APPAREL COSTING

UNIT –I

Principles of costing – requirement of good costing system – cost unit- types of cost –Fixed cost – Variable cost – Semi variable cost – Conversion cost – Replacement cost –Differential cost – Imputed cost – Sunk cost – Research cost – Development cost – Policy cost –Shutdown cost

.

UNIT-II

Elements of cost – Direct material cost – Direct expenses – Direct wages – Indirect material cost – Indirect expenses – Indirect labour overheads- Production overhead –Administrative overhead – selling overhead – Distribution overhead – Prime cost – Work cost –Cost of production – Total cost.

UNIT – III

Cost estimation of yarn, fabric and components, dyeing, printing and finishing. Cost estimation for cutting, stitching, checking, packing, forwarding, shipping and insurance.

UNIT –IV

Cost of product development. Analysis of Design cost- profit design – product profitability. Function of cost control – Apparel manufacturing cost categories – sales cost control – purchasing cost control – production cost control.

UNIT- V

Costing of various garments – Children's wear , Women wear, Men wear.

UNIT 1

Principles of costing – requirement of good costing system – cost unit- types of cost –Fixed cost – Variable cost – Semi variable cost – Conversion cost – Replacement cost –Differential cost – Imputed cost – Sunk cost – Research cost – Development cost – Policy cost –Shutdown cost

Apparel Costing Principles

• Costing is a very complex procedure, with set patterns and guidelines followed by the industry, and it is difficult to find out costs for every process there are some inbuilt costs while costing.
• Garment costing includes all the activities like purchase of raw materials and accessories, knitting fabrics, processing and finishing of fabrics, sewing, and packing of garments, transport, and conveyance, shipping, overheads, banking charges and commissions, etc.

Principles of costing

- Ascertainment of cost,
- Estimation of cost,
- Cost control,
- Cost reduction,
- Determination of selling price,
- Facilitating preparation of financial and other statements,
- Providing basis for operating policies.

All the above costing principles have discussed in the below:

1. Ascertainment of cost:

In case of ascertainment of cost, costing is done based on the previous data or records. This type of costing principle is considered as the old techniques of costing.

2. Estimation of cost:

Here, the cost is estimated freshly that means what would be the cost for the particular activity which is going to be carried out. This type of costing is done according to the current data or records or information. It is considered as the modern techniques or systems of costing.

3. Cost control:

It requires standard cost or predetermined cost. This involves comparison of actual cost with standard cost and analysis of variation between the actual cost and standard cost.

4. Cost reduction:

Costs are not only to be controlled but constant efforts to be made to reduce them. Constant cost reduction through research development increases the sales and profit. Cost reduction should be done without affecting the quality of the product.

5. Determination of selling price:

The main object of costing is to determine the selling price. Business enterprises are run on a profit making basis. Returns should be greater or higher than the cost incurred in apparel production process. Other factors to be considered in determining the price are competition, market condition, demographics etc.

6. Facilitating preparation of financial and other statements:

Costing facilitates the making of statements at short intervals as the management may require it. To operate a business at high level or efficiency it is needed for the management to have a frequent review of apparel or textile production, sales and operating results.

7. Providing basis for operating policies:

Costing helps the management in formulating operating policies such as determination of cost-volume relationship, shutting down or operating at a loss, making or buying from outside supplier, continuing with the existing plan and apparel or textile machineries or replacing by economic and improved

Requirement of good costing system

(a) Informative and simple:

Cost accounting system should be tailor made ,practical ,simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and
unnecessary details.

(b) Accurate and authentic:

The data to be used by the cost accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken.

(c) Uniformity and consistency:

There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. this is required for bench marking and comparability of the results of the system for both horizontal and vertical analysis.

(d)Integrated and inclusive:

The cost accounting system should be integrated with other systems like financial accounting, taxation, statistics and operational research etc. to have complete overview and clarity in results.

(e)Flexible and adaptive:

The cost accounting system should be flexible enough to make necessary amendment and modification in the system to incorporate changes in technological, reporting, regulatory and other requirements.

(d) Trust on the system:

Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflect a strong conviction in using information for decision making.

Cost unit

- It is one of important method to calculate total cost of production.

- Single or output costing is employed in case of industries where the production is uniform and continued affairs.

(E.g.)breweries, brick works quarries, dairies, cement work, sugar mills, paper mills, etc..

Definition

"unit costing is a method of costing by the per unit of production where manufacturing is continuous and the units are identical or can be made so by means of ratio"

TYPES OF COST

- Fixed cost
- Replacement cost
- Imputed cost
- Variable cost
- Semi-variable cost
- Research cost
- Step cost
- Conversion
- Development cost
- Shutdown cost
- Policy cost
- Sunk cost
- Differential cost

FIXED COST

Fixed cost is a cost that does not change with an increase or decrease in the amount of goods or services produced or sold.
Fixed costs are expenses that have to be paid by a company, independent of any specific business activities.
Fixed Costs Example. Fixed costs remain constant for a specific period. These costs are often time-related, such as the monthly salaries or the rent. For example, the rent of a building is a fixed cost that a small business owner negotiates with the landlord based the square footage needed for its operations.

REPLACEMENT COST

The term **replacement cost** or **replacement value** refers to the amount that an entity would have to pay to **replace** an asset at the present time, according to its current worth. In the insurance industry, "**replacement cost**" or "**replacement cost value**" is one of several method of determining the **value** of an insured item.

IMPUTED COST

- An imputed cost is also known as an implicit cost, opportunity cost and implied cost. This refers to the cost incurred when an asset that can be invested is used or is serving another purpose. An imputed cost is a hidden cost, it is often incurred when an asset is used for a particular purpose instead of assigning it another function. Imputed costs are not direct costs, they are incurred in an obscure or unseen manner.

- Imputed cost can be incurred by a business for instance if there are other ways to put an asset to use but the company decides to stick to the use of the asset for a specific purpose, by using this asset, implicit costs are generated.

VARIABLE COST

- variable cost is an expense that rises or falls in direct proportion to production volume. Variable costs differ from fixed costs, which remain the same even as production and sales volume changes.

- Common variable costs include:
  - Raw materials
  - Sales commissions
  - Packaging
  - Shipping
  - Labor directly associated with production
  - Credit card fees

SEMI VARIABLE COST

Some costs cannot be classified as either fixed or variable. These costs are known as **semi-variable costs** and they contain a fixed and a variable cost element. These costs are also called **mixed costs** or **semi-fixed costs**. These costs may change but not in direct proportion to changes in activity. or Semi-variable cost is one which varies with every increase or decrease in the volume of production but does not vary proportionately; at the same time it cannot remain stationery at all times. This is also known as semi-fixed cost.

RESEARCH COST

- The research expenditure is the cost of searching for new products, new manufacturing process, improvement of existing products, processes or equipment. The development expenditure is the cost of putting research result on commercial basis.

- **Some of the costs relating to research are given below:**

(a) Cost of raw materials used in research,
(b) Salaries and wages of R & D staff,
(c) Subscriptions to books and journals,
(d) Subscriptions to research associations,

STEP COST

- A step cost is a cost that does not change steadily with changes in activity volume, but rather at discrete points. The concept is used when making investment decisions and deciding whether to

accept additional customer orders. A step cost is a fixed cost within certain boundaries, outside of which it will change.

