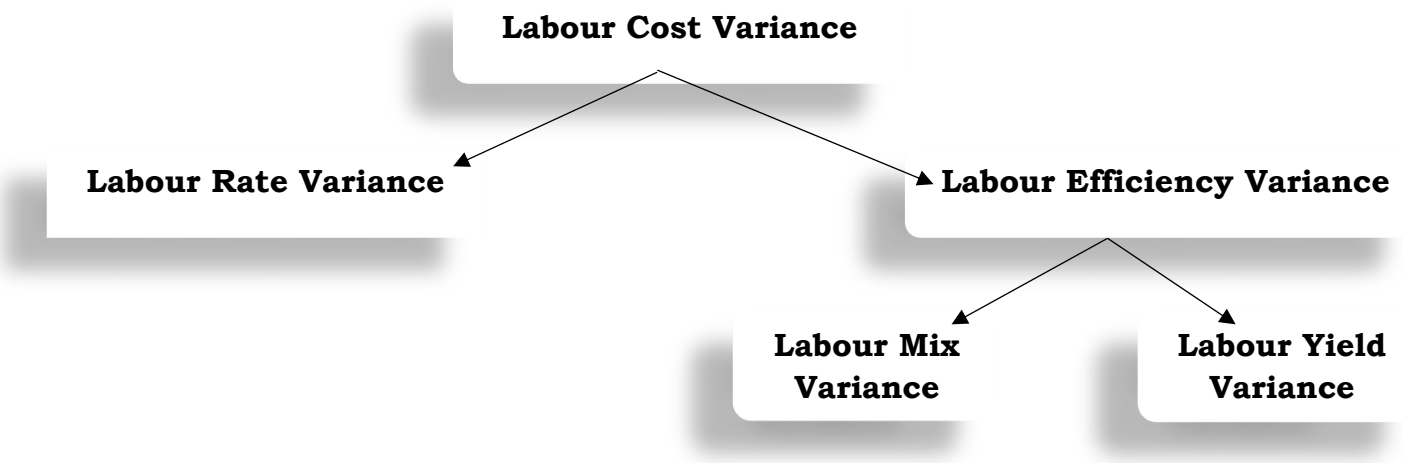
4. **Material Mix Variance:** Material Mix Variance is that portion of the material usage variance which is due to the difference between standard and actual composition of materials.

MMV = SPRSQ - SPAQ

5. **Material Yield Variance:** Material Yield Variance or Sub- Usage Variance is that portion of the material usage variance which is due to the difference between standard yield specified for actual quantity used and actual yield obtained.

MYV = SPSQ - SPRSQ

LABOUR VARIANCES



1. **Labour Cost Variance:** Labour Cost Variance (LCV) is the difference between the Standard Cost of Direct Labour hours specified for the output achieved and the Actual Cost of Direct Labour Hours expended.

LCV = SRSH - ARAH

2. **Labour Rate Variance:** Labour Rate Variance (LRV) is that portion of the labour cost variance which is due to the difference between the standard rate specified and the actual rate paid.

LRV = SRAH - ARAH

3. **Labour Efficiency Variance:** Labour Efficiency Variance (LEV) is that portion of the labour cost variance which is due to the difference between the standard hours specified for actual output and the actual hours consumed.

LEV = SRSH - SRAH

4.**Labour Mix Variance:** Labour Mix Variance or Gang Composition Variance is that portion of the Labour efficiency variance which is due to the difference between standard and actual composition of labour.

LMV = SRRSH - SRAH

5. **Labour Yield Variance:** Labour Yield Variance is that portion of the Labour efficiency variance which is due to the difference between standard yield specified for actual hours used and actual yield obtained.

LYV = SRSH - SRRSH

6. **Labour Idle Time Variance:** Idle Time Variance (ITV) is that portion of Labour Efficiency Variance which is due to abnormal idle time such as time lost due to power failure, machinery breakdown, strike etc., It arises due to the difference between Actual Labour Hours Worked and Actual Labour Hours paid. Idle Time Variance is always adverse or unfavourable because idle hours represent a loss.

ITV = SRAHW - SRAH

Unit 5: Application of Modern Techniques

KAIZEN COSTING

DEFINITION OF KAIZEN COSTING

Kaizen costing is a technique of controlling the cost incurred over unproductive activities and resources which does not add any value to the organization. In simple words, it is a practical approach to solving cost-related problems to improve the overall efficiency of the organization.

Kaizen costing is implemented in business organizations to manage different types of costs in a business.

