Course No.: 503 **MANAGEMENT ACCOUNTING (MAAC XIX)**

(For B.Com General and Accounting & Finance)

Marks: 80 **Hours: 40**

Objective: This course provides the students an understanding of the application of accounting techniques for management.

Course Contents

UNIT-I: Management Accounting: Meaning, nature, scope, and functions of Management accounting in decision making; Tools and Techniques of Management accounting.

20: 10 hrs

UNIT-II: Cash flow Statements as per Indian Accounting Standard 3 (revised), fund flow statement.

20: 10 hrs

UNIT-III: Absorption & Marginal Costing: Marginal & differential costing as a tool for decision making –making or buy; change of product mix; Pricing; Break-even analysis; Exploring new markets; Shutdown decisions.

20: 10 hrs

UNIT-IV: Budgeting for profit Planning and Control: Meaning of budget and budgetary control; Objectives; Types of budgets; Fixed and flexible budgeting, Functional budgeting; Control ratios; Zero base budgeting; Responsibility accounting; Performance budgeting.

20: 10 hrs

Text and references:

1. Arora M.N.: Cost Accounting-Principles and Practices; Vikas, New Delhi.
2. Jain S.P. & Narang K.L: Cost Accounting; Kalyani, New Delhi
3. Anthony, Robert & Reece, et al: Principles of Management Accounting; Richard Irwin Inc.
4. Horngren, Charles, Forest and Datar et al: Cost Accounting- A Managerial Emphasis; Prentice Hall, New Delhi.
5. Sriram: Management Accounting and Financial Analysis, New Central Book Agency, Hyderabad.
6. Paul: Practical Cost and Management Accounting, New Central Book Agency, Hyderabad.

Unit – 3: Marginal Costing and Absorption Costing

Meaning of Marginal Cost and Marginal Costing

Marginal Cost: The term Marginal cost means the additional cost incurred for producing an additional unit of output. It is the addition made to total cost when the output is increased by one unit. Marginal cost of nth unit = Total cost of nth unit- total cost of n-1 unit. E.g. When 100 units are produced, the total cost is Rs. 5000.When the output is increased by one unit, i.e, 101 units, total cost is Rs.5040.Then marginal cost of 101th unit is Rs. 40[50405000]

Marginal cost is also equal to the total variable cost of production or it is the aggregate of prime cost and variable overheads. The chartered Institute of Management Accountants [CIMA] England defines Marginal as "the amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by one unit.

Marginal Costing: It is the technique of costing in which only marginal costs or variable are charged to output or production. The cost of the output includes only variable costs .Fixed costs are not charged to output. These are regarded as 'Period Costs'. These are incurred for a period. Therefore, these fixed costs are directly transferred to Costing Profit and Loss Account.

According to CIMA, marginal costing is "the ascertainment, by differentiating between fixed and variable costs, of marginal costs and of the effect on profit of changes in volume or type of output. Under marginal costing, it is assumed that all costs can be classified into fixed and variable costs. Fixed costs remain constant irrespective of the volume of output. Variable costs change in direct proportion with the volume of output. The variable or marginal cost per unit remains constant at all levels of output."

Thus, Marginal costing is defined as the ascertainment of marginal cost and of the 'effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs. Marginal costing is mainly concerned with providing information to management to assist in decision making and to exercise control. Marginal costing is also known as 'variable costing' or 'out of pocket costing'.

The main Features (Characteristics) of Marginal Costing are as follows:

1. Cost Classification: The marginal costing technique makes a sharp distinction between variable costs and fixed costs. It is the variable cost on the basis of which production and sales policies are designed by a firm.

2. Managerial Decisions: It is a technique of analysis and presentation of costs which help management in taking many managerial decisions such as make or buy decision, selling price decisions etc.

3. Inventory Valuation: Under marginal costing, inventory for profit measurement is valued at marginal cost only.

4. Price Determination: Prices are determined on the basis of marginal cost by adding contribution which is the excess of selling price over variable costs of sales.

