

Idhaya College for Women Kumbakonam



PG & Research Department of Commerce

II M.Com

**Advanced Cost & Management Accounting –
P16MC42**

Unit – V

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UNIT-V

BUDGET ADMINISTRATION

Budget Administration

An administrative budget is an official, detailed financial plan for an upcoming period for a business. An administrative budget is usually prepared on an annual or quarterly basis and identifies the cost of running an operation that is not tied to producing a product or service.

Budget

Budget represents the objective of any organisation that is based on the implication of forecast and related to planned activities.

Budget is neither an estimate nor a forecast because an estimation nor a forecast because an estimation is a predetermination of future events, may be based simple guess or any scientific principles.

Definition

A budget is a formal statement of estimated income and expenses based on future plans and objectives. In other words, a budget is a document that management makes to estimate the **revenues** and **expenses** for an upcoming period based on their goals for the business.

Objectives of budgeting

1. Provide structure:

A budget is especially useful for giving a company guidance regarding the direction in which it is supposed to be going. Thus, it forms the basis for planning what to do next. A budget only provides a significant amount of structure when management refers to it constantly, and judges employee performance based on the expectations.

2. Predict cash flows:

A budget is extremely useful in companies that are growing rapidly, that have seasonal sales, or which have irregular sales patterns. A budget is useful for predicting cash flows, but yields increasingly unreliable results further into the future. Thus,

providing a view cash flow is only a reasonable budgeting objective if it covers the next few months of the budget.

3. Allocate resources:

Some companies use the budgeting process as a tool for deciding where to allocate funds to various activities such as fixed asset purchases. Though a valid objective it should be combined analysis to determine where resources should really be allocated.

4. Measure performance:

A common objective in creating a budget is to use it as the basis for judging employee performance, through the use of variances from the budget.

Objectives of budget administration

- To define the goal of the enterprises.
- To provide long and short period plans for attaining these goals.
- To co-ordinate the activities of different departments.
- To operate various cost centre and department with efficiency and economy.
- To eliminate waste and increase the profitability.
- To estimate capital expenditure requirements of the future.
- To centralize the control system.
- To correct deviations from established standards.
- To fix the responsibility of various individuals in the organizations.
- To ensure that adequate working capital is available for the efficient operation of the business.
- To indicate to the management as to where action is needed to solve problems without delay.

Types of budget

❖ Sales Budget

A Sales budget is an estimate of expected sales during the budget period .It may be stated in terms of money or quantity or both. It contains information relating to sales, month wise, product wise and area wise . Sales budget should be carefully prepared as the preparation of other budgets is dependent on it. This budget is prepared by the sales manager taking into account the following:

- *Past sales figures
- * Salesmen's estimates
- * Plant capacity
- * Availability of raw material
- * Seasonal fluctuations
- * Availability of finance
- * Competition
- * Order and hand
- * Political conditions and government policies etc.

Sales budget = Budgeted unit sales × budgeted sales price

❖ **Production Budget**

The preparation of production budget is dependent on the sales budget. Production budget is an estimate of quantity of goods that must be produced during the budget period. It may be stated in terms of money or quantity (weight, units etc.) or both. Production may be calculated as follows:

Units to produced = Budgeted sales + desired closing stock – opening stock

❖ **Material Budget**

Materials may be direct or indirect. The Material Budget deals with only the direct materials. Indirect material are included in the factory overhead Budget. Materials Budget can be classified into two categories –materials requirement Budget and materials purchase Budget. Material requirement Budget is an estimate of total quantities of material required for production during the budget period. The material purchase Budget is an estimate of quantities of raw material to be purchased for production during the budget period. While preparing this budget, the following factors must be taken into account

1. Raw materials required for the budget production.
2. Time lag between the placing of order and the receipt of the materials.
3. Storage facilities available.
4. Financial resource available.
5. Price trends in the market.
6. Opening and Closing stock

❖ **Direct Labor Budget**

This indicates detailed requirements of direct labor and its cost of achieve the production target. This budget is classified into two categories namely , labor requirement and labor requirement budget . The labor requirement budget gives information regarding the different classes of labor required for each department, their rates of pay and the hours to be spent. The labour requirement budget states the additional direct workers to be recruited.

Direct labor cost =

Expected production + direct labor hour per unit + direct labor cost per hour

❖ **Factory Overheads Budget**

Factory overheads include indirect material, indirect labour and indirect expenses. Factory overhead budget indicates the factory overheads to be incurred in the budget period. The expenses included in the budget are classified into fixed, variable and semi variable expenses. Fixed expenses are estimated on the basis of past records. Variable expenses are estimated on the basis of budgeted output.

❖ **Administrative Expenses Budget**

The budget is an estimate of administrative expenses to be incurred in the budget period.

❖ **Selling and Distribution Overheads Budget**

The budget gives an estimate of selling and distribution expenses to be incurred in the budget period. For example, salesmen's salary , commission, advertisement, transportation, transportation costs etc. It is prepared by sales executive. It is closely linked with sales budget. The following points should be considered in the preparation of this budget:

- The channel of distribution of the product.
- The advertising and sales promotion policies.
- The market area to be covered.
- The credit and collection policies.
- The mode of packing and dispatch of products to customers.

❖ **Capital Expenditure Budget**

This budget shows the estimated expenditure on fixed assets during prepared after taking into account the following:

- 1.The available production capacity.
- 2.Probable reallocation of existing assets.
- 3.Possible improvement in production techniques.

❖ **Cash budget**

This budget gives an estimates of receipt and payment of cash during the budget period .It is prepared by the chief accountant. It shows as the cash available and needed from time to time to meet the capital requirements of the organization. This budget is prepared in two parts one showing an estimate of receipt and the other showing an estimate of payment.

Budgeted cash available = beginning cash balance + budgeted cash collection

Budgetary Control:

Budgetary control is a system of management and accounting control. It means the control of operations with the aid of budgets. It is one of the important tools of control.

