



Government of Karnataka

# **APPARELS MADE UPS & HOME FURNISHING**

**Job Role : Sewing Machine Operator**

**TEXT BOOK**



**10th Standard**

**National Skill Qualification Framework**

**NSQF LEVEL 2**

**Samagra Shikshana Karnataka  
and  
Karnataka Text Book Society (R.)**

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## FOREWORD

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*All Education commissions recommend bringing work and education into the domain of the curricular, infusing it in all areas of learning while giving it an identity of its own at relevant stages. It explains that work, transforms knowledge into experience and generates important personal and social values such as self-reliance, creativity and cooperation. Through work one learns to find one's place in the society. Work involves interaction with material or other people (mostly both), thus creating a deeper comprehension and increased practical knowledge of natural substances and social relationships.*

*Through work and education, school knowledge can be easily linked to learners' life outside the school. All the previous Education commissions emphasized on Vocational Education and Training (VET) for all those children who wish to acquire additional skills and/or seek livelihood through vocational education after either discontinuing or completing their school education. VET is expected to provide a 'preferred and dignified' choice rather than a terminal or 'last-resort' option. NCERT has attempted to infuse work across the subject areas and also contributed in the development of the National Skill Qualification Framework (NSQF) for the country, which was notified on 27 December 2013.*

*It is a quality assurance framework that organizes all qualifications according to levels of knowledge, skills and attitude. These levels, graded from one to ten, are defined in terms of learning outcomes, which the learner must possess regardless of whether they are obtained through formal, non-formal or informal learning. The NSQF sets common principles and guidelines for a nationally recognized qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities. It is under this backdrop that Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal, a constituent of NCERT has developed learning outcomes based modular curricula for the vocational subjects from Classes IX to XII. This has been developed under the Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education of the Ministry of Education*

*This textbook has been developed as per the learning outcomes based curriculum, keeping in view the National Occupational Standards (NOS) for the job role and to promote experiential learning related to the vocation. This will enable the students to acquire necessary skills, knowledge and attitude.*

*These text books from PSSCIVE were vetted by a team of subject experts and resource persons in the context of setting a state specific content to ensure more relevancy to the world outside the school.*

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## CHAIRMAN NOTE:

*In a rapidly evolving world, the importance of vocational education has never been more pronounced. As industries adapt to new technologies and changing market demands, the need for skilled professionals who are equipped with practical knowledge and hands on experience becomes critical. The series of vocational text books aims to bridge the gap between theoretical concepts and real world application, providing learners with the tools they need to succeed in their chosen fields.*

*Each text book in this series has been meticulously crafted to align with industry standards and best practices. By combining foundational knowledge with practical skills we aim to empower among students to not only understand their disciplines but also to excel in them. Our contributors are experienced educators, Industry professions and subject matter experts have collaborated to ensure that the content is both relevant and engaging.*

*The structure of each book is designed to facilitate effective learning among students. All Key points are presented in a clear and concise manner, complemented by real life case studies, practical exercises and assessments that encourage critical thinking and problem-solving. We believe that learning is most effective when students can see the direct application of their studies in Professional settings.*

*We also recognize the diverse backgrounds and learning styles of our students. To that end, we have included a variety of teaching tools, including visual aids, Interactive elements, and online resources, to support a more personalized learning experience. Our goal is to make vocational education accessible and engaging for all learners, regardless of their starting point.*

*As you embark on this educational journey we encourage you to approach these text books with an open mind and a willingness to explore new ideas. The skills and knowledge you gain will not only prepare you for immediate employment but will also serve as a foundation for lifelong learning and professional development.*

*We extend our gratitude to all those who contributed to this text books, and we hope that these textbooks will inspire and equip the next generation of skilled professionals.*

*Welcome to the future of Vocational Education.*

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## ABOUT THE BOOK

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Apparel, Made-ups and Home Furnishing sector is amongst the fastest growing sectors in our country. It covers a great number of activities starting from the transformation of raw material fibers, yarns, fabrics into garments and end with fashion apparel. This sector includes activities related to designing, drafting, cutting, stitching, finishing and decoration of apparel, made-ups and home furnishing products. It also includes how to check the quality of raw materials, merchandising and export aspects. One of the very important areas of this sector is Sewing Machine Operation.

Sewing machine operations broadly involve stitching of fabrics and other pliable materials using a sewing machine. The major responsibility of a Sewing Machine Operator is to stitch various parts of a garment or any other article. Generally, Sewing Machine Operators are specialized in a specific type of sewing machine. These Operators usually begin by performing simple tasks, and with experience, they can perform more difficult tasks with advanced Industrial Sewing Machines. Sewing machine operation is one of the very important steps in the process of construction, and the quality of apparel, made-ups and home furnishing. Hence, the area has wide scope of manpower requirement, and there is a huge demand of trained personnel.

The Text book for the job role of Sewing Machine Operator is developed to impart knowledge, Skills, Entrepreneurship through hands-on-learning which forms a part of the experiential learning. The Textbook has been developed with the contribution of the expertise from the subject and industry experts and academicians for making it a useful and inspiring teaching-learning resource material for the student. The job role of the students is to acquire necessary knowledge and skills to become a learner.

The textbook describes the preparation and operation of the sewing machine, construction of various types of stitches, seams and edge finishes and surface embellishments through various techniques are covered. The commonly occurring hazards in apparel Industry and their safety measures for the workers are explained in the textbook. In all the levels the students are trained on Professional Skill, Knowledge and Employability Skill related to the job role as Sewing operator.

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## UNIT -1 INDUSTRIAL APPLICATION OF SEAM

| Session | Topic                                        | Outcomes                                                                                                                                                                                                                                                                                                                                                                        |
|---------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Types of Seam Used in Garments Manufacturing | <p>At the end of the lesson, the students will be able to:</p> <ul style="list-style-type: none"><li>▶ Basic knowledge of seams used in different components.</li><li>▶ Seams are a vital part of sewing and fabric constructions.</li><li>▶ How to use different seams for different garments.</li><li>▶ To know the formation &amp; construction process of various</li></ul> |
| 2       | Garment Construction Terminology             | <p>To understand the basic garment construction :</p> <ul style="list-style-type: none"><li>▶ How to use them to create high quality garment and selection of fabric.</li><li>▶ How to use the right cutting, draping techniques for their design.</li><li>▶ To Create a patterns for simple clothing.</li></ul>                                                                |

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# Unit 1

## Industrial Application of Seams



### INTRODUCTION

In sewing, a seam is the join where two or more layers of fabric, leather, or other materials are held together with stitches. Seams in modern mass-produced apparel, footwear, house hold textiles and sporting goods typically are sewn by industrial sewing machines. Home shoe making, dressmaking, quilting, crafts, haute couture and tailoring may use a combination of hand and machine sewing techniques.

In clothing construction, seams are classified by their type (plain, lapped, bound, and flat) and position in the finished garment (center back seam, inseam, and side seam). Seams are finished with a variety of techniques to prevent raveling of raw fabric edges and to neaten the inside of garments. (Fig 1.1)

Seams used for assembling sewn products are load bearing and ideally should be similar in physical properties to the material being sewn. The stitch type and sewing thread used will vary with each application. Hence, it is important to be familiar with various seam types, their applications and variations available so that you can choose the right seam to suit your sewing needs.

## SESSION1: TYPES OF SEAM USED IN GARMENTS MANUFACTURING

### Introduction:

The process of joining of fabric to create a garment is known as stitching. There are two things involved in stitching process is stitches and seams. The line where two or more fabrics are joined together is known as a seam.

### Seam Classification

#### What is Seam?

The line where two or more fabrics are joined together is known as a seam.

- ▶ A line along which two or more fabrics are joined by sewing.
- ▶ The application of a series of stitches or stitch types to one or several thicknesses of material.

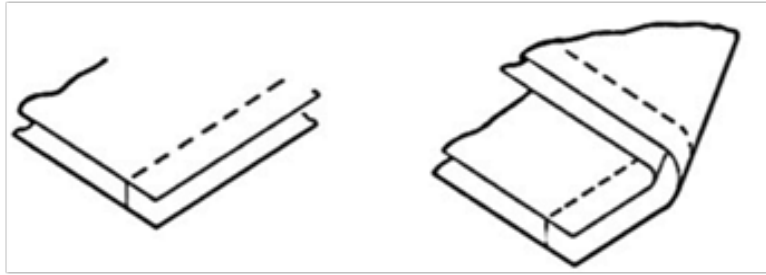


*Fig: 1.1 plain seam*

### **Properties of good seam**

1. Smooth fabric join
2. No missed or uneven stitches
3. No damage to the material being sewn
4. Achievement of Strength, elasticity, Durability, Security and comfort.
5. Comfortable while garment is in use.

### **Different types of seam classes:**

1. Class 1- Superimposed Seam
2. Class 2- Lapped Seam
3. Class 3- Bound Seam
4. Class 4- Flat Seam
5. Class 5- Decorative/Ornamental Seam
6. Class 6- Edge neatening Seam
7. Class 7- Applied Seam
8. Class 8- others (single ply constructions)

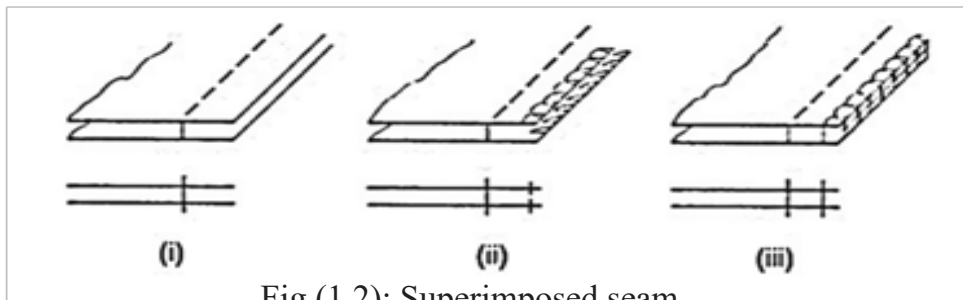
### **CLASS 1: SUPERIMPOSED SEAM**

This seam is constructed with a minimum of two pieces of fabric. One piece of fabric is fully imposed to another. The simplest seam type within the class is formed by superimposing the edge of one piece of material on another. A various of stitch types can be used on this type of seam, both for joining the fabrics and for neat daming the edges or for achieving both simultaneously.

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## Application

Where simply need to join two or more plies of material. For example, run stitch collars and run stitch cuffs of a shirt.



Fig,(1.2): Superimposed seam

Seams shown in Figs (i) can (ii) can be pressed open; that shown in Fig.(iii) Fig,(1.2): Superimposed seam

An example of this is the types of superimposed seam known as a French seam, which is completed in two stages. A similar, and in many cases equally acceptable, seam could be constructed using a folding device and a multi-needle machine, though only on a straight, rather than a curved, fabric edge.

An example of a superimposed seam with an additional component would be one that contained an inserted piping, and even here more than one construction is possible.

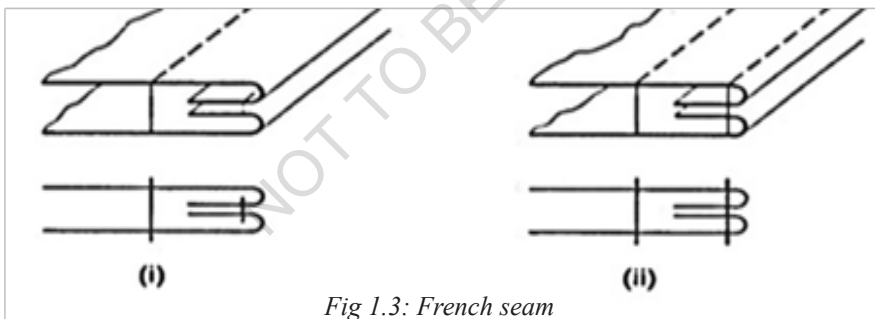


Fig 1.3: French seam

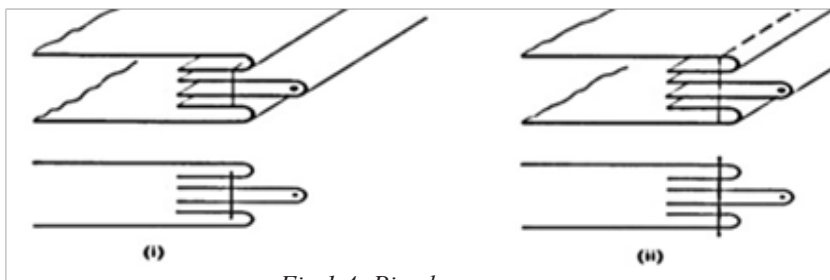


Fig 1.4: Piped seam

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## CLASS 2: LAPPED SEAM

Lapped seam is made with two or more pieces of fabric overlapping each other. Lapped seams are common when sewing side seams on jeans and dress shirts.(Fig 1.5)

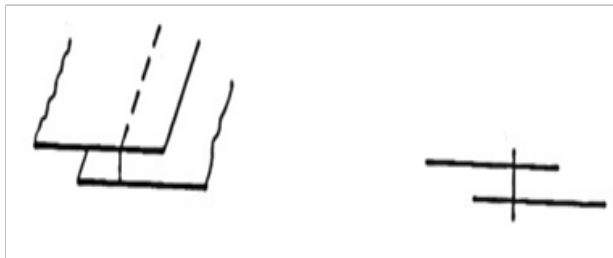
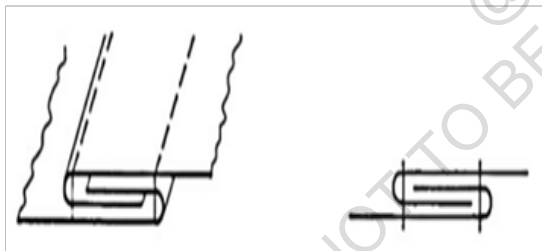


Figure (1.5): Lapped seam

Much more common on long seams on garments such as jeans and shirts is the so-called lap felled seam, sewn with two rows of stitches on a twin needle machine equipped with a folding device.

The type of raised, top stitched seam often used down skirt panels is also technically a lapped seam, although at the beginning of its construction it appears to be a superimposed seam. It is often referred to as a welted or a raised.(Fig 1.6 & 1.7)



Fig(1.6): Lap Felled Seam

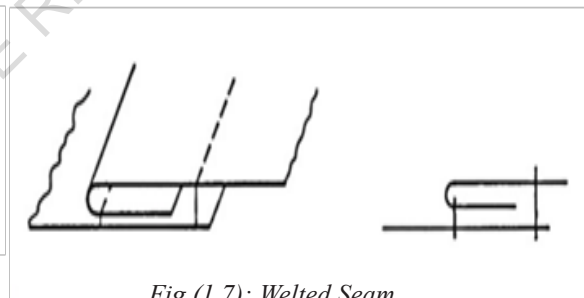


Fig (1.7): Welted Seam

### Application

The looped seam is the most commonly used seam. It is used in jeans manufacture because of its strong construction. The French seam is commonly used for rain wear, and edge stitching front facings on jackets and dresses.

## CLASS 3: BOUND SEAM

A bound seam is one piece of fabric encompassing the raw edge of another piece of fabric. A bound seam is often used as a decorative edge and the binding may continue off the edge of the garment to provide tie ends.

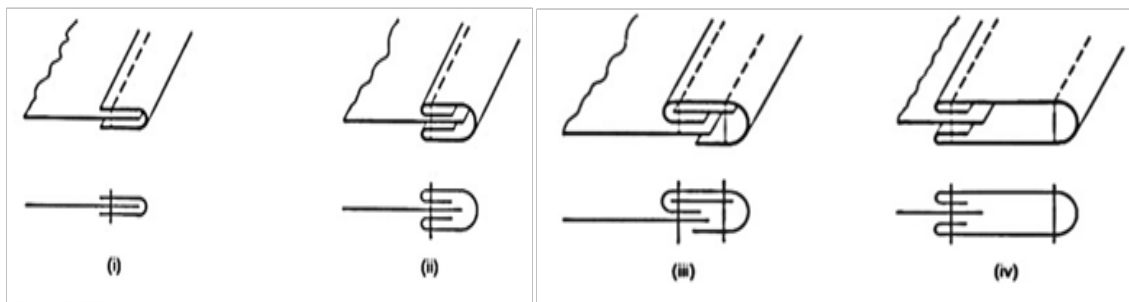


*Figure (1.8): Bound seam*

Examples in common use on underwear and leisurewear and on skirts, jeans and ladies' trousers are shown in above (Fig 1.8)

In Fig part (i), is shown a common finish used on the neck edge of T-shirts, and also on the edges of men's vests and briefs.

In fig part (ii), there is an insert of another cut strip. This would normally be in a contrasting color to the garment and both could contrast with the outer binding.

In Fig part (iii), elastic has been included in a sufficiently stretched state to draw the edge of the garment in to a snug fit.

In Fig part (iv), a waistband, usually with an interlining fused to it, is bound on to the top of a skirt, jean or trouser using a folder and twin needle machine. The ends of the waistband require stitching separately.

## Application

Necklines of t-shirts

## CLASS 04: FLAT SEAM

In this class, seams are referred to as flat seams because the fabric edges do not overlap. They may be butted together without a gap and joined across by a stitch which has two needles sewing into each fabric and covering threads passing back and forth between these needles on both sides of the fabric.

Knitted fabrics are most commonly used because the advantage of this seam is that it provides a join that is free from bulk in garments worn close to the skin, such as knitted underwear.

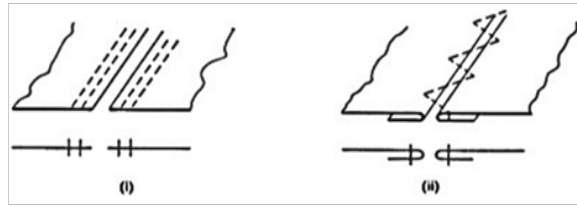


Fig (1.9): Flat seam Application

This type of seam will consist of two components and can be seen on very fine knitted garments where seams are required to be free from bulk.(Fig 1.9)

## CLASS 05: DECORATIVE SEAM (Ornamental)

This construction consists of a row or rows of stitches sewn through one or more plies of fabric.

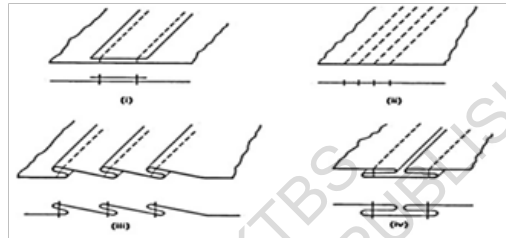


Figure (1.10): Decorative seam

## Application

The stitching results in decorative surface effects on the fabric e.g., pin tucks, application of braids, etc. This seam type consists of a minimum of one component. (Fig 1.10)

## CLASS 6: EDGE NEATENING SEAM

This seam is used to prevent the edges of the fabric from rolling or curling. Seam types in this class include those where fabric edges are neatened by means of stitches (as opposed to binding with another or the same fabric), as well as folded hems and edges. The simplest is the fabric edge inside a garment which has been neatened with an over edge stitch. (Fig 1.11)

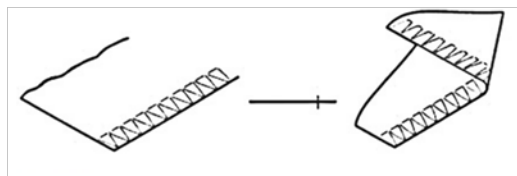


Figure (1.11): Edge neatening

In Fig1.2 is typical of the hem on a dress or a pair of trousers in a woven fabric, which has been neatened and then sewn up.

### Application / Uses

Edge finishing Serging trouser panels, Curtains, Table cloths, Decorative ladies wears etc.



Fig (1.12): Hemmed edges (i) 504/103 (ii) 301 (iii)  $2 \times 301$  (iv)  $2 \times 401$

### CLASS 07: APPLIED SEAM

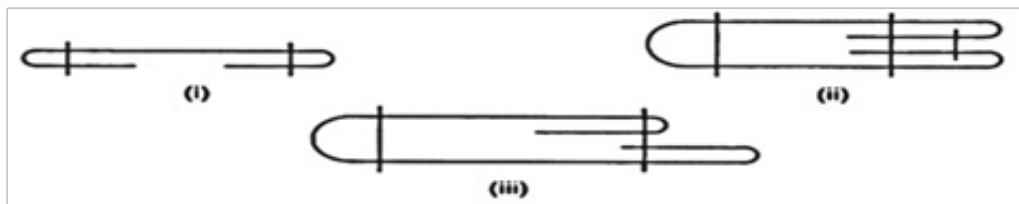
Seams in this class relate to the addition of separate items to the edge of a garment part. They are similar to the lapped seam except that the added component has a definite edge on both sides. Examples would be a band of lace attached to the lower edge of a slip as in Fig. (xii)



Fig(1.13): Addition of separate items (i) 304 lace (ii)  $2 \times 401$  shirt buttonhole band

### CLASS 08: OTHERS (single ply constructions)

The final seam class in the British Standard is another where only one piece of material need be involved in constructing the seam. The commonest seam types in this class are the belt loop as used on jeans, raincoats, etc. This is shown in Fig. (i). Also included in this class are belts themselves; two possible constructions for these are shown in Fig. (1.14)



Fig(1.14): Belt loop and belts (i) 406 (ii) 301 (iii) 302

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## Practical Exercise

### Activity1

Prepare as watch file of application of different seams.

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### Check Your Progress

#### A. Choose the correct answers

- .....type of seam is used for Men's T-Shirt.  
a) Plain seam    b) Bound seam    c) Flat & Fell seam    d) Welt seam
- The seam is constructed with a minimum of 2 pieces of fabric.  
a) Superimposed seam    b) Lapped seam    c) French seam    d) Lap felled seam
- \_\_\_\_\_seam is used to prevent the edges of the fabric rolling or curling.  
a) Welt seam    b) Lapped seam    c) Edge neatening seam    d) Bound seam

#### B. Fill in the blanks

- \_\_\_\_\_ Seam is made with two or more pieces of fabric overlapping.
- A \_\_\_\_\_ is one piece of fabric encompassing the raw edge of another piece of fabric.
- A \_\_\_\_\_ seam is the addition of separate items to the edge of a garment part.

---

### **C. One word Question and Answers**

1. What is a seam?
2. What is plain seam?
3. What is sewing?

### **D. Answer the following questions**

1. Write different types of seams?
2. What are the properties of seams?
3. Write the application of any 2 seams.

### **E. Long Answers**

1. Explain any five type seams?
2. Describe the seam used in clothing?
3. Describe the classification of the seam?

### **Reference link:**

- <https://textilelearner.net/types-of-seam-used-in-garments-manufacturing>
- <https://www.coats.com/en/info-hub/seam-types/>
- Different Types and Classification of Stitches with Pictures
- <https://www.psscive.ac.in/storage/uploads/textbooks/pdf/english/sewing-machine-operator-english-class-10.pdf>

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## SESSION2:GARMENT CONSTRUCTION TERMINOLOGY

### Stitch Length

The stitch length is a sewing machine setting that regulates the distance from one needle entry point to the next. Your automated sewing machine will have a stitch regulator to show the stitch lengths ranging from very small to a longer stitch.

A small stitch allows many more stitches to fit into a measured space while longer stitches fit fewer stitches into a designated space. Short stitches are tighter and closer while longer stitches are looser.