CONVERSION COST

Conversion costs are those production costs required to convert raw materials into completed products. The concept is used in cost accounting to derive the value of ending inventory, which is then reported in the financial statements. It can also be used to determine the incremental cost of creating a product, which could be useful for price setting purposes. Since conversion activities involve labor and manufacturing overhead, the calculation of conversion costs is:

Conversion costs = Direct labor + Manufacturing overhead

Thus, conversion costs are all manufacturing costs except for the cost of raw materials. Examples of costs that may be considered conversion costs are:

- Direct labor and related benefits and payroll taxes
- Equipment depreciation
- Equipment maintenance
- Factory rent
- Factory supplies
- Factory insurance
- Machining
- Inspection
- Production utilities
- Production supervision
- Small tools charged to expense

DEVELOPEMENT COST

Development costs are the costs a business incurs from researching, growing and introducing a new product or service. Development costs are commonly referred to as research and development costs. These costs can include a host of expenses, such as marketing analysis, developmental engineering and customer surveying. While some of the costs may be recouped through product and service sales, the absorbed development costs are fully carried by the business.

SHUTDOWN COST

Shutdown Costs means all costs associated with shutting down or suspending Operations within the Mining Area including the costs associated with Rehabilitation and Mine Closure, and any redundancy or termination benefits or payments to any consultant or contractor or employee who is engaged by the Operator in the conduct of Operations, but only to the extent of the period for which an employee was engaged in the Operation.

POLICY COST

Policy Costs means Costs, Charges and Expenses, Inquiry Costs, Facilitation Costs, Personal Asset Costs, Personal Reputation Costs, Mitigation Costs or Access to Policy Costs, but shall not include salaries, wages, overhead or benefit expenses associated with directors, officers or employees of the Company.

SUNK COST

A sunk cost refers to money that has already been spent and which cannot be recovered. In business, the axiom that one has to "spend money to make money" is reflected in the phenomenon of the sunk cost. A sunk cost differs from future costs that a business may face, such as decisions about inventory purchase costs or product pricing. Sunk costs are
excluded from future business decisions because the cost will remain the same regardless of the outcome of a decision.

DIFFERENTIAL COST

Differential cost refers to the difference between the cost of two alternative decisions. The cost occurs when a business faces several options, and a choice must be made by pickingg one option and dropping the other. When business executives are faced with such situations, they must select the most variable option that increases revenues. They must determine the cost of both options and calculate the cost of picking one option over another in order to make a sound decision. In most cases, the main influencing factors when making such decisions are the costs and profits for each option.

UNIT- 2

Elements of cost – Direct material cost – Direct expenses – Direct wages – Indirect material cost – Indirect expenses – Indirect labor overheads- Production overhead –Administrative overhead –selling overhead – Distribution overhead – Prime cost – Work cost –Cost of production – Total cost.

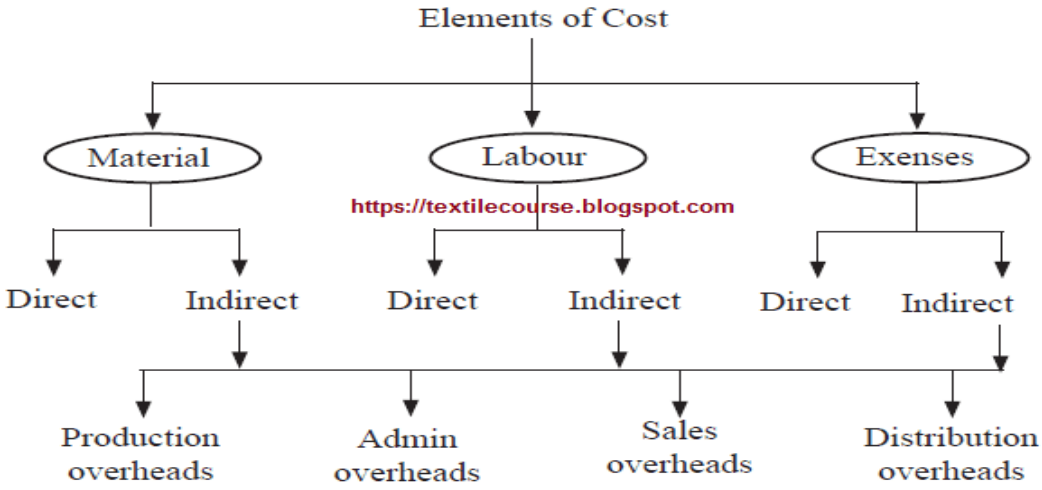
Cost classification:

Cost classification is the process of grouping costs according to their common characteristics. Cost are to be classified suitably to identify with cost centre or cost unit. In a manufacturing concern the total operating cost is divided into two;

(a) Manufacturing cost or production cost or factory cost, is the summary of the costs of direct material direct labour and factory overhead.
(b) Commercial expenses are of selling and general expenses. The important classifications are:

1. Classification According to Nature or Element: The terminology defines as "the primary classification of costs according to the factors upon which expenditure is incurred ,material cost, labour cost &
Expenses". According to this classification ,the cost are divided into three categories (i.e) materials, labour and expenses. Material cost means the cost of commodities supplied to an undertaking. Labour and expenses. Labour cost or wages means the cost of remuneration, such as wages ,salaries ,bonuses etc. Of the employees of the undertaking. Expense means cost of services provided to an undertaking and notional cost of the use of owned asset I.e., depreciation etc. Further subdivision of the three elements is possible and is as follows;

Elements of Costing:
The material, labor and expenses are the fundamental elements of cost. The Figure-1 explains the elements involved in the basic costing process.



2. **Classification According to the Functions and Companies:** Under this, costs are classified according to the purpose for which they bare incurred. On the basis of activity, the classification leads to different groups. They are production cost, administrative cost, selling cost and distribution cost. These terms are explained under cost sheet, later in this
chapter.

3. **Classification According to Variability:** Cost are also classified into fixed ,variable and semi variable on the basis of variability of cost in the volume of production.

(a) **Fixed Cost:** Fixed cost means that the cost tends to be unaffected with the volume of output. Fixed cost depends upon the passage of time and does not vary directly with the volume of output. It also known as period cost. E.g., rent and rates of factory buildings ,insurance of buildings, depreciation of buildings ,etc.

(b) **Variable Cost:** Variable cost tends to vary directly with the volume of output. It varies almost in direct, proportion to the volume of production. The examples of such expenses are the cot of direct materials, direct labours, direct chargeable expenses such as power, repairs etc. If production increases, the costs will also increase and vice versa. Fixed cost remains constant per unit of time and variable cost remains constant per unit of output

(c) **Semi Variable Cost:** Are those which are partly fixed and partly variable. In other words. Both fixed and variable elements are presents in these costs. They are also known as semi-fixed cost.

Examples are depreciation of plant and machinery which is not doubled on account of production doubling; telephone rent, repairs
Etc. These trends can also be explained through a diagram.

Elements Of Cost

In order to exercise proper control of cost for sound managerial decisions, the management may be provided with necessary data ,For this reason, the total cost of the product is analysed by the elements of cost --nature expenses. Traditionally the product cost is divided into three --material, labour and other overhead expenses and these can further be analysed into different elements.

The totally expenditure consisting of material, labour and expenses can further be analysed as under;

Prime Cost = direct materials + direct labour + direct expenses
Work Cost(factory) = Prime Cost + Factory overhead

Cost of Production = Factory Cost + Administration overhead

Total Cost
(Cost of sales) = Cost of Production + Selling and distribution overhead

Material cost:
It is the cost of commodities supplied to an undertaking. This includes, cost of procurements, freight inward, taxes and insurances. These activities are included in material cost because; they are directly attributable for the acquisition of material. Here the material can be specified as any substance from which the item is made. It might be in a crude state as raw material, e.g., fiber for fabric and raw chemicals for dyeing, and so on. Additionally it may be also be in a made state – parts, e.g., **buttons**, zippers, and so on, materials can be direct and indirect.

Direct material:
All materials which become an integral part of the finished product, the cost of which are directly and completely assigned to the specific physical units and charged to the prime cost, are known as direct

material. The following are some of the materials that fall under this category:

- Materials which are specifically purchased, acquired or produced for a particular job, order or process.
- Primary packing material (e.g., carton, wrapping, cardboard, etc.).
- Materials passing from one process to another as inputs.