Definition of Budgetary Control

The Institute of Cost and Management Accounts, England, defines budgetary control as “the establishment of budgets relating to the responsibilities of executives to the requirements of a policy, and the continuous comparison of actual with budgeted results, either to secure by individual action the objectives of that policy or to provide a basis for its revision.

Steps involved in the budgetary control: Budgetary control involves the following steps.

1. Preparation of budgets for each function and section of the organization.
2. Recording of actual performance.
3. Continuous comparison of actual performance with the budgets and the ascertainment of deviations.
4. Prompt investigations into differences.
5. Prompt remedial action when required.
6. Revision of budgets in the light of changed circumstances.

Objectives of Budgetary control

The important objectives of budgetary control can be summarized as follows.

- (i) To plan the policy of a business for the coming period for achievement of the firm is objectives and its translation into monetary and quantitative terms.

(ii) To determine the responsibility of each department and executive so that they are made accountable for definite and precise results.

(iii) To coordinate the activities of a business so that each is a part of an integral total.

(iv) To provide for continuous comparison of actual and budgeted performance in terms of results achieved and costs incurred so that cause for any inefficiency is immediately detected and removed.

(v) To control and direct each function so that best possible results may be obtained.

(vi) To provide for the revision of budgets for future in the light of experience gained.

Essentials of Effective Budgeting and Budgetary Control

The main essentials for an effective and successful system of budgetary control can be given as follows:

1. **Support of Top Management:** In order to make the budgeting system successful, it is necessary that it must have the whole hearted support of every person involved in the organizational set up. In this regard, the initiative must come from the top management.

2. **Definite and Reasonable Targets or Goals:** For the successful operations of the budgetary control system, the targets fixed in the budgets should be definite, realistic and attainable. This feeling should come from the various executives who have been assigned the responsibility of various budget centre.

3. **Well-defined Organization:** In order to ensure maximum benefits from budgeting system, well defined budget centres should be created within the organization so that the responsibility of each executive in the organization may be clearly laid down.

4. **Well-defined Policy:** The budgets are prepared to establish the responsibilities of executives to the requirements of a particular policy. As such the policy of the business to be followed during budget period should be clearly defined.

5. **Active Participation by Executives:** The various executives who are made responsible for different budget centres, should be actively involved in the preparation of the budget.
6. **Efficient Budget Education:** The various executives responsible for putting into effect the budgetary proposals, should take active interest in the operation of the budgeting system. It is possible if these executives are constantly educated about the objectives, potentials and techniques of budgeting.
7. **Adequate Accounting System:** Budgeting is closely related to accounting since compilation of budget is done on the basis of historical data provided by the Accounting Department. These data form the basis for making estimates. As such the accounting system should be designed to the requirements of responsibility accounting.
8. **Cost of the Budgeting System:** The cost of operation of the budgeting system should be within the financial capacity of the business and should not exceed, in any case, the total benefits accruing from it to the organization.
9. **Efficient Reporting:** It is necessary that prompt reports on the comparison of actual performance with the budgeted figures should be made available to the management for ensuring timely action on the points of inefficiency.
10. **Flexibility:** The budget programme of the business concern should not be too rigid. It should be flexible and should provide for possible contingencies.
11. **Integration with Standard Costing System:** If the business concern decides to introduce standard costing system, it should be completely integrated with budgetary control system in respect of compilation of budget and analysis of variances.

Advantages and Limitations of Budgeting control:

Advantages of Budgetary Control: Budgetary control offers many advantages. It has become an essential tool of the management for controlling cost and maximizing profit. It uncovers uneconomies in operations, weaknesses in the organization structure and minimizes wasteful, spending. It acts as a friend, philosopher and guide to the management. Its important advantages are as follows:

- 1) **Efficiency and economy in the conduct of business:** Budgetary control brings efficiency and economy in the working of the business. Wastages and losses of all types are avoided. As Sickle says “The budget in an impersonal policeman that maintains ordered effort and brings about efficiency in results”.
- 2) **Establishes responsibility:** Budgetary control establishes divisional and departmental responsibility. It thus prevents alibis and “buck passing” when the budgeted results are not achieved.
- 3) **Ensures Co-ordination:** It co-ordinates the various divisions of a business, namely, the production, marketing financial and administrative divisions. It forces executives to think, and think as a group. Thus it ensures team work.
- 4) **Safety signal for the management:** It acts as a safety signal for the management. It shows when to proceed cautiously and when manufacturing expansion can be safely undertaken. It acts as a magic eye to the management who can always watch over the performance of the business.
- 5) **Ensures effective utilization of factors of production:** It ensures effective utilization of men, materials, machines and money because production is planned according to the availability of these items.
- 6) **Setting up standard costing system:** Budgetary control creates conditions for setting up a system of standard costing.
- 7) **Cost consciousness:** It helps in promoting a feeling of cost consciousness and in restricting expenditure to the minimum.
- 8) **Acts as a measure of efficiency:** Budget acts as a tool for measuring the managerial performance. The budget targets are compared with actual ones, variations are singled out and responsibility fixed. It is therefore, an instruments of control. It helps in measuring the efficiency of all departments.
- 9) **Favour from credit agencies:** Budgets confirm the existence of plans and bring light their profitability. Financial institutions are willing to lend on easy terms for the concerns having a budgetary programme.

10) **Prompt and profitable decisions by management:** By furnishing periodical adequate accounting data, budgetary control assists the management in taking prompt and profitable decisions.

Limitations of Budgetary Control: The Budgetary control system is not a perfect tool. It has its own limitations. They are as follows:

- 1) **Opposition against the very spirit of budgeting:** There will be always active and passive resistance to budgetary control as it points out at the efficiency or inefficiency of individuals.
- 2) **Budgeting and changing economy:** The preparation of a budget under inflationary pressure and changing Government policies is really difficult. Thus the accurate position of the business cannot be estimated.
- 3) **Time factor:** Accuracy in budgeting comes through experience. Management must not expect too much during the development period.
- 4) **Not a substitute for management:** Budget is only a management tool. It is not a substitute for management. It cannot replace management in decision-making.
- 5) **Co-operation required:** The success of budgetary control depends upon willing cooperation and team work. Budget officer must get co-operation from all departmental managers.
- 6) **Heavy expenditure:** Budgeting involves heavy expenditure which small concerns cannot afford.

