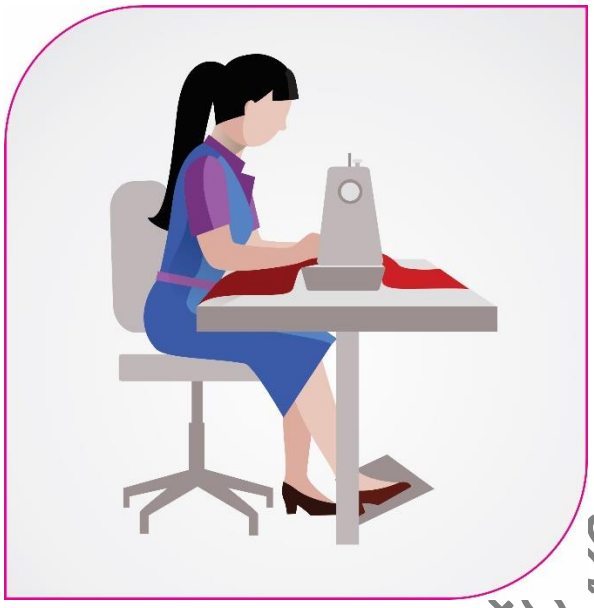
DRAFT STUDY MATERIAL



SEWING MACHINE OPERATOR

(Qualification Pack: Ref.Id.AMH/Q0301)

Sector: Apparel, Made-ups & Home Furnishing

(Grade 10)

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PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION
(A constituent unit of NCERT, under MOE, Government of India)
Shyamla Hills, Bhopal- 462 002, M.P., India
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PREFACE

Vocational Education is a dynamic and evolving field, and ensuring that every student has access to quality learning materials is of paramount importance. The journey of the PSS Central Institute of Vocational Education (PSSCIVE) toward producing comprehensive and inclusive study material is rigorous and time-consuming, requiring thorough research, expert consultation, and publication by the National Council of Educational Research and Training (NCERT). However, the absence of finalized study material should not impede the educational progress of our students. In response to this necessity, we present the draft study material, a provisional yet comprehensive guide, designed to bridge the gap between teaching and learning, until the official version of the study material is made available by the NCERT. The draft study material provides a structured and accessible set of materials for teachers and students to utilize in the interim period. The content is aligned with the prescribed curriculum to ensure that students remain on track with their learning objectives.

The contents of the modules are curated to provide continuity in education and maintain the momentum of teaching-learning in vocational education. It encompasses essential concepts and skills aligned with the curriculum and educational standards. We extend our gratitude to the academicians, vocational educators, subject matter experts, industry experts, academic consultants, and all other people who contributed their expertise and insights to the creation of the draft study material.

Teachers are encouraged to use the draft modules of the study material as a guide and supplement their teaching with additional resources and activities that cater to their students' unique learning styles and needs. Collaboration and feedback are vital; therefore, we welcome suggestions for improvement, especially by the teachers, in improving upon the content of the study material.

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MODULE- 1

BASICS OF GARMENTCONSTRUCTION - II

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MODULE 1: BASICS OF GARMENT CONSTRUCTION - II

INTRODUCTION

Inthis unit, the students are going to study about the construction terminologies used to garment construction like basting needles, cross grain, bias, piping, bodice, buckram, collar stand, facing, back etc. They will also be studying different types of seam and their application while stitching garments. Some are basic related to textile, while others are essential for construction of any technique.

Seam type plays an important role in construction. Knowledge of various seam types, their construction technique and their application on various types of garments in essential for a sewing operator to understand the job assigned to them. In this unit students in addition will learn various types of seams such as plain seam, run and fell seam, bound seam, French seam etc. and their application on different kind of fabrics used for garment construction.

Learning Outcomes
After Completing This Module, You Will Be Able To: • Explain Garment Construction Terminologies • Apply Various Types Of Seams
Module Structure
Session 1: Garment Construction Terminologies
Session 2: Stitching And Application Of Seams.

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SESSION 1: GARMENT CONSTRUCTION TERMINOLOGIES

Garment construction terminology refers to the various terms used while construction of garments. This includes the terms used to define the various construction processes and the different components of a garment. It is important to know the terminologies as it will be a guide while stitching.

Basting needle: This is a sharp, long hand sewing needle which penetrates into fabric easily.

Bias binding: Also called bias tape, a bias cut strip used to bind or cover raw edges. It is generally used for binding the curves, for example, necklines and armholes. It gives raised edge effect.

Bias: It is a diagonal line across the grain of the fabric. When used to substitute crosswise or lengthwise grain in pattern placement, a bias cut will cling to the figure following body curves closely.

Bicep circumference: The measurement around the fullest part of the arm.

Blanket stitch: It is used for finishing a fabric edge.

Blocks: A block pattern is a custom-fitted, basic pattern which can be altered to create designs for many different styles it is also called as sloper. For example, a bodice sloper consists of bodice front, bodice back and sleeve blocks.

Bodice: The front and back upper part of a pattern or garment that runs from shoulder to waist.

Buckram: A heavy, coarse stiff cotton fabric used for interfacing and stiffening parts of garments such as collars, cuff and hats.