TYPES OF KAIZEN COSTING

1. **Asset Specific**: The asset and organization-specific kaizen costing focuses on the need for a particular deal or the business unit.
2. **Product Specific**: The activity which is project or product-oriented, aiming at value analysis is termed as product-specific kaizen costing.

5S IN KAIZEN COSTING

Workplace improvement, especially in the production or manufacturing unit, is not possible without the application of 5S kaizen technique. It involves the following five steps:

1. **Sort (Seiri):** The first step in the 5S approach is categorizing the items based on their necessity. The unnecessary items should be labelled red and needs to be moved out of the organization. These items can be sold to the staff or as scrap else can be dumped by the organization.
2. **Straighten (Seiton)**: Now, the organization is left with essential items. These have to be arranged in an orderly manner for simplifying the operations. This step improves the visibility, availability and accessibility of all the tools and items.
3. **Shine (Seiso)**: Shine here refers to maintaining cleanliness in the workplace. It creates a positive work environment for the employees.
4. **Standardize (Seiketsu)**: One of the most vital tasks is to establish standards for cleanliness, usability and maintaining the placement of items in day to day business operations.
5. **Sustain (Shitsuke)**: The final step is to communicate and educate the employees about the changes made. Thus, developing a sense of self-control and discipline among them to maintain and follow the set standards**.**

KAIZEN COSTING PROCESS

1. **Involve Your Employees**: The involvement of employees plays a vital role in implementing any change. The participation of employees and their feedback helps in generating ideas and information. It also eliminates the resistance to change from their side.
2. **Find Problems**: The organization together with its employees of all the departments (such as customer support, finance, human resource, production, design, etc.), needs to find out the various problems in the organization with the help of techniques like 360-degree feedback.
3. **Think and Find Solutions**: The next step is solving the identified problems. This step needs a lot of brainstorming and tactical approach; therefore, managers form a team of ingenious employees to find out a practical solution to each question.
4. **Implement**: Implementing any change involves cost and risk simultaneously. Therefore, to be on a safer side, the new idea must be testified on a small part of the organization.
5. **Check**: The managers need to look after the proper implementation of the kaizen costing. That is, a new idea should not just remain in words; instead, it should be practically applied to the business process.
6. **Standardize**: After being satisfied with the results, the organization needs to set this change as a standard procedure for all the departments and across the whole organization.
7. **Repeat**: A standardized procedure becomes the organizational culture when continuously practised over a period.

ADVANTAGES OF KAIZEN COSTING:

1. **Customer Satisfaction**: The kaizen costing is a customer-oriented technique which focusses on providing better service to the consumers.
2. **Forming Work Teams**: Every employee involved in the implementation of the kaizen practice needs to perform in a work team with a common aim of improvement.
3. **Continuous Improvement**: Kaizen costing is a technique which emphasizes on improvement and betterment of the product, process, project and the organization.
4. **Creates Better Work Environment**: It also promotes a positive work environment for the employees and the management. Like, sharing canteen and the dress code, is a part of work culture in many organizations.
5. **Problem Solving**: One of the crucial functions of kaizen costing is to solve the identified problem to achieve perfection in business operations.
6. **Promotes Cross-Functional Teams**: The teams so formed include employees with different skills and knowledge; thus, this technique encourages the formation of a cross-functional team.
7. **Widely Applicable**: Kaizen costing is universally applicable to all kinds of organizations, whether it is service industry or manufacturing industry.
8. **Reduces Wastage**: Due to better time management and material management in kaizen costing technique, the wastage of time and resources can be avoided.

DRAWBACKS OF KAIZEN COSTING

1. **The burden on Lower Level Management**: It becomes confusing and tedious for the bottom level management to adopt the change in process or product so implemented through kaizen costing.
2. **Lack of Training**: Kaizen costing requires a lot of expertise and training, and if not implemented strategically, it may even lead to adverse effects.

3. **Permanent Change System**: The change so implemented through kaizen costing is irreversible, and it requires a lot of efforts and cost in withdrawing such decisions.