- Shorter stitches are used for sewing delicate fabrics and are good around corners and curves.
- Longer stitches are useful for basting and gathering because the tension is loose and the stitch runs over a larger portion of the fabric. Longer stitches cope better with thicker fabrics or multiple layers of fabric.

Whatever project you may have, it is always best to test the stitch length on a scrap of fabric and check the tension. The sewing machine manual of your make and model of the machine should have a chart of stitch lengths and

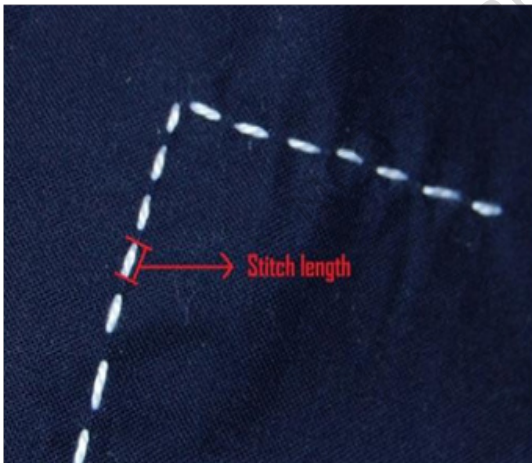


*Fig: 1.15*

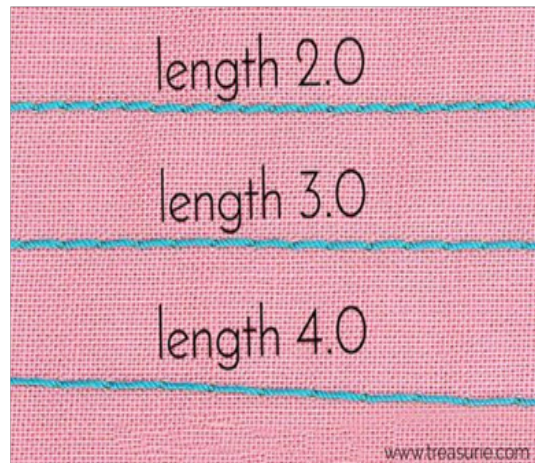


*Fig: 1.16*

| Fabric Types         | Stitch Length |
|----------------------|---------------|
| Lightweight Fabric   | 1.5 - 2.0     |
| Medium Weight Fabric | 2.0 -2.5      |
| Heavy Fabric         | 3.0 - 4.0     |
| Leather and Vinyl    | 3.0 - 4.0     |
|                      |               |
| Stitching Types      | Stitch Length |
| Basting Stitch       | 4.0 - 7.0     |
| Top Stitch           | 2.5 - 3.5     |
| Gathering            | 4.0 - 5.0     |
| Quilting             | 2.5 - 3.5     |
| Stay Stitching       | 2.5 - 3.5     |
|                      |               |
| Thickness of Threads | Stitch Length |
| Thin Thread          | 2.5 - 3.5     |
| Thick Thread         | 3.0 - 4.0     |
| Metallic Thread      | 3.0 - 4.0     |
| Rayon Thread         | 3.0 - 4.0     |

### Seam Allowance (Fig 1.16)

Seam allowance (sometimes called inlays) is the area between the fabric edge and the stitching line on two(or more) pieces of material being sewn together. Seam allowances can range from 1/4 inch (6.4 mm) wide to as much as several inches. Commercial patterns for home sewers have seam allowances ranging from 1/4 to 5/8 inch (6.4 to 15.9 mm). A 5/8"(1.5cm) seam allowance provides enough extra between the seam line and the cut edge of the fabric to make sure that the fabric will be safely caught as they are being joining together. This is particularly important when working with fabrics that ravel easily. (Fig 1.17)

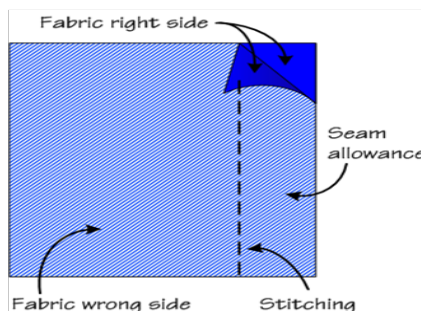


Fig: 1.17

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## STITCHING LINE / SEAM LINE

The seam line is the line of stitching that runs the length of the seam. Seams are an essential aspect of garment construction, as they provide structure, shape, and stability to the final product. The quality and appearance of the seam line play a crucial role in the overall aesthetic appeal and durability of the textile item. (Fig 1.18)

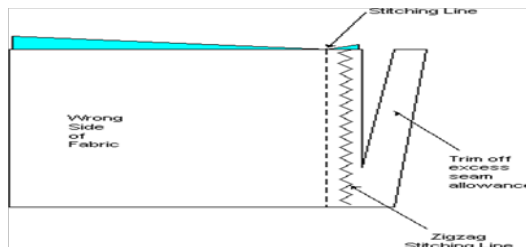


Fig: 1.18

## GARMENT EASE : Ease (Wearing & Design)

### What is garment ease?

Ease in sewing refers to the difference between the measurements of the wearer and the finished garment. There are multiple types of ease, including wearing ease and design ease, and the amount of ease needed can be calculated by subtracting the body measurements from the finished garment measurements.

Ease is just about how a garment fits. A sweater can have positive ease, negative ease, or no ease. If it's bigger than you, it has positive ease. If it's smaller than you, it has negative ease. If it's exactly the same size as you - not baggy, nor stretched to fit - it has no ease.

### What is positive and negative ease?

Positive ease allows extra room inside the garment for your body to move around —or, more plainly, the sweater circumference is larger than your body circumference. Negative ease results in a garment dimension smaller than that of the wearer, forcing the stretchy knitted fabric to expand slightly when worn. There are three examples; the Bodice Block, the Skirt Block and a skirt pattern. (Fig 1.19 & 1.20)



Fig: 1.19

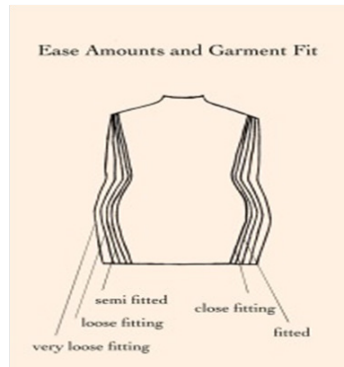


Fig: 1.20

## Facing (sewing)

Facing is a small piece of fabric, separate or a part of the garment fabric itself, used to finish the fabric edges

### Facing advantages:-

- The facing adds addition support, strength and prevents stretching.
- Facing makes a garment look professionally finished with the seams well hidden inside the folds of the facing.
- Facing is mostly used to finish the edges in necklines, armholes, hems and openings.
- They are also used widely in all other sewing like quilts and home decor items like curtain hems.

### There are basically three types of facing.

1. Shaped facing: - Shaped facings are cut to match the outside shape of the piece to provide a neat finish, and are often cut from the same pattern pieces. Shaped facings are typically made of the same fabric as the garment, but may also be made of lighter-weight fabric or in a contrasting color as a design element. (Fig 1.21)

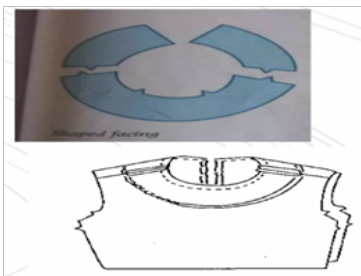


Fig: 1.21

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### 1. Extended facing: -

Extended facings are extensions of the garment fabric, folded back and usually stabilized.(Fig 1.22)

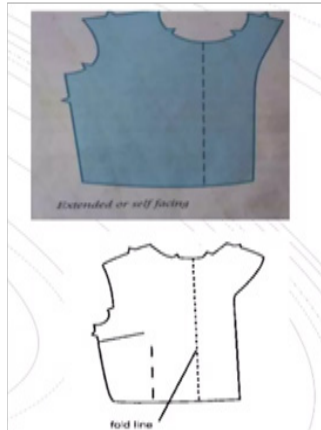


Fig: 1.22

### 3. Bias facing: -

Bias facings are strips of lightweight fabric cut on the true bias 45 degree

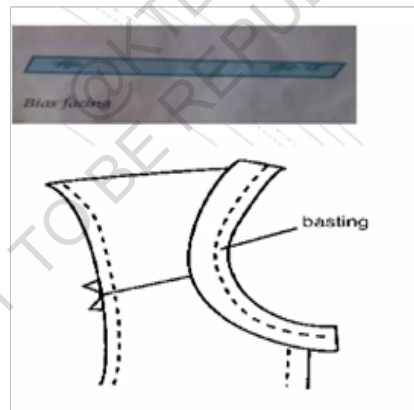


Fig: 1.23

Other techniques for finishing an edge include hemming, facing, bind edge and taped edge. (Fig 1.23)

### Common areas which require facing on garments are;

- Necklines - Typically applied (when they do not have a collar.)
- Armholes - Used on sleeveless garments.
- Waist lines -Applied when where there is no waist band present.
- Peek-a-boo openings -to Reinforce the edges and maintain their shapes.

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## The Basics of Binding

### What is binding?

Binding refers to a narrow strip of fabric attached along the edge of a project. It hides raw edges, so they don't show or fray and makes them look nice and finished. Binding can be used along the outer edges of a quilt, along necklines or armholes on garments, and more.

### Types of Binding

Binding strips can be cut on the straight (or lengthwise) grain, cross grain or bias grain – each offers a different amount of stretch and flexibility. We will outline which is best used for quilts or apparel. (Fig 1.24)

- **Straight Grain Binding:** Strips are cut along the grain of the fabric, parallel to the selvedge. This type of binding has the least stretch. This is a great option for binding quilts with straight edges.
- **Cross Grain Binding:** Strips are cut along the grain, but across the fabric from selvedge to selvedge. This type of binding has a small amount of stretch. This is a great option for quilts with a lot of bulk.
- **Bias Binding:** Strips are cut at a 45-degree angle to the fabric grain. This type of binding has the most stretch and is best used for apparel finishes like armhole seams, and curved edges.



*Fig: 1.24*

## The Basics of Fabric Grain

### Grain –

It states the direction in which the yarn is woven.

### Lengthwise grain (straight grain) -

The straight grain is oriented parallel with the warp threads and the selvedge

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## Crosswise grains (cross grain) -

Yarns perpendicular to selvedge are known as weft yarns and the direction is known as cross wise grain. (Fig 1.25)

## Bias grain -

The bias grain of a piece of woven fabric, usually referred to simply as "the bias", is any grain that falls between the straight and cross grains.

When the grain is at 45° degrees to its warp and weft threads it is referred to as "true bias".(Fig 1.26)

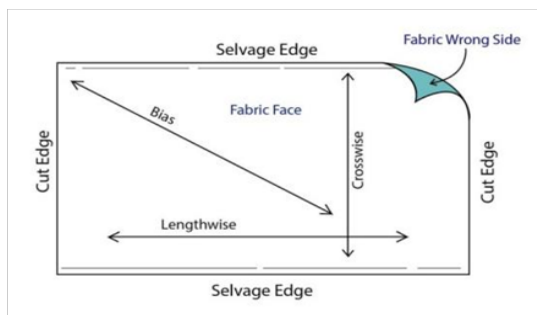


Fig: 1.25

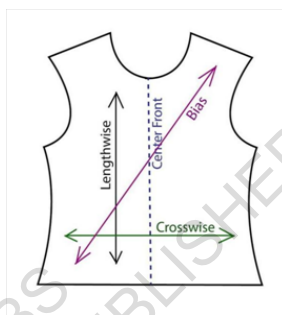


Fig: 1.26

## PIPING

Piping is a type of trim or embellishment consisting of a strip of folded fabric so as to form a "Pipe" inserted into a seam to define the edges. It is a cord-edging, covered in fabric or just a decorative cord. Piping is often applied to trim the seams or edges. If used in contrasting colour, it emphasizes the decorative effect. (Fig 1.27)

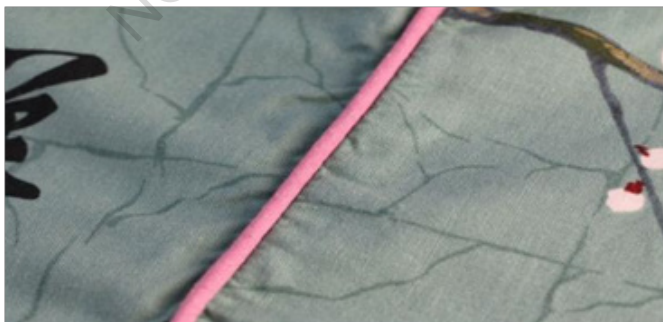


Fig: 1.27

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## Practical Exercises

### Activity1

Practice operating the sewing machine in the practical a band prepare a sample of the Garment Construction Terminology different stitch formations.

#### Material Required

1. Single needle lock stitch machine(manually operated or motorized)
2. Power socket and outlet
3. Sewing machine needle
4. Thread
5. Bobbin and bobbincase
6. Fabric scraps(10"X10") or (12"X12")samples
7. Practical file
8. Scissor
9. Adhesive/glue

#### Procedure

1. Prepare the sewing machine as per instructions given in this session for stitches.
2. Prepare the samples of correct stitch,or a stitch when the upper tension is too tight and too loose.
3. Finish the prepared samples.
4. Attach samples in your practical file.

### Activity 2

A visit to a field where more than two garments are constructed at a time

#### Check Your Progress

##### A. Choose the correct answers

1. Which grain is parallel to selv edge?  
a) Straight grain      b) Cross grain      c) Bias      d) Piping

- 
- 
2. \_\_\_\_\_ is a type of trim consisting of a strip of fabric.  
a) Binding                      b) Bias                      c) Piping                      d) Grain
3. \_\_\_\_\_ seam is used to prevent the edges of the fabric rolling or curling.  
a) Welt seam                      b) Lapped seam                      c) Flat seam                      d) Bound seam

### **B. Fill in the blanks**

1. Stitch length is usually expressed in \_\_\_\_\_.
2. The stitch length of light weight fabric \_\_\_\_\_ to \_\_\_\_\_.
3. \_\_\_\_\_ is often applied to trim the seams or edges.

### **C. Short Answers**

1. Define stitch length?
2. Define cross grain?
3. What are the types of bindings?

### **D. Answer the following questions**

1. What is seam allowance?
2. What is seam line or stitching line?
3. Write the advantages of garment Facing?

### **E. Long Answers**

1. Write about different types of grains?
2. Explain the facing and binding in detail
3. Draw the fabric grain and mention the grain lines
4. Explain garment ease.

### **Reference by:**

- How to Determine Seam Strength in Garment Industries
- Scope of Seam Engineering to Increase the Seam Strength by Controlling Different Parameters
- <https://parker.agrilife.org/files/2013/08/E405-Glossary-of-Sewing-Terms.pdf>

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## Unit-2

### STITCHING GARMENT COMPONENTS

| Session | Topic                                                | Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Different Components of Garment and stitching method | <p>At the end of the session, students should be able to:</p> <ul style="list-style-type: none"><li>▶ To introduce to the students the basics techniques of patternmaking</li><li>▶ To give knowledge about stitching components of garments.</li><li>▶ To give knowledge of various finishing techniques related to stitching.</li><li>▶ To acquaint students with various garments components by providing them the practical skills.</li></ul> |
| 2       | Stitching Different Types and Techniques of Fullness | <p>At the end of the session, students should be able to:</p> <ul style="list-style-type: none"><li>▶ Develop samples of Darts, pleats, tucks, and gathers.</li><li>▶ Follow the right construction techniques.</li><li>▶ Basic knowledge about fullness types and methods of construction.</li></ul>                                                                                                                                             |
| 3       | Fasteners and its Applications                       | <p>At the end of the session, students should be able to:</p> <ul style="list-style-type: none"><li>▶ Basic knowledge of types of fasteners.</li><li>▶ Correct placement and attachment of placket and zippers.</li></ul>                                                                                                                                                                                                                         |

# SESSION1: DIFFERENT COMPONENTS OF GARMENT AND STITCHING METHOD

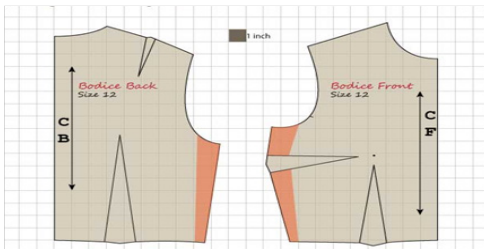


## INTRODUCTION

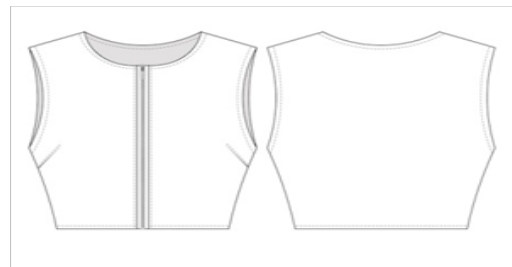
A component of the garment is a part or element of a garment that is used to construct the garment. Components are depending on the type of garment and its designs, but some common components include collars, cuffs, pockets etc. These are assembled together by seams, stitches, or bonding to create a finished garment. These components are constructed independently and attached to the components of the major garment. For example, pockets may be attached to the basic bodices before final assembly. These components are considered for functional as well as aesthetic purposes. Let's, discuss the different components of the garment. Understanding the different components of the garment is important for designers, manufacturers, and consumers as it can affect the quality, durability and overall look of the garment.

## TOP FRONT AND TOP BACK

The top front and back is the garment's primary component, which gives the garment structure. It covers the torso of the wearer. It consists of shoulder, chest/ bust, waist, neck and torso length measurements. It is the base for all other components which are attached to it. Back and front of the top are assembled to complete the upper structure of the garment. According to the dress's style, the front and rear of the top can have a princess line, yokes, panels, etc. Although the style line provides the garment with a distinctive appearance, it does not impact how well it fits. It can be achieved by replacing darts, and adding colour blocks, yoke and princess lines in the garment. (Fig 2.1 a&b)



A



B

Fig (2.1) A and B Body block

## Types of Neckline

A neckline is the part of bodice around the neck. It can be of various shapes and sizes. Neckline is a very important part of any garment. One should be very careful while selecting a neckline and also while stitching it. Neckline can be divided as front bodice neckline and back bodice neckline. Correct neck-line can help to modify the look of the wearer. Neckline can be used as decoration on dresses. The depth and width of neckline depends upon the wearer, age, sex, type of fabric used and the type of dress (Fig: 2.2).

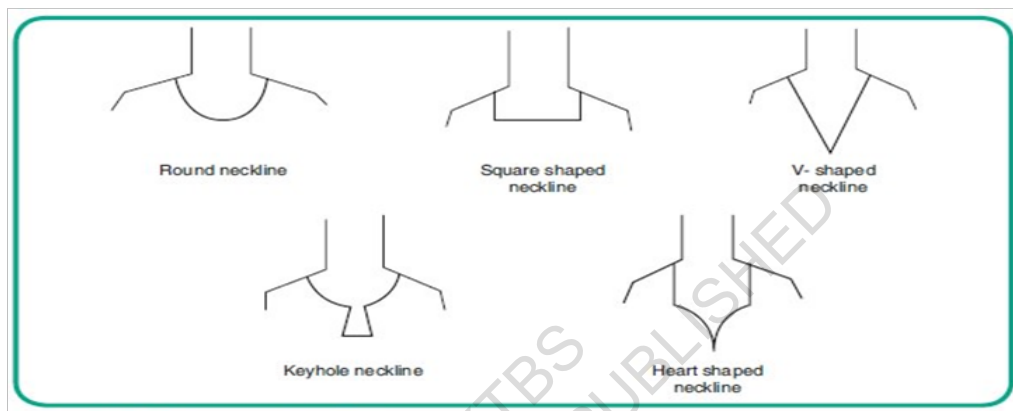
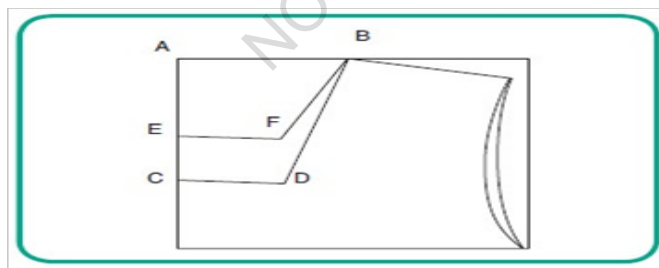


Fig 2.2 Types of Neckline

### Determination of the Height and Width of Neckline of Neckline

The height and the width of the neckline vary from person to person. It should be fixed before drafting the diagram. For a neckline, width and depth are required as explained below (Figure 2.3).



(Figure .2.3)

A – B = Front and back neck width

A – C = Front neck depth

B – D – C = Front neckline

A – E = Back neck depth

B – F – E = Back neckline

---

## Neckline Finishing

Finishing of the neckline is of great importance. It affects the final appearance of the garment and also under goes much strain while wearing the dress especially dresses without fasteners. Hence the neckline finish must be stronger. Neckline finish increases the durability of the garment. It should retain the shape and size. Mostly bias strips are used to finish the necklines, because of its stretch ability. Most necklines are finished in one of the following three ways:

With facings,

With bindings.

With a collar

### **The major points to be considered while finishing the neckline are:**

- Neckline edges must retain shape and must not stretch.

(Curves and Corners)

- Seam must be thin and smooth.
- Facing edges must be beneath the collar/neckline.

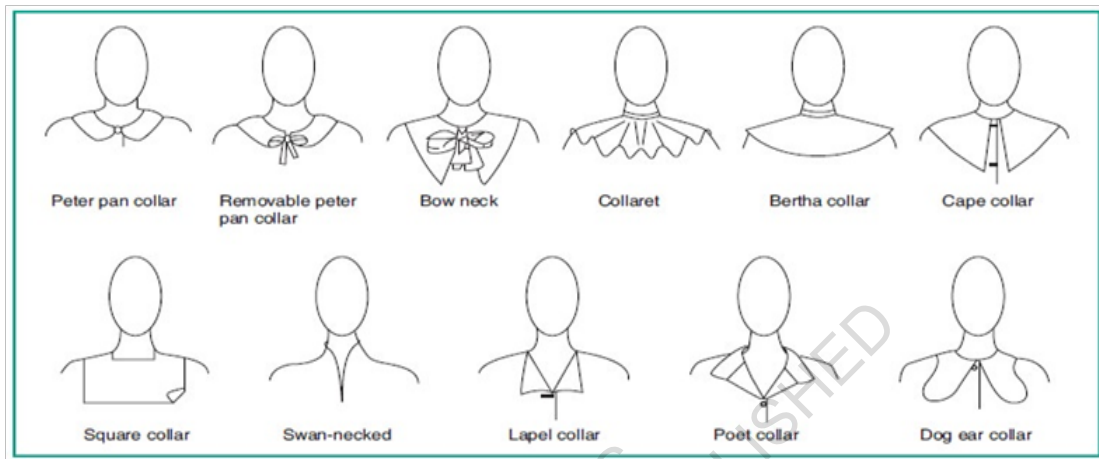
### **Collar**

A collar is added to a neckline to enhance its appearance. Collars are made of double layer of fabrics. It also helps to finish the raw edges of the neckline. Since collars form a background to the face they should suit the wearer. Several factors are considered while designing collars. The major factors are:

- Design of fabric – the collar design should harmonize with fabric design.
- Colour and texture of the fabric – there should be a visual harmony between the fabric used for collar and the base garment.
- Pattern of the garment – the collar design should complement the overall pattern of the garment.
- Purpose and use of the garment – collars should be selected according to the end use of the garment.
- Sex and age of the wearer – suitable collars should be appropriately selected for men, women and children.
- Appearance of the wearer- facial shapes and size of the neck are important factors to be consider while designing collars.