Organization for Budgetary control system:

The following steps should be taken in a sound system of budgetary control:

- 1) **Preparation of an organization chart:** Before successful installation of budgetary control, it is necessary that the concern should prepare a definite plan of organization. Authority and responsibility of each executive should be clearly defined.
- 2) **Establishment of Budget centres:** A budget centre is a section of the organization of an undertaking for the purpose of the budgetary control. Budget centres should be established for cost control and all budgets should be related to

cost centres. Budget centres will disclose the sections of the organization where planned performance is not achieved.

3) Establishment of Budget Committee: A budget committee should be established with functional heads as members. A top executive should be appointed known as budget controller or budget officer. The functional managers will prepare the budgets and submit to the committee for approval. The budget committee make necessary adjustments in the budgets, coordinate all the budgets can finally approve the budgets.

4) Introduction of adequate Accounting records: The accounting system should be able to record and analyse the information required. A chart of accounts corresponding with the budget centre should be maintained.

5) Preparation of Budget manual: The budget manufacturing is a written document or booklet which specifies the objective of the budgeting organization and procedures. It guides executives in preparing various budgets. It is the reasonability of the budget officer to prepare and maintain this manufacture.

6) Fixation of Budget period: Budget period means the period for which a budget is prepared and employed. The budget period will depend upon. a) the nature of the business, and b) the costing techniques to be applied. For example, in case of continuous or mass production industries, it is necessary to compare continuously the actual with budgets and therefore, the budget period should be a short one. But in case of heavy engineering works, a longer period will be suitable.

7) Determination of Key Factor:Key factor means “the factor the extent of whose influence must first be assessed in order to ensure that functional budgets are reasonably capable of fulfilment”. Key factor is also known as “Principal budget” or “limiting” or “governing factor”. It is necessary to locate the factor before the preparation of budgets because it influences all other budgets. The key factor wil differ in all concerns.

PRODUCTION BUDGET

1. Prepare a production budget for three months ending March 31, 2008 for a factory producing four products, on the basis of the following information:

Type Of Product	Estimated Stock on January 1, 2008 Units	Estimated Sales during January – March, 2008 Units	Desired closing Stock March 31, 2008 Units
A	2,000	10,000	5,000
B	3,000	15,000	4,000
C	4,000	13,000	3,000
D	5,000	12,000	2,000

Solution:

Production Budget for 3 months ending 31.3.2008

Particulars	A(units)	B(units)	C(units)	D(units)
Estimated Sales	10,000	15,000	13,000	12,000
(+)Desired closing stock	5,000	4,000	3,000	2,000
	15,000	19,000	16,000	14,000
(-) Opening stock	2,000	3,000	4,000	5,000
Estimated production	13,000	16,000	12,000	9,000

2. Larsen Ltd., plans to sell 1,10,000 units of a certain product line in the first fiscal quarter, 1,20,000 units in the second quarter, 1,30,000 in the third quarter, and 1,50,000 in the fourth quarter and 1,40,000 in the fifth quarter of the following year. At the beginning of the first quarter of the current year, there are 14,000 units of product in the stock. At the end of each quarter, the company plans to have an inventory equal to one-fifth of the sales for the next fiscal quarter.

How many units must be manufactured in each quarter of the current year?

Solution:

PRODUCTION BUDGET

Particulars	First quarter units	Second quarter units	Third quarter units	Fourth quarter units

Sales	1,10,000	1,20,000	1,30,000	1,50,000
(+) Desired closing stock	24,000	26,000	30,000	28,000
	1,34,000	1,46,000	1,60,000	1,78,000
(-) Opening stock	14,000	24,000	26,000	30,000
Estimated Production	1,20,000	1,22,000	1,34,000	1,48,000

Working Notes:

- i) $1,20,000 \times \frac{1}{5} = 24,000$
- ii) $1,30,000 \times \frac{1}{5} = 26,000$
- iii) $1,50,000 \times \frac{1}{5} = 30,000$
- iv) $1,40,000 \times \frac{1}{5} = 28,000$

3. Your company manufactures two products A and B. A forecast of the number of units to be sold in first seven months of the year is given below.

Months	Product A	Product B
January	1,000	2,800
February	1,200	2,800
March	1,600	2,400
April	2,000	2,000
May	2,400	1,600
June	2,400	1,600
July	2,000	1,800

It is anticipated that (i) there will be no work-in-progress at the end of month (ii) finished units equal to half the sales for the next month will be in stock at the end of each month (including the previous December)

Budgeted production and production cost for the whole year are as follows:

Particulars	Product A	Product B
Production units	22,000	24,000
	Rs	Rs
Per unit: Direct material	10.00	15.00
Direct labour	5.00	10.00
Total factory overhead apportioned	88,000	72,000

Prepare for the six months ending 30th June, a production budget for each month and summarized production cost budget.

Solution:

Production Budget (For six months ending 30th June)

Particulars	Jan.	Feb.	March	April	May	June
	Units	Units	units	Units	units	units
Product A						
Sales	1,000	1,200	1,600	2,000	2,400	2,400
(+) closing stock	600	800	1,000	1,200	1,200	1,000
	1,600	2,000	2,600	3,200	3,600	3,400
(-) Opening stock	500	600	800	1,000	1,200	1,200
Budgeted Production	1,100	1,400	1,800	2,200	2,400	2,200

Total Budget production for six months

$$1,100 + 1,400 + 1,800 + 2,200 + 2,400 + 2,200 = 11,100 \text{ units}$$

Particulars	Jan. Units	Feb. Units	March units	April Units	May units	June units
Product B						
Sales	2,800	2,800	2,400	2,000	1,600	1,600
(+) Closing stock	1,400	1,200	1,000	800	800	900
	4,200	4,000	3,400	2,800	2,400	2,500
(-) Opening stock	1,400	4,000	1,200	1,000	800	800
Budgeted Production	2,800	2,600	2,200	1,800	1,600	1,700

Total Budgeted Production = 2,800+2,600+ 2,200+ 1,800+ 1,600+ 1,700 = 12,700 units

PURCHASE BUDGET

4.The sales Director of a manufacturing company reports that next year he expects to sell 50,000 units of a particular product.