5. Contribution: Marginal costing technique makes use of Contribution for taking various decisions. Contribution is the difference between sales and marginal cost. It forms the basis for judging the profitability of different products or departments.

Assumptions in Marginal Costing

1. All costs can be classified into fixed and variable elements. Semi variable costs are also segregated into fixed and variable elements.

2. The total variable costs change in direct proportion with units of output. It follows a linear relation with volume of output and sales.

3. The total fixed costs remain constant at all levels of output. These are incurred for a period and have no relation with output.

4. Only variable costs are treated as product costs and are charged to output, product, process or operation

5. Fixed costs are treated as 'Period costs' and are directly transferred to Costing Profit and Loss Account.

6. The closing stock is also valued at marginal cost and not at total cost.

7. The relative profitability of product or department is based on the contribution it gives and not based on the profit.

8. It is also assumed that the selling price per unit remains the same i.e, any number of units can be sold at the current market price.

9. The product or sales mix remains constant over a period of time.

Advantages of Marginal Costing

a) Simple and Easy: It is very simple to understand and easy to operate.

b) Helpful in Cost control: Marginal costing divides total cost into fixed and variable cost. Marginal costing by concentrating all efforts on the variable costs can control total cost.

c) Profit Planning: It helps in short-term profit planning by making a study of relationship between cost, volume and Profits, both in terms of quantity and graphs.

d) Evaluation of Performance: The different products and divisions have different profit earning potentialities. Marginal cost analysis is very useful for evaluating the performance of each sector.

e) Helpful in Decision Making: It is a technique of analysis and presentation of costs which help management in taking many managerial decisions such as make or buy decision, selling price decisions, Key or limiting factor, Selection of suitable Product mix etc.

f) Production Planning: It helps the management in Production planning. The effect of alternative production policy can be readily available and decision can be taken that would yield the maximum return to Business.

g) It removes the complexities of under-absorption of overheads.

h) The distinction between product cost and period cost helps easy understanding of marginal cost statements.

Disadvantages of Marginal Costing

a) It is based on an unrealistic assumption that all costs can be segregated into fixed and variable costs. In the long term sales price, fixed cost and variable cost per unit may vary.

b) All costs are not divisible into fixed and variable. There are certain costs which are semi-variable in nature. The separation of costs into fixed and variable is difficult and sometimes gives misleading results.

c) Under marginal costing, stocks and work in progress are understated. The exclusion of fixed costs from Stock Valuation affects profit, and true and fair view of financial affairs of an organization.

d) Marginal cost data becomes unrealistic in case of highly fluctuating levels of production, e.g., in case of seasonal factories.

e) It can correctly assess the profitability on a short-term basis only, but for long term it is not effective.

f) It does not provide any effective yardstick for evaluation of performance.

g) Contribution of marginal costing is not a foolproof indicator of profitability.

h) Marginal cost, if confused with total cost while fixing selling price may lead to a disaster.

“Marginal Costing” is a valuable aid to Management

Marginal costing and Beak even analysis are very useful to management. The important uses of marginal costing and Break Even analysis are the following:

1) Cost control: Marginal costing divides total cost into fixed and variable cost. Fixed Cost can be controlled by the Top management to a limited extent and Variable costs can be controlled by the lower level of management.

Marginal costing by concentrating all efforts on the variable costs can control total cost.

2) Profit Planning: It helps in short-term profit planning by making a study of relationship between cost, volume and Profits, both in terms of quantity and graphs. An analysis of contribution made by each product provides a basis for profit-planning in an organisation with wide range of products.

3) Fixation of selling price: Generally prices are determined by demand and supply of products and services. But under special market conditions marginal costing is helpful in deciding the prices at which management should sell. When marginal cost is applied to fixation of selling price, it should be remembered that the price cannot be less than marginal cost.

But under the following situation, a company shall sell its products below the marginal cost:

Ø To maintain production and to keep employees occupied during a trade depression.

Ø To prevent loss of future orders.

Ø To dispose of perishable goods.