## Types of Collars

The collar edge can be round, curved, square or pointed depending upon design variation. A collar can be made close to or away from the neckline. Some of the types of collars are round collar, Peter Pan collar, scalloped collar, sailor collar, roll collar, shirt collar, band collar, and shawl collar (Figure 2.4).



(Figure 2.4) Types of Collars

### Round collar or one piece Peter Pan collar

Round collar or one piece Peter Pan collar is mostly used for children's dresses. The front collar continues to the back where it is divided with rounded ends. If this collar pattern is cut at the center front and back to get two pattern pieces it is called two piece Peter Pan collar. A scalloped collar can also be created by just shaping the collar edges as scallops (Figure 2.5).

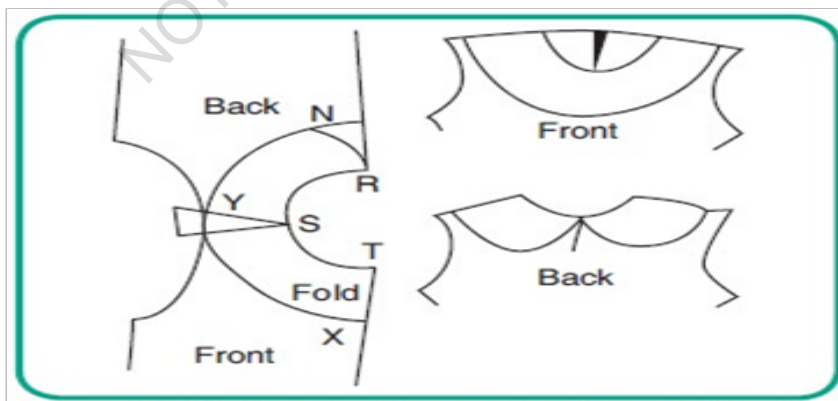


Fig: 2.5 Round Collar or One Piece Peter Pan collar

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## Method of Drafting a Round Collar

- First duplicate the neckline area of the garment as in the figure.
- Keep the front and back bodice pat-terns together on a paper, with neck points of shoulder lines touching with the pattern overlapping 0.25 cm near the shoulder as illustrated in the figure.
- Trace the outline of the upper part of the bodice.
- Label the front neckline as
- Shoulder – S.
- Back neckline – Y.
- Fold – 0.5 cm.
- Join XYZ as shown in the figure (3-7 cm away from the neckline).
- Make a notch at the shoulder S to indicate shoulder points.
- Label collar as shown in the figure and cut the collar pattern.
- This is the drafting of a flat collar or one-piece peter pan collar
- By cutting at the center front of the collar, two-piece Peter Pan collar can be prepared.

## Shirt Collar

Shirt collar, as the name indicates it is used in the men's, women's or kid's shirt. Generally, it consists of two parts commonly known as band to hold the other part which is the collar. Sometimes kid's shirt collars are designed without the stand (Figure 2.6).

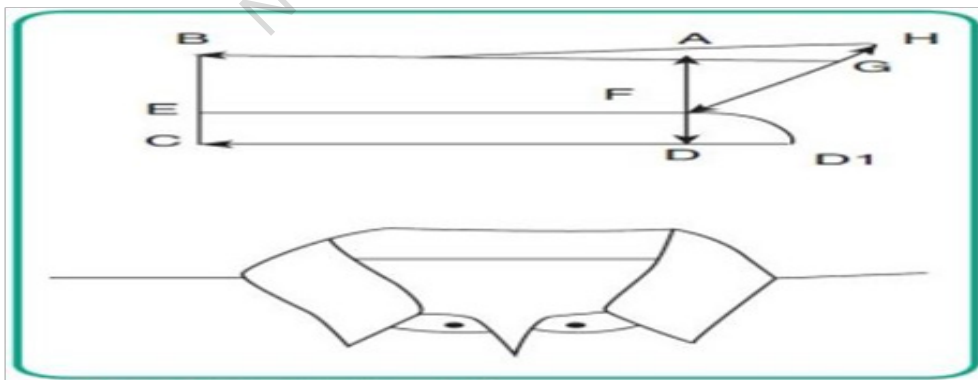


*Fig: 2.6 Shirt Collar*

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## Method of Drafting a Shirt Collar

- Draw a rectangle ABCD where CB = height of collar + 5 cm for band width and CD is  $\frac{1}{2}$  neckline measurements
- Mark the following points measuring CE and DF = Band width (5 cm)
- Extend the points D to D1 = 2 cm and A to H = 4 cm and H and G ( diagonal top) = 1 cm
- Join the points as shown in the figure
- The stand part of the collar (without the extension) along can be used to draft band or stand collars, which is used in Kurta. The edges of the collar are reduced by 2 cm to have small opening at the center front.

## Method of Sewing Collars

- Match the neckline of the garment and collar pattern
- Place the wrong sides facing together pin or back along the sewing line
- Machine along the sewing line
- Remove pins or tacked stitches
- Turn to right side
- Press neatly
- For shirt collar the seam line are stitched and then the whole collar piece is turned around. The seams are not seen in the finished garment

## POINTS TO REMEMBER

- Neckline has to be finished neatly. It should be flat on the body to add grace to the garment. Bias strips are cut in cross grain at 45o angle.
- Neckline can be finished by binding and facing.
- Round collar/peter pan collar are usually used in kids and women's garments.
- Sailor collar is a decorative collar. It has a square flap along the back neckline but forms V shape in the front neckline.
- Shirt collar are normally stitched with a band for men and women and without band for kids.

---

## Sleeves

### Introduction

Sleeve is a part of the upper garment. It is attached to bodice at the armhole. Sleeves add grace and beauty to any garment. Sleeves can be modified to suit wearers figure. There are different types of sleeves. Some are close fitting and others are stitched with fullness. The length of sleeve can be changed to create short, elbow sleeve, three fourth sleeve and full sleeves. Colour, texture, shape and size of sleeves can also be changed to create sleeve variations. Sleeves are generally cut along straight grain, but to create variation, it can be cut on cross grain also (Figure 2.7).

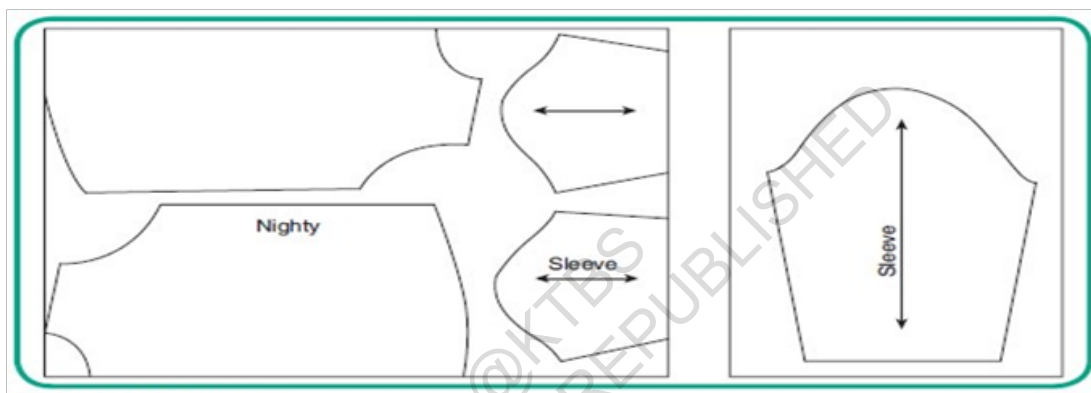


*Fig: 2.7 Sleeves*

Sleeves vary depending upon type of garment, the fabric used, one's preferences and needs. The length of the sleeve and fullness in sleeves can be altered, to create new designs.

### Parts of Sleeve

- Cap line – The line around the arm, where the arm is separated from the body.
- Side seam – The seam where the sleeve is joined to form a tubular structure.
- Hem line – finished edge of the sleeve.
- Upper sleeve round – Measurement around the fullest part of sleeve.
- Elbow round – Measurement around the fullest part of elbow.
- Wrist round – around the part of the arm where the palm starts.

---

Sleeves are classified as set in sleeve and open construction sleeve based upon the method of sewing. Set in sleeves are sleeves in which the side seams are attached to form a circular structure. Then it is attached to the bodice front and back which has to set into the armhole of bodice blocks. Therefore it is known as set in sleeve.

**Example: Sari blouse.**

Open construction sleeves are sleeves in which the sleeve is first attached to the Armscye of the bodices front and back. Then the sleeves and bodices side seams are stitched as a straight line.

**Example: Men's shirt sleeve.**

**Plain Sleeve**

This is also known as basic sleeve. It is used in all garments and more popular in sari blouses. It is plain without any fullness and fits correctly around the Armscye and falls over the upper arm. The length of the sleeve varies depending upon the designers taste (Figure 2.8).

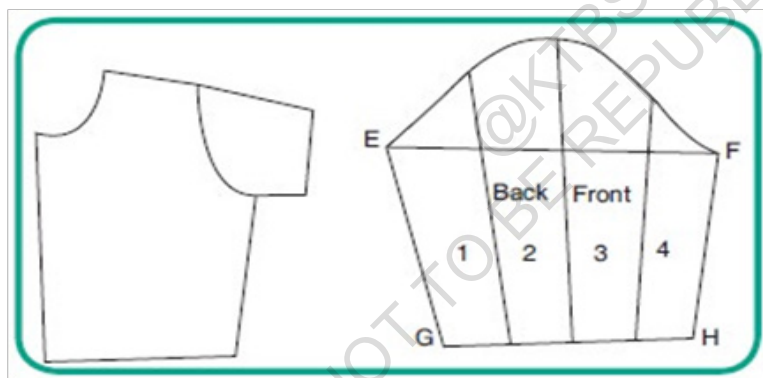


*Fig: 2.8 plain Sleeve*

**Gathered Sleeves**

Gathered Sleeves is a type of sleeve which is also called puff sleeve. It is mostly used in dresses and women's blouses. It has fullness either at the top edge or at both, the top and bottom of sleeve part. The drafting pattern for sleeves with gathers at the top is prepared using the basic sleeve pattern. The top of the sleeve is slashed almost till the bottom hem line. The pattern is placed over another sheet of paper with the slashed parts spread open according to the amount of gathers required with 3 to 5 cm. extra on top for puffing. The outline is drawn on the new sheet and the pattern is cut (Figure 2.9). The process is reversed for puff at bottom.

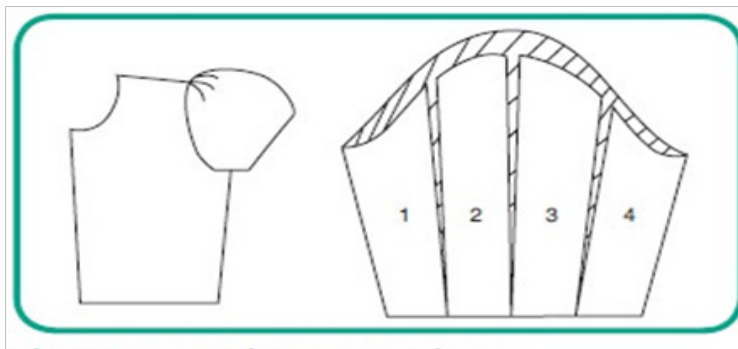


*Fig: 2.9 Gathers at Top Sleeves*

For sleeves with gathers at both the top and the bottom, the basic sleeve pattern is slashed till the bottom edge of the sleeve. The four parts of the sleeves are spread apart on a new sheet with the sleeve cap in line. The patterns are placed with 3 to 5 cm extra at top and at the bottom for puffing. Sometimes, the bottom is not gathered and left loose for fullness (Figure 2.10).

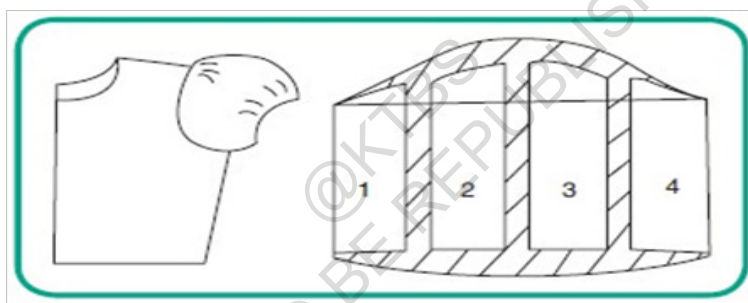


*Fig: 2.10 Gathers at Top Bottom Sleeves*

## **Bell Sleeves**

Bell sleeve is also prepared with the pattern of the basic sleeve. The pattern is slashed from the bottom edge (and spread) from the bottom edge to the maximum, for extra fullness. The pattern is drawn on a new sheet and cut. The lower edge is left loose for fullness (Figure 2.11).

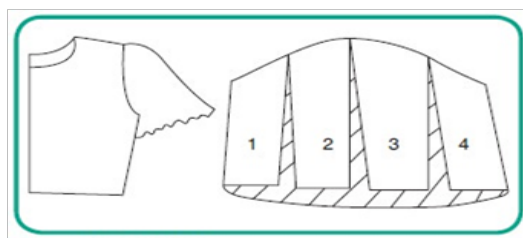


*Fig: 2.11 Bell Sleeves*

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## Raglan Sleeve

Raglan sleeve is mostly used for sports-wear, kids wear, T-shirt. It does not have any armhole seam and shoulder seam. Raglan sleeve is also prepared with the basic sleeve and extension are added to the bodies from front and back patterns to draft the final raglan sleeve pattern.

Mark point D, 2.5cm above the under arm and A, 2.5cm away from the shoulder point. A and D are joined with a curve as in the figure. The same procedure is followed to draw the curve EFH on bodies back. The top pattern of the bodice is along the curves ABD and EFH. Drawn patterns are placed on a new sheet with the basic sleeve pattern at the bottom, matching the center point of the pattern. Mark the shoulder points as S and S' on the bodice front and back. Match them to center of the sleeve point 'L'. Draw the outline for raglan sleeve pattern. This sleeve is stitched with seam that runs from the neck line to the armhole line (Figure 2.12).

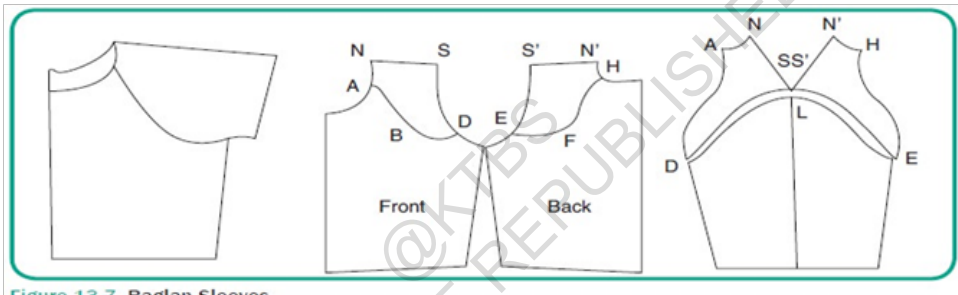


Fig: 2.12 Raglan Sleeves

## Full Sleeve

A full sleeve pattern is an extension of the basic sleeve pattern but the length of the sleeve is extended till the wrist. The circumference of the sleeve is changed accordingly. Full sleeves are used mostly in women's wear, Kurta and men's shirt. In men's shirt, these sleeves are finished with a cuff at the lower edges (Figure 2.13).

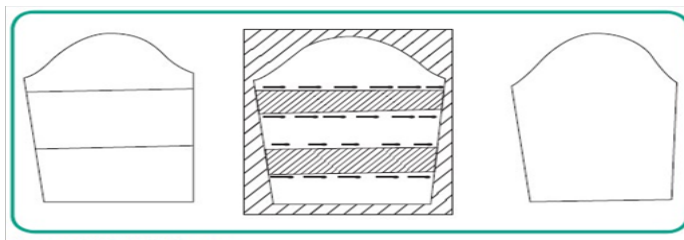


Fig: 2.13 Full Sleeves

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The basic sleeve pattern is cut horizontally and spread to get the required length.

## POCKETS

### Introduction

The word pocket is derived from French word “Poque”. It means a bag which is stitched on clothing. Pockets can be functional or decorative. Functional pockets are used to hold small item or valuable things. Decorative pockets add beauty to apparel. There are various types of pockets used in girls, boys, men and women garments. A pocket can be stitched like a patch, attached in a seam or made by altering a slit on a garment and sewn (Figure 2.14).



(Fig: 2.14).Pockets

### Types of Pockets

Pockets can be divided into three types namely patch pockets, inseam pockets and slash pockets.

#### Patch Pocket

Patch pocket is a simple pocket and it is sewn like a patch on to a garment. Patch pocket has an opening on the top. This pocket is very common on men's shirts. For kids garment, the pocket can be stitched in shapes of square or triangle or as cartoon motifs. Laces, piping, embroidery can also be used for decorative purposes. It can be stitched with lining cloth or without lining. It can also be made with decorative fabrics. A lining is needed for fabrics that stretch or sag. Fabrics that are firm enough to hold their shape can be stitched without a lining (Figure 2.15).

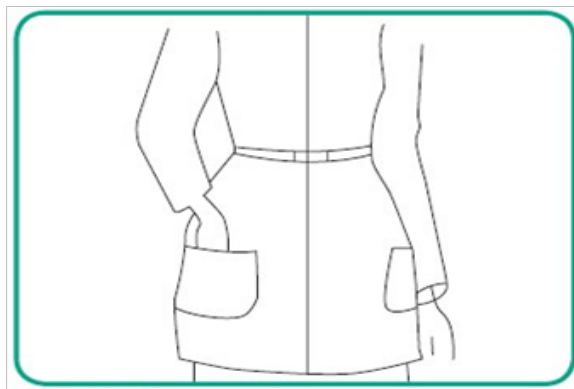


*Fig: 2.15 Patch Pockets*

### **Method of Sewing a Patch Pocket:**

- Turn under top edge of pocket hem line on the right side of the fabric and stitch.
- Stay stitch around the pocket on seam line, beginning at fold line of the hem.
- Trim the extra material, turn hem right side out and press.
- Fold in seam allowances along stitching and press. Square corners must be mitered, rounded corners must be notched.
- Stitch the edge of the hem to the pocket by hand or top stitch from right side using machine.
- Pin the pocket to the garment, slip stitch around the pocket by hand or top stitch edges in place. Reinforce corners by back stitching or by stitching a small triangle or square. Both the top corners of the pockets must be reinforced properly to add strength.

### **POINTS TO REMEMBER**

- ▶ Pockets are sewn separately and then stitched to the garment.
- ▶ Pockets are constructed on kids, ladies and men's garments.
- ▶ Pockets are used for functional and decorative purposes.
- ▶ Pockets vary in size, shape, and design. They can be constructed using printed or contrast coloured materials to bring variations in children's garments.
- ▶ The different types of pockets are patch, inseam and slash pockets.

---

## Plackets

A placket is made either in an opening left on the seam or by creating a cut in a garment which enables one to wear or remove the garment easily. The placket made on a seam is stronger and gives a better finish. The following points should be kept in mind while constructing a placket.

- A good placket should lay flat on the garment.
- A placket should not be thick and should not have gaps at the edges.
- The position of the placket should be easily accessible.
- The seams of the placket should be strengthened at the closed ends as it has to go through a certain amount of strain during wear.
- While choosing a placket the position of the placket, texture of the fabric, age and sex of the wearer along with the current fashion should be kept in mind.

### Types of Plackets

#### Continuous Bound Placket

These plackets are made on a seam or a cut but should not be made on curved seams and bulky fabrics. This is also called as one-piece placket. They are suitable for children's dresses, undergarments like petticoats and sleeve openings where a cuff or band is used (Figure 2.16).

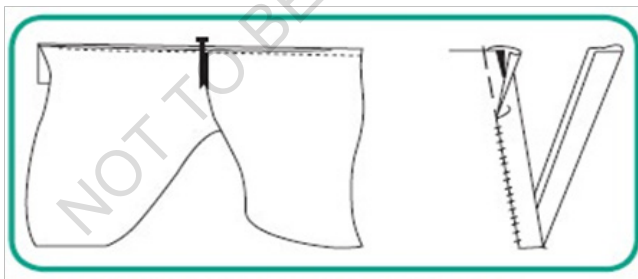


*Fig: 2.16 Continuous Bound Plackets*

#### Method of Sewing Continuous Bound Placket

- To make a placket in a slash, cut a strip of fabric on the lengthwise grain.
- The cut should be 3 to 6 cm wide and 3 cm longer than twice the length of the openings.
- Match the center of a long edge of the strip to the end of the slash edge, with right sides of garment and strips facing each other.

- Pull back the tip of the slash about 0.25 cm from the edge of the placket strip and pin it.
- Open the placket edges wide and attach to the strip by a line of tacking worked 0.25 cm from the edge of the strip.
- From the right side of the garment, machine over the tacking line from one end up to its midpoint.
- Keep the machine needle in the fabric, raise the pressure foot and move the fullness backward out to prevent fold created on the placket.
- Lower the presser foot and stitch along the opposite end of the opening.
- Press the seam edges towards the placket strip and fold under the free edge of the strip of 0.25 cm and crease.
- Fold the strip over the seam edge and hem it along the stitching line.
- Fold the strip under on the overlap section and tack it close to the seam.
- Tacking should be removed after fixing the fasteners.

### **Bound and Faced Placket or Two-Piece Placket**

As the name indicates, this is done with two pieces of fabrics. This placket is commonly used skirts, petticoats and back opening dresses. The overlap and under lap sides are finished with facing and binding respectively (Figure 2.17).

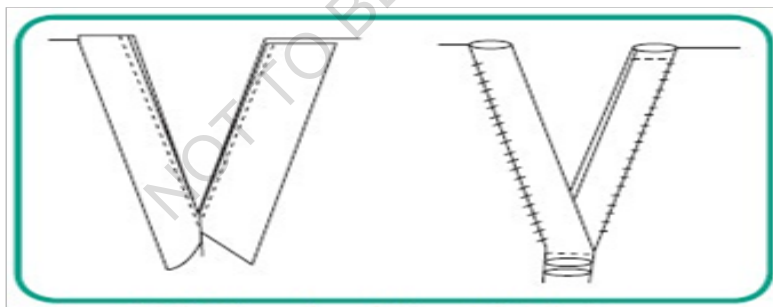


*Fig: 2.17 Bound and Faced Placket*

### **Method of Sewing Bound and Faced Placket**

- Cut two separate strips of fabric, measuring 8 cm width for the over-lap and the other with 6 cm width for the under lap.
- The length of the strips should be 2.5 cm more than the length of the placket opening.

- The overlap and under lap sides are finished with the narrow and wide strips respectively.
- Care should be taken to maintain the stitching line of the seam along with the strips stitching line.
- The one inch extra length of the strips should extend below the placket opening.
- Crease the strip back over the seam and turn the free edges under the wrong side of the garment hem and finish the under lap.
- The completed bound side of placket should be 0.25 cm wide.
- Turn the overlap strip over completely to the wrong side making 0.25 cm fold on the wrong side of the garment and hem neatly.
- Finish the placket by a row hand stitches on the wrong side catching the under and overlap together.