LEARNING CURVE ANALYSIS

INTRODUCTION:

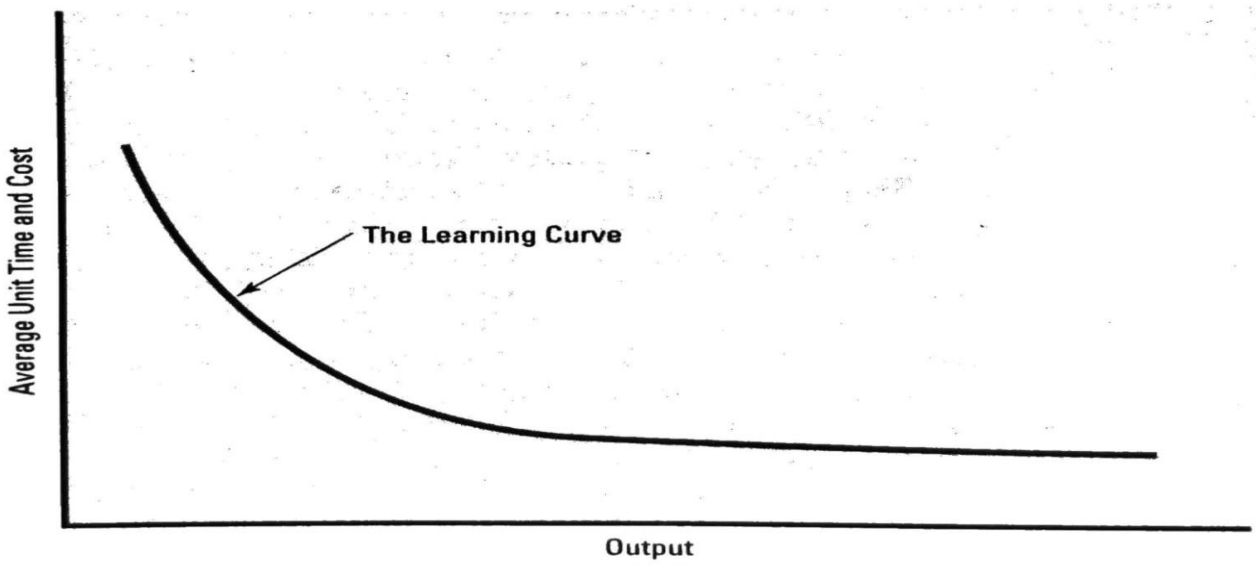
When an activity has a certain labour component and repetition of the same activity or operation makes the labour more proficient, the task is completed more quickly with the same or higher level of quality.

Learning can occur in a wide variety of ways, from the individual level as new employees gain experience, to the aggregate level in which a group of employee's experience improvement in productivity. We can model the expected improvement in productivity and use this information in the estimation of future costs.

DEFINITION OF LEARNING CURVE ANALYSIS

"A learning curve analysis is a systematic method for estimating costs when learning is present". - Blocher

One of the first well- documented applications of learning curves occurred in the World War II aircraft industry. Studies showed that the average per unit time to build the first two units was 80 percent of the time for the first unit.



LEARNING RATE

The Learning Rate is the percentage by which average time (or total time) falls from previous levels as output doubles.

The process of learning cannot go on indefinitely but has to end when a certain efficiency level is reached at a given production volume. In the first stage, there is a progressive increase in production rate till the maximum expected rate is reached. In the second stage, the maximum rate is maintained and in the third stage, which may be called the reverse learning, the production rate starts falling.

Learning rate of 1 is equivalent to no learning. A learning rate of 0.5 is best interpreted as the maximum learning rate because the total time for actual production equals the time for a single unit. Thus, the learning rate is always a number greater than 0.5 and less than 1. Actual case studies reveal that the learning rate most often falls near 0.8.

APPLICATION OF LEARNING CURVE ANALYSIS:

Productivity of labour is a vital aspect of any production process, learning curve analysis can be an important way to improve the quality of a wide range of decisions.

1. Life-cycle plan for a new product for product pricing
2. The make- or- buy decision.
3. Cost- Volume- Profit analysis.
4. Development of standard product costs
5. Capital Budgeting.
6. Budgeting production levels and labour needs
7. Management control.

ADVANTAGES OF THE LEARNING CURVE ANALYSIS

1. **Better understand employee progress** – Comparing different learning curves helps understand an employee's progress while learning a particular task, allowing companies to make training adjustments accordingly.

2. **Strategic planning** – The learning curve helps build strategic plans to improve the output of employees or an entire department.

3. **Create a learning culture** – The learning curve helps motivate a workforce by creating a culture of ongoing learning and training evaluation.

4. **Decision making** – The learning curve helps identify trends for making viable business-related decisions and better forecasts for the future.

DISADVANTAGES OF THE LEARNING CURVE ANALYSIS

1. **Cannot accurately predict future curve** – The learning curve recognizes current skills but cannot predict the future with complete accuracy.

2. **Misleading data** – The learning curve is influenced by variables such as time, previous experience, quality of training, etc. As a result, tracking only one of these variables might result in misleading data.
3. **Creates differences** – Some employees are more skilled than others at specific tasks, giving them an advantage. This difference is displayed while comparing the learning curves, creating unnecessary hassles and judgments.