Indirect material:
All materials, which cannot be conveniently assigned to specific physical units, are termed as "indirect material". Such commodities do not form part of the finished products. These items will not be a part of the finished product (physically). Consumables, lubrication oil, stationery and spare parts for the machinery are termed as indirect materials.

Labor cost:
Human efforts used for conversion of materials into finished products or doing various jobs in the business are known as labor. Payment made towards the labor is called labor cost. It can also be direct and indirect.

Direct labor:
Direct labor cost is the wages, salary, or bonuses, or commission paid to the workers or employees who directly involved in converting the raw material into the finished product. The wages paid to skilled and unskilled workers for manual work or mechanical work for operating machinery, which can be specifically allocated to a particular unit of production, is known as direct wages or direct labor cost.

Indirect labor:
Labor employed to perform work which is not a part of manufacturing

the end product but only to assist the product or operations are known as indirect labor or those engaged for office work, selling and distribution activities are known as "indirect labor". The wages paid to such workers are known as "indirect wages" or indirect labor cost.

Example: Salary paid to the driver of the delivery van used for distribution of the product.

Expenses:
All expenditures other than material and labor incurred for manufacturing a product or rendering service are termed as "expenses". Expenses may be direct or indirect.

Direct expenses:
Expenses which are specifically incurred and can be directly and wholly allocated to a particular product, job or service are termed as "direct expenses".

Examples of such expense are: hire charges of special machinery hired for the fob, carriage inward, royalty, cost of special and specific drawings, etc.

Indirect expenses:
All expenses excluding indirect material and indirect labor, which cannot be directly and wholly attributed to a particular product, job or service, are termed as "indirect expenses". Some examples of such expenses are: repairs to machinery, insurance, lighting and rent of the buildings.

Overheads:

Indirect expenses are called overheads, which include material and labor.

Overheads = Indirect material + Indirect labors + Indirect expenses

Overheads are classified as:

- **Production or manufacturing overheads** – Connected with factory production function like indirect material labor, etc.
- **Administrative expenses** – Indirect expenditures incurred in general administrative function, they don't have any direct connection with production or sales activity. For example stationeries used, sweeping brooms, salary of a peon, etc.
- **Selling expenses** – It is the cost of promoting the sales and retaining the customers. For example advertisement and gifts, etc.
- **Distribution expenses** – All the expenses incurred from the time of the production completion to the time it reaches its destination. For example packing material, salary of drivers and insurance of the goods.
- **Research and development expenses** – Any expenses associated with the research and development of a company's goods or services.

Here,

- Factory cost = Prime cost + Factory overheads
- Cost of production = Factory cost + Office and administrative overheads
- Sales cost = Cost of production + Selling and distribution overheads
- Selling price = Cost of sales + Profit
- Cost/ unit = Selling price / Total production.

What is the overhead cost?

Costs those are not directly related to production volume. No matter how many garments factory produces or sales revenue factory generate, fixed cost to be met each month. These are fixed expenses or indirect cost required to operate a business. For example rent of the factory building, administration cost etc. Two types of overheads are there – fixed factory overhead and variable factory overheads.

What costs are included under overheads?

List of overheads may vary factory to factory based on organization structure. When you calculate overheads for a production factory only then factory has less overhead. On the other hand, if you calculate overhead of a company having marketing, design, sales and warehouse departments then you will have a lot of other overhead parameters.

Common overheads of a garment factory are like,

- Building rent
- Salary of the staffs and associate payroll costs
- Electricity Bills
- Utilities (Phone bill, internet bills)
- Transport expenses
- Expenses on consumables (Diesel, Chemicals for finishing department)
- Administration cost (salary and travel cost for the managers, CEOs and VPs),

- Employee welfare expenses
- Stationary & printing (indirect material cost)
- Professional and Legal expenses
- Pantry expenses
- House keeping
- Overtime expenses etc.

For the actual list of overheads cost parameters of your factory you can contact to your accountant department.

How to find overhead factor (Overhead Ratio) of factory?

To calculate factory overhead ratio you have to collect following data from accounts departments for last six months. Fixed factory overheads will be same for all six months but for variable factory overheads take average value to calculate factory overhead ratio.

1. Direct labor wages (A)

2. Factory overheads (B)

So factory overhead over direct labor = B / A

Definition of Manufacturing Overhead

Manufacturing overhead (also known as factory overhead, factory burden, production overhead) involves a company's manufacturing operations. It includes the costs incurred in the manufacturing facilities *other than the costs of direct materials and direct labor*. Hence, manufacturing overhead is referred to as an *indirect cost*.

Generally accepted accounting principles require that a manufacturer's inventory and the cost of goods sold shall consist of:

- the cost of direct materials
- the cost of direct labor
- the cost of manufacturing overhead

Examples of Manufacturing Overhead

Some examples of manufacturing overhead costs include the following:

- depreciation, rent and property taxes on the manufacturing facilities
- depreciation on the manufacturing equipment
- managers and supervisors in the manufacturing facilities
- repairs and maintenance employees in the manufacturing facilities
- electricity and gas used in the manufacturing facilities
- indirect factory supplies, and much more

Because manufacturing overhead is an indirect cost, accountants are faced with the task of assigning or allocating overhead costs to each of the units produced. This is a challenging task because there may be no direct relationship. For example, the property taxes and insurance on the manufacturing buildings are based on the assets' value and not on the number of units manufactured. Yet these and other indirect costs must be allocated to the units manufactured

Administrative Overheads – Definition

Administrative overheads refer to the indirect expenditures incurred in connection with

(i). formulating policy

(ii) directing the organization

(iii) controlling the operation of the enterprise

(iv) other allied matters pertaining to administration, but not related to research and development expenses directly.

Administrative overhead is those costs not involved in the development or production of goods or services. This is essentially all overhead that is not included in manufacturing overhead. Examples of administrative overhead costs are the costs of:

- Front office and sales salaries, wages, and commissions
- Office supplies
- Outside legal and audit fees
- Administration and sales office lease
- Administration and sales utilities
- Administration and sales telephones
- Administration and sales travel and entertainment

Administrative overhead is considered a period cost; that is, the benefit of this type of cost does not carry forward into future periods. It is concerned with the expenditure of general nature and does not relate to any particular function like production, sales or distribution. administrative overheads are usually constant. They are not affected by any change in the volume of production, etc.

1. Indirect Materials

(a). Printing and Stationery used in the office.
(b). Cost of dusters, brushes etc. for cleaning.

2. Indirect Labor

(a). Salaries and allowances or fees of director, managers, managerial staff, accounts staff, secretary and the staff and all those who are connected with the office.
(b). Salaries and allowances of Public Relation Officer and his staff.
(c).Salaries and allowances of a legal adviser, his staff and other allied expenses.
(d). Other statutory expenses, e.g. fees to auditors, salary and allowances to internal auditors etc.

. Indirect expenses

(a). Office Rent, Rates and Taxes.
(b). Office Insurance, heating, cleaning, etc.
(c). Depreciation of office buildings, equipments etc.

(d). Repairs and maintenance of office building, etc.
(e). Legal Charges.
(f). bank Charges.
(g). Trade Subscription.
(h). Other Expenses related to office operation.

From the above, it is clear that, as the Institute of Cost and Management Accountants, England has defined, Administrative Overheads as "the cost of formulating the policy, directing the organization and controlling the operations of an undertaking, which is not related directly to research, development, production, distribution or selling activity or function."