### **Miter Placket**

Miter placket is mainly used in men's shirts, sleeve opening and on neck openings for children's garments where strength is the major requirement. It is also called as tailored placket (Figure 2.18).

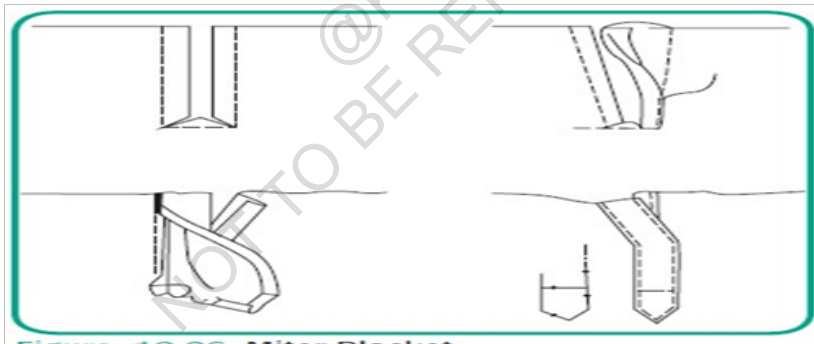


*Fig: 2.18 Miter Plackets*

### **Method of Sewing Miter Placket**

- Prepare a strip on straight grain measuring 7 cm wide and exact length of the slit which is normally 12-15 cm for the under lap.
- Place the strip right side facing to match the end of the slit and with right side facing, sew about 5 cm to join the strip.
- Fold and machine along the stitching line over the folded edge (0.25 cm) along the strip.

- Point the strip to about 2.5 cm wide.
- A strip measuring 5.5 cm wide and 3 cm longer than slit is cut for the overlap and this is placed on the seam line about 0.25 cm.
- Keep the right sides of the strip facing the wrong side of garment and tack the short side of the strip to the free side of the placket opening on the seam line.
- Machine stitch and bring the overlap on the right side of the garment.
- Turn under the seam allowance and adjust the position of the strip so that overlap and under lap are together, sew it.
- Make rows of top stitch on the strips and garment together turn around the point and downward till the opening.
- Then sew twice keeping the overlap and under lap in position on the garment to form a square shape.

### Zipper Placket

Zippers are plastic or metal rows with teeth like structures, which can be looped or un looped by a runner. This is used to open or close the garment. It is attached on the placket. The market is filled with different types of zippers which can be matched based upon the side of placket opening and color of the garment. Zippers are available in different color and length (Figure 2.19).

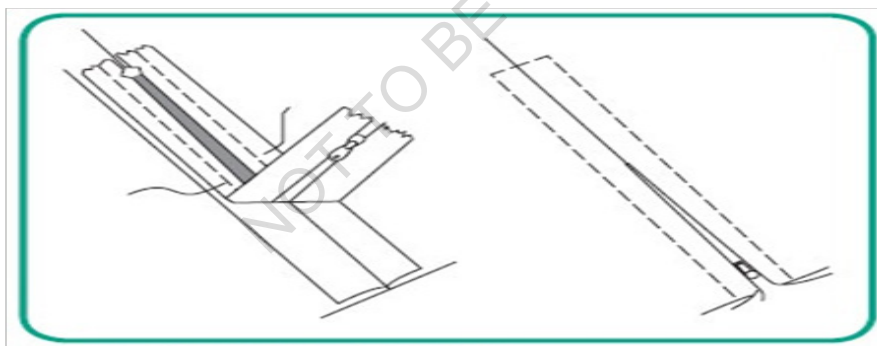


*Fig: 2.19 Zipper Plackets*

### Method of Sewing Zipper Plackets

- Cut the opening in the garment where the zipper has to be attached.
- Select the zipper according to the opening size.
- Towards the end of the cut make a short slit 0.25 cm wide diagonally on both sides (an inverted 'V' shape).

- Turn all the three raw edges to the wrong side and tack them.
- Sew a square piece of tape at the raw edge.
- Place the zipper on the sewn lap and stitch through the edges holding the fabric edge.
- Cover the zipper edges with a small square piece of tape, tack it first and then sew it.
- Hem the raw edges neatly to finish the zip.

## Practical Exercises

### Activity1

**Prepare a sample of all components of garments stitching method.**

| Sl. No    | Date of Submission | Mark Allotted | Signature from VT |
|-----------|--------------------|---------------|-------------------|
| 1.Neck    |                    |               |                   |
|           |                    |               |                   |
|           |                    |               |                   |
| 2.collar  |                    |               |                   |
|           |                    |               |                   |
| 3.sleeves |                    |               |                   |
|           |                    |               |                   |
|           |                    |               |                   |
| 4.pockets |                    |               |                   |
|           |                    |               |                   |
| 5.placket |                    |               |                   |
|           |                    |               |                   |

---

## Check Your Progress

### Choose the correct answers

1. A \_\_\_\_\_ is added to a neckline to enhance its appearance.  
a) Placket      b) Pocket      c) Collar      d) Sleeves
2. Peter pan collars are commonly used in \_\_\_\_\_.  
a) Children's wear      b) sportswear      c) formal wear      d) shirts
3. The word pocket is derived from \_\_\_\_\_.  
a) Spanish      b) English      c) Latin      d) French

### Fill in the blanks

1. The major component of the garment is \_\_\_\_\_ and \_\_\_\_\_.
2. A \_\_\_\_\_ is the part of bodice around the neck.
3. Sleeve is a part of the \_\_\_\_\_ garments.
4. A good placket should lay \_\_\_\_\_ on the garment.

### Match the Following

- |                  |                         |
|------------------|-------------------------|
| 1. Component     | a) Sports Wear          |
| 2. Placket       | b) Part of the garment. |
| 3. French cuff   | c) Garment opening      |
| 4. Raglan sleeve | d) Cuff links           |

### Short Answers

1. What is meant by neckline?
2. What is meant by collar?
3. What is meant by pocket?

### Answer the following question

1. Draw the neat diagram of basic neckline?
2. Write the types of collar names?
3. Write the types of pockets?

---

## Long Answers

1. Write the factors are considered while designing collar?
2. Explain parts of sleeves?
3. Write the method of sewing patch pocket?
4. Explain the method of sewing zipper placket?

### Reference by:

- <https://egyankosh.ac.in/bitstream/123456789/100433/1/Unit-12.pdf>
- <https://ncert.nic.in/vocational/pdf/ivsm103.pdf>
- [https://kamarajwomenscollege.ac.in/wp-content/uploads/Study-Materials-Basic-Garment-Construction-1\\_compressed.pdf](https://kamarajwomenscollege.ac.in/wp-content/uploads/Study-Materials-Basic-Garment-Construction-1_compressed.pdf)
- [https://www.brainkart.com/article/Neckline-and-Collars\\_35628/](https://www.brainkart.com/article/Neckline-and-Collars_35628/)
- [http://https://www.brainkart.com/article/Placket-and-types-of-Placket\\_1826/](http://https://www.brainkart.com/article/Placket-and-types-of-Placket_1826/)
- [https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.thesewingretreat.co.uk%2Fpost%2Fsewing-and-pattern-cutting-terms-annotations-and-symbols&psig=AOvVaw1aW2-93a6X-GvEr8BgJZKaG&ust=1731251760623000&source=images&cd=vfe&opi=89978449&ved=0CBQQjhXqFwoTCOjK\\_MvFz4kDFQAAAAAdAAAAABAJ](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.thesewingretreat.co.uk%2Fpost%2Fsewing-and-pattern-cutting-terms-annotations-and-symbols&psig=AOvVaw1aW2-93a6X-GvEr8BgJZKaG&ust=1731251760623000&source=images&cd=vfe&opi=89978449&ved=0CBQQjhXqFwoTCOjK_MvFz4kDFQAAAAAdAAAAABAJ)

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## SESSION 2: DIFFERENT TYPES AND TECHNIQUES OF FULLNESS

### FULLNESS

#### Introduction

Fullness is done to shape a garment. It also aids in garment fitting. It adds interesting design details when introduced in garments. There are various types of fullness. Some of most common types of fullness are darts, tucks, pleats and gathers.

#### REASONS FOR INTRODUCING FULLNESS

- For a better fit and good shape to the garment
- For ease in body movements
- To provide comfort to the wearer
- To make the garment more attractive

**There are two main methods to reduce fullness in garments: folding and drawing.**

#### DARTS

Dart is a triangular fold which acts as an essential part in dress making. It shapes a flat piece of fabric to fit into natural curves of the body in bust area, arm-hole, neckline and waist.

They are mostly used in women's garment. They play a major role while designing dress and cannot be ignored. While preparing darts, stitching should start from the broad edge of the dart and move towards of the tip of the dart. Darts are normally done before a garment is stitched. It helps in making the garment more fitted.

**There are two types of darts namely,**

- Single pointed dart
- Double pointed dart

#### Single Pointed Dart

Single pointed dart is also called as standard dart (or) half dart. These darts are in triangular shape, wider at one end, and narrower on the other end (Figure 2.20).

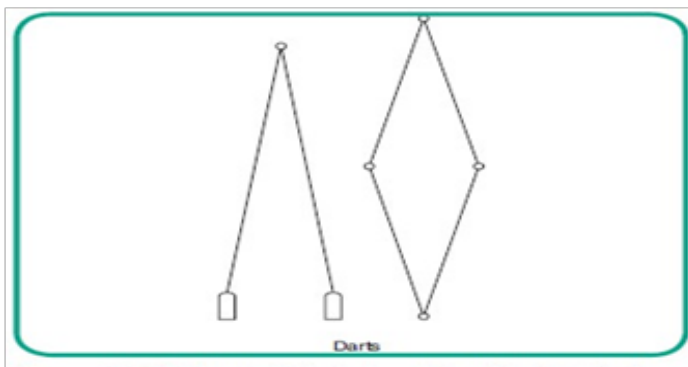


*Fig 2.20 Single pointed and double pointed Darts*

### **Method of Sewing Single Pointed Dart**

- Transfer points where darts are to be sewn
- Fold the fabric right side facing
- Start machining from the wide end and taper till the tip
- Pivot the end
- Fastened the threads at the tapering end

**Uses:** - Single point dart is used in blouse, skirts, pants, frocks and kameez.

### **Double Pointed Dart**

Double pointed dart is also called as full dart. These darts are pointed at both the ends and are wider at the middle. While stitching / using double pointed dart on thick fabric trim the edges.

### **Method of Sewing Double Pointed Dart**

- Transfer points where darts are to be sewn.
- Fold the fabric right sides facing.
- Start machining from the wider end to the narrow end of one tip.
- Repeat for the other end by overlap-ping a few stitches at center.
- Slash at its midpoints to give a smooth fit over the curve of the body.
- Pivot the end.
- Press the dart neatly.

**Uses:-** Double pointed dart is used in bodice of plain blouse and kameez.

---

## TUCKS

Tuck is a fold in a fabric which is stitched down to add fullness to the garment. They help in shaping a garment and they should be in even width. Tucks can be done on the right side or wrong side of the garment depending whether it is used for decorative (or) functional purpose. They create a decorative element which can also add fullness to a garment. In fine and delicate fabric they look more attractive. They should be evenly spaced.

**The different types of tucks are namely,**

- Pin tuck.
- Cross tuck.
- Piped tuck.
- Shell tucks.

### Pin Tuck

Pin tucks are fine narrow fold of about 0.25 cm sewn from top to bottom. They can be stitched in single (or) in group. It is mostly used for decorative purpose hence done on specific area of the garment like the yoke of a frock (Figure 2.21).

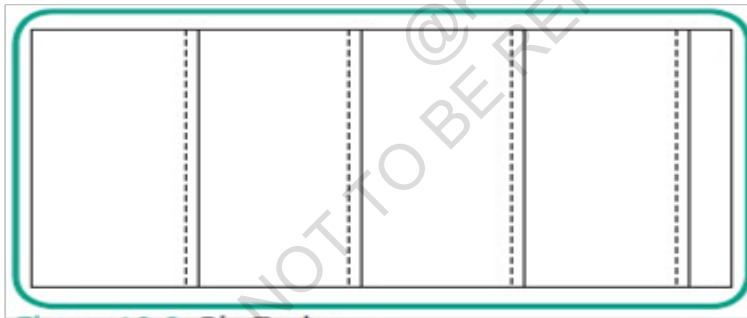


*Fig 2.21 Pin Tuck*

### Method of Sewing Pin Tucks

- Mark the places where pin tucks have to be sewn.
- Fold the first line and stitch near the fold leaving less than 0.25 cm.
- Repeat the same procedure for sub-sequent line.
- Cut / trim the extra threads.
- Care should be taken to mark the pin tucks with even spacing.

---

## Uses

Pin tucks are usually worked on kid's garments, ladies dresses, yokes and shirt for decorative purpose.

## Cross Tuck

Cross tucks are similar to pin tucks which are sewed both on crosswise direction and in lengthwise direction forming a checked effect (Figure 2.22).

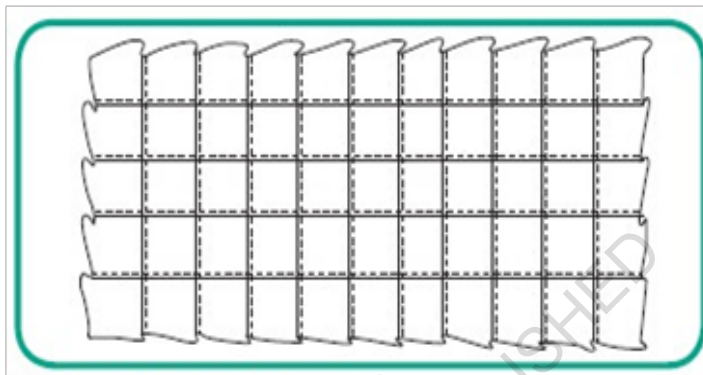


*Fig 2.22 Cross Tuck*

## Method of Sewing Cross Tucks

- Mark the points where cross tucks are to sew.
- Stitch the pin tucks in vertical direction by folding the fabric for about 0.25 cm.
- Then draw lines in horizontal direction
- Sew pin tucks in crosswise direction also
- Trim the loose threads

**Uses:-** Cross tucks are used to decorate ladies and kids wear and household linens (curtain, table cloth). They create pleasing effect on yokes, pockets and larger areas.

## Piped (or) Cord Tuck

Piped or cord tucks are tucks made by placing a cord at the edge of the fold (on the wrong side). A row of stitches are made close to the cord. The stiffness of the tucks will depend on the type of cord used. The cords used can be of any thickness (Figure 2.23).



*Fig 2.23 piped or Corded Tuck*

### **Method of Sewing Piped or Cord Tuck**

- Mark the places where piped tuck is necessary. They can be stitched in equal distance or can be grouped.
- Place a cord on the wrong side and stitch near the cord, overlapping the cord such that the cord is inside a tube like structure.
- Repeat the process wherever necessary
- Cut the excess thread

**Uses:-** Cross tucks are used in children's garments to produce stiffness.

### **Shell or Scalloped Tuck**

Shell or scalloped tucks resemble blanket stitch and produce a scalloped effect on the garment (Figure 2.24).

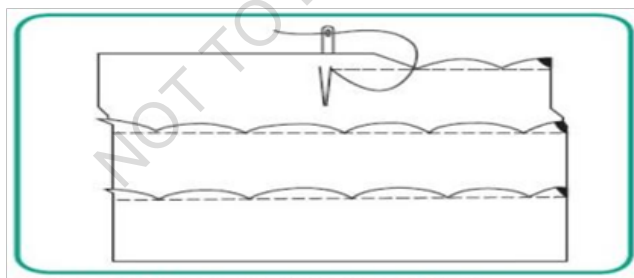


*Fig 2.24 Scalloped Tuck*

### **Method of Sewing Shell Tucks**

- Fold the edge to 0.25 cm.
- Mark and pin 0.5 cm apart to make sure that scallops are of equal width.
- Start with 2 or 3 running stitch till the pin.
- Do over castings stitch by pulling the thread to create a scallop effect.

- 
- Repeat the process till the end.
  - Cut the excess thread.

**Uses:-** Shell or scalloped tucks are used on delicate fabric, lingerie, in children garment and in night wear, around armhole and necklines.

## **PLEATS**

Pleats are folds in garment done on the waistline of skirts, yokes and sleeved at equal distance of fabric. The material required to make a pleat is three times the size of a finished pleat. They are normally about 2.5 to 5 cm. they create eye movement and can be used as style detail. The effect of pleat weight of fabric and the effect required.

### **The different types of pleats are:**

- Knife pleat.
- Box pleat.
- Inverted pleat.
- Accordion pleat.
- Sun ray pleat.
- Pinch pleat.
- Kick pleat.

### **The most commonly used pleats are explained below:**

#### **Knife Pleat**

Knife pleat are usually about 2.5 to 3 cm width. Knife pleats are folds made by a row of stitch in same direction, generally at the top where the pleats start. They can be used continuously, grouped (5 or 6) or can be used as a single pleat. They form a sharp edge at the top and then flare out (Figure 2.25)

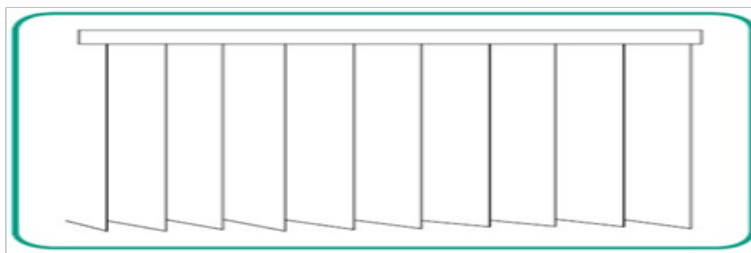


*Fig 2.25 Knife Pleat*

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## Method of Sewing a Knife Pleat

- Mark lines where fold has to be made.
- Fold along the marked line.
- Pin and sew along the marked line.
- Remove pin and cut the excess threads.

**Uses:** - Knife pleat is used in ordinary skirt, pants and frock.

## Box Pleat:

Two knife pleats facing in opposite direction is termed as box pleat. The edges of the box pleat touch each other. If two set of box pleats made at the same point it is called as double box pleat (Figure 2.26).

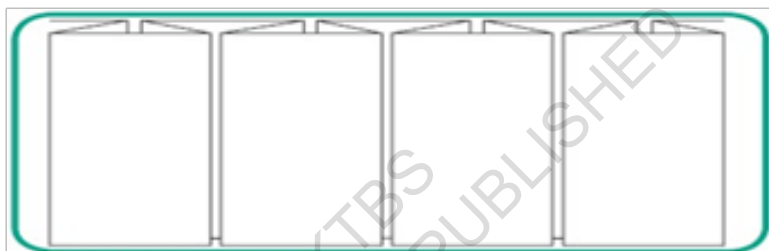


*Fig 2.26 Box Pleat*

## Method of Sewing a Box Pleat

- Mark lines where box pleats have to be made.
- First make fold in right side and make the other pleat on left hand side, repeat.
- Pin and press.
- Remove pins and machine.
- Cut the excess threads.

**Uses:-** Box pleat is used in children garment, school uniforms, skirts, center back of gent's shirt. It can be used as a design detail on pockets.

## Kick Pleat

A plain pleat, knife pleat or box pleat is stitched along the fold till the desired length for freedom of movement is termed as kick pleat. It releases fullness at base (Figure 2.27).

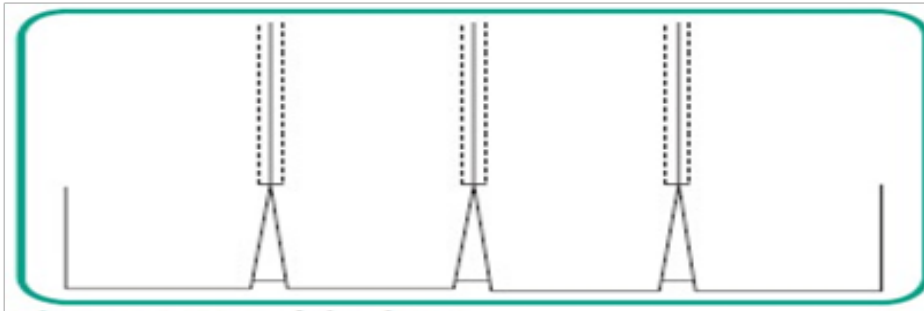


*Fig 2.27 Kick Pleat*

### **Method of Sewing a Kick Pleat**

- First mark a plain knife or box pleat as per requirement.
- Stitch near the fold of pleat till the required length.

**Uses:** Kick pleat is used in sportswear, frocks and skirts.

### **GATHERERS**

Gathers are used for distributing full-ness evenly in a given area. The material required will be twice the width or it can be varied based upon the effect required. Stiff cotton produces crisp effect, but other man-made fiber or silk gives a graceful effect. Gathers can be done by hand, machine or by elastic. (Fig 2.28)

### **Method of Making Gathers**

- Stitch two rows of loose machine stitches.
- Gather the section by pulling the thread.
- Pin only the edges on the flat surface.
- Evenly spread gather over the fabric.
- Pin the gathers to the fabric.
- Machine horizontally, remove the pins.
- Pivot the edges.



*Fig: 2.28 Gathers*

---

## Points to remember while sewing gathers

- Always the gathered edges should be on top (facing you).
- If length to be gathered is long then divide the length and stitch loose machine stitches.

**Uses:-** Gather is used in neckline, sleeves, waist-line and yoke.

## POINTS TO REMEMBER

1. Fullness is done to create variety.
2. Fullness helps in getting proper fit and comfort.
3. Pleats, tucks and gathers releases fullness.
4. Darts shapes flat pattern.
5. Fullness adds decoration to a garment.

## YOKES

### Introduction

Yoke is one segment of the garment that can be constructed on the garment. It can be seen in the garment of children, men and women. It is introduced in a garment based on the need and to hold the gathers. For decorative purpose, it is sewn at shoulder, upper and lower part of the hip. Yokes can be constructed with different structures, variations like 'V' shape, oval shape or with different color according to the taste and need of person.

### Types of Yokes

Yokes are classified based upon the pattern made and decorations as plain or basic yoke and decorative yoke.

#### Plain / Basic Yoke

Plain or basic yoke has got simple structure. It can be placed on front and back part of men's shirt. According to the shape of garment, use of garment, age of person, yokes are suitably cut and joined. This yoke is a part of the garment which is cut and joined with a piping or seam.

**Example:** Bodice block of a body front cut half way through to add with gathers to the rest of the garment. For drafting yokes take a bodice pattern and mark from the shoulder to the center of the front bodice. This technique can be used to construct 'V' shaped and circular shaped yoke. To construct a straight yoke, marking should be made according to the length of yoke from arm scye to center front, (Figure 2.29).

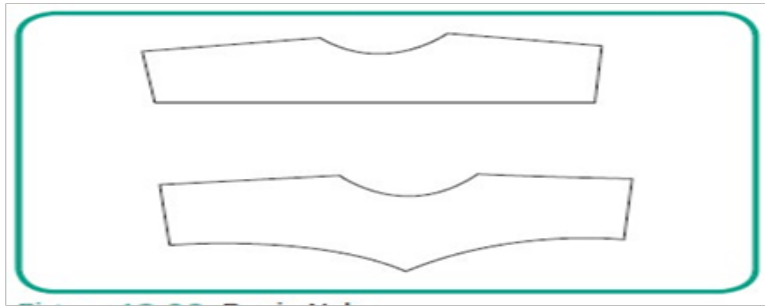


*Fig: 2.29 Basic Yoke*

## Decorative Yoke

Contrast color materials can be used for making yoke. Use of various tucks, pleats and frills add interest to the garment. According to the wish of wearer, piping or frills can be stitched at the edges of the yoke.