The production manager consults the storekeeper and costs his figures as follows:

Two kinds of raw material A and B, are required for manufacturing the product. Each unit of the product requires 2 units of A and 3 units of B. The estimated opening balances at the commencement of the next year are:

Finished product: 10,000 units

Raw material : 12,000 units B: 15,000 units

The desirable closing balances at the end of the next year are:

Finished product 14,000 units, A: 13,000 units B: 16,000 units

Prepare Production budget and materials purchase Budget for the next year.

Solution:**Production Budget (Units)**

Estimated sales	50,000
(+) Desired closing stock	14,000
	64,000
(-) Opening stock	10,000
∝ Estimated Production	54,000

Procurement Budget (units)

Particulars	Material A	Material B
Estimated consumption 2*54,000	1,08,000	1,62,000
3* 54,000		
(+) Desired Closing stock	13,000	16,000
	1,21,000	1,78,000
(-) Opening stock	12,000	15,000
Estimated Purchases	1,09,000	1,63,000

SALES BUDGET

5. Parker Ltd., manufactures two brands of pen Hero & Zero. The sales department of the company has three departments in different areas of the country.

The sales budget for the year ending 31st December 2008 were: Hero Department I 3,00,000; Department II 5,62,500; Department III 1,80,000 and Zero-Department I 4,00,000; Department II 6,00,000; Department III 20,000 Sales price are Rs.3 and Rs.1.20 in all departments.

It is established that by forced sales promotion the sales of 'Zero' in department I will increase by 1,75,000. It is also expected by that by increasing production and arranging extensive advertisement, Department III will be enabled to increase the sale of 'Zero' by 50,000.

It is recognized that the estimated sales by department II represent an unsatisfactory target. It is agreed to increase both estimate by 20%.

Solution:**Sales Budget for 2009**

Selling Price	Hero Rs.3		Zero Rs . 1.20		Total
	Quantity	Rs.	Quantity	Rs	
Department I	3,00,000	9,00,000	5,75,000	6,90,000	15,90,000
Department II	6,75,000	20,25,000	7,20,000	8,64,000	28,89,000
Department III	1,80,000	5,40,000	70,000	84,000	6,24,000
Total	11,55,000	34,65,000	13,65,000	16,38,000	51,03,000

CASH BUDGET

6. From the following particulars given below prepare a cash budget for the month of June 2008.

a. Expected sales: April Rs 2,00,000; May Rs. 2,20,000; June Rs. 1,90,000.

Credit allowed to customers is two months and 50% of the sales of every month is on cash basis.

b. Estimated purchases : May Rs. 1,20,000 ; June Rs. 1,10,000; 40% of the purchase of every month is on cash basis and the balance is payable next month.

c. Rs. 2,000 is payable as rent every month.

d. Time lag in payment of overhead is $\frac{1}{2}$ month.

e. Depreciation for the year is Rs. 12,000.

f. Interest receivable on investment during June and December Rs. 3,000 each

g. Estimated Cash Balance as on 1.6.2008 is Rs. 42,500.

Solution:**Cash Budget for the month of June 2008**

Particulars	Rs.	Rs.
Opening balance		42,500
Receipts:		
Cash sales	95,000	
Debtors	1,00,000	
Interest on investment	3,000	
		1,98,000

		2,40,000
(-) Payments:		
Cash purchase	44,000	
Creditors	72,000	
Rent	2,000	
Overheads: May: 6,000 June: 5,500	11,500	1,29,500
Closing Balance		1,11,000

7. BPL Ltd., wishes to arrange overdraft facilities with its bankers during the period April to June 2008 when it will be manufacturing mostly for stock. Prepare a Cash budget for the above period from the following data, indicating the extent of the bank facilities the company will require at the end of each month.

(A)	Credit sales Rs.	Purchase Rs.	Wages Rs.
February (2008)	1,80,000	1,24,800	12,000
March	1,92,000	1,44,000	14,000
April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,26,000	2,68,000	15,000

b) 50% of credit sales are realized in the month following the sales and the remaining 50% in the second month following.

Creditors are paid in the month following the month of purchase. Lag in payment of wages 1 month.

c) Cash at bank on 1.4. 2008 estimated Rs. 25,000

Solution:

BPL Ltd., Cash budget for 3 months ending June 2008

	April Rs.	May Rs.	June Rs.
Opening balance	25,000	53,000	-
Receipts:			
Realization for debtors	90,000	96,000	54,000
	96,000	54,000	87,000
Total	2,11,000	2,03,000	1,41,000
Payments:			
Wages	14,000	11,000	10,000
Purchase	1,44,000	2,43,000	2,46,000
Total	1,58,000	2,54,000	2,56,000
Surplus or (Deficit)	53,000	(51,000)	(1,15,000)
Estimated overdraft	-	51,000	1,15,000
Closing Balance	53,000	-	-

FLEXIBLE BUDGET

Meaning

A flexible budget, also called a variable budget, is financial plan of estimated revenues and expenses based on the current actual amount of output. In other words, a flexible budget uses the revenues and expenses produced in the current production as a baseline and estimates how the revenues and expenses will change based on changes in the output.

Problem: 8

Draw up a flexible budget for production at 75% and 100% capacity on the basis of the following data for a 50% activity.