Definition Of Selling And Distribution Overheads

According to the terminology adopted by the Institute of Cost and Management Accountants, England, the **selling overheads** constitute **"**the cost incurred in promoting sales and retaining customers**"** and the **distribution overheads** constitute **"**the cost of the process which begins with making the packed product available for dispatch and ends with making the reconditioned returned empty packages available for re-use.**"**

Explanation

Selling Overhead refers to all costs of seeking to create and stimulate demand or of securing orders e.g., sales office expenses, advertisement, salary of sales manager, traveling expenses, rent of show-room etc. Distribution overhead refers to all expenses incurred from the time the product is finished in the factory till its delivery to ultimate customers or consumers e.g., rent of warehouse, the lighting of the warehouse, running and maintenance of delivery vans, carriage on sales, packing charges etc. For the purpose of distribution, selling and distribution overheads are taken together.

(1) Indirect Materials

- Cost of Printing and Stationery used in marketing.
- Mailing cost of literature, catalogs, price lists, letter of offer, etc.

(2) Indirect Labor

- Salaries, commission, etc. of sales staff including sales organizers, salesmen, etc.
- Salaries, commission, allowances, etc. of technical representatives, sales executives, etc.

Indirect Expenses

- Advertising Expenses,
- Bad Debts
- Rent of the showroom.
- Travelling and Entertainment expenses.
- Expenses on branch establishment.
- Expenses for sales office.
- Fee of directors etc. who are in charge of sales.

List of Distribution Overheads

The following are the expenses which can be classified as distribution overheads.

(1) Indirect Material

- Cost of packing and packages,
- Cost of oil, grease, spare parts, etc. used in maintaining the delivery vans.

(2) Indirect Labor

- Wages of packers etc.
- Wages of van drivers etc.
- Wages of dispatch clerks etc.

(3) Indirect Expenses

- Warehouse Expenses.
- Rent, Insurance, etc. of the warehouse
- Carriage outwards.
- Other transport charges.
- Depreciation of Delivery vans etc.
- Running cost of Delivery vans etc.

From the above lists, it is clear that **selling overheads** are related to the promotion of sales and **distribution overheads** start when the order is received to supply the materials and it ends when the goods are dispatched to the customer. Though these overheads are separately accounted for but it is advisable that they should be included in the overall cost structure of the product and should be shown as and included in the total cost of sales.

Research and development overhead

are costs incurred to discover new knowledge in order to create a new product or service. Examples of research and development activities include laboratory research to discover new knowledge; non-routine modifications of a product (i.e., routine ongoing efforts to improve an existing product are not considered research and development activities); design, construction, and testing of prototypes; and search for application of new findings. Example of activities not considered research and development activities include troubleshooting during production; quality control during production; and periodic design changes to existing products.

Prime cost

The direct cost of a commodity in terms of the materials and labour involved in its production, excluding fixed cost. Prime cost is also known as flat cost or first cost or direct cost.

Prime cost = Direct material + Direct labour + Direct expenses

Work Cost

The work cost represent the total of all items of expenses incurred in the manufacturing of an article ,vis., direct material, direct labour,
direct expenses and factory expenses. In short, it is described as prime cost plus works on cost. It is also known as factory cost or cost of manufacture.

Cost of Production

That means and represent the factory cost plus administrative expenses i,e. ,prime cost plus works cost plus administrative expenses = cost of production. it is also known as office cost.

Total Cost

that means the sum of all items of expenditure incurred in producing, manufacturing and selling - distributing. It comprises of cost of production plus selling and distribution expenses. Prime cost and works cost and administrative cost = selling and distribution expenses = total cost.

UNIT – 3

Cost estimation of yarn, fabric and components, dyeing, printing and finishing. Cost estimation for cutting, stitching, checking, packing, forwarding, shipping and insurance.

Calculation of fabric cost:

- In **apparel manufacturing process**, most of the time the responsibility of calculating the required yarn quantity for any particular order will be on the head of merchandiser where he or she will be provided with the fabric specifications required or else with a sample swatch.
- In the second case, with the existing fabric, merchandiser needs to work back and identify the fabric details like **yarn count**, Ends per inch, Picks per inch in woven fabric and Course per inch, Wales per inch in case of knitted fabric.
- Based on those details, the merchandiser needs to arrive for the yarn requirement for the meter square or unit area of the fabric.
- This will help the merchandiser to estimate the approximate amount of yarn required for the completion of order. For that the merchandiser must know the consumption requirement of the each garment.
- The merchandiser need to estimate the amount of fabric required to produce individual garment including the waste allowance. With that estimated **fabric consumption** per garment, he or she can measure the amount of fabric (for knitted in kilograms and for woven in meter) required for the order.
- Based on this quantity, the company will decide by considering various factors, whether to produce the fabric or to source the fabric directly.
- In the second case, the merchandiser's job is little easy where he or she can coordinate with different fabric manufacturers and based on the quality requirement and quantity, cost and availability, merchandiser will decide the **sourcing process**.

But in the case of the first situation, the merchandiser's responsibility increases multi-fold. Here, merchandiser has to decide,

- The **fabric consumption** / per garment
- The fabric quantity need to be purchased
- **Yarn consumption** (in kg's) per square meter
- Estimating the process cost like pre-treatment and dyeing
- Calculating the total fabric cost of the fabric
- Arriving at the fabric cost per garment.

FIBERS

- Natural fibers score on aesthetics are variable in performance and are tendering to become higher in price.
- The most important natural fiber in cotton which has a good aesthetic impact and believed to be comfortable to wear but the need for ironing is important.
- Although cotton is cheap the prize movement is upwards as head values and labors costs price even in under developed couloirs.
- It is now more expensive then polyester. Wool is becoming increasing expensive. The other animals fiber are used as sub static's for wool.
- The high aesthetic valued expensive fibers is silk. Synthetic fibers like polyester is cheaper than all the natural fibers. Acrylic fibers retains a significant market share as an alternative for wool.

COSTING OF FIBRES

- In garment industries fabric manufactured from on of these fiber can be used for the construction of for garment cost of fibers is obtained by calculating the cost for cleaning and processing of raw materials. [I.e.] material cost , rent for the stock, blow room, rent for the working area , labors charge [i.e.] direct and indirect labors cost. Electricity charges and transportation Electricity charge and communication charge.

YARNS

- All fiber are spun into their exceptive yarns the spinning system are necessary for shape fibers as cotton and wool .
- The modification of filament can be given by false guest method to our jet spinning .
- These textured yarns are cheaper than staple spun yarns are the quicker for the novelty yarn the more work is done in yarn production. So the price of such yarns are high.

COSTING OF YARNS:

The total cost for yarn can be calculated by totaling the Electricity for spinning process, repairing charges and spare parts for any equipment used for spinning process.

Yarn cost calculation:

To calculate the yarn cost it is necessary to identify the GSM (gram per square meter) of the fabric, for both knitted and woven material. It can be used for **GSM calculation**. The formula are given below:

i) For woven fabric,

$$\text{Warp weight} = \frac{\text{EPI} \times 39.384 \times 453.4 \times (\text{crimp} + 100)}{\text{Warp count} \times 0.914 \times 840 \times 100}$$

$$\text{Weft weight} = \frac{\text{PPI} \times 39.384 \times 453.4 \times (\text{crimp} + 100)}{\text{Weft count} \times 0.9140 \times 840 \times 100}$$

GSM of woven fabric = Warp weight + Weft weight.

ii) For knitted fabric,

$$\text{Count in Ne} = \frac{0.59 \times \text{Length in meters}}{\text{Weight in Grams}}$$

$$\text{Yarn length in m} = \frac{\text{loop density} \times (39.384) \times (39.384) \times \text{loop length in mm}}{1000}$$

$$\text{GSM} = \frac{0.59 \times \text{yarn length in m} \times (100 + \text{shrinkage})}{\text{Count Ne} \times 100}$$

The following example explains the cost calculation of yarn (data provided for cost calculations are approximate values, only for example purpose

FABRIC:

- The method of converting yarn to fabric involves weaving, Knitting and non-woven. In weaving and knitting the warp yarns require the preparatory process (I.e.) warping and sizing.
- The weft yarns has to be wound on the table of the shuttle for interlacing in weaving process. Weft knitting remains a faster process than weaving as preparatory steps in weavings in more density of yarn usage and type of weave or knit structure influence performance.
- In non-woven the conversion is directly from fiber to fabric without the usual stage of yarn production but it can be used as a disposable garment.
- A costly woven or knitted structure made from fine yarns may be considered more expensive than a heavier loosely woven or knitted structures made from bulky yarns.