Yoke can be joined using plain fabric or by adding one or more layers for stiffness. For skirts, yoke is cut to the shape of the waist line. Then the skirt part is gathered and attached to the yoke. The bottom of the yoke should match to the size of the gathering in the skirt. To construct yokes with curved edges on panel skirt, lapped seam can be used. These kinds of yoke can be used on the bodice part of kid's front, upper part of night dresses and on the waist bands of skirts. Yokes of desired shape can be cut and stitched and decorations using embroideries can be added to the garment.(Figure 2.30).

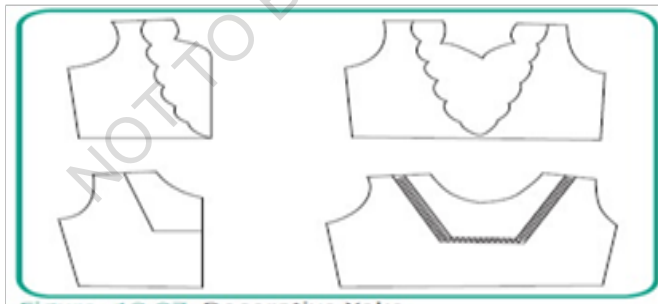


*Fig: 2.30 Decorative Yoke*

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## Selection of Yoke Design

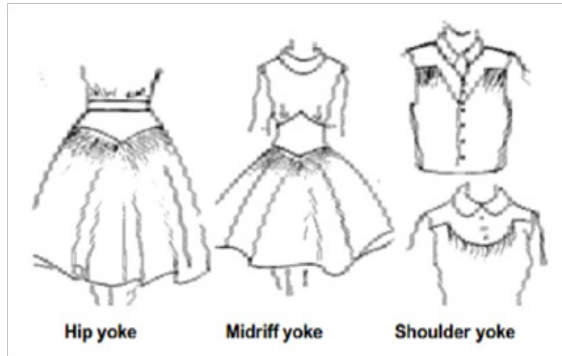


*Fig: 2.31*

### Introducing the Yoke at Different Positions:

Basically, the yoke can be introduced in three positions: at the top of the garment (shoulder yoke), or below the waist line (hip yoke). (Fig 2.31)

### POINTS TO REMEMBER

- o Yokes are separate part of a garment.
- o Variations in garments can be created using yokes.
- o Proper placement of yoke is very important.
- o Yokes are of two types, namely yokes without fullness (basic yoke) and yokes with fullness. (decorative yoke)
- o Yokes can be introduced in a garment to release fullness and for ease of movement.

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## Practical Exercises

### Activity1

Prepare a sample of all techniques of fullness garments stitching method.

| Sl. No | Date of submission | Mark allotted | Signature from VT |
|--------|--------------------|---------------|-------------------|
|        |                    |               |                   |
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|        |                    |               |                   |
|        |                    |               |                   |

### Check Your Progress

#### A. Choose the correct answers

- Knife pleats are used in \_\_\_\_\_.  
a) Gents Shirts      b) Blouses      c) Ordinary skirts & pants      d) Blazer
- A fitted section at the shoulders or hips to which the garment is attached is....  
a). Collar      b) Yoke      c) Hem      d) Both A&B
- Triangular-shaped folds of fabric stitched to control \_\_\_\_\_ are called darts.  
a) Gathers      b) Pleats      c) Fullness      d) Hem

#### B. Fill in the blanks

- To give shape to the body we use \_\_\_\_\_.
- Single pointed dart are used in \_\_\_\_\_.
- Double pointed dart is also called as \_\_\_\_\_.
- Tucks, Gathers and Pleats are used for \_\_\_\_\_.

---

### **C. Short Answers**

1. What is meant by fullness?
2. Define the tucks?
3. What is dart in garment?

### **D. Answer the following question**

1. What are the different types of fullness?
2. What are the two types of darts?
3. What is the use of fullness in garment?

### **E. Long Answers**

1. Write the method of making gathers?
2. Explain pleats and define its types in detail?
3. Explain in detail in yoke?

### **Reference by:**

- [https://www.brainkart.com/article/Fullness\\_35627/](https://www.brainkart.com/article/Fullness_35627/)
- <https://www.egyankosh.ac.in/bitstream/123456789/61518/3/Unit-12.pdf>

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## SESSION3: FASTENERS AND ITS APPLICATIONS

### Different types of fasteners used in garments

Most of the garments in our wardrobes have one or more kinds of fasteners for easy-on, easy-off dressing. Fasteners are used to hold two pieces of a garment together; some pieces lap one over the other, while others meet. Fasteners include snaps, hooks and eyes, self-gripping devices, buttons and buttonholes, and zippers. This publication will focus on hooks and eyes, snaps, and tape fasteners. For information about buttons and buttonholes, see CT-MMB.189: Buttons and Buttonholes; and for zippers, CT-MMB.188: Zippers.

### The appropriate fastener to use is determined by the:

- type of garment,
- garment design,
- position and type of opening,
- amount of stress the fastener will have, and
- the effect you want to create

### Buttons

Buttons should be selected to suit the color, design and texture of the fabric and the style of the garment. Buttons may be made of fabric, bone, glass; metal plastic etc. On dresses buttons covered with self-fabric may be used. If you provide scraps of fabric to well establish tailors, they get the buttons covered by a special machine. Covering may be done by hand also.

### Button sewing techniques

Marking position of buttons to mark position for buttons, place overlap over the under lap so that the center front lines coincide. If the button-hole is horizontal insert a pin through the button-hole about 1/8 inch from the end which is near the center front. For vertical buttonhole put the pin through the middle of the button-hole, overlap and mark position of button on the pin mark.

### Sewing buttons with holes

Sew this type of button using double thread bringing the needle up and down through the holes in the buttons with a pin kept over the button. After working enough stitches, remove the pin, from the button and form a shank by winding the thread tightly around the strands about six times. Now fasten the thread on the wrong side. Buttons with four holes may be sewn in the shape of a cross, two parallel lines a square or an arrow head (Fig: 2.31)



*Fig 2.31 Fasteners*

**There are two types of buttons:**

- o Button with holes
- o Shank type buttons

**Types of buttons**

- o Metal buttons
- o Wooden buttons
- o Fancy buttons
- o Shank buttons
- o Link buttons
- o Velvet buttons
- o Glass buttons
- o Coat button



*Fig 2.32 Buttons*

---

## Hooks and Eyes

These are used on plackets where there is crosswise grain. They form an inconspicuous closing. They should be placed close to each other without much space in between to prevent the opening from gaping.

### Hooks and eyes sewing techniques

These are used on plackets where there is crosswise grain. They form an inconspicuous closing. They should be placed close to each other without much space in between to prevent the opening from gaping. To find the exact position for stitching this eye, lap the edge with hook over the under lap in proper position and mark the end of the hook with a pin. At this position work a few back stitches long enough for the hook to pass and then work button-hole stitches over these threads. Fasten the thread firmly on wrong side (Fig: 2.33)



Fig: 2.33 Hooks and eyes

### Types of Hooks and Eyes

- o Metal Hooks and eyes
- o Metal Hooks and eye threads
- o Hook and “V” Stitch

### Zip fasteners

These are the principal items used in clothing which are partly textile in nature and partly non-textile, hard material. They can vary in the materials of the tape, the form and materials of the meshing sections and in the overall construction and function of the zip. Later it has good effects when attached to the garments (Fig: 2.34)



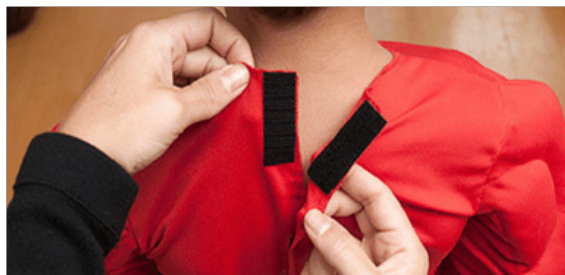
(Fig: 2.34 zips)

## Types of Zips

- o Metal zippers
- o Aluminum zippers
- o Antique brass
- o Black oxidized
- o Molded plastic zippers
- o Invisible zippers
- o Coil zippers

## Velcro

This item consists of two woven polyamide tapes, one covered with very fine hooks and the other with very fine loops. When pressed together they adhere securely to each other. They are very strong against the kind of shearing forces present in sample lapped join yet they peel apart easily when required to be undone. Each side is joined to the garment part simply by sewing close to the edge with a lockstitch machine. (Fig: 2.35)



(Fig: 2.35 Velcro)

---

## Elastic

Where elasticity effects are required locally on garments but without added decoration, corded elastic of various widths and even flat rubber strips are used. Elastic is more common nowadays than natural rubber because of its greater durability. A typical use is on the waist of a loose fitting dress or at the wrist of a sleeve which ends in a frill (Fig: 2.36)



*Fig: 2.36 Elastic*

## Elastic sewing techniques

### Elastic and waistline

Take an extended waistline piece and stitch on waist line garment at right. Take an extended line piece place it on a right side of the garments waist line. Then turn a extend piece into wrong side of the garments. Fold the end of the extend piece and make stitches on it with a waist line. Measure the elastic according to required amount of the garment Insert the elastic into the waist band then join both ends with one seam. Stitch then make a seam at side of the garment now closes the opening of the garment.

### Types of elastic

- o Woven elastic
- o Knitted elastic
- o Braided elastic

### Laces

Lace is made of cotton, silk or nylon with different designs and color. It is like an embroidery type. It is commonly used on the neckline, sleeve hem, yoke line, garment hem, etc. It can also be gathered to give a frilled effect (Fig: 2.37)



(Fig: 2.37 Laces)

## Sewing techniques of fasteners

### Lace:

Place the lace on the right side at right place of the garment. Then make a row of stitch or a stitch to fitting the fabric or garment. According to the type of laces. Some laces are flexible according to the shape

### Types of laces

- o Decorative lace
- o Fancy embroidery lace
- o Cotton lace
- o Needle lace
- o Sequence lace
- o Floral lace

### Ribbons

Ribbons are made of satin, taffeta or nylon of different colors and different width. Ribbon bows are often used as decoration for bridal wear and children's clothing. Ribbons of different width can be made into rose or other floral shape. These can be stitched from wrong side at the back so that no stitching is visible from the right side.

### Ribbons sewing techniques

To make a bows, flowers, neck & design & rope for garments by ribbons. At neckline, waste line stitches the ribbon as per shapes. Make a bow by hand and then sew it with a handle needle where is suited on the garment. Plain strip of ribbon stitched with a two rows of stitches. (Fig 2.38)

---

## Types of ribbons

- o Gross grain
- o Jacquard
- o Satin
- o Picot edge
- o Print
- o Twill tape
- o Seam binding
- o Organdy



(Fig: 2.38 Ribbons)

## Patches

Patches are available in a wide variety of types, sizes methods of attachment but the range will be limited here to small, decorative items which are attached flat to the outside of garments. The majority are either all-over embroidery, or a section of fabric with some embroidery on it, or a section of fabric neatened or sealed in some way at the edges and carrying a printed design. Many have special threads woven into the back to make them suitable for attachment by ultrasonic welding,

This gives a secure attachment while at the same time maintaining the slightly three-dimensional structure which is an attractive feature of embroidered patches. Printed patches are often designed to be attached by a heat transfer process for which a special small heated press is used. Patches may be attached by sewing but to do it freehand is likely to be slow and potentially inaccurate

---

## Sewing technique Patches

Patches is a decorative trimming fastener patches are stitched on sleeve, chest, line, etc. Patches are of two types to fit in a garment. Place file patches

### Types of Patches

- o Decorative patches
- o Embroidered patches
- o Cartoon patches

### Uses of Fasteners

**There are more decorative & colorful fasteners in the market.**

The purpose or uses of fasteners is to join two pieces of garment components. Then also for closers pockets Fasteners are used for decorative purpose also in sleeve components at a cuff line is used, at the zipper placket to close the openings. Zip is used as neck line at waist line the hooks and eyes are used as fasteners in the skirt garment.

## Practical Exercises

### Activity 1

**Make survey for different types of fasteners Prepare a sample for different fasteners**

| Sl. No | Date of submission | Mark allotted | Signature from<br>VT |
|--------|--------------------|---------------|----------------------|
|        |                    |               |                      |
|        |                    |               |                      |
|        |                    |               |                      |
|        |                    |               |                      |
|        |                    |               |                      |

---

## Practical

Prepare a sample of all fasteners stitched on garments

| SI. No | Date of submission | Mark allotted | Signature from VT |
|--------|--------------------|---------------|-------------------|
|        |                    |               |                   |
|        |                    |               |                   |
|        |                    |               |                   |
|        |                    |               |                   |
|        |                    |               |                   |

## Check Your Progress

### A. Choose the correct answer

- Which is the part of the bodice is around the neck?  
a) Sleeve   b) Neckline   c) Skirts   d) Cuffs
- The height of ..... sleeve extends at the level of wrist.  
a) Bell   b) Raglan   c) Puff   d) Full

### B. Fill in the blanks

- Ribbons made off \_\_\_\_\_.
- Hooks and eye lets are \_\_\_\_\_ and \_\_\_\_\_ in the garment.
- \_\_\_\_\_ should be selected to suit the color, design and texture.

### C. Short Answers

- Write different types of fasteners in garments?
- Define hooks and clasps?
- How do you prepare laces?

---

### **D. Answer the following questions**

1. Explain the sewing technique or method of ribbon?
2. Write short notes on Velcro?
3. Write short note about hook and eye?

### **E. Long Answers**

1. Explain any two sewing techniques of fasteners?
2. Explain the uses of fasteners?
3. What is elastic? Write its types sewing techniques?

### **Reference link:**

- [https://fcs-hes.ca.uky.edu/sites/fcs-hes.ca.uky.edu/files/ct-mmb-029\\_0.pdf](https://fcs-hes.ca.uky.edu/sites/fcs-hes.ca.uky.edu/files/ct-mmb-029_0.pdf)

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### Unit-3 BASICS FOR GARMENT CONSTRUCTION

| Session | Topic                                   | Outcomes                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Body Measurements and its types         | At the end of the session, students should be able to: <ul style="list-style-type: none"><li>▶ Classify different kinds of body measurements.</li><li>▶ Identify the difference between Horizontal, Vertical, and Circumferential measurement.</li><li>▶ Execute the proper taking of Body Measurements.</li><li>▶ Recognize the body garment parts to be measured using a tape measure.</li></ul> |
| 2       | Eight Head Theory and different Figures | At the end of the session, students should be able to: <ul style="list-style-type: none"><li>▶ Knowledge of Eight head theory</li><li>▶ Students will learn to draw stick and flesh figures by understanding body proportions.</li></ul>                                                                                                                                                           |

# SESSION 1: BODY MEASUREMENTS AND ITS TYPES



## TOOLS USED FOR TAKING BODY MEASUREMENTS

1. Measuring tape with 60” long.
2. Pencil to write measurements.
3. Paper to record measurements.
4. Cord to tie around the waist, bust and hip if required.

## Method of Taking Measurements (Figure 3.1)

1. **Bust Round:** Measure around the fullest part of the bust. tape should be placed just below the shoulder blades at the back.
2. **Round Hip:** Measure around fullest part of hip that is around the seat.
3. **Round Neck:** Measure from front neck to the back neck around the largest part of the neck.
4. **Shoulder Width (Back width):** In the back side shoulder, Measure from left to right pit of the armhole.
5. **Waist Round:** Measure around the natural waist.

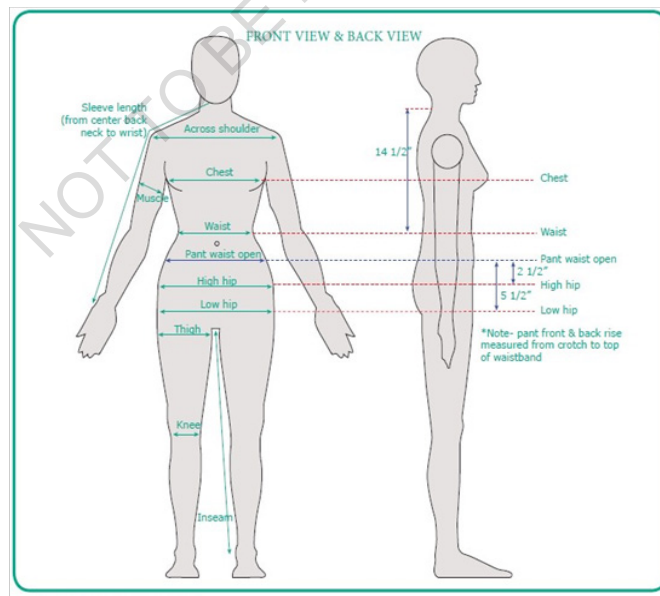


Fig.3.1: Body Measurements

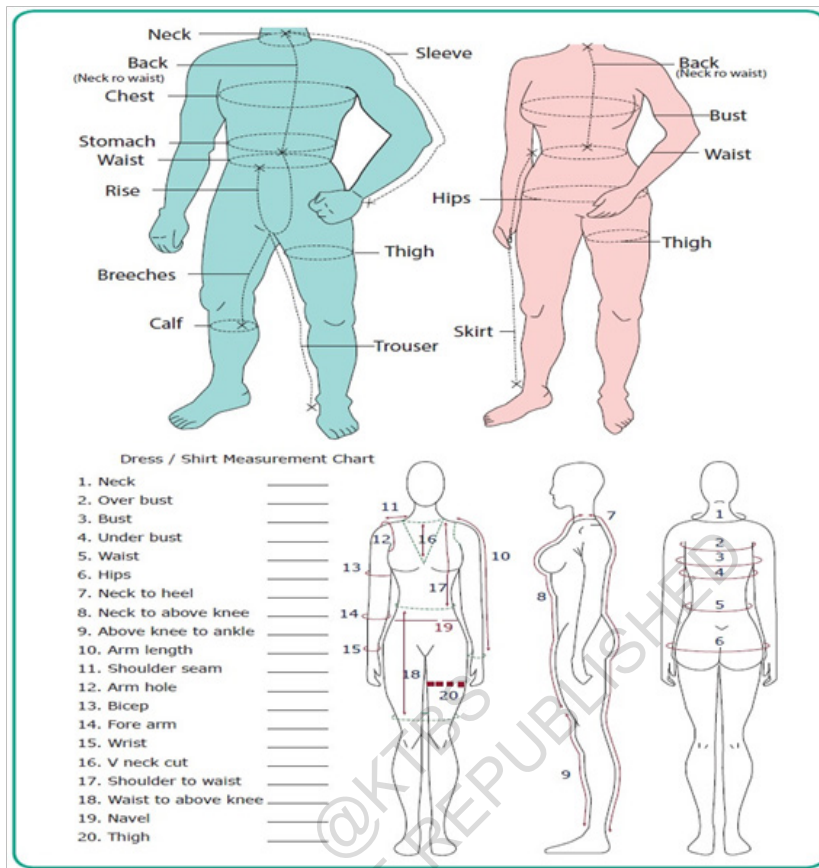


Fig.3.2: Contained

6. Shoulder Width: Measure from base of the neck to armhole in the shoulder.
7. Back Length: Measure from the neck base to the center of waist.
8. Shoulder to Bust Length: Measure from the highest part of the shoulder to bust point.
9. Distance between the Busts: Measure a horizontal distance between the bust points.
10. Front Neck Depth: Measure from the neck to the depth as per customer preference.
11. Back Hip Length: Measure from base of neck to the hip.
12. Armhole Circumference: Measure around the underarm and armpit.
13. Upper Arm Circumference: Measure from around the fullest part of the biceps (Fig 3.2).

14. Sleeve Length: Measure from tip of the shoulder to any point as per the customers prefers.
15. Elbow Round: Measure around the elbow.
16. Wrist Round: Measure around the wrist.

### Skirt Measurements

17. Hip Measurements / Circumference: Measure around the widest part of hip (7"/18cm below waist) without stretching or loosening the tape.
18. Seat Round: Measure seat round just below the hip circumference.
19. From Waist to Seat: Measure along the side from the waist to seat in a sitting position.
20. Skirt Length: Measure from waist as per the style of the garment. For e.g.: knee length skirt = measure from waist to knee length; Full length skirt = Measure from hip to toe length (Fig 3.3)

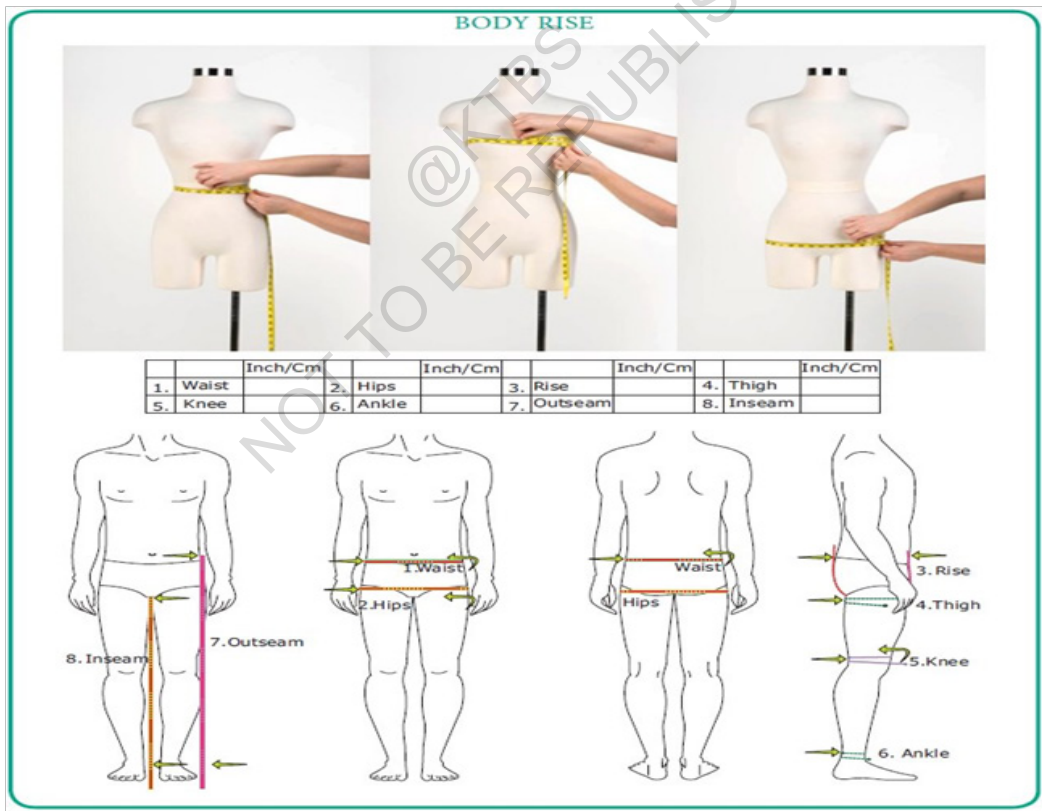


fig.3.3: Body Measurement with Body Rise

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## Practical Exercises

### Activity1

**Direction: Take the following body measurements of your partner:**

| Name: _____ Grade & Sec. _____       |              |
|--------------------------------------|--------------|
| Measured by: _____ Date taken: _____ |              |
| Body Parts                           | Measurements |
| 1.Shoulder (SH)                      |              |
| 2.Bust point width (BPW)             |              |
| 3..Bust Line (B)                     |              |
| 4.Waist line (W)                     |              |
| 5.Hip line                           |              |
| 6.Body figure                        |              |
| a. Front                             |              |
| b. Back                              |              |
| 7.Bust height (BH)                   |              |
| 8.Length of the body                 |              |
| 9.Armhole (AH)                       |              |
| 10.Sleeve length(SL)                 |              |
| 11.Arm girth                         |              |
| 12.Crotch Depth                      |              |

---

## CheckYourProgress

### A. Choose the correct answers

1. Which measurement is crucial for determining garment length?  
a) Sleeve length    b) Inseam    c) Body length    d) Waist circumference
2. Measure around the fullest part of the \_\_\_\_\_.  
a) Shoulder    b) waist line    c) Bust    d) Hip
3. What are the primary purpose taking body measurements?  
a) To create a fashion trend  
b) To determine fabric requirements  
c) To create well-fitting garments  
d) To analyze body proportions

### B. Fill in the blanks

1. \_\_\_\_\_ measure form base of the neck to armhole.
2. \_\_\_\_\_ measure from base of neck to the hip.
3. \_\_\_\_\_ this part is measured from bust point to bust point.