Particulars	Per units(Rs.)
Materials	100
Labour	50
Variable expenses(direct)	10

Administrative expenses (50% fixed)	40,000
Selling and distribution expenses (60% fixed)	50,000
Present production (50% activity)	1,000 units

Solution

Flexible budget

Particulars	Capacity levels					
	50% 1,000 units		75% 1,500 units		100% 2,000 units	
	Per unit Rs.P.	Total Rs.	Per unit Rs.P.	Total Rs.	Per unit Rs.P.	Total Rs.
Materials	100	100,000	100.00	1,50,000	100	2,00,000
Labour	50	50,000	50.00	75,000	50	1,00,000
Variable expenses	10	10,000	10.00	15,000	10	20,000
Prime cost	160	1,60,000	160.00	2,40,000	160	3,20,000
Administration expenses:						
Variable (50%)	20	20,000	20.00	30,000	20	40,000
Fixed (50%)	20	20,000	13.33	20,000	10	20,000
Cost of production	200	200,000	193.33	2,90,000	190	3,80,000
Selling and distribution expenses:						
Variable (40%)	20	20,000	20.00	30,000	20	40,000
Fixed (60%)	30	30,000	20.00	30,000	15	30,000
Total cost	250	2,50,000	233.33	3,50,000	225	4,50,000

Problem: 9

The cost an article at a capacity level of 10,000 units is given under A below. For a variation in capacity above or below this level, the individual expenses vary as indicated in B below:

Particulars	A(Rs.)	B
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Material cost	50,000	100%	Varying
Labour cost	30,000	100%	”
Power	3,000	80%	”
Repair and maintenance	3,500	80%	”
Stores	2,000	100%	”
Inspection	800	25%	”
Depreciation	10,000	100%	”
Administration overhead	3,600	25%	”
Selling overhead	4,500	50%	”
Total			
Cost per unit	1,07,400		
	10.74		

Solution:

Fixed budget

Particulars	Capacity levels					
	8,000 units		10,000 units		12,000 units	
	Per units Rs.	Total Rs.	Per units Rs.	Total Rs.	Per units Rs.	Total Rs.
Material cost	5.000	40,000	5.000	50,000	5.000	60,000
Labour cost	3.000	24,000	3.000	30,000	3.000	36,000
Prime cost	8.000	64,000	8.000	80,000	8.000	96,000
Power						
Variable80%	0.240	1,920	0.240	2,400	0.240	2,880
Fixed20%	0.075	600	0.060	600	0.050	600
Repairs and maintenance						
Variable80%	0.280	2,240	0.280	2,800	0.280	3,360
Fixed20%	0.087	700	0.070	700	0.058	700
Stores, variable 100%	0.200	1,600	0.200	2,000	0.200	2,400
Inspection						
Variable 25%	0,020	160	0.020	200	0.020	240
Fixed75%	0,075	600	0.060	600	0..050	600
Depreciation, variable	1.000	8,000	1.000	10,000	1.000	12,000
Work cost	9.977	79,820	9.930	99,300	9,898	1,18,780
Administration overhead						
Variable 25%	0.090	720	0.090	900	0.090	1,080
Fixed75%	0.337	2,700	0.270	2,700	0.225	2,700
Cost of production	10.404	83,240	10.290	1,02,900	10.213	1,22,560
Selling overhead						
Variable50%	0.225	1,800	0.225	2,250	0.225	2,700
Fixed 50%	0.281	2,250	0,225	2,250	0.188	2,250
Total cost	10.910	87,290	10.740	1,07,400	10.626	1,27,510

Problem:10

The following overhead expenses relate to a cost center operating at 50% of normal activity. Draw up a flexible budgeted for the cost center for operating at 75%, 100% and 125% of normal capacity.

Indicate the basis upon which you have estimated each items of expense for the different operating levels.

Particulars	Rs.
Foreman	60
Assistant foreman	40
Inspectors	65
Shop labour	40
Machinery repairs	100
Defective work	25
Consumable stores	20
Overtime bonus	-
Machine depreciation	110
	460

Solution:**Flexible budget**

Particulars	50% Capacity Rs.	75% Capacity Rs.	100% Capacity Rs.	125% Capacity Rs.
Foreman	60	60	60	60
Assistant foreman	40	40	80	80
Inspectors	65	80	95	110
Shop labour	40	60	80	100
Machinery repairs	100	150	200	300
Defective work	25	40	60	90
Consumable stores	20	30	40	50
Overtime bonus	-	10	30	60
Machine depreciation	110	110	110	140
Total	460	580	755	990

STANDARD COSTING**Definition:**

Standard Cost is, a pre-determined cost" which is calculated from management's standards of efficient operation and the relevant necessary expenditure (ICMA London)

Standard Costing is, "the preparation and use of standard costs, their comparison with actual cost and the analysis of variances to their causes and points of incidence" (ICMA London)

Thus standard costing involves –

- (a) Pre-determination of standard costs.

(b) Recording of actual costs.

(c) Comparison of actual costs with standard costs to find out the difference between the two. (known as variance).

(d) Analysis of reasons for variances.

(e) Reporting to management for taking proper action.

Advantages of Standard Costing:

Standard costing is a very useful managerial tool for control and cost reduction. The following are the main advantages of standard costing.

1. Standard costing is a valuable aid to management formulating price and production policies and in performing managerial functions.

2. Standards serve as yardsticks against which actual costs are compared. Whenever variances occur, reasons are studied and immediate corrective measures are undertaken. Thus, it facilitates effective cost control and provides necessary information for cost reduction.

3. It creates an atmosphere of cost consciousness among executives, foremen and workers. It also provides incentives to employees for efficient work.

4. Standard costing facilitates management by exception. It helps the management in concentrating its attention on cases which are below the standards set.

5. Standard costing helps in effective delegation of authority and responsibility. As a result, the management can control the affairs of various departments effectively.

6. Setting of standard involves effective utilisation of men, material and machines. It leads to economy and increased productivity in all business activities.

7. It simplifies costing procedures and reporting. It reduces clerical work since standard rates are fixed for material pricing, overhead allocation apportionment etc..