COSTING OF FABRIC:

- The actual cost of fabric can be calculated by totaling the cost for the preparatory process for warp yarn cost for the process of weaving preparation of loom and shuttle- cost for process of weaving labor charges, electricity charges and preparing charges.

DYEING AND FINISHING:

- The use of dye stuffs to impart color is known as dyeing. Textiles can be any stage of process one of the cheapest way of incorporating where the addition of dye.It can be done to obtain.
- Effects like strips and check the dying can be done act fiber, yarn fabric stage. Pieces or fabric dying needs some pre-treatments like singeing, de sizing, scouring, mercerization etc.

- The other method of importing color is printing. The usual method is rotary screen printing. Which is costlier than transfer printing and hand screen printing .

- The finishes that can be given to fabric are both physical & chemical physical process. Brushing, calendaring sanforization stentaring curing, chemical process – finishes for fire resistance water proofing moth proof and soil resistance etc.

COSTING FOR DYING,PRINTING AND FINISHING

Cost of fiber dyed fabric can be calculated frond cost of dyes , water charges, electricity charges, labor charges, transport charges, rent etc.

COST FOR YARN DYED FABRIC

By totaling the dyes process of dying water charges, electricity charges, labor charges, transport charges etc. rent for working area, cost of pretreatment and communication charges cost for yarn dyed fabric can be calculated.

COST FOR PRINTED FABRIC

Cost for printed fabric can be obtained by calculating the cost for the preparing of printing paste cost for pretreatment cost for preparation of printing equipments like screen, roller etc. labor charge, rent, electricity charge, water charges cost for reducers etc.

COST FOR FINISHING

- After dyeing or printing that to improve the appearance and various

- functional.

- Properties finishing can be given to be dyed or printed fabric cost for physical and chemical, chemicals used water charges, electricity charges, labor charges gives cost for finished fabric.

- Keeping in mind the manufacturing process and Finishing process.

- The cost of fabric is calculated and if a new sample is produced in the market after preparing the pattern.

- The cost for testing can also be included for calculating the cost of finished fabric.

Costing for components

- Apart from the pattern components used for the production.

- There are many components are used the production of garment. Components are also be classified into primary trimmings and secondary trimming.

- All garments will Employ securing thread but Additional item may be lining interlining topes, shoulder.

- Fastness such as button, zips etc. Any trimming should not distract the performance characteristic of the main fabric. Most trimmings themselves are textile materials as in linings. Interlinings and securing thread.

- The most popular material for linings is nonwoven nylon or polyester pockets include polyester or nylon for performance reason. Interlining are normally friable based on nonwoven materials. There are fasteners or closers such as button hooks pressure, zip and Velcro.

- Padding can be made foam or layer's of non-woven material around a central form or fiber layer shoulder pads are very much stylish and fashion. Fashion factors and

- designer has to select new shapes and thickness according to the use of components in the adjustment it cost has to be calculated

- Normally, the costing is prepared by considering the raw material cost, market demand, operating cost of the industry and forecasted profit of the firm and also considering the expectations of the buyer.

- Material cost is the major cost component of a **apparel manufacturing** costs. A perfect cost calculation method will give you better projection of garment cost for a style.

The various elements in garment costing are:

- Fabric
- Trims and accessories
- CMT (cut, make and trim)charges
- Embroidery, appliqué, printing, washing and other value added processes
- Garment testing
- Logistics and transportation cost
- Profit of the industry

Fabric:

Fabric, the raw material for garment manufacturing, itself accounts for 65%– 75% of the garment cost, hence it is the most vital parameter in garment costing. In many circumstances, analyzing the quantity of fabric as well as quality of it in the garment provides a better indication of cost of production. The type of fabric and fiber content of the same, value added finishes applied on the fabric and fabric GSM determine the cost of the fabric.

Influencing parameters for fabric cost:

Unit of Measurement:

It is basically a number used as a basic criterion for evaluating the fabric cost. It is expressed in meters or yards in case of woven fabric and in kilograms (kg) for knitted fabrics.

Minimum order quantity:

It represents the minimum quantity of fabric that the fabric manufacturer could supply to the garment manufacturer. Minimum order quantity (MOQ) is based on the fabric type and construction and on capacity of the merchant. It plays a vital role while ordering the fabric because it directly influences garment cost. If the ordered quantity of fabric is less than the determined MOQ, then the merchant could claim higher price as compared to regular charges.

Order quantity:

- The fabric cost could differ with the order quantity.
- The larger the order quantity, the more costly the fabric; fabric cost could be optimized up to a certain level.
- However, this relies on the fabric type and construction and capacity of the fabric manufacturer in addition to the intercession between supplier and fabric buyer. The fabric cost can be determined by

Fabric cost = Yarn Cost + Fabric manufacturing cost + Dyeing cost + Finishing cost

Trims:

Trims comprise all materials other than fabric utilized in the garment such as sewing threads, zippers, buttons, elastics, labels, etc. Quality and quantity of trim and labor necessary to apply it on a garment depend on the cost of the garment. MOQ, quality of raw material utilized for making the trims and lead time are the parameters to be taken into account while calculating trim cost.

Thread:

After fabric, which is a main component, thread is another item that needs to be taken into account for estimating the cost of garments. The consumption of sewing thread is determined by the industrial engineering (IE) department. It is based on the type of seam and stitch density. While purchasing the sewing thread, the operation breakdown for the particular style and total number of sewing machines necessary to complete the particular style of garment should also be considered. For the determination of thread consumption software is also available which could give the precise thread consumption. The sewing thread wastage of around 10%–15% should be considered while ordering it.

Labels:

Variouskindsoflabelsareusedingarmentslikethemainlabel,contentlabelandcarelabel. The cost of it depends on its manufacturing process, for instance, based on the fiber content, printed labels, size of labels, colors etc.

Zippers:

The types of zippers, such as plastic zippers, molded zippers, metallic zippers, invisible zippers etc. play a significant part in the cost of the zipper. The merchandiser must be aware of the various parameters of the zipper for negotiation and accurate costing. Minimum order of quantity is the parameter that influences the cost of the zipper.

Buttons:
Another kind of closure, buttons, could be made up of different types such as nylon, plastic, wood, shell, or metal. Each kind of button has its own minimum order of quantity decided by the manufacturer of it. Buttons are purchased on a bulk basis with the lines specified.

1gross = 1packet = 144 buttons = 12dozens

Poly bags:
The cost of poly bags is mainly based on thickness, dimension and raw material and is procured in terms of number of pieces. The cost of poly bags is also vital because it makes a difference while considering the entire order quantity.

Cartons:
The cost of cartons varies based on the material used and their dimensions. The cartons are procured based on their dimensions, number of plies and GSM of the paper that is used to make the carton box. In general, 3, 7 and 9 plies are utilized in a carton box.

Hand Tags:
These are normally used as packing material and the cost of it depends on the raw material used, printing over it and the minimum order quantity.

Shanks and rivets:
Generally these types of trims are made up of metal and the cost of these trims is dependent on MOQ and the raw material used to make them.

Hangers:
Hangers are generally made up of hard plastics, seldom with wood material. The hanger cost depends on the raw material used to make it, size of the hanger, color of the hanger and any printing on it.