Casing: This is and stitched cover of fabric which holds elastic, cording, or bonding.

Collar stand: It is a band between the neckline and the collar on a shirt or a blouse.

Facing: It is an extra layer of fabric stitched on the inner side of a garment for strength and edge finishes.

French curve: A drafting tool that enables one to draw smooth curves for e.g. armholes.

Hip curve: A curved ruler used to give shaping on the pattern at hip area.

Invisible zippers: An invisible zipper is a concealed zipper which is hidden within the seam. The zipper teeth and zipper tape is concealed in the seam

such that only the zipper puller is visible from the outside.

Lapel: Lapel is folded flap of fabric, it is the part of garment that is turned back which usually becomes an extension of collars in garments like coats, jackets etc.

Multi size pattern: A commercial pattern printed with several sizes on each pattern piece.

Piping: A narrow piece of bias-cut fabric folded over a cord/without cord and stitched into the seam with the raw edge of a garment functional or as a decorative trim especially used for necklines, armholes, bibs.

Placket: It finished opening of a garment that enables easy slip on and off on the body.

Rise: The measure between the waist band and the crotch seam on pants.

Rolled hem: It is a very narrow hem created by rolling and stitching edge of fabric.

Slash and spread: Cutting a pattern and spreading it open along the cutline to add fullness to a section of the pattern.

Sleeve board: Small ironing board that fits inside a sleeve.

Tapestry needle: A needle with a blunt tip and large oval-shaped eye made for decorative stitching with bulky threads or yarns.

Tulle: fine netting commonly used for veils or gowns.

PRACTICAL EXERCISE

Activity 1: Prepare a dictionary of garment construction terminology in practical file.

Materials Required:

- Pen/Pencil

- Eraser
- scale
- Practical file

Step-by-Step Procedure:

- Study the above mentioned garment construction terminology.
- Write any 20 terminologies in a practical file and prepare a dictionary.

CHECK YOUR PROGRESS

A. Fill in the blanks:

1. _____ _____ is a sharp, long hand sewing needle.
2. _____ is folded flap of fabric, it is the part of garment that is turned back which usually becomes an extension of collars
3. _____ _____ is used for finishing a fabric edge.
4. _____ is an extra layer of fabric stitched on the inner side of a garment for strength and edge finishes.
5. _____ _____ is a very narrow hem created by rolling and stitching edge of fabric.

B. Questions:

1. Why is it necessary to study garment construction terminology?
2. List out any five garment construction terms and explain them.
3. Write short notes on the following:
   a) Placket
   b) Lapel
   c) Invisible zipper
   d) Rise

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SESSION 2: STITCHING AND APPLICATION OF SEAMS

A seam is a technique of attaching two or more pieces of fabric together by a row of stitches. In garment making, one of the major steps is the joining of different sections by a seam through hand or machine. Seams must be made as flat as possible, neat and evenly spaced. Different types of seams have been discussed in class IX. In this session we will discuss the application of different type of seam, which will depend on the texture of the fabric, design and use of the fabric, place where the seam is used and the current fashion.

1. Application of Seam

The selection of correct seam is important before application of seam in a garment. The type of seam to be used in a garment will depend on various factors. The most important factors for proper selection of seam for its application are listed below:

a) **Texture of the fabric:** It is a determining factor, as the fabric and its firmness will decide the type of seam, which has to be applied. For example, when working with a heavy fabric, thick seam like French seam must be avoided.

b) **Design of the garment:** Seams may be straight or curved based upon the garment design. While joining curved edges, use of plain seam will give a better finish compared to any other type of seam. Parts of the garment that may get stretched during body movement should be made with seams that are more durable.

c) **Placement of the seam:** The pressure that will be applied on the seam while wearing the garment determines its construction. For example, when making boy's sports shorts, a strong seam like flat and fell seam should be used.

d) **Fashion trend:** It is a major factor to be considered while selection of seams. Cuts of a garment are directly affected by the current fashion and so are the seams.

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2.Type of Seams:

a. Plain Seam: This is the most basic seam which is applied on two or more layers of fabric. It joins two or more layers of fabric with a single line of stitching. It may be further finished using various finishes.

Construction

- Take two pieces of fabric (25 X 10 cm each.) Mark a line on one of the pieces 1 cm away from the edge lengthwise.
- Mark on the wrong side.
- Pin both pieces perpendicular to the seam line in regular intervals keeping the right sides of the fabric together.
- Baste on the line by hand and remove the pins.
- Position the needle on the seam line (i.e. Close to basting line) 1 cm from the upper edge. Lower the pressure foot.
- Stitch back to the end, then stitch forward on seam line close to but not through the basting line. Here also stitch back 1 cm at the end.
- Trim and remove the basting threads.
- Open the two pieces of fabric and press the seam allowances open.

Application

- It is used on all types of fabrics except on transparent fabrics.
- It is suitable for firm fabrics that do no travel.
- It is used for fabrics that will not be subjected to hard laundering.
- This is used for side seams, underarm seams and armhole seams.