8. It makes the work of valuation of inventory easier. This is because inventory is valued at predetermined costs

Limitations:

1. Standard costing is an expensive technique in a small concern.

2. It is difficult to set accurate standard costs. Improperly set Standards may do more harm than good.

3. It is not easy to distinguish variances as controllable or uncontrollable.

4. Since business conditions are changing the standards are to be revised frequently. Revision of standards is a tedious and costly process.

5. Standard costing cannot be applied fully to job order industries dealing in non-standardized products. It may be applied

6. If standards are too high or rigid, they will be unattainable. It will adversely affect the morale and motivation of employees and lead to resistance.

Types of Variances :

The following are the different types of variances.

(1) Direct material cost variances (2) Direct labour cost variance (3) Overheads cost variances (4) Sales variances.

Material

(1) Direct Material Cost Variance (MCV):

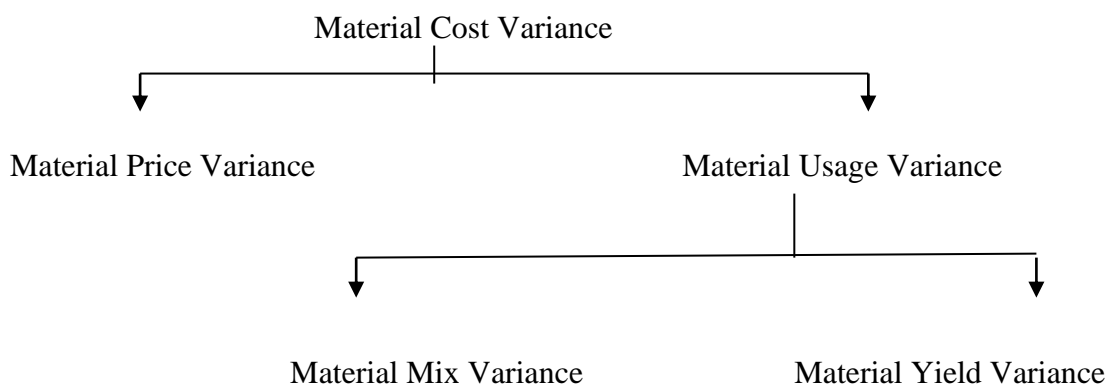
It is the difference between standard materials cost and actual materials cost. If the actual cost is less than the standard cost, the variance is favourable and vice versa. MCV arises due to change in the price of the materials or a change in the usage of materials.

$$MCV = (SQ \times SP) - (AQ \times AP)$$

SQ= Standard Quantity SP= Standard Price

AQ=Actual Price AP=Actual Price

The following chart shows the components of material cost variance:



(2) Material Price Variance (MPV):

It is that part of material cost variance which is due to the difference between the standard price specified and the actual price paid.

$$MPV = (SP - AP) AQ$$

MPV arises due to the following reasons:

- a) Changes in the market prices of materials
- b) Uneconomical size of purchase orders
- c) Uneconomical transport costs
- d) Failure to obtain cash discount
- e) Failure to purchase materials at proper time.

(3) Material Usage Variance (MUV):

It is the difference between the standard quantity specified and the actual quantity used

$$\text{MUV} = (\text{SQ}-\text{AQ}) \text{ SP}$$

(4) Material Mix Variance (MMV):

It is that part of material usage variance which arises due to change in standard and actual composition of mix.

$$\text{MMV} = (\text{RSQ}-\text{AQ}) \text{ SP}$$

(5) Material Yield Variance (MYV):

It is a part of material usage variance. It is the difference between standard yield specified and actual yield obtained.

$$\text{MYV} = (\text{Standard yield} - \text{Actual yield}) \text{ Average standard price p.u.}$$

or

$$(\text{Standard loss on actual input} - \text{Actual loss}) \text{ Average standard variance p.u.}$$

PROBLEM: 1

From the following information of product No. 777 calculate

1. Material Cost Variance
2. Material Price Variance
3. Material Usage Variance
4. Material Mix Variance
5. Material Sub-usage Variance

Material	Standard Quantity Kg.	Standard price. Rs.	Actual Quantity Kg.	Actual Price Rs.
X	20	5	24	4.00
Y	16	4	14	4.50
Z	12	3	10	3.25
	48		48	

Solution:

1. MATERIAL COST VARIANCE (MCV)

= (Standard Quantity × Standard price) – (Actual Quantity × Actual price)

$$\begin{array}{rcl}
 \text{X} & = (20 \times 5) - (24 \times 4) & \\
 & 100 - 96 & = 4.00 \text{ (F)} \\
 \text{Y} & = (16 \times 4) - (14 \times 4.50) & \\
 & 64 - 63 & = 1.00 \text{ (F)} \\
 \text{Z} & = (12 \times 3) - (10 \times 3.25) & \\
 & 36 - 32.50 & = 3.50 \text{ (F)} \\
 & & \underline{8.50 \text{ (F)}}
 \end{array}$$

2. MATERIAL PRICE VARIANCE (MPV)

= (Standard price - Actual price) Actual Quantity

$$\begin{array}{rcl}
 \text{X} & = (5 - 4) 24 & = 24.00 \text{ (F)} \\
 \text{Y} & = (4 - 4.50) 14 & = 7.00 \text{ (A)} \\
 \text{Z} & = (3 - 3.25) 10 & = 2.50 \text{ (A)} \\
 & & \underline{\text{Rs. } 14.50 \text{ (F)}}
 \end{array}$$

3. MATERIAL USAGE VARIANCE (MUV)

= (Standard Quantity - Actual Quantity) Standard price

$$\begin{array}{rcl}
 \text{X} & = (20 - 24) 5 & = 20.00 \text{ (A)} \\
 \text{Y} & = (16 - 14) 4 & = 8.00 \text{ (F)}
 \end{array}$$

$$Z = (12 - 10) 3 = 6.00 \text{ (F)}$$

$$\text{Rs. } 6.00 \text{ (A)}$$

4. MATERIAL MIX VARIANCE (MMV)

= (Revised Standard Quantity - Actual Quantity) Standard price.

$$\text{Revised Standard Quantity} = \frac{\text{Standard Quantity}}{\text{Total Standard Quantity}} \times \text{Total Actual Quantity}$$

$$X = \frac{20}{48} \times 48 = 20$$

$$Y = \frac{16}{48} \times 48 = 16$$

$$Z = \frac{12}{48} \times 48 = 12$$

$$X = (20 - 24) 5 = 20.00 \text{ (A)}$$

$$Y = (16 - 14) 4 = 8.00 \text{ (F)}$$

$$Z = (12 - 10) 3 = 6.00 \text{ (F)}$$

$$\text{Rs. } 6.00 \text{ (A)}$$

5. MATERIAL SUB USAGE VARIANCE

= (Standard Quantity - Revised Standard Quantity) Standard price.

$$X = (20 - 20) 4 = 0$$

$$Y = (16 - 16) 4 = 0$$

$$Z = (12 - 12) 3 = 0$$

$$0$$

PROBLEM: 2

From the following information compute material variance.