Tapes and Velcro:
Generally, tapes are purchased based on the width, hence, the width of the tape as well as MOQ influences the cost of the tape.

Other charges:

Trims charges are normally determined based on the way of transportation, for air transportation the cost will increase by 15%–25% and for transportation though sea, it will increase by 10%–15%. If it is domestic, then the local taxes are added. Supplementary charges involved in the garment costing are:

- Rejection and wastage charges ----------2%–5%
- Inspection charges 1%–2%

- Buying house commission− ----------1%–1.5%
- Transportation charges ---------- $1–2/piece
- Profit margin ----------10%–15%

Cut-Make-Trim (CMT) cost of garment:

The cost of making completed ‘in-house’ is given by

$$= \frac{\text{Total(cost/hour) x total hours required for a style}}{\text{Number of units produced}}$$

1. Labor cost/min (@ 100% efficiency) $= \frac{\text{Operator salary/month}}{\text{Available minutes in a month}}$

2. CM Cost $= \frac{\text{SAM of garment x Labor cost per minute}}{\text{Line Efficiency (\%)}}$

Value Added Processes:

This denotes the cost of value added processes such as embroidery, printing and washing used to impart the type of finish the buyers need. Cost of these kinds of value added services varies depending on different styles. Hence, by considering all these aspects, CMT charges can be determined by the ffollowing

1. Available capacity per month (in minutes) = 26 working days/month x 8 hours/day x60

= 12,480 minute

2. Labor cost per minute (@100% efficiency) = (Salary of an operators/month)/Available capacity per month
= 10000/12480

= Rs. 0.8

3. Sewing cost = (Garment sewing SAM x Labor cost/min) / Line efficiency(%)

= (14 x 0.80) / 55

= Rs. 20.36

4. Cutting cost = (SAM of cutting x Labor cost/min) / Cutting efficiency(%)

= 8 x 0.8/55

= Rs. 11.6

5. TrimmingcostisconsideredasRs.3 as it depend upon how many operators are there for trimming.

In **pre-treatment process**, all impurities are removed from fabric to bring to a stage where it is more absorbent and white and can be easily processed further. It is called heart of processing of textile. The process which is done to make the textile materials suitable for dyeing and printing. Pre-treatment of cotton fabric prior to dyeing mainly involves a combined process consisting of **scouring** and peroxide **bleaching.**

What is dyeing?

Dyeing is a process in textiles that permanently transfers color to a textile material using a substance called a **dye**. It is governed by three factors, the dye, the fiber and the dye liquor. All the three lead an independent assistance which influences the technique of dyeing. **Dyeing** is an ancient art which predates written records. In this article we will calculate pre-treatment and dyeing cost.

Pre-treatment and dyeing cost:

In the case of pre-treatment, dyeing processes, the cost factor involved in the process differs based on the several process parameters like:

- Types of chemicals and dyes
- Types of fabric used and shade required
- Types of dyeing machines and methods used
- Lab expenditure incurred during shade development
- Effluent treatment cost.

The following examples will provide an initiative to estimate the cost of the pre-treatment and dyeing process. The data provided here are approximate and they are used only for the understanding purpose.

Finishing Cost Calculation Process in Textile:

To change the fabric appearance, textile finishing process has great importance in **textile industry**. Finishing cost also included when total cost is calculated. So, to know the actual method of textile finishing cost calculation is mandatory for the responsible person.

Cutting Department in Apparel Industry:

Fabric cutting is one of the most important processes in ready made apparel industry .Apparel will be readytowearwhenitwillbecompletedbysewingallthefabricpartsofapparel.Incuttingdepartment, therearevarioustypesofcuttingtoolsusedsuchasstraightknifecutting machine ,band knife cutting machine, die cutting machine etc.

Objects of Fabric Cutting in Apparel Industry:

There are some key purposes of fabric cutting in clothing manufacturing factory. Those are-

1. Fabric should be cut by definite or specific some size to be it is useable to make apparel.
2. It is possible to cut thousands of apparel fabrics of same design apparel.
3. To make these cutting fabrics suitable to use in the next processes i.e. sewing process.
4. Thousands of pieces of apparel fabric are being cut at the same time one time on a cutting table.

Methods of Fabric Cutting in Apparel Technology:

There are mainly two methods followed in apparel sector during fabric cutting. Those are-

1. Manual Method

Manual method includes-

- Round knife,
- Band knife,
- Notcher,
- Hand operated scissors,
- Drill,
- Straight knife,
- Die Cutting.

2. Computerized Method:

Computerized method includes the following:

- Plasma torch cutting,
- Knife cutting,
- Cutting by water jet,
- Laser beam cutting.

Fabric Cutting Cost Calculation Formula:

During cutting cost calculation, a formula has to maintain which is in the below:

Cutting cost per apparel or garment,

$$= \frac{\text{Direct material cost + Direct labor cost + Direct Expense cost + Overhead cost}}{\text{Total cutting production}}$$

Major Elements of Cutting Cost Calculation in Apparel Sector:

In apparel manufacturing industry, the cost elements involved in the cutting process is as in the following:

1. Number of lay or plies.
2. Types of fabric- Thick, light or delicate fabric.
3. Types of cutting- Manual or by using machine.
4. Modern computerized **cutting machine**.
5. Number of components in the apparel.
6. Efficiency of marker planning.
7. Color assortments while arranging the ply.
8. Style of the apparel.
9. Ply direction.

Apparel Cutting Room Process Flow Chart:

In apparel manufacturing industry, cutting can be done manually or with the help of cutting machines. The process sequence in cutting process is as follows in the below:

Marker planning
↓
Fabric spreading
↓
Marking
↓
Cutting
↓
Bundling & ticketing

What is a Stitch in Sewing?

Inreadymade**clothingmanufacturing**industry,astitchisasingleturnorloopof**sewingthread**or yarn. Stitches are the fundamental elements or components of sewing, embroidery, and **knitting** whether by hand or machine. There are mainly **six types of stitch used in apparel**.

The following formula must have to maintain during stitching cost calculation.

Stitching cost per apparel,

D.M + D.L + D.E +O.H

= ……

Total stitching production

Here,
D.M means direct material cost,
D.L means direct labor cost,
D.E means direct expenses cost,
O.H means overhead cost.

Main Components of Stitching Cost Elements:
The cost elements involved in the stitching process is presented in the following:

1. Direct material cost- Sewing thread, twill tape, buttons etc.
2. Direct labor cost- helpers and operators in stitching production,
3. Direct expense cost- Cost re-stitching, embroidery, button sewing etc.
4. Overhead cost- Spare parts, power, salary, rent etc

Major Factors of Stitching Cost Calculation:

The major factors which are deeply affected on stitching cost calculation is listed in the below:

1. Types of fabric.
2. Style of apparel.
3. Special attachments or operations.
4. Quantity of stitching production.
5. Number of stitching parts or operation,
6. Details of the apparel.
7. Quality parameters.

Garment Checking:

Checking is an activity where the stitched garments will be visually inspected for any defects or poor workmanship which will not meet the required quality parameters. The defects which are identified will be rectified if possible or if cannot, they will be marked with the help of arrow sticker and that particular piece will be rejected. Only good quality pieces will be passed for the next process. Here the uncut protruding sewing threads also will be trimmed in the checking activity. In this article I will discuss both checking.

The process sequence in the checking process is as given below:

Checking or inspection

↓

Defects identification

↓

Rectification (if possible)

↓

trimming
↓
Bundling

Quality Checking Points in Apparel Production:

Apparel inspector or quality controller must have to check the below checking points during inspection

1. Cutting Quality Checking or Inspection Points:

It includes the below checking points-

- Measurement chart checking,
- **Cutting** lay checking,
- Fabric diameter checking,
- Shade checking of fabric roll,
- Bundle checking,
- G.S.M check of fabric,
- Size mistake checking,
- Fabric color mistake checking.