### C. Short Answers

1. What is the purpose of taking body measurements?
2. What are the key body measurements for women?
3. What are the key body measurements for men?
4. How do you measure waist circumference?

### D. Answer the following question

1. What are the tools used for taking body measurements?
2. Explain the method of taking skirt measurement?

### E. Long Answers

1. Explain the method of taking upper body measurement?

### Reference link:

- [https://www.brainkart.com/article/Tools-Used-For-Taking-Body-Measurements-and-Method-of-Taking-Measurements\\_35612/#google\\_vignette](https://www.brainkart.com/article/Tools-Used-For-Taking-Body-Measurements-and-Method-of-Taking-Measurements_35612/#google_vignette)
- <https://egyankosh.ac.in/bitstream/123456789/61158/3/Unit-3.pdf>
- <https://egyankosh.ac.in/bitstream/123456789/61432/3/Unit-2.pdf>

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## SESSION 2:

# EIGHT HEAD THEORY AND DIFFERENT FIGURES

Fashion illustration is the inner idea or feeling or expression of presenting oneself in form of drawings onto the paper. Drawing styles are changing constantly to reflect the influences and moods of fashion at any particular time. Before beginning the study of figure, it is good to carry out exercises to loosen the hand to sketch clear lines, curves and shadings by using varying grades of pencils to get use to the pressure of the hand on paper.

### Importance of Illustration

Fashion drawing helps to develop drawing skills from simple, basic methods to more advanced techniques ranging from figure drawing to design sketching, working drawings and presentation techniques and gives the confidence to communicate the design ideas on paper. Designer's acquire common perception of fashion and also have the knowledge about varieties of fabrics, colour details, trimmings, etc. Designers must have the capability of taking inspiration from various sources. Inspiration is the main thing which leads to create new fresh ideas to the market. They must be able to convert these inspired ideas to original designs, some skills including process of making the garments such as pattern making, grading, cutting, sewing, embellishments, etc. A person who expertise in making fashion sketches is known as a fashion illustrator. The fashion illustrator also can work in a specialized area of advertising, producing drawings for promotional magazines and newspapers, as well as publicity material for catalogues and stores. Fashion drawings are also used for window displays and exhibition stands. Illustrators are often trained as graphic designers. Drawing styles are constantly changing to reflect the influences and moods of fashion at any particular time. When producing fashion sketches and presentation drawings it is important to be aware of standard proportions of the human figure. One of the most effective methods of classification is the number of times the length of the head fits into the total height of the body.

### Eight Head Theory (Female figure)

According to eight head theory- the full length of a standard figure is eight times the length of the head. Total height is divided by eight which gives you one head length, Here we assume that full body length is 8 inch so, one head length is equal to  $\text{Length}/8 = 8/8 = 1$  inch.

---

### Vertical proportions:

A-B (e.g. Total height = 8 inch, so length of one head is 1 Inch)

A-F= F-J=J-G=G-C= 1 inch

A-C= C-B=4 inch

C-H=H-B= 2 inch

B-I=  $\frac{1}{2}$ " for feet

F-D=0.5" for neck

Divide D- J in 2 equal parts (D-K=K-J)

### Horizontal proportions:

(L-M) Face width:  $\frac{3}{4}$  of head length

(N-O) Shoulder width: 1.5 of head length

(P-Q) Waist width:  $\frac{3}{4}$  of head length

(R-S) Hip width: 1.5 of head length

(T-U) Knee width:  $\frac{1}{2}$  of head length

(V-W) Ankle Width:  $\frac{1}{4}$  of head length

**Note:** The width measures should be marked equally on both sides of the central balance line.

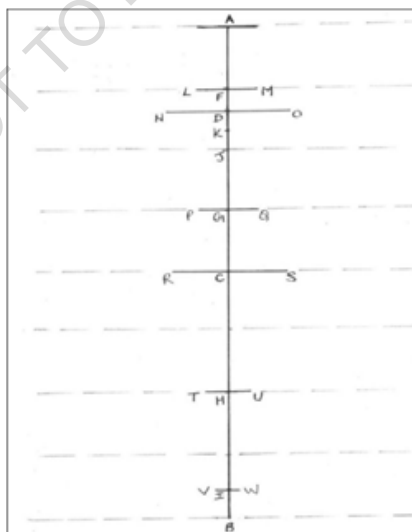


Fig.3.4: Vertical and horizontal proportions of standard eight head figure

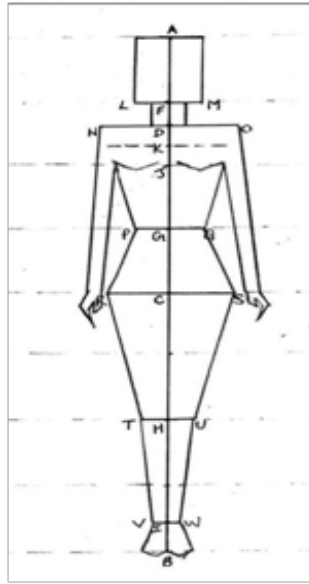


Fig.3.5: Stick figure/lay figure

The proportions given in the Fig.3.4 are used to create a line structure of the eight Head figure and then these lines are joined together to form a proportionate stick/lay figure as shown in Fig.3.5.

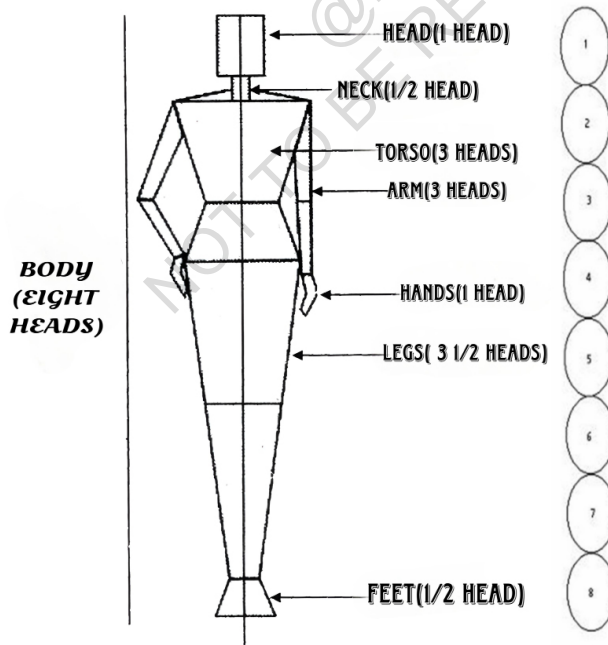


Fig.3.6: Proportions as per head length in a stick figure

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## Fleshing of Figure

Once the students have understood all the vertical and horizontal proportions, placement of different body parts like head, torso, arms and legs and the stick/lay figure, they can gradually start fleshing the figures. To begin with that the head is given an oval or egg shape (broad at top and narrow at chin) on the proportions of head. Then the neck shape half inch down the chin and is curved towards the shoulder slant. Then the arm is made by shaping from shoulder till elbow first with a little outward curve and then it is shaped till the wrist where the hand is joined by giving it a curve. Then next the torso is sketched by giving proper bust placement and shape. The outlines at the waist are contracted and then bulged out for the hip prominence. (Fig 3.7)

While sketching, draw the figure first with very light pencil lines and check that the positions of the bust, waist and hips are correct, as well as the overall proportions. When sketching, you will find it helpful to draw a faint line following the contour center of the body. The vertical balance line should be drawn from the pit of the neck to the foot that is carrying weight of the body, to indicate that the head and neck are aligned with the supporting foot.

One should keep the figure basic to start with, confining the depiction of the face, hair, hands and feet to the simplest of indications until one have had more practice and confidence. Later on, as one becomes more experienced in figure drawing, he/she will be able to develop different poses using this method.

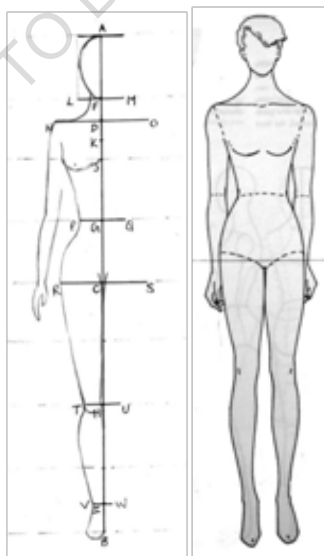


*Fig.3.7: Fleshing the figure*

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## Practical Exercises

### Activity 1

#### Check Your Progress

##### A. Choose the correct answers

1. How would you describe the body proportion of an 8-head figure?  
a) Hourglass    b) curvy    c) Straight    d) Pear-shaped
2. Which of the following measurements is typically equal for an 8 - head figure?  
a) Bust and hips    b) Waist and hips    c) Bust and waist    d) All of the above
3. What are the primary purpose taking body measurements?  
a) To create a fashion trend  
b) To determine fabric requirements  
c) To create well-fitting garments  
d) To analyze body proportions

##### B. Fill in the blanks

1. A person who expertise in making fashion sketches is known as a \_\_\_\_\_.
2. The body is proportionally \_\_\_\_\_ times the size of the head.

##### C. Short Answers

- 1) Explain method of taking measurements.
- 2) Write the importance of illustration.
- 3) Write the horizontal and vertical portion of 8-head figure.
- 4) Create a measurement chart for an 8-head figure?

##### D. Long Answers

1. Draw and write the proportions of eight head stick female figure.
2. Draw and write the proportions of eight head flesh female figure.

##### Reference link:

- [HTTPS://WWW.APPARELBRANDERS.COM/INDEX.PHP/PAGE-2-EIGHT-HEAD-THEORY](https://www.apparelbranders.com/index.php/page-2-eight-head-theory)
- [HTTPS://WWW.SCRIBD.COM/DOCUMENT/370442480/BODY-SIZE](https://www.scribd.com/document/370442480/body-size)

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## Unit-4 BASIC ELEMENTS AND PRINCIPLES OF DESIGN

| Session | Topic                                                                         | Outcomes                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Element and Principles of Textiles and Fashion Design<br>▶ Elements of design | At the end of the session, students should be able to:<br>▶ Develop skills of students to create basic garment parts and various design elements required for a garment.<br>▶ To develop understanding and basic skills of drawing and coloring along with introduction to various art media<br>▶ Define and explain the principles of design.<br>▶ Identify uses of principles of design in various art forms |
|         | ▶ Principles of Design                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                |

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## Unit-4



### BASIC ELEMENTS AND PRINCIPLES OF DESIGN

### SESSION1: ELEMENT OF TEXTILE DESIGN AND FASHION DESIGN

#### ELEMENTS OF DESIGN

The elements of design provide a baseline for designing garments that have an aesthetic appeal. They are the building blocks of design. They must be incorporated in a pleasing combination to achieve a beautiful look in the garment.

**The various elements of design are:**

1. Shape
2. Form
3. Space
4. Line
5. Colour
6. Texture
7. Direction

#### 1.Shape

Shape is a two-dimensional area enclosed by a line. It is intimately related to form. The outline created by the line is known as silhouette. The silhouette is frequently divided into smaller shapes within the garment using seam lines, details and garment edges. These shapes add styling to the silhouette and help to achieve a better look. It also allows for combination of two or more fabrics and allows the designer to create optical illusions through lines.

A silhouette which refers to the predominant shape of the garment must complement the body type on which it has been worn. There could be some point of high light in of a garment like sleeves, collars, shoulders etc. Three basic silhouettes (Fig. 4.1) that have been prevalent in the society during various times in the history of fashion are:

1. **Straight or Tubular:** Also referred to as rectangular silhouette, it is the simplest silhouette of all. A dress with a straight silhouette will have all most the same-measurements for the bust, waist and them. For example, shift dress.
2. **Bell or Bouffant:** Also referred to as the ball gown silhouette, this silhouette is narrow and fitted till the waist and then flares generously to the hem to make a bell shaped bottom. This silhouette is typically found in wedding dresses and ball gowns.
3. **Back-fullness or Bustle:** As the name suggests, this silhouettes has fullness in the back featuring a severely tailored figure from the front.

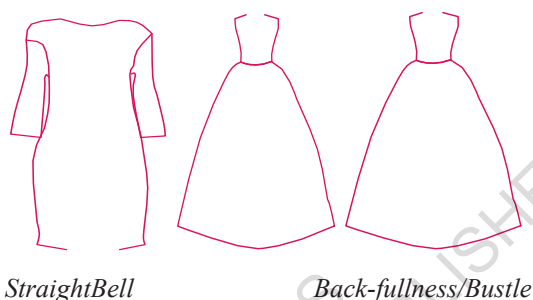


*Fig.4.1: Basic Silhouettes*

## **2. Form**

Form is three-dimensional area enclosed by a surface. With reference to fashion design it has two meanings. First, in case the form is hollow, the interior is perceived as volume. Thus, form refers to structural clothing parts that relate to and complement the exterior contours of the body. Second, if the form is solid, its interior is described as mass, and therefore the term refers to the body itself, bounded by contours and concave areas of the human body, covered by skin.

## **3. Space**

The area within or around a shape is called space. A filled space is called a positive space and an unfilled space is a negative space. A positive space is advancing while a negative space is receding. The human form may be perceived as having space in several directions. A silhouette is expressed as a shape but it represents a form moving in space. Ease is the designer's term for the space between the body and the garment. Ease has three forms: wearing ease, designer's ease and layered ease.

1. **Wearing ease** is the space required for a person to function and is essential for breathing, moving, bending, sitting and walking. Some fashion categories like

---

swim wear and corsets,etc.have wearing ease to a minimum and have fabric with a good stretch for space.

2. Designer's ease is the space built into the garment to produce stylish silhouette and can vary from body hugging to voluminous even in the same garment.
3. Layered ease is a type of ease which is given in garments that are to be worn over layers of other garments. It prevents garments worn over (like jackets) other garments (like a shirt and undergarments) from fitting tightly and maintain a good fit even with layers of garments.

#### 4. Line

Line refers to the direction of visual interest in the garment. These lines can be outer shape of the garment or created by construction details like seams, openings,pleats,gathers,tucks,etc.Lines can be straight or curved and according to their direction can be horizontal,vertical or diagonal(Fig.4.2).

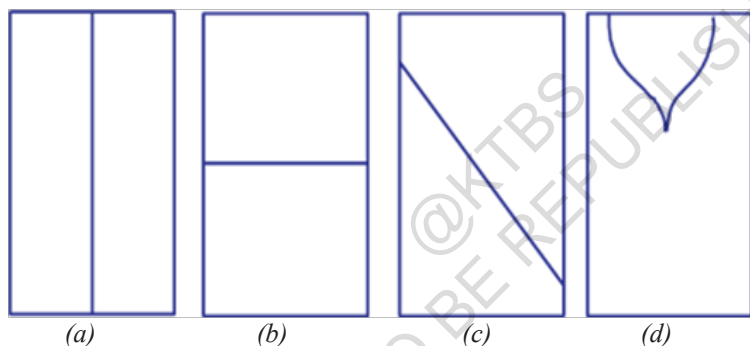


Fig 4.2 Different Type of Lines a, b, c, and d

- A. Vertical lines appear to add length
- B. Horizontal lines appear to widen and shorten
- C. Diagonal lines appear to add height and lengthen
- D. Curved lines appear to add fullness and mass

A line also varies in its path, thickness, continuity, sharpness, consistency, length and direction. As a line varies in its weight, direction, character, arrangement, or contour of a shape, it conveys a sense of symbolism. It makes the viewer think of a similar object in his environment or in the nature.

**Vertical Lines:** As the eye moves up and down in case of a vertical line, the eye measures the length of that area. This adds apparent height or length and makes the body of the wearer look narrower or thinner. Therefore, designers use them to

add illusion of height to the human figure. These lines can be in the form of plaids, stripes, vertical seam lines, row of buttons, etc. The placement of the vertical lines is also important. In case the vertical lines are placed spaced out, they lead the eye in a horizontal movement, thereby highlighting the width of the figure and vice versa i.e. the closer they are spaced together the slimmer you will look. Fig. 4.3 a, b, c and d gives examples of the illusion created by vertical lines.

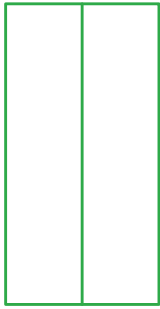


Fig.4.3a

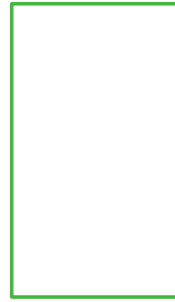
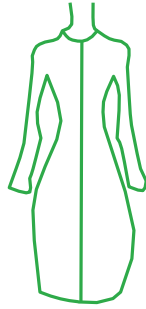


Fig.4.3b



Even though both boxes are exactly the same size in Fig.4.3a and b, the box on the left looks slimmer and so the dress

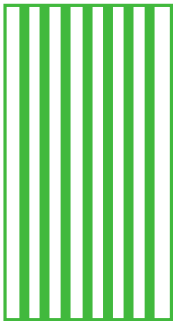


Fig.4.3c

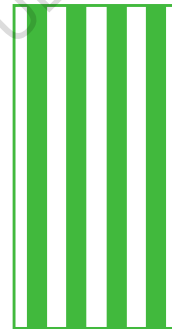


Fig.4.3d



Closely spaced vertical lines create an illusion widely spaced vertical lines increases the width of the wearer Of increased height and slinness

**Horizontal Lines:**Horizontal lines lead the eye to move from one side to the other, adding apparent width and shortening the body. Horizontal lines can make you look wider or narrower, especially when placed at a wider part of your body. You can look taller or shorter depending on where you place the horizontal lines on your outfits (Fig. 4.3 a and b). Examples of horizontal lines in garments are stripes and borders in horizontal direction, boat neck, off-shoulder, yokes, wide collars, belts etc. that move the eye across the width of the garment. However, if we place

thin horizontal lines with narrow spacing in between, they can have a lengthening effect as they lead the eye up and down. This is not true for thick horizontal lines which tend to widen the area Fig. 4.4 c, d and e.

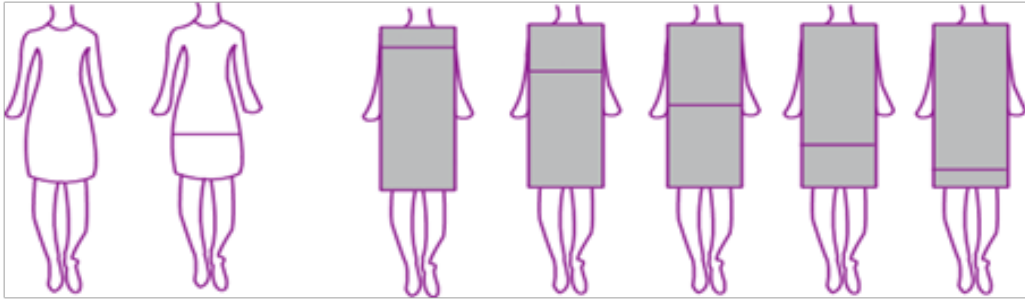


*Fig.4.4a*

*Fig.4.4b*



*Fig4.4c*

*Fig4.4d*

*Fig4.4e*

- c. Irregularly spaced and thick horizontal lines tend to widen the area on which they are used
- d. Regularly placed thin horizontal lines with narrow spacing in between appear to add height and length
- e. The thicker the horizontal line the greater the apparent width and the weight

#### **Fig.4.4:Horizontal Lines Create Illusion of Width**

**Diagonal or Slanted Lines:**Diagonal lines are incredibly slimming and wherever they are placed on the body they will slim that area. In (Fig. 4.5 a), as you can see, even though the box is exactly the same size, the box on the right looks smaller than the box on the left. Diagonal lines represent movement and energy as they move the eye from one side to other as well as top to bottom. If a diagonal line divides a space, it attracts the eye and moves the viewer's eye along with it. The angle, placement and length of diagonal lines will decide the illusion created by the lines (Fig. 4.5 b). If the angle is not too abrupt, diagonal lines add height and

give a slimming effect. They can be used to emphasize good features and move the attention away from the problem areas. These lines flatter the body. For example, a V-neckline makes the figure look slimmer and taller while lengthening and emphasizing the face whereas the opposite makes the figure look shorter (Fig. 4.5 c,d).