	Quantity Kg.	Standard unit price Rs.	Total Rs.	Quantity Kg.	Actual unit price Rs.	Total Rs.
Material A	10	2	20	5	3	15
Material B	20	3	60	10	6	60
Material C	20	6	120	15	5	75
Total	50	4	200	30	5	150

Solution:

1. MATERIAL COST VARIANCE (MCV)

= (Standard Quantity × Standard price) – (Actual Quantity × Actual price)

$$\begin{array}{lcl} \text{A} & = (10 \times 2) - (5 \times 3) & \\ & 20 - 15 & = 5.00 \text{ (F)} \\ \text{B} & = (20 \times 3) - (10 \times 6) & \\ & 60 - 60 & = 0 \\ \text{C} & = (20 \times 6) - (15 \times 5) & \\ & 120 - 75 & = 45 \text{ (F)} \\ & & \underline{50 \text{ (F)}} \end{array}$$

2. MATERIAL PRICE VARIANCE (MPV)

= (Standard price - Actual price) Actual Quantity

$$\begin{array}{lcl} \text{A} & = (2 - 3) 5 & = 5 \text{ (A)} \\ \text{B} & = (3 - 6) 10 & = 30 \text{ (A)} \\ \text{C} & = (6 - 5) 15 & = 15 \text{ (F)} \\ & & \underline{20 \text{ (A)}} \end{array}$$

Rs. 20 (A)

3. MATERIAL USAGE VARIANCE (MUV)

= (Standard Quantity - Actual Quantity) Standard price

A	= (10– 5) 2	=	10 (F)
B	= (20– 10) 3	=	30 (F)
C	= (20– 15) 6	=	30 (F)

		Rs.	70 (F)

4. MATERIAL MIX VARIANCE (MMV)

= (Revised Standard Quantity- Actual Quantity) Standard price.

$$\text{Revised Standard Quantity} = \frac{\text{Standard Quantity}}{\text{Total Standard Quantity}} \times \text{Total Actual Quantity}$$

$$A = \frac{10}{50} \times 30 = 6$$

$$B = \frac{20}{50} \times 30 = 12$$

$$C = \frac{20}{50} \times 30 = 12$$

A	= (6– 5) 2	=	2(F)
B	= (12– 10) 3	=	24 (F)
C	= (12– 15) 6	=	48 (F)

		Rs.	80 (F)

5. MATERIAL SUB USAGE VARIANCE

= (Standard Quantity - Revised Standard Quantity) Standard price.

A	= (10– 6) 2	=	8 (F)
B	= (20– 12) 3	=	24 (F)
C	= (20– 12) 6	=	48 (F)

		Rs.	80 (F)

LABOUR COST VARIANCE (LCV):

This is the difference between the standard wages specified and the actual wages paid. This is further divided into the following variance.

LABOUR RATE VARIANCE (LRV):

It is the difference between the standard rate of wage specified and the actual rate paid.

Labour rate variance arises due to

- Change in the basic wage rate
- Use of different methods of wage payment
- Unscheduled overtime

LABOUR EFFICIENCY VARIANCE (LEV):

It is a part of labour cost variance . It is the difference between standard labour hours specified and actual hours spend. The variance arises due to

- Lack of proper supervision
- Insufficient training
- Poor working conditions
- Increase in labour grades utilized

LABOUR MIX VARIANCE (LMV):

This is the difference between the standard labour grades specified and the actual labour grades utilized.

LABOUR YIELD VARIANCE (LYV):

It is the part of labour efficiency variance. It arises due to the difference between standard yield and actual yield.

FORMULA:

1) Labour cost variance

$$LCV = \text{Standard cost} - \text{Actual cost}$$

(or)

$$(SH \times SR) - (AH \times AR)$$

2) Labour rate variance

$$LRV = (SR - AR) AH$$

3) Labour efficiency variance

$$LEV = (SH - AH)SR$$

4) Labour mix variance

$$LMV = (RSH - AH)SR$$

Revised standard hours

$$RSE = \frac{\text{Standard hours}}{\text{Total standard hours}}$$

5) Labour yield variance

$$LYV = (\text{Standard yield} - \text{Actual yield})\text{Average standard rate p. u.}$$

(or)

$$(\text{Standard loss on actual input} - \text{Actual loss})\text{Average standard rate p. u.}$$

$$\text{Average standard labour rate} = \frac{\text{Standard labour cost}}{\text{Standard output}}$$

PROBLEM 1:

The standard time and rate for unit component are given below:

Standard hours 20.

Standard rate Rs.5 per hour.