2. Sewing Quality Checking or Inspection Points:

It includes the below checking or inspection points:

- Input fabric checking,
- Fabric size checking,
- Bundle checking,
- Size checking,
- Stitch per inch (SPI)checking,
- Apparel measurement chart checking,
- Style of apparel checking,
- Contrast color checking,
- Front part checking,
- Back part checking,
- Stitch tension checking for all the sewing machines,
- Thread tension checking of all sewing machines,
- Embroidery and print placement checking,
- Sewing defects checking,
- Oil mark checking,
- Label checking i.e. size label, care label, price label etc.
- Sewing thread shade variation checking,

- Alter checking.

3. Finishing Quality Checking or Inspection Points:

It includes-

- Iron checking,
- Quality of print and **embroidery** checking,
- Dirty spot checking,
- Oil spot checking,
- Trim card checking,
- All types of label checking,
- Poly size checking,
- Price sticker checking,
- Hang tag checking,
- Quantity of each carton pieces checking,
- Carton size checking.

Stage of Apparel Checking or Inspection in Clothing Industry:

There are mainly three **steps of apparel** checking or inspection in apparel manufacturing industry. Those are-

1. **Raw material Inspection or Checking,**
2. **In Process Inspection:**

   It includes-

- Cutting section
- **Sewing** section,
- Finishing section.

3. **Final Inspection:**

   It includes-

- Hundred person inspection system,
- No inspection system,
- Acceptance sampling plan,
- Arbitrary sampling plan.

Formula:

The formula to find out the checking cost is as follows:

$$\text{Checking cost/garment} = \frac{DM + DL + DE + OH}{\text{Total production}}$$

Cost elements:

The cost elements involved in the checking process is as follows:

DM = Size stickers (if possible)

DL = Checking persons
DE = Cost of re-checking

OH = Power, rent, transportation charges, salary etc.

Cost factors:

The various factors which influence the checking cost are as follows:

- Style of garment
- Garment details
- Quality level

Garment Packaging:

Garment packaging is the process of wrapping, compressing, filling or creating of goods for the purpose of protection and their appropriate handling. This is the final process in the **production of garments**, which prepares the finished merchandise for delivery to the customer. It is an important part of the **garment manufacturing process**. Garment packaging is also use to get lot of attention from the customer. These operations come under the materials handling methods and are no less important than other systems used in the factory. After completing the entire manufacturing task, apparel is require be packed. After packing, it is placed in cartons as per instructions and then it is stored in a store section before it is delivered to the respective buyer. Packaging refers to the container that carries a product. Two basic objectives of packaging are preventing any damage to the product during transportation and enhancing the features of the product to the consumer for a sale of it.

Requirements of Garment Packing:

The plastic bags are most commonly used for garment packing either at the completion of production or when they arrive at the finished goods stores. Apparel such as shirts and underwear is usually bagged and boxed immediately after final inspection and enters the stores in pre packed form. Other hanging garments like jackets, dresses and skirts are usually bagged when they enter the stores. A carton package made of quite strong corrugated material is normally preferred while transporting the boxed or hanging garments in bulk form. The packed garment boxes are sealed by contact adhesive paper tape or bound with a plastic tape.

Flowchart of Garment Packaging:

Received garments from the finished section

↓

Hang tagging

↓

Folding with inserting back board, tissue

↓

Poly Bagging

↓

Cartooning

↓

Applied adhesive tape on the pack

↓

Bar-coding

↓

Packing complete

Types of Package Forms:

The basic types of package forms used in apparel and allied products are

- Bags
- Boxes
- Cartons
- Cases
- Crates
- Twine
- Wrappers

Types of Packing Materials:

The simple packaging materials used in garment and related items are paper, plastic, film, wood, nails, staples, cords, gum tape and metal bands.

1. Woodcasesandcratesaregenerallyusedaspackingmaterialsforbulkexportsorrugged shipments where shipment handling is higher.

2. Paper and plastic film packaging materials are used in the garment and related industries. Thepapertypessuchaskraft,crepe,tissue,paperfoil,paperboardandwaterproofaretypically used as packing materials. Plastic films have a major advantage over paper because of clarity in range.

Quality Specifications for Packaging Materials:

Quality specifications for packaging paper and film are similar to that of fabric. The basic quality factors in paper and films are

1. Properties

- Clarity
- Thickness
- Width and length
- Weight
- Yield

2. Characteristics

- Tensile strength
- Elongation
- Bursting and tearing strength

- Flammability
- Porosity
- Air/moisture permeability
- Sunlight transference
- Resistance too ours
- Dimensional stability to heat and sunlight

Package Design:

A product's packaging mix is the outcome of numerous requirements that decide the way the packaging achieves the distribution and merchandising functions. A package must promote or sell the product, protect the product, aid the consumer to utilize the product, offer reusable options of the package to the consumer and has to satisfy legal requirements. The main two criteria for package design are functional and sales requirement.

Functional requirements:

Package design for a specific product should fulfill five groups of functional criteria such as in-store, in-home, production, distribution and safety and legal. In-home requirements normally usually state that packaging should be convenient to use and store and reinforce consumer's expectations of the product. For in-store conditions, packaging must draw the attention of the buyer, identify the product and differentiate it from the competition, and tempt the customers to purchase the product. The package should be designed such that the retailer could easily store the product, keep the stock on the floor, and it must be simple to process at a check-out counter.

Production demands influence primarily the cost of a package. During packaging of products, their distribution and safety are vital. If an undesirable segment of the products is damaged during transportation, distribution, or storage, then the package has failed. The last group of functional packaging requirements relates to laws and legislation. Several federal laws have been created to safeguard the consumers from parody and unsafe products. The major significant class of laws that influence packaging is labeling.

Sales requirements:

Apart from functional aspects, product packaging should be designed in such a way that it appeals to customers. The four most important merchandising requirements of package design are its apparent size, impression of quality, attractiveness of a package and finally readability of the brand name.

Apparent size involves designing of packages to look as good as possible without misrepresenting the actual product contents. This is accomplished by using larger package sizes and displaying the brand name in the visible portion of the package. The obtrusiveness and aesthetics of the package design determines the attention drawing power of the package. Based on the type of product and manufacturer's policy, the package could be made to emerge as attractive, exciting, soft, intriguing, or to evoke some other emotion. Normally bright colors, prominent carton displays and other elements can acquire positive attention of consumers.

<u>The most commonly used types of garment packing are given below:</u>

Stand-up pack:

This type of packing is commonly used for shirts and hence termed as ‘shirt packing’. For this type of packing, the garments have to be **pressed** prior to packing and are packed with additional packing materials like tissue paper, back support, pins or clips, inner collar patty, outer patty, etc. The stand-up garment pack

The advantages of the stand-up pack are:

- It is an attractive pack so it enhances the appeal of the garments to the customer.
- It is a safer pack as it has inner and outer cartons, therefore the packed garments can be handled easily.
- On account of its better presentation, it can increase the sales of a product.

The disadvantages of the stand-up pack are:

- It is costlier.
- It needs many packing materials.
- It involves a lot of effort as well as time.
- Unpacking of this kind of package needs more time and once unpacked it is tough to repack.
- In case it is crushed by any source, creases and wrinkles are formed on the garments and thus the pressed condition is disturbed.

Flat pack:

In this packing method, the garments are pressed and folded well as like in a stand-up pack, however with less additional packing materials. It is generally normally used for ladies' garments and has a flat surface (Figure-3). The size of the folding is based on the garment style and specifications of the buyer. The common sizes of flat pack are 8″ × 10″ and 10″ × 12″.

The merits and demerits of flat pack are:

- It is less expensive than the stand-up pack as it requires less material.
- It is less attractive than the stand-up pack.
- For shirts it does not present the beauty of the collar portion very well.
- The disadvantages are the same as that of the stand-up pack.