Ø To eliminate competition of weaker rivals.

Ø To introduce a new product.

Ø To help in selling a co-joined product which is making substantial profit?

Ø To explore foreign market

4) Make or Buy: Marginal costing helps the management in deciding whether to make a component part within the factory or to buy it from an outside supplier. Here, the decision is taken by comparing the marginal cost of producing the component part with the price quoted by the supplier. If the marginal cost is below the supplier's price, it is profitable to produce the component within the factory. Whereas if the supplier's price is less than the marginal cost of producing the component, then it is profitable to buy the component from outside.

5) Closing down of a department or discontinuing a product: The firm that has several departments or products may be faced with this situation, where one department or product shows a net loss. Should this product or department be eliminated? In marginal costing, so far as a department or product is giving a positive contribution then that department or product shall not be discontinued. If that department or product is discontinued the overall profit is decreased.

6) Selection of a Product/ sales mix: The marginal costing technique is useful for deciding the optimum product/sales mix. The product which shows higher

P/V ratio is more profitable. Therefore, the company should produce maximum units of that product which shows the highest P/V ratio so as to maximize profits.

7) **Evaluation of Performance:** The different products and divisions have different profit earning potentialities. The Performance of each product and division can be brought out by means of Marginal cost analysis, and improvement can be made where necessary.

8) Limiting Factor: When a limiting factor restricts the output, a contribution analysis based on the limiting factor can help maximizing profit. For example, if machine availability is the limiting factor, then machine hour utilisation by each product shall be ascertained and contribution shall be expressed as so many rupees per machine hour utilized. Then, emphasis is given on the product which gives highest contribution.

9) Helpful in taking Key Managerial Decisions: In addition to above, the following are the important areas **where managerial problems are simplified by the use of marginal costing** :

Ø Analysis of Effect of change in Price.

Ø Maintaining a desired level of profit.

Ø Alternative methods of production.

Ø Diversification of products.

Ø Alternative course of action etc.

Cost-Volume-Profit Analysis

Cost-Volume-Profit analysis is analysis of three variables i.e., cost, volume and profit which explores the relationship existing amongst costs, revenue, activity levels and the resulting profit. It aims at measuring variations of profits and costs with volume, which is significant for business profit planning.

CVP analysis makes use of principles of marginal costing. It is an important tool of planning for making short term decisions.

The following are the basic decision making indicators in Marginal Costing:

(a) Profit Volume Ratio (PV Ratio) / Contribution Margin ratio

(b) Break Even Point (BEP)

(c) Margin of Safety (MOS)

(d) Indifference Point or Cost Break Even Point

(e) Shut-down Point

Assumptions in CVP analysis

The assumptions in CVP analysis are the same as that under marginal costing.

a) Cost can be classified into fixed and variable components.

b) Total fixed cost remain constant at all levels of output

c) The variable cost change in direct proportion with the volume of output

d) The product mix remains constant

e) The selling price per unit remains the same at all the levels of sales

f) There is synchronization of output and sales, i.e, what ever output is produced , the same is sold during that period.

Contribution

Contribution is the excess of sales over marginal cost. It is not purely profit. It is the profit before recovery of fixed assets. Fixed costs are first met out of contribution and only the remaining amount is regarded as profit. Contribution is an index of profitability. It has a fixed relationship with sales. Larger the sales more will be the contribution and vice versa. Contribution = Sales – Marginal cost

Profit/Volume Ratio:

Profit-Volume Ratio expresses the relationship between contribution and sales. It indicates the relative profitability of diff products, processes and departments. Higher the P/V ratio, more will be the profit and lower the P/V ratio lesser will be the profit. Hence, it should be the aim of every concern to improve the P/V ratio which can be done by increasing selling price, reducing variable cost etc.

It can be calculated as follows:

P/V ratio = (S – VC)/ S X 100

= Cont / Sales X 100

= Change in profit or loss / Change in sales

Uses of P/V Ratio:

1. To compute the variable costs for any volume of sales.

2. To measure the efficiency or to choose a most profitable line. The overall profitability of the firm can be improved by increasing the sales/output of a product giving a higher PV ratio.