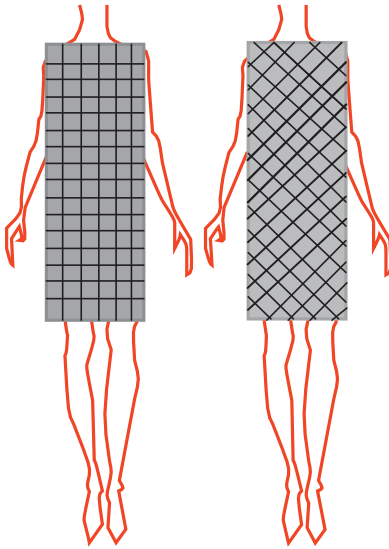


Fig.4.5a

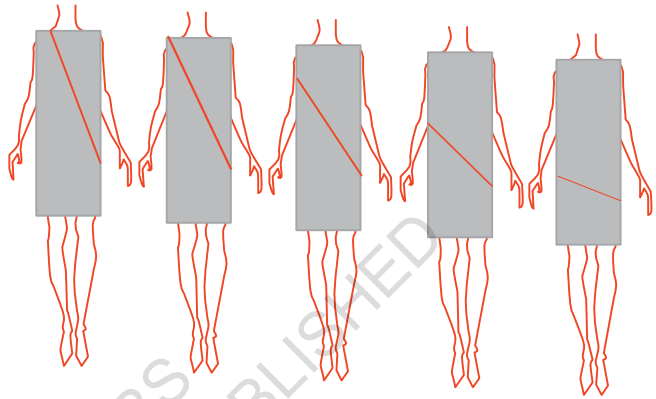


Fig.4.5b

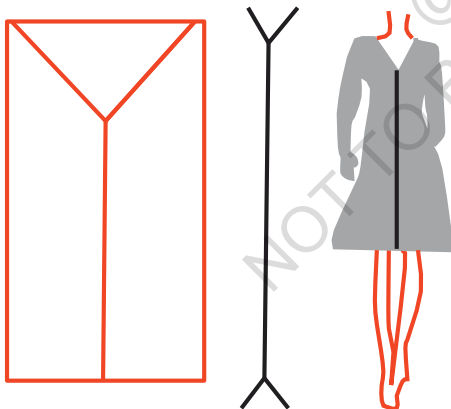


Fig.4.5c

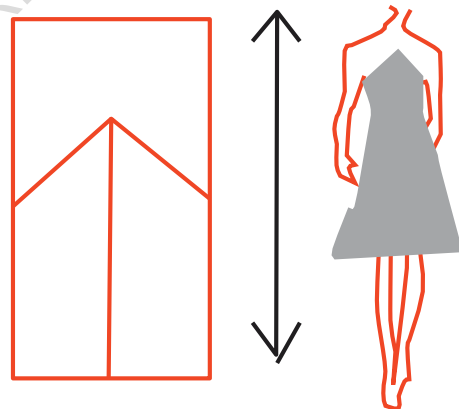


Fig.4.5d

### Fig.4.5:Optical Illusion Created by Diagonal Lines

- c. Extended diagonal lines appear to add height and lengthen
- d. Reverse diagonal lines appear to shorten and widen

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**Curved or Rounded Lines:** These lines generally follow the contours of the body and are flattering. They give an appearance of fullness and mass. These are found in a garment as neckline curves, collars, sleeves, yokes, hems, etc. They have a unique quality of grace and gentleness. Curved lines have the effect of lengthening when they are almost vertical and widening when they are more horizontal. Fig.4.6 shows some examples of curved lines.

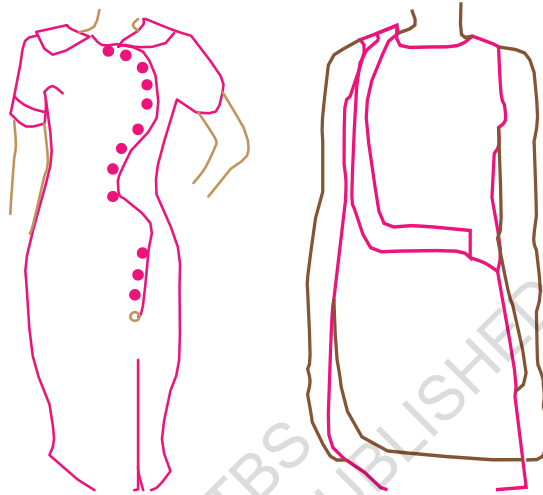


*Fig.4.6 Examples of Curved Lines*

## 5. COLOUR

### Introduction

Colour is the perceptual characteristic of light described by a colour name. Specifically, colour is light and light is composed by many colours. Objects absorb certain wave lengths and reflect others back to the viewer. We perceive these wave lengths as colour. Colour and colour harmonies form the foundation of art as well as design. Colour is the most important aspect of clothing. Response to colour is immediate, inescapable and lasting. One may forget the design detail, but are likely to remember the colour. Colour is an element of art and design that is produced when light, striking an Object, is reflected back to the eye. There are some properties or dimensions of colour:

1. **Hue:** A hue refers to a pure colour, one without tint or shade. A hue is an element of the colour wheel.
2. **Saturation:** The degree of purity of a hue which refers to as intensity i.e the brightness or dullness of a hue.
3. **Value:** A measure of the amount of light reflected from a hue.

- 
- a. **Tint:** A colour produced by addition of white.
  - b. **Shade:** A colour produced by addition of black.
  - c. **Tone:** A colour produced by addition of grey.

## Colour Wheel

All colours of the spectrum are placed in a colour wheel (Fig. 4.7) according to the relation they have with each other. Red, blue and yellow are pure colours and are called primary colours since other colours are derived from these colours. When we mix two primary colours in equal proportion, we get a secondary colour. For example, on mixing red and yellow we get orange; blue and yellow make green; and red and blue make violet (these are located exactly in between two primary colours on the colour wheel). A mixture of a primary colour with its neighboring secondary colour gives a tertiary colour. Forexample, blue-green, blue-violet, red-violet etc. Therefore, there are three primary colours, three secondary colours and six tertiary colours on the colour wheel.

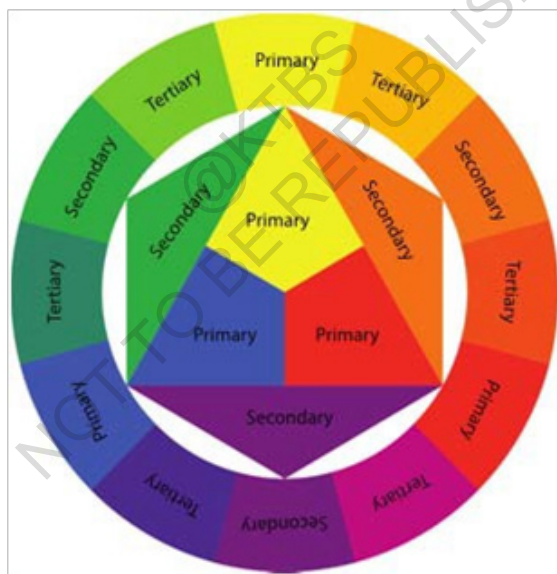
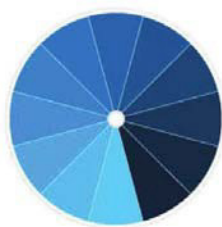


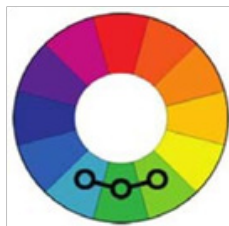
*Fig.4.7: Colour Wheel*

## Colour Schemes

Colour schemes help in assembling a set of colours that synchronize or contrast well with each other. Various colour schemes, shown in Fig. 4.8, have been discussed below



Monochromatic



Analogous



Split  
Complimentary



Triad

*Fig.4.8 Different Types of Colour Schemes*

**Monochromatic Colour Scheme:** This scheme uses a single colour with just its shades and tints. For example, pink, red and maroon. Ensembles that are made up of a single colour or shades of that colour tend to slim down the figure as they create the illusion of height.

**Analogous Colour Scheme:** Combination of colours next to each other on the colour wheel provides an analogous colour scheme. For example, red-orange and orange, blue-violet and blue, etc. Analogous colour scheme also adds visual height.

**Complementary Colour Scheme:** Colours placed opposite to each other on the colour wheel are complementary such as red and green, blue and orange and yellow-orange and blue-violet. They may seem overbearing on clothing. Therefore, they are used in smaller quantities in varying tints, shades or intensities.

**Split Complementary Colour Scheme:** Two colours on each side of the complementary colours produce split complementary colour scheme. For example, yellow with red-violet and blue-violet or red with blue-green and yellow green.

**Triad Colour Scheme:** Three colours placed equidistant on the colour wheel produces a triad colour scheme, such as yellow, red and blue. Multi-coloured schemes tend to break up the space. Therefore, it helps to break the height when used on a very tall person.

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**Colour Types:** Color wheels are based on three primary colours, three secondary colours, and the six intermediates formed by mixing a primary with a secondary, known as tertiary colours, for a total of 12 main divisions. There are also definitions (or categories) of colours based on the colour wheel. We begin with a 3-part colour wheel.

**Primary Colours:** Red, yellow and blue are primary colours. In traditional Prang colour theory (used in paint and pigments), primary colours are the 3 pigment colours that cannot be mixed or formed by any combination of other colours. All other colors are derived from these 3 hues.

**Secondary Colours:** Green, orange and purple are secondary colours.

These are the colours formed by mixing two primary colours in equal proportions.

**Tertiary Colors:** Yellow-orange, red-orange, red-purple, blue-purple, blue-green & yellow green are tertiary colours. These are the colours formed by mixing a adjacent primary and a secondary colour in equal proportions.(Fig 4.9)

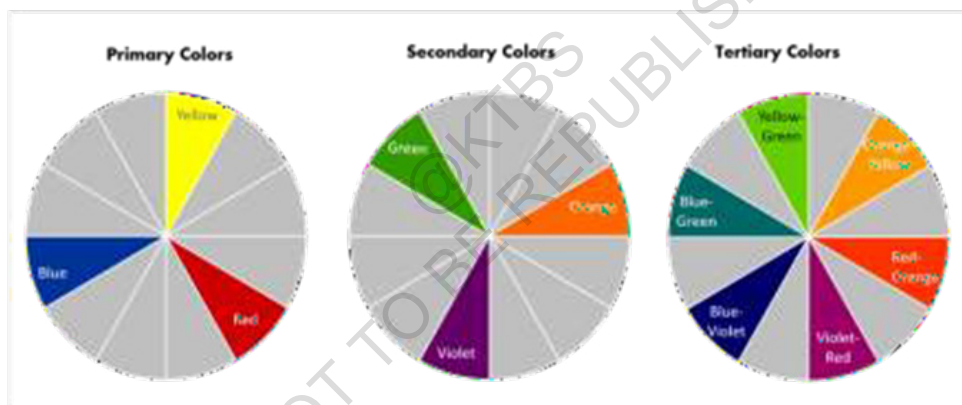


*Fig.4.9 Primary, Secondary, Tertiary*

## 6. TEXTURE

Texture describes the surface appearance and feel of a fabric. A fabric's hand determines how it drapes. The texture of a fabric affects how we perceive colour. Shiny surfaces reflect light, emphasizing the colour and making the fabric look larger. Stiff fabrics stand away from the body. Fabrics with a good drape tend to cling to the body. There are two types of textures:

- **Tactile texture:** It is the result of touch. Tactile texture is also called actual texture in which the designer creates the surface as part of the product.
- **Visual texture:** It is the visual perception of the surface. Visual texture is

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also called simulated texture which is created by rendering of a real texture. The look can be so real that the viewer expects the feel of the material on the surface.

The texture of a fabric can be attributed to a combination of the following factors. You will read about them in greater details in the next Block.

**Fibers:** These are raw materials that are spun into yarns and woven or knitted into cloth. They can be natural or man-made and staple or filament. Filaments like nylon are shiny and smooth and have a cool touch. Staples like cotton are dull, fuzzy and have a warm touch. Fabric textures are the result of the inherent characteristics of raw materials, for example, smooth silk filament fibers are used to make luxurious and rich look fabrics.

**Yarn:** Yarn is the result of fibers spun together in order to form its structure. As a result, distinctive textures emerge from different techniques used in creating yarns from fibers. The extent of yarn twist achieved while the yarn is being spun also influences the final product. For example, low-twist yarns with lustrous filament fibers give a shiny texture. The number of strands twisted together to make a yarn also contribute to its texture.

**Fabric Construction:** It has the greatest impact on texture. It is the method used to interlock fibrous yarns together into a flat surface like knitting, weaving and felting. All these methods lend a different texture to fabric.

**Finish:** Fabric finishes vary the texture of the fabric. They can be chemical or mechanical treatments. Finishes greatly vary fabric texture, like the use of calendaring finish to give a smooth finish and the use of napping finish to create fuzziness on fabric surface.

## 7. DIRECTION

Direction is a fundamental element of design that plays a crucial role in creating visually appealing and cohesive compositions. It refers to the way lines, shapes, and other design elements guide the viewer's eye around a design and create a sense of movement and flow. It influences how information is perceived and understood, and it has a significant impact on the overall effectiveness of a design. By understanding the concept of direction in design, you can effectively leverage its power to create engaging and compelling visuals that effectively communicate your message. Direction can be used in various ways to achieve different design intentions. For instance, horizontal direction can convey a sense of stability and tranquility, while vertical direction can create a feeling of strength and power.

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Diagonal direction can add a dynamic and energetic element to a design, whereas curved direction can evoke a sense of movement and fluidity. Finally, angular direction can create a sense of sharpness, intensity, and tension. You can create a sense of movement and flow while maintaining a visually appealing composition.

Direction also plays a critical role in guiding the viewer's eye through the design. By using directional cues, such as lines, arrows, or implied movement, you can lead the viewer's attention to specific focal points or important elements within the design. This allows you to control the visual hierarchy and ensure that the viewer perceives the information in the intended order. Furthermore, and direction can convey emotion and messages in design. (Fig 4.10)



*Fig: 4.10*

Vertical direction can create a feeling of strength and power in Design.

## **PRINCIPLES OF DESIGN**

The Principles are concepts used to organize or arrange the elements of design. The way in which these principles are applied affects the expressive content, or the message of the work.

### **The principles of design are:**

1. Balance
2. Proportion
3. Emphasis
4. Rhythm
5. Harmony

#### **1. Balance**

Balance refers to the restful effect achieved through grouping designing details to maintain a feeling of equal weight or attraction from side to side, from front to back or top to bottom.

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## Balance is of two major types:

**i. Formal Balance/Symmetrical Balance:** Identical balance which are equidistant from the center. It gives a feeling of dignity, stability and formality. Just as we have two eyes, two arms and two legs. Similarly a symmetrical garment must have exactly the same details on both sides from the center.

**For example,** one half of the sweater is equal to another half (Fig.4.10).

**ii. Informal Balance/Asymmetrical Balance:** When the details on the right and left halves are not identical and not symmetrically placed and appear to be of same weight, we call it informal balance (Fig 4.11).



*Fig 4.10 Formal Balance*



*Fig.4.11 Informal balance*

## 2. Proportion

Proportion refers to pleasing relationship between the sizes of various design details in a garment (Fig.4.12).

## 3. Emphasis

Emphasis is the part of the design that catches the viewer's attention. It should have the effect of leading the eye to some attractive feature (Fig.4.13). A good design should have a design feature which is the center of interest or focal point while other features support it. Emphasis is usually produced by repetition or by extreme contrast.



*Fig.4.12 Proportion of garments*



*Fig.4.13 Emphasis created by the flounce*

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**4. Rhythm :** Rhythm refers to the smooth movement of eye from one part of a design to another. Rhythm can be obtained through regular repetition of shapes and decorative details like pleat, buttons etc. Gradation in size also contributes to rhythm.

**For example;** the size of below increasing from bottom hemline to neckline. (Fig.4.14)

**5. Harmony/Unity** Harmony refers to unity of design with slight contrast or variety. The pleasing arrangement of parts or combination of parts in a composition is called as Harmony. Harmony involves the selection of elements that share a common trait. Common traits like orientation of colors or values, shape/size, material variety etc. (Fig.4.15)



*Fig.4.14 Rhythm created in the garment*



*Fig.4.15 colour harmony in the garment*

### Activity 1

1. Illustration of Elements of Design - Line Make a portfolio illustrating application of the following types of lines in garments.
  - a. Vertical Lines
  - b. Horizontal Lines
  - c. Diagonal Lines
  - d. Zig - zag Lines
  - e. Curved Lines

### Activity 2

2. Develop a colors palette using analogous colors (colors next to each other on the color wheel) for a fashion brand

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### Activity 3

3. Identification of different principles of design from the sample pictures

### Assessment

### Check Your Progress

#### A. Choose the correct answers

1. Which element of design adds tactility and visual interest?  
a) Shape b) Form c) Texture d) Pattern
2. What are the three primary colors are \_\_\_\_\_.  
a) Red, blue, orange      b) blue, yellow, red  
c) Yellow, white, red      d) green, yellow, blue
3. The part of the design that catches the viewer's attention is  
a) Emphasis b) Balance c) Rhythm d) Proportion

#### B. Fill in the blanks

1. The area within or around a shape is called \_\_\_\_\_.
2. Purest form of colour is called as \_\_\_\_\_.
3. Parts in a composition is called as \_\_\_\_\_.

#### C. Short Answers

1. What are the elements of textile design?
2. What are the three primary colours?
3. What are the principles of textile design?
4. What are two types of textures?

#### D. Answer the following question

1. Describe various types of lines in garment?
2. Explain primary, secondary and tertiary colour?
3. Describe the difference between symmetrical and asymmetrical balance?

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## Define balance

### E. Long Answers

1. Write short notes on elements of design?
2. Elaborate the types of colour harmonies?
3. Explain the principles of design

### Reference link:

- [HTTPS://SCERT.KERALA.GOV.IN/WP-CONTENT/UPLOADS/2020/06/12-FASHION%20AND%20APPAREL.PDF](https://scert.kerala.gov.in/wp-content/uploads/2020/06/12-FASHION%20AND%20APPAREL.PDF)
- [HTTPS://SCERT.KERALA.GOV.IN/WP-CONTENT/UPLOADS/2020/06/12-FASHION%20AND%20APPAREL.PDF](https://scert.kerala.gov.in/wp-content/uploads/2020/06/12-FASHION%20AND%20APPAREL.PDF)
- [HTTPS://WWW.RESEARCHGATE.NET/PUBLICATION/365318412\\_ELEMENTS\\_AND\\_PRINCIPLES\\_OF\\_ART\\_DESIGN](https://www.researchgate.net/publication/365318412_ELEMENTS_AND_PRINCIPLES_OF_ART_DESIGN)

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## Unit-5 Structure and Work of Apparel Industry

|        | Topic                                  | Session                                                   | Outcomes                                                                                                                                                                                                                                                                                                           |
|--------|----------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part-A | Structure and Work of Apparel Industry |                                                           |                                                                                                                                                                                                                                                                                                                    |
| 1      |                                        | Structure of Apparel Sector                               | <ul style="list-style-type: none"> <li>► Organizational structure of apparel industry</li> <li>► Understanding the mass production process, the roles of designers, researchers, and merchandisers, and the importance of production planning</li> </ul>                                                           |
| 2      |                                        | Employment Opportunities in Apparel Sector                | <ul style="list-style-type: none"> <li>► Understanding the Jobs commonly available in fashion and apparel industry</li> </ul>                                                                                                                                                                                      |
| Part-B | Home Furnishing                        |                                                           |                                                                                                                                                                                                                                                                                                                    |
| 1      |                                        | Surface Ornamentation by Painting and Printing Techniques | <ul style="list-style-type: none"> <li>► Students learn to develop designs for different products and explore different fabrics</li> <li>► To introduce students with different dyeing and printing techniques.</li> <li>► To enable students to develop articles using dyeing and printing techniques.</li> </ul> |

## UNIT -5 PART -A: STRUCTURE AND WORK OF APPAREL INDUSTRY

### SESSION1: STRUCTURE OF APPAREL SECTOR



The manufacturing of apparel has remained a labor intensive industry, offering a great advantage to low wage countries like India. More than 50% of the Indian market caters for traditional wear such as (Saree, Dhoti, Salwar – Kameez etc.) (Fig 5.1)

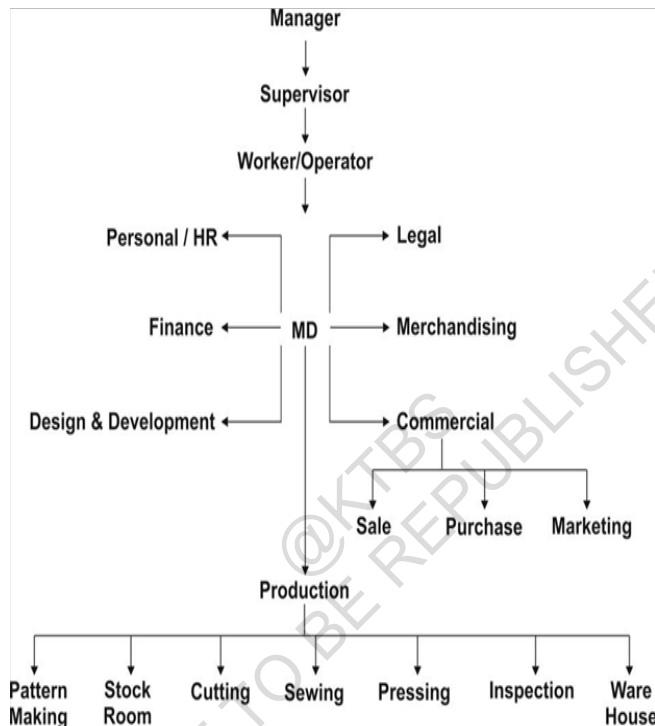


*Fig.5.1: Organizational structure of apparel industry*

### Structure of Garment Industry

Garment industry is a high labour intensive and low cap it a intensive industry. It produces variety of apparel items ranging from basic staple garments to high fashion garments. Its structure comprises:

1. Manufacturers
2. Contractors
3. Wet processors
4. Wholesale representatives
5. Retailers

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**1. Manufacturers** Manufacturer is completely responsible for garment design, purchase of raw materials, production process and selling of the final garment. They are also referred to as vendors or suppliers. If the manufacturers produce the garments in factories, they are called inside shops. In-house production can be beneficial as it saves time, reduces additional transportation costs, maintains high control on quality, ensures timely delivery and avoids communication problems.

**2. Contractors** In many cases, the manufacturer does not have its own production facilities. They contact outside factory or service providers for performing specific operations within a specified time period. These factories are known as contractors or outside shops. A contractor is an independent producer having trained operators and the specialized equipment required for production. They perform the operations as per the specifications given by the manufacturer. They are expected to maintain the quality standards and meet the time schedules.

**3. Wet Processors** Garment wet processing has evolved as part of garment manufacturing to give a finished look to the stitched garment. It is generally done to soften the feel of the assembled garment by removing starch, for colour addition or removal at certain parts of garment through bleaching, stone-washing, acid-washing etc. and for wrinkle prevention. Wet processing units have state-of-the-art equipment installed which can handle hundreds of garments at one time. Manufacturers can contact these units for the any of the desired effects.

**4. Wholesale Representatives** Wholesale representatives are also known as sales reps and act as agents of the manufacturers. They are responsible for selling the finished garments to the retailers. They visit the retail buyers in the showrooms to present the range of garments and encourage them to buy. Wholesalers earn commission on the garments they sell to the retailer.

**5. Retailers** Retailers are responsible for selling the final garment to the customer. Finished garments are bought from the manufacturer and sold to the consumer at a fixed price. The difference between the cost of buying garments from the manufacturer and selling to the customer gives profit to the retailer. These days, many retailers are also manufacturing all or at least some of the goods that they sell. They are known as manufacturing retailers.

### **Different Departments of Garment Industry**

Garment industry is very diverse in nature performing variety of processes. It starts from a design idea and ends when the finished garment reaches the customer. These processes are carried out by different departments of the garment industry.

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Every department is responsible for a specific function and together the departments aim at providing good quality product within reasonable cost and time.

Broadly, garment industry can be divided into three departments i.e., Design department, Production department and Marketing department.

## 1. DESIGN DEPARTMENT

Design department is headed by a designer. This department is responsible for research and development of a successful product idea. It is a very complex process requiring adequate knowledge of target market and accordingly creating interesting styles which will sell at a profit.(Fig 5.2)



*Fig 5.2 Design Department*

For most factories the process for design development involves following sub-departments or sections:

- Forecasting department
- Designing department
- Collection planning department
- Pattern making section
- Sampling department
- Pattern grading section
- **Forecasting department**

Since, the garment industry works far ahead of the selling season; they must be aware what their customers want. Forecasting department evaluates and interprets the present market conditions to predict future fashion trends.