Hanger pack:

It is a simple garment packing method where the garments are secured in a poly bag with a hanger after pressing (Figure-4). Here poly bag is the only material used. This type of packing can be used for all types of garments especially for blazers, coats, pants, etc.

The merits and demerits of a hanger pack are:

- Because of its simplicity it reduces the cost of packing and materials.
- All the components/panels of the garments could be seen easily without removing the bag.
- The time for packing and unpacking is less.
- Material handling is not easy.

Dead man pack:

This kind of packing is used for shirts. Here, the sleeves are folded in front of the pack and pinned with each other. Next, the garments are folded in the center. As it resembles the appearance of dead body, it is called a 'dead man pack'. It is a simple packing method using only pins or clips and poly bags.

The merits and demerits of this pack are:

- The costs of packing materials and packing are less compared with other methods due to its simplicity.
- The packing and unpacking time is less.
- Garments can be examined in the packed condition.
- This type of packing enables easy handling of garments.
- This type of packing is not suitable for shirts because it does not show the collar and the collar point as in the stand-up pack; hence, it is less attractive.

Types of Carton Packing:

After garment packaging, the process of cartooning is carried out based on the size of the apparel and its color. Most used packing types are given below.

1. Solid color solid size pack
2. Solid color assorted size pack
3. Assorted color solid size pack
4. Assorted color assorted size pack

Information provided in carton boxes is given below:

- Carton box number
- Order number
- Style, color
- Number of pieces in each color and style
- Total number of pieces
- From address and To address
- Contact number
- Net weight of the carton box
- Dimension of the carton box

Formula:

The formula to calculate the packing cost is as follows:

$$\text{Packing cost/garment} = \frac{DM + DL + DE + OH}{\text{Total production}}$$

Cost elements:

The cost elements involved in the packing process are as follows:

Direct Material (DM) = Tags, poly bags, labels, hangtags, hangers, pouches, barcode stickers, hologram stickers, insert card, inner box, carton box, packing strap, gum tape, tag bullets, color stickers, price stickers, size stickers etc.

Direct Labor (DL) = Packing labors

Direct Expenses (DE) = Cost of re-packing, hiring charges of carton-strap packing machine

Over Heads (OH) = Power, salary, transport etc

.**Estimation of Forwarding and Shipping Cost:**

In apparel manufacturing industry, shipping and forwarding cases normally follow the commercial department. The responsible person must have clear concept about the necessary shipping terms and conditions. Otherwise, apparel shipping and forwarding cost may increase.

What is Included in Shipping and Handling?

A handling fee is a quantity or amount which is charged to a customer on top of the purchase price and sales tax. It's often seen that, providers quote a shipping and handling fee with the export order. The handling Fee includes or cover the cost for the **packaging** ,repackaging and movement of goods.

Different Types of Shipping Methods:

Thereareseveralmethodsofshippingtheappareltothebuyerforeign.Alltypesofshippingmethods are listed in the following:

1. Shipping by using sea port,
2. Shipping by using airport,
3. Shipping by using land port,
4. Shipping by combination of the above.

Shipping Process Chart in Export Import Business:

There are a lot of legal and regulatory formalities to be fulfilled in the shipping process and everything incurs a cost. The process sequence of the shipment is presented in the below:

Ready goods or apparel

↓

Forwarding agent

↓

Port

↓

Customs

↓

Loading in the ship

↓

Sailing

↓

Reaching the destination

↓

Unloading

↓

Customs

↓

Forwarding agent

↓

Buyer

↓

Container

↓

Port

↓

Transit sheds

↓

Customs checking

↓

Docks

↓

Loading in the ship

↓

Payment of all port dues

↓

Get mate receipt

↓

Shipping line

↓

Bill of loading

Shipping and Forwarding Cost Calculation Formula:

To calculate the shipping cost the below formula has to follow

Shipping and forwarding cost per apparel,

All the expenses

=**…….....……**

Shipping quantity

Elements of Shipping and Forwarding Cost:

The cost elements included in the shipping and forwarding cost are as follows:

1. Freight charge for **freight forwarders**,
2. Documentation charge,
3. Transportation,
4. Port charges,
5. Customs expenses,
6. Insurance charges (If needed),
7. Agent commission,
8. Bank expenses,
9. Regulatory expenses.

Factors of Shipping and Forwarding Cost:

There are some key factors which influence on the shipping and forwarding cost are listed in the following:

1. Mode of shipment- By air, sea, road or combination.
2. INCO terms- FOB, CFR, CIF etc.
3. Volume or amount of the **apparel export order**.
4. Types of assortment.
5. Country of destination.
6. Forwarding and clearing agent.
7. Government rules and regulations.

What is Insurance?

Insurance is a helpful policy for a business or any property when it's facing a bigger problem and unable to solve itself caused by event(s). Insurance protects yourself when you have got a car accident, house or industry burn on fire and many more. You also can buy an insurance to secure your life by getting paid when you are so much ill and unable to work

properly. On the other way if you buy a life insurance you family would pay after your death Insurance company does such things because they will get the premium continuously to support you when you got a house burn, car accident, unable to work or died.

Insurance company provide financial support, when a business goes into a huge amount of financial loss, damage, burn on fire or by any event (s) as the contract signed by both of party. Insurance gives you peace of mind and you know that if anything happens to you, your family or your business that you will be financially secure.

Somebody says "Insurance Risk-transfer mechanism that ensures full or partial financial compensation for the loss or damage caused by event(s) beyond the control of the insured party. Insurance provider company need to pay the amount of money how much was signed under a contract."

What is textile Insurance?

Textile industry work with a huge amount of money and workers so that they could experience an accident anytime during work by electricity, fire, hazard chemical, gas and many type machinery etc. if any industry suddenly get an accident and loss too much money! Who will help them to build a new industry or fix the problem created by the accident(s)? Every textile industry needs to buy insurance and pay the premium to support them when they are in damage or loss situation.

Type of insurance:

There are too many type of insurance; from life insurance to pet insurance, here is some of insurance name are given below. Names are used mostly.

- Life insurance
- Car insurance
- Industrial insurance
- Travel insurance
- Motor insurance
- Fire/ House owners/ Householders insurance
- Personal accident insurance
- Medical and health insurance

How insurance works?

First you chose for what? You want to purchase insurance and from what, event(s) you want to protect your property. After complete the task you many ask for insurance assistance to any insurance company you chose by their reputations. The consultants calculate your property value and insure the risk of an accident. Consultants determine the money you have to pay in a unit time (premium) to get support if you deserve to get paid by Insurer Company.

Choose an insurance policy:

All document and contract between insured and insurer include in this policy paper. Policy provides the information of the property you want to protect from some event(s) should be included. Estimate value of the property and amount of money should give by the policy provider after get any accident. For example; car insurance might say that it would be cover if you had an unexpected accident during driving. Insurance company might pay the bill to reconditioning the car to drive on read as it was or pay the money (as in the policy) if it's completely unusable but not if you break a traffic signal ,driving after taking alcohol, driving without driving license, and many more (as in the policy).

Pay the premium

Premium is the amounts of money you pay each month year (sometimes at once) ensure to continue your insurance. The amount you pay depends on the risk and on the value of the events you're insuring. Insurance company collects the money you given by the name of premium .if you don't pay the premium than how they support you? That's why you must need to pay the premium.

Make a claim

If something happens that's covered by the policy, you can claim on your insurance. You tell the insurance company what happened, they check that it's covered under your policy, and if the claim meets with what you are protected against then they pay you as agreed.

Thereareafewmorethingsyoushouldknowaboutgettinginsurance.Sometimesso meof policy could be danger in your critical time and insurance company could be refused to pay so please read all scream & document carefully before purchase insurance.