3. To determine break-even point and the level of output required to earn a desired profit.

4. To decide more profitable sales-mix.

Break-even Point:

Break Even Point is the level of sales required to reach a position of no profit, no loss. At Break Even Point, the contribution is just sufficient to cover the

fixed cost. The organisation starts earning profit when the sales cross the Break Even Point.

Break Even Point can be calculated either in terms of units or in terms of cash or in terms of capacity utilization.

It can be calculated as follows:

BEP in units = Fixed Cost / Contribution per unit

BEP in cash = Fixed Cost / P.V. Ratio

BEP in terms of capacity utilization = (BEP in units / Total capacity) x 100

Margin of Safety:

The positive difference between the sales volume and the break even volume is known as the margin of safety. The larger the difference, the safer the organization is from a loss making situation. It can be calculated either in cash or in units.

Margin of Safety can be derived as follows:

Margin of Safety = Actual Sales – Break even Sales or,

Margin of Safety (in cash) = Profit / P/V Ratio

Margin of Safety (in units) = Profit / Contribution Per unit

Break-even chart:

The break-even chart is a graphical representation of cost-volume profit relationship. It depicts the following:

a) Profitability of the firm at different levels of output.

b) Break-even point - No profit no loss situation.

c) Angle of Incidence: This is the angle at which the total sales line cuts the total cost line. It is shows as angle Θ (theta). If the angle is large, the firm is said to make profits at a high rate and vice versa. d) Relationship between variable cost, fixed expenses and the contribution.

e) Margin of safety representing the difference between the total sales and the sales at breakeven point. **Different types of Break-even charts**

a) Contribution Breakeven Chart: This chart shows contribution earned by, the firm at different levels of activity.

b) Cash Breakeven Chart: In this chart variable costs are assumed to be payable in cash.

Besides this the fixed expenses are divided into two groups, viz.

(a) those expenses which involve cash outflow e.g. rent, insurance, salaries, etc. and

(b) those which do not involve cash outflow. e.g. depreciation.

c) Control Breakeven Chart: Both budgeted and actual cost data are depicted in this chart. This chart is useful in comparing the actual performance of the firm with the budgeted performance for exercising control.

d) Analytical break even chart: This chart shows the break-up of variable expenses into important elements of cost. Viz. direct materials, direct labour, variable overheads, etc. Also the appropriations of profit such as ordinary dividends, preference dividend, reserves, etc. are depicted in this chart.

e) Product wise break even chart: Separate break-even charts for different products can also be prepared to compare the profitability of the products or their contribution.

f) Profit graph: Profit graph is a special type of break-even chart, which shows the profits or loss at different levels of output.

Limitations of break-even chart

a) The variable cost line need not necessarily be a straight line because of the possibility of operation of law of increasing returns or decreasing returns.

b) Similarly the selling price will not be a constant factor. Any increase or decrease in output is likely to have all influence on the selling price.

c) When a number of products are produced separate break-even charts will have to be calculated. This poses a problem of apportionment of fixed expenses to each product.

d) Break-even charts ignore the capital employed in business, which is one of the important guiding factors the determination of profitability. Angle of Incidence:

Angle of incidence is an indicator of profit earning capacity above the break-even point. A wider angle will indicate higher profitability, while a narrow angle will indicate very low profitability.

If margin of safety and angle of incidence are considered together, they will provide significant information to management regarding profit earning position of the undertaking. A high margin of safety with a wider angle of incidence will indicate the most favourable condition of the business.

PROFIT VOLUME CHART OR [P/V CHART]

It shows the amount of profit or loss at different levels of output. When the output is zero, total loss will be equal to fixed costs. The fixed costs are recovered gradually when the volume of output is increased. When the output reaches the Break even point, the whole fixed costs are recovered. The firm incurs no loss or earns no profit. Thereafter, the firm makes a profit and the amount of profit increases with the increase in sales volume.