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- **Designing department**

Based on the source of inspiration and forecast trends, the designer starts sketching design ideas on paper. He experiments with number of designs before coming up with the final collection. The sketches also include details like fabrics, trims, seamlines etc. so that the pattern maker can interpret the design correctly.

- **Collection planning department**

Designer along with his/her team critically analyze the design and financial parameters for the developed sketches. Best styles are shortlisted for the forthcoming season. Fabrics and colours are also decided for sampling process.

- **Patternmaking section**

The patternmaker prepares the paper pattern for the shortlisted designs so that these can be cut on fabric and stitched to check the final look. The designer communicates the design requirements to the patternmaker for accurate interpretation.



*Fig. 5.3 Patternmaking section*

- **Sampling department**

The sample maker prepares the first prototype of the garment in the sampling department. The designing team works closely with the sample maker and tests the final appearance and fit of the sample garment. Modifications in the pattern are done at this stage if required.

- **Pattern grading section**

Once the designer is satisfied with the final look and fit of the sample, the final pattern is sent to the pattern grader. He is responsible for producing patterns of different sizes from the original master pattern. The process of grading of patterns to different sizes can be performed either manually or automatically by using computer software.

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## Practical Exercises

### Activity 1

Visit any two garment manufacturing units and export houses and study their organizational setup and compare them.

### Check Your Progress

#### A. Choose the correct answers

1. Which department takes care of company's standards and specifications for a product?  
a. Cutting                      b. Quality Control    c. Designing                      d. Planning
2. Finished garments are bought from the manufacturer and sold to the consumer at a fixed price.  
A) Manufacturers    B) Contractor                      C) Retailers                      D) Shoppers
3. The department evaluates and interprets the present market conditions to predict future fashion trends.  
A) Forecasting department                      B) Designing Department  
C) Collection Department                      D) Pattern making department

#### B. Fill in the blanks

- 1 A \_\_\_\_\_ is an independent producer having trained operators and the specialized equipment required for production.
- 2 \_\_\_\_\_ departments are responsible for research and development of successful product ideas.
- 3 The \_\_\_\_\_ prepares the first prototype of the garment in the sampling department.

#### C. Short Answers

1. What is the Structure of Garment Industry?
2. What is apparel manufacturing?
3. What are wet processors?
4. Why sample making is important in apparel industry.

---

### **D. Answer the following question**

1. Write a flow chart of apparel sector.
2. Enlist the structure of garment industry.
3. List out the sub departments in factories.

### **E. Long Answers**

1. Enlist the organization structure of apparel industry.
2. Explain the structure of garment industry.
3. Explain department of design.
4. Write the difference between wholesale representative and Retailer.

### **Reference link**

<https://textilelearner.net/structure-of-the-clothing-industry/>

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## SESSION2: EMPLOYMENT OPPORTUNITIES IN APPAREL SECTOR

Indian apparel industry is closely connected to the fashion, garment and retailing industry, and they all go hand in hand. Because of this, the employment opportunities in these areas are increasing to a large extent. The high level of fashion-conscious people has created the need for candidates who are highly productive, efficient, have a passion to create new designs and add up to the creativity this industry demands.

### Jobs commonly available in apparel industry

Apparel industry has three main sectors fashion, garment and retailing where there are plenty of job opportunities jobs available in apparel sector at different sectors are as follows:

#### Fashion Industry

In fashion industry it is very important to have a creative mind. The job options are varied one can join as fashion designers with the right qualification. Other job options can be a plenty which requires different skills related to fashion field. Fashion researcher and fashion forecaster play a very important role in this line and are highly paid as they are the main trend setters.

**a) Fashion designing and production professionals:** In this fashion fields, all the professionals are involved with design development, establish the designs and also introduce the final product in the fashion marketplace. They use different design principles, techniques, and tools to create sketches and models of original garments, shoes, handbags and other fashion accessories.

**b) Art and graphic designer:** Art and a graphic design are most creative fields in fashion design. They can organize arrangement of the design, images and motion graphics needed to match a marketing challenge. They work on a book design as well as a magazine editorial shoot. Their designs are mainly published in print media and/or electronic media.

**c) Assistant fashion designer:** They assist fashion designers and chief fashion designers with right from designing clothes to preparing for fashion shows. Other than coloring, and sketching, they coordinate with garment construction work and also help in making prototypes. Assistant fashion designers assist in arranging meetings, with clients or retailers, and sometimes they also have to attend fashion shows and trade shows.

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**d) Assistant designer for a high street retailer:** Large department stores mostly employ to make a design teams for doing their work on their own ranges. Assistant designer helps the designer for getting the detail information regarding a particular label. As, it is very essential for the designer to know about latest trends from fashion magazines, window displays, forecasting publications, Internet, and changing street style of consumers.

**e) CAD designer:** Computer-aided designers in the fashion industry use computer software to create design & sketches and also used to create clothes, accessories, shoes. Computer-aided designers create prototypes for clients on the software; they also work for retail companies, fashion designers and apparel manufacturers.

**f) Fashion illustrator:** They convey the designers or directors about their ideas through sketches, paintings, either done manually or on computers. Fashion illustrators work with designers, art directors and for retailers to create visual images or banners of clothing, shoes, handbags, and hats. They also create magazines, advertisements by using computer-aided design (CAD) software.

**g) Technical designer:** They are a link between design and production. Technical designer is known as engineers of fashion industry. They work with the fashion designer in order to make sure details like stitch gauges, thread color, and zipper buttons are correct.

**h) Design and product developer:** Design and product developer mainly do the job with the design and production departments of a fashion/retail company. They usually submit the report to the product development manager. The Product developer coordinates from initial drawings to final product sample; they have to check and follow progress of production, and monitor the sourcing trims and fabrics, requirement of raw materials. Product developers for the fashion industry must know material specifications and analyze cost.

**i) Pattern maker:** Requires detailed knowledge of technical skill of pattern making of garment construction in order to interpret a design into a convincing prototype garment. Most pattern maker coordinates with designers to understand a design from a sketch or working drawing. They also help in making test garment of muslin. The pattern maker works the sample cutter and communicates with garment construction team and designers before a sample can be approved.

**j) Pattern grader:** Pattern grader is a person who follows a prescribed system of applying mathematical gradients and ratios to pattern pieces to size them up or down. In order to understand the principles of grading, since not all sides of the pattern are graded. It is also essential to have the knowledge of body sizes and shapes.

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**k) Quality control officer:** It is a top-level executive position of the garment factory. A quality control officer must have sound knowledge on garments specification and measurements, textile materials and accessories. They should have good understanding about garments defects and faults to detect them at the right time and take remedial action immediately. Since it is a highly responsible job, it is also one of the well-paying jobs in the garments industry.

## Practical Exercises

### Activity 1

1. Visit an apparel industry and submit a report mentioning different job of the industry.
2. Prepare a chart showing different job position in garment/apparel industry.

### Check Your Progress

#### A. Choose the correct answers

1. Indian apparel industry is closely connected to the fashion, garment and \_\_\_\_\_ & industry.  
A) Marketing industry                      B).wholesale product  
C) Large scale industry                      D) Retailing industry
2. They use different design principles, techniques, and tools to create sketches and models of original garments.  
A) Fashion designing                      B) Pattern maker.  
C).production professionals                      D) Both A and D
- 3.The use computer software to create design & sketches and also used to create new patterns.  
A) Cad designer.                      B) Product developer.  
C) Assistant designer                      D) Graphic master

#### B. Fill in the blanks

1. Apparel industry has three main sectors \_\_\_\_\_ and \_\_\_\_\_ .
2. Art and graphic designer's designs are mainly published in \_\_\_\_\_ and \_\_\_\_\_ .
3. Computer aided designer create \_\_\_\_\_ for clients on the software.

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4. \_\_\_\_\_ is known as engineer of fashion industry.
  5. Design and product developer mainly do the job with the \_\_\_\_\_ and \_\_\_\_\_ departments of a fashion/retail company.

### **C. Short Answers**

1. What is fashion industry?
2. Write the role of fashion illustrator.
3. Explain quality control officer

### **D. Answer the following question**

1. Explain your duties as an assistant fashion designer?
2. Enlist the job opportunities in apparel industry
3. Write the difference between pattern grader and pattern maker

### **E. Long Answers**

1. Describe different sections in a garments industry.
2. Discuss in detail job opportunities in apparel industry.
3. What are the job opportunities in apparel industry?

### **Reference link:**

<https://leanstitch.com/job-roles-in-apparel-industry/>

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# UNIT -5 PART –B: HOME FURNISHING

## SESSION1: SURFACE EMBELLISHMENT FOR HOME TEXTILES THROUGH PAINTING AND PRINTING TECHNIQUE

### Painting,

The expression of ideas and emotions, with the creation of certain aesthetic qualities, in a two-dimensional visual language. An artist's decision to use a particular medium, such as tempera, fresco, oil, acrylic, water colour or other water-based paints, ink, gouache, encaustic, or casein, as well as the choice of a particular form, such as mural, easel, panel, miniature, manuscript illumination, scroll, screen, panorama, or any of a variety of modern forms, is based on the sensuous qualities and the expressive possibilities and limitations of those options. The choices of the medium and the form, as well as the artist's own technique, combine to realize a unique visual image.

There are a variety of different types of painting mediums that artists use to create beautiful art works. Some of the most popular types of painting mediums include oil painting, watercolour painting, and acrylic painting. Each type of painting has its own unique advantages and disadvantages. In addition to the mediums that artists choose to use in their art practice, painters can also choose to paint in a particular art style and with a set of techniques.

#### 1. Water Colour



*Fig (5.1)*

Water colour painting is a popular type of painting medium. Gum Arabic and pigment make up the paint mixture. The pigments in watercolour paint are usually very fine and transparent in colour. Water colour paint is water soluble, but it is also soluble once dry. This means that artists can lift some colours from the painting to create white space.(Fig 5.1)

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When artists dilute the paint with water, it's the amount of water in the mixture that will determine how translucent the paint will be. More water will make the paint more transparent, while less water will make it more opaque.

Watercolour painting is a popular choice for landscape painters because the medium allows artists to easily create soft transitions between colours. Many painters opt to take their watercolour paints outside with them to paint.

## 2. Oil painting



*Fig (5.2)*

Oil painting is one of the oldest and most popular types of painting medium. Paint manufacturers make oil paint by mixing pigment with a drying oil. Drying oil acts as a binding agent for the coloured pigments. The most commonly used drying oils include linseed oil, walnut oil, and poppy seed oil.

Oil paint is a naturally thick medium that dries slowly. The slow drying property of oil paint means that artists can blend colours on the canvas for a day or longer, until the paint film has dried. Artists who paint with oil paints typically use a stiff brush to apply the paint to their canvas, like a hog or synthetic brush, but some artists paint with palette knives (Fig 5.2)

## 3. Acrylic painting



*Fig (5.3)*

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Acrylic paint is a relatively new medium, compared to oil painting, but it is fast becoming a favorite amongst painters. The paint is made from pigment suspended in acrylic resin, a synthetic polymer. The paint dries quickly, which makes it perfect for artists that like to work fast. Artists can dilute acrylic paint with water to create different effects. However, acrylic paint is not soluble when dry, as it dries to a waterproof film.

Acrylic paint is an incredibly versatile medium. Depending on the type and brand of acrylic paint you choose, your medium may have different attributes. For example, heavy body paint is thick like oil paint and is perfect for creating textured paintings with. Soft body and fluid acrylic paints are runnier in texture and are great for creating more detailed works.(Fig 5.3)

#### 4. Ink painting



*Fig (5.4)*

This is a popular type of painting medium in Japan, where ink wash painting is also called sumi-e.

Sumi-e is a type of whimsical style ink painting that uses mostly black ink. Use a brush to apply ink washes to paper or other surfaces. Artists can apply ink very thinly for a delicate effect, or more thickly for a bolder look.

Ink paintings are often characterised by their simplicity and minimalism. The focus is on the flow of the ink and the beauty of the line. Premix colours on a palette before applying to the paper and make sure to dilute the colours with water to achieve transparency in your paintings.(Fig 5.4)

#### 5. Digital painting



*Fig (5.5)*

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This is not a traditional painting medium, but still a painting medium! You can use a variety of digital tools to create paintings, such as an iPad, or computer and graphics tablet. You can also get 2 in 1 tablet and laptops for artists, where you can draw straight on the screen. For a review of the best graphics tablets for artists, check out our guide.

There are many software programs available that allow you to paint digitally. Some of the more popular ones include Corel Painter, Adobe Photoshop, Clip Studio Paint and Procreate for iPad.

Digital painting is a great option if you already have software like Photoshop, or if you have limited space for traditional painting mediums. The great thing about painting with Photoshop is that you can download brushes, or customise brushes yourself that emulate the texture and appearance of traditional painting mediums. Get brushes that blend easily or appear textured. You can download brushes and many other design assets for Photoshop from Creative Market.(Fig 5.5)

## PRINTING TECHNIQUES

**Textile printing** is the process of applying color to fabric in definite patterns or designs

Traditional textile printing techniques may be broadly categorized into four styles:

- **Direct** printing, in which colorants containing dyes, thickeners, and the mordants or substances necessary for fixing the colour on the cloth are printed in the desired pattern.
- **Mordant** printing of a mordant in the desired pattern prior to dyeing cloth; the colour adheres only where the mordant was printed.
- **Resist** dyeing, in which a wax or other substance is printed onto fabric which is subsequently dyed. The waxed areas do not accept the dye, leaving coloured patterns against a coloured ground.
- **Discharge** printing, in which a bleaching agent is printed onto previously dyed fabrics to remove some or the entire colour.

**There are eight distinct methods presently used to impress coloured patterns on cloth:**

- i. Hand block printing
- ii. Roller, cylinder,

- 
- iii. Stencil printing
  - iv. Screen printing
  - v. Digital textile printing
  - vi. Discharge Printing
  - vii. Resist printing
  - viii. Heat Transfer Printing

### **i. HAND BLOCK PRINTING**

This process is the earliest, simplest and slowest of all printing methods. A design is drawn on, or transferred to, prepared wooden blocks. A separate block is required for each distinct colour in the design. The printer applies colour to the block and presses it firmly and steadily on the cloth, striking it smartly on the back with a wooden mallet. The second impression is made in the same way, the printer taking care to see that it registers exactly with the first. Pins at each corner of the block join up exactly, so that the pattern can continue without a break. Each succeeding impression is made in precisely the same manner until the length of cloth is fully printed. (Fig 5.6)



*Fig (5.6) Hand Block Printing*

### **ii. ROLLER PRINTING**

In this method, engraved copper cylinders or rollers are used in place of hand carved blocks. When the rollers move, a repeat of the design is printed on the fabric. Roller printing has traditionally been preferred for long production runs because of the very high speeds possible. It is also a versatile technique since up to a dozen different colors can be printed simultaneously. The basic roller printing

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equipment consists of a number of copper faced rollers in which the design is etched. There is a separate printing roller for each color being printed. Each of the rollers rotates over the fabric under pressure against an iron pressure roller. A blanket and backing cloth rotate over the pressure roller under the fabric and provide a flexible support for the fabric being printed. A color doctor blade removes paste or fibers adhering to the roller after contact with the fabric. After the impression stage the fabric passes to the drying and steaming stages.(Fig 5.7)



*Fig (5.7) Roller Printing*

### **iii. Stencil printing**

In stencil printing, the design is first cut in cardboard, wood or metal. The stencils may have fine delicate designs or large spaces through which color is applied on the fabric. The pattern is cut out of a sheet of stout paper or thin metal with a sharp-pointed knife, the uncut portions representing the part that is to be reserved or left uncolored. The sheet is now laid on the material to be decorated and the color is brushed through its interstices.(Fig 5.8)



*Fig (5.8) Stencil Printing*

### **iv. Screen-printing**

Screen printing is by far the most common technology today. Two types exist: rotary screen printing and flat (bed) screen printing. A blade (squeegee) squeezes the printing paste through openings in the screen onto the fabric.

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## 1. Flat Screen Printing:

As the name suggests, the screens for this printing method are flat as opposed to circular as in rotary screen printing. The screen is a woven mesh, made from either polyester or polyamide. The mesh is stretched over a rectangular frame, originally made from wood, but now made from metal alloy to reduce weight and increase durability. Worldwide, about 23% of all printed textile fabric is produced by flat screen printing.(Fig 5.8)

## 2. Rotary Screen Printing:

Rotary screen printing uses cylindrical screens as opposed to flat screens. Again, a separate screen is required for each color of the design being printed. More complex designs require the application of many different colors, and typical rotary screen printing machines have the capacity for up to 20 screens. The screens rotate in contact with the substrate and the print paste is fed from inside the screens. The paste is forced from out of the inside of the screen by means of a metal squeegee blade. Worldwide, about 61% of all printed textile fabric is produced by the rotary screen method (Fig 5.9)



*Fig (5.9) Flat Screen Printing*

## V. Digital textile printing

Digital textile printing is often referred to as direct-to-garment printing (DTG printing), or digital garment printing. It is a process of printing on textiles and garments using specialized or modified inkjet technology. Inkjet printing on fabric is also possible with an inkjet printer by using fabric sheets with a removable paper backing. Today, major inkjet technology manufacturers can offer specialized products designed for direct printing on textiles, not only for sampling but also for bulk production (Fig 5.10)

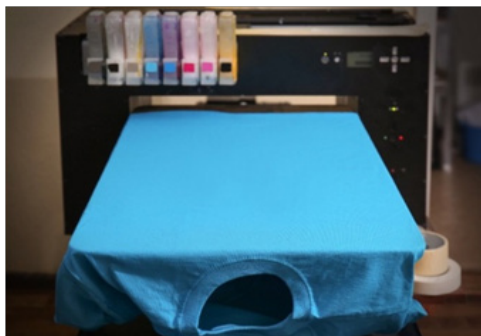


*Fig (5.10) Digital Printing*

## **Vi .Discharge Printing:**

In “white” discharge printing, the fabric is piece dyed, then printed with a paste containing a chemical that reduces the dye and hence removes the color where the white designs are desired. In “colored” discharge printing, a color is added to the discharge paste in order to replace the discharged color with another shade. (Fig 5.11)



*Fig (5.11) Discharge Printing*

## **Vii .Resist Printing:**

A printing method in which the design can be produced: (1) by applying a resist agent in the desired design, then dyeing the fabric, in which case, the design remains white although the rest of the fabric is dyed; or (2) by including a resist agent and a dye in the paste which is applied for the design, in which case, the color of the design is not affected by subsequent dyeing of the fabric background.

### **A .Batik Printing:**

In the classical processes, a wax was printed on the fabric to form a resist. After dyeing with usual dyeing procedures, the resist was removed. In a special case indigo was used for dyeing. During dyeing of the fabric the waxy layer cracks and the cracks become marked with dye, which leads to the characteristic appearance of this article. (Fig 5.12)



*Fig (5.12) Batik Printing*

## **B .Tie Dyeing:**

In tie dyeing, firm knots are tied in the cloth before it is immersed in a dye. The outside portion of the immersed fabric is dyed but the color does not penetrate the inside portions of the tied knots. There are various forms of tie dyeing such as ikat dyeing where bundles of warp and/or weft yarns are tie dyed prior to their weaving. In plangi dyeing, the gathered, folded or rolled fabric is usually held with stitching to form specific patterns. (Fig 5.13)

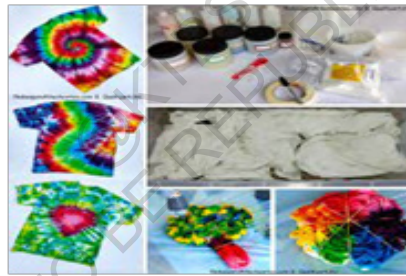


*Fig (5.13) Tie Dyeing*

## **Viii .Heat Transfer Printing**

Heat transfer printing involves printing the design onto a certain type of transfer paper and then heat-pressing it on to fabric. If you've ever gotten a customized shirt or mug with your company logo on it – chances are it was made using this method. (Fig 5.14)



*Fig (5.14) Heat Transfer Printing*

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## Practical Exercises

### Activity 1

Collect the fabric swatches of paintings and printings

Make a wall screens using all technic of painting and printing in textbook

### Check Your Progress

#### A. Choose the correct answers

- 1) \_\_\_\_\_ painting is the popular type of painting.  
a) Water painting. b) Oil painting c) Screen printing d) Heat transfer printing
- 2) The use of brush to apply ink to paper.  
a) Acrylic painting. b) Ink painting. c) Stencil painting. d) Digital painting
- 3) The painting is made up of graphic tablet and computer.  
a) Batik print. b) Screen print. c) Stencil print. d) Digital print

#### B. Fill in the blanks

- 1) \_\_\_\_\_ & \_\_\_\_\_ printing are cylindrical screen.
- 2) Logos and labels are made of \_\_\_\_\_ printing.
- 3) The process of applying \_\_\_\_\_ to the fabric in definite patterns.

#### C. Match the following:

| A                   | B                       |
|---------------------|-------------------------|
| A. Stencil printing | Copper pigmentation     |
| B. Oil painting     | woven mesh              |
| C. Roll printing    | Ink jet technic         |
| D. Screen printing  | Color pigment           |
| E. Digital printing | Cardboard / thin sheets |

#### D. Answer the following question

- 1) What is painting?
- 2) Enlist the types of painting.

- 
- 3) What is digital printing?
  - 4) Enlist the impress pattern paintings.

### **E. Long Answers**

- 1) Explain screen printing.
- 2) Write a short note on.
  - a) Batik print
  - b) Stencil print
- 3) Explain printing techniques.
- 4) Explain the types of painting.
- 5) Write the difference between painting and printing used for textiles.

### **Reference link:**

- <https://www.scribd.com/document/696395021/Chapter-3-Home-Furnishing>
- <https://www.uou.ac.in/sites/default/files/slm/BHM-602CT.pdf>

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## Glossary

**Color:** The first thing people notice, which helps establish the mood

**Texture:** Provides information about the materials

**Shape and proportion:** Create the overall silhouette

**Line:** Guides the eye through the design

**Balance and unity:** Ensure all elements work together

**Rhythm:** Creates movement

**Emphasis:** Draws focus to specific areas

**Scale:** Relates the sizes of elements to each other and the body

**Space:** An element of design

**Form:** An element of design

**Spinning:** Done on the spinning frame where the stock passes through sets of high speed rollers and gives the yarn of desired thickness.

**Weaving and dying:** The yarn is then knitted or woven in any one of the variety of weaves and structures. Warp yarns are usually more strongly twisted than filling yarns since they must withstand greater strain in weaving and finishing. Dye stuffs may be applied to raw cotton, yarn or piece goods.

**Textile:** textiles are materials made from fibers, thin threads or filaments that are natural or synthetic or a combination of both.

**Apparel:** Apparel means clothes, especially formal clothes worn on an important occasion.

**Twill:** A fabric characterized by micro diagonal ribs producing a soft, smooth finish. Commonly used for casual woven shirts.

**DTM:** Dyed To Match

**Facing:** Extra layer of material sewn to the inside of a garment for strength and/or edge finishing

**Lining** A protective layer of fabric in the inside of a garment

**NEEDLE SPACING** distance between needles on the same stitch

**SPL Stitches per inch:** Declares the length of stitches by how m

**RAW EDGE** Cut edge without any finishing

**CAD** Computer Aided Design: used as a conceptual tool to design and develop products