Actual data and related information are as under;

Actual production 1000units: Actual hours 20,500 hours

Actual rate per hour =Rs.4.80

Calculate (i) Labour variance (ii) Labour efficiency variance (iii) Labour rate variance

SOLUTION:

$$1. \text{ Labour cost variance} = (SH \times SR) - (AH \times AR)$$

$$\text{Standard hours for actual production} = 20 \times 1000 \text{ u} = 20,000$$

$$\text{Labour cost variance} = (20,000 \times 5) - (20,500 \times 4.80)$$

$$= 1,00,000 - 98,400 = \text{Rs.}1,600(\text{F})$$

$$2. \text{ Labour rate variance} = (SR - AR)AH$$

$$= (5 - 4.80) 20,500 = \text{Rs.}4,100(\text{F})$$

$$3. \text{ Labour efficiency variance} = (SH - AH)SR$$

$$=(20,000-20,500)5 =2,500(A)$$

Check: Labour cost variance = Labour rate variance + labour efficiency variance

$$=1,600(F)= 4,100(F)+2,500(A)$$

PROBLEM 2:

The information regarding the composition and hourly wage rate of labour force engaged on a job scheduled to be completed in 30 hours are as follows:

Category of workers	Standard No. of workers	Hourly wage rate per worker	Actual No.of workers	Hourly wage rate per worker
Skilled	75	Rs.6	70	Rs.7
Semi-skilled	45	Rs.4	30	Rs.5
Un-skilled	60	Rs.3	80	Rs.2

The work was completed in 32hours. Calculate labour variance

SOLUTION

$$1. \text{ Labour cost variance} = (SH \times SR) - (AH \times AR)$$

SH here refers to standard man hours

	Standard Man Hours	Actual Man Hours
Semi-skilled		
Skilled	$75 \times 30 = 2,250$	$70 \times 32 = 2,240$
Semi-skilled	$45 \times 30 = 1,350$	$30 \times 32 = 960$
Un-skilled	$60 \times 30 = 1,800$	$80 \times 32 = 2,560$
	5,400	5,760

2. Labour cost variance:

Skilled	$=(2,250 \times 6) - (2,240 \times 7)$ $13,500 - 15,680 =$	2,180(A)
Semi-skilled	$=(1,350 \times 4) - (960 \times 5)$ $5,400 - 4,800 =$	600(F)

Un-skilled	$= (1,800 \times 3) - (2,560 \times 2)$ $5,400 - 5,120 =$	280(F)
Total labour cost variance		1,300(A)

$$\text{Labour rate variance} = (SR - AR)AH$$

Skilled	$= (6 - 7)2,240$	$= 2,240(A)$
Semi-skilled	$= (4 - 5)960$	$= 960(A)$
Un-skilled	$= (3 - 2)2,560$	$= 2,560(F)$
Total labour rate variance		640(A)

$$3. \text{ Labour efficiency variance} = (SH - AH)SR$$

Skilled	$= (2,250 - 2,240)6$	$= 66(F)$
Semi-skilled	$= (1,350 - 960)4$	$= 1,560(F)$
Un-skilled	$= 1,800 - 2,560)3$	$= 2,280(A)$
Total labour efficiency variance		660(A)

$$4. \text{ Labour mix variance} = (RSH - AH)SR$$

$$RSH = \text{Standard} \frac{\text{hours}}{\text{Total standard hours}} \times \text{Total actual hours}$$

Revised standard hours (RSE)

Skilled	$= 2,250 / 5,400 \times 5,670$	$= 2,400$
Semi-skilled	$= 1,350 / 5,400 \times 5,760$	$= 1,440$
Un-skilled	$= 1,800 / 5,400 \times 5,760$	1,920

Labour mix variance:

Skilled	$= (2,400 - 2,240)6$	$= 960(F)$
Semi-skilled	$= (1,440 - 960)4$	$= 1,920(F)$
Un-skilled	$= (1,920 - 2,560)3$	$= 1,920(A)$

Total labour mix variance	960(F)
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5. Labour sub – efficiency variance = (SH – RSP)SR

Skilled	=(2,250-2,400)6	=900(A)
Semi-skilled	=(1,350-1,400)4	=360(A)
Un-skilled	=(1,800-1,920)3	=360(A)
Total labour sub-efficiency variance		1,620(A)

Check:

$$LCV = LRV + LEV = 1,300(A) = 640(A) + 660(A)$$

$$LEV = LMV + LSEV = 660(A) = 960(F) + 1,620(A)$$

OVERHEAD VARIANCE

Overhead cost variance: this is the difference between the standard overhead specified and the actual overhead incurred. $\text{overhead cost variance} = \text{standard overhead} - \text{Actual overhead}$

Generally variances in overhead costs are divided into (a) variable overhead variance and (b) fixed overhead variance

Variable overhead variance is the difference between the standard and actual and actual variable overheads

Fixed overheads variance is the difference between the standard and actual fixed overheads

Overheads variance is further divided into the following categories:

- (i) Budget variance or Expenditure variance
- (ii) Volume variance
- (iii) Efficiency variance
- (iv) Capacity variance
- (v) Calendar variance

FORMULA

a. OH Cost variance = Standard overhead – Actual overhead

b. OH Budget variance = Budgeted overhead – Actual overhead

- c. OH Volume variance = Standard variance – Budgeted overhead
- d. OH Efficiency variance = (Actual production – Standard production)SR
- e. OH capacity variance

When there is no calendar variance,

$$(Standard\ production - Budgeted\ production)SR$$

When there is no calendar variance,

$$(Standard\ production - Revised\ Budgeted\ production)SR$$

h. Calendar variance

$$= (Revised\ Budgeted\ production - Budgeted\ production)SR$$

PROBLEM 1:

From the following data. Calculate overhead variances

	Budgeted	Actual
Fixed overhead	Rs.3,00,000	3,20,000
Output in units	Rs.30,000	26,000
Working hours	Rs.75,000	60,000

Solution:

Overhead cost variance = Standard overheads – Actual overheads

$$=2,60,000-3,20,000=60,000(A)$$

Overhead Budgeted variance = Budgeted overheads – Actual overheads

$$=3,00,000-3,20,000=20,000(A)$$

Overhead Volume variance = Standard overheads – Budgeted overheads

$$=2,60,000-3,00,000=40,000(A)$$

Overhead efficiency variance = (Actual production – Standard production)SR

$$=(26,000-24,000)10=20,000(F)$$

Overhead capacity variance = (Standard production – Budgeted production)SR

$$=(24,000-30,000)10=60,000(A)$$