CONSTRUCTION OF P/V CHART

The same data used for drawing a Break even chart may be used for constructing a P/V chart. The following steps may be followed for constructing aP/V chart.

1. Sales or units of output are plotted along the X axis
2. The Y axis is used for marking fixed costs losses and profits
3. Points of Profits or losses are marked at different levels of sales and these points are joined to get the profit or loss line.
4. The point where the profit or loss line intersects the X axis is marked as the Break even point.
5. The angle at the BEP measures the angle of incidence.
6. The distance between BEP and actual sales on the X axis measures themargin of safety.

Difference between Marginal Costing and Differential Costing

a) Marginal cost is a unit concept and applies to output per unit basis. Whereas Differential cost is a total concept and applies to a fixed additional quantity of output.

b) Marginal costing is presented by showing contribution per unit and fixed cost as a total amount. Whereas Differential costs are presented in totals in both formats – i.e. under marginal cost as well as absorption cost techniques.

c) Product cost under differential cost analysis may contain fixed costs, which will not be so under marginal costing.

d) Marginal Cost can be incorporated in the accounting system but Differential cost is determined separately from the analysis of accounting records.

e) In Marginal Costing Managerial Decisions are based mainly on Contribution. But in Differential Costing Differential Costs are compared with incremental or decremental revenues for evaluating managerial decisions. Introduction to Absorption costing As the name suggests, absorption costing is the method of costing in which the entire cost of manufacturing a product or providing a service is absorbed in it. In contrast to the variable costing (Activity based costing) method, it includes both fixed and variable costs for absorption in addition to the direct costs. As all the costs incurred are absorbed, this method is also sometimes referred to as Full absorption costing or Total absorption costing (TAC).

Variable costing is generally used for the managerial decision making whereas as per the Generally Accepted Accounting Principles (GAAP), an organization is bound to use the absorption costing method for financial reporting purposes.

Advantages of Absorption Costing System

1. Absorption costing recognizes fixed costs in product cost. As it is suitable for determining price of the product. The pricing based on absorption costing ensures that all costs are covered.

2. Absorption costing will show correct profit calculation than variable costing in a situation where production is done to have sales in future (e.g. seasonal production and seasonal sales).

3. Absorption costing conforms to accrual and matching accounting concepts which requires matching costs with revenue for a particular accounting period.

4. Absorption costing has been recognized for the purpose of preparing external reports and for stock valuation purposes.

5. Absorption costing avoids the separating of costs into fixed and variable elements.

6. The allocation and apportionment of fixed factory overheads to cost centers makes manager more aware and responsible for the cost and services provided to others.

Disadvantages of Absorption Costing System

1. Absorption costing is not useful for decision making. It considers fixed manufacturing overhead as product cost which increase the cost of output. As a result, it does not help in accepting specially offered price for the product. Various types of managerial problems relating to decision making can be solved only with the help of variable costing system.

2. Absorption costing is not helpful in control of cost and planning and control functions. It is not useful in fixing the responsibility for incurrence of costs. It is not practical to hold a manager accountable for costs over which he/she has not control.

3. Some current product costs can be removed from the income statement by producing for inventory. As such, managers who are evaluated on the basis of operating income can temporarily improve profitability by increasing production.

Difference between Marginal Costing and Absorption Costing

1. Marginal costing is the practice of charging only variable costs to products, outputs or processes and absorption costing variable and fixed cost to products, outputs or processes.

2. There is no apportionment of fixed costs and they are charged to profit and loss account under marginal costing. But fixed costs are apportioned and charged to outputs or processes under absorption costing.

3. Under marginal costing, inventories or stocks are valued at marginal costs and under absorption costing they are valued at total costs.

4. Under marginal costing, the profitability of a product or department is judged on the basis of the contribution that it gives but under absorption costing it is judged on the basis of the ultimate profit that it gives.

5. Under marginal costing, profit is ascertained by deducting fixed costs from contribution and under absorption costing it is ascertained by deducting total costs from sales.