Fig. 1.1: Plain seam used on the side seam of a shirt, with over-lock finish

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b. Run and Fell Seam

This is a flat durable seam used on men's sports shirts, work clothes and children's clothes and pyjamas. It is used at places, which are prone to rough wearing.

Construction

- The run and fell seam is formed on the right side of the fabric.

- With wrong sides of the fabric together from a pressed open seam at a distance of 1cm from the edge.
- Trim one side of the seam allowance leaving 3 mm fold edge of other seam allowance by 3 mm to the wrong side.
- Press, baste and stitch this folded edge to the fabric.
- Remove the basting and press it.
- Ready width of the seam is 7mm.

Application

- It is used on men's sports shirts, work clothes and children's clothes and pyjamas, etc.
- It is also used in the production of jeans because of its strong construction



Fig.1.2:Run and fell seam used as the side seam of jeans

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c. Bound Seam

Bound seam is basically a variation of seam finishes. The seam fastens the raw edge by applying another strip of binding over it. In case of heavy fabrics, the strip applied is of a very thin fabric, to avoid additional bulge.

Construction

- Cut 2 bias strips of 2cm each.
- Press open a seam having 2 cm seam allowance.
- Attach the two strips on both the raw edges of the seam in a manner that the raw edges are bounded and concealed under the strip.

Application

- Bound seam in especially good for finishing seams in an unlined jacket or coat.

- It is also used in shear fabrics to give a finished appearance.
- It is not a good option in case of very bulky fabrics.

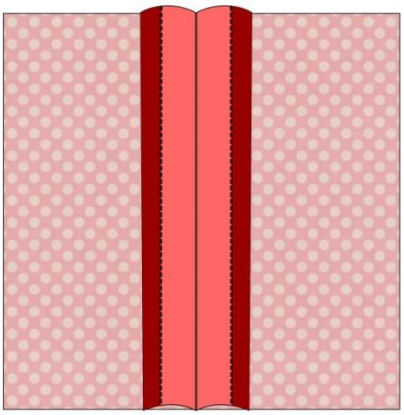


Fig.1.3: Boundseam used for shoulder seam

d. Lapped Seam

This seam is used for joining sections of interfacing to avoid bulking. To construct a lapped seam:

Construction

- Mark a line 1 cm from each edge of two pieces of fabric.
- Lap one edge of the fabric over the other with the seam lines directly over each other.
- Tack and then stitch along the seam line with a wide zigzag stitch or a straight stitch.
- Trim the seam edges

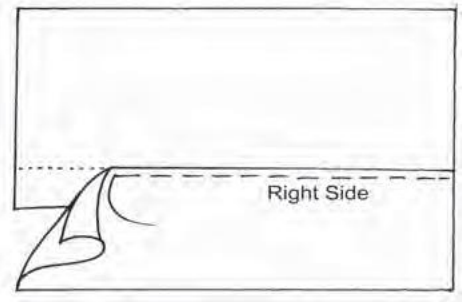


Fig.1.4:Lapped seam

Application

- This seam is used for joining a gathered or unaltered section to a straight edge, as in a yoke.
- Mainly used for seaming denim jackets, jeans and overalls.

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- Fabrics that will not ravel, unlined garments, side seams of shirts, joining lace to another fabric, attaching patch pockets, decorative finish are other applications.

f. French Seam

It is a narrow seam generally used for fine fabrics or for those fabrics which fray easily. It is a seam within a seam. When finished, it should be about¼ inch or less in width.



Fig.1.5: French seam on side seam of gents kurta

Construction

- Place the wrong sides of the fabric together.
- Pin and tack in position close to the seam line.
- Stitch¼inchtotherightoftheseamline to the end of the seam.
- Press as stitched.
- Pressing can be done using hands to form a crease or using a heat pressing iron.
- Then trim the seam allowance to ⅛inch.
- Press the seam open.
- Then turn the right sides of the fabric together.
- Fold on the stitch line and press.
- Tack in position.
- Stitch along the seam line and press as stitched

Application

- It is suitable for edge stitching front facings on jackets and dresses.
- It is applied on sheer fabrics like net and chiffon, where the inner side of the seam will be visible from the outer surface and so it has to look neat.

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PRACTICAL EXERCISE

Activity 1: Prepare samples of seams.

Material Required:

- Pen, pencil, and eraser
- Practical file
- Measuring tape
- Cotton fabric to prepare samples (7" x 7")
- Scissors
- Sewing machine
- Sewing needle & thread
- Glue
- Markers and coloured pens

Step-by-Step Procedure:

- Prepare samples of seams (follow the method given the above session)
- Finish the edges of the samples
- Paste them on the practical file
- Labelthem and write where they are used.

Activity 2: Identify types of different seams on garments.

Materials Required:

- A4 size sheet
- Pencil
- Eraser
- Ruler
- Pens
- Different garments

Step-by-Step Procedure:

- Identify types of seam in different garments.

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CHECK YOUR PROGRESS

A. Fill in the blanks with the name of the seam given in the figure:



1. .....



2. .....



3. .....

Questions:

1. What are Seams? List out their types.
2. Name any 3 seams and give their application with figures.

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MODULE – 2

STITCHING OF GARMENTS

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MODULE 2: STITCHING OF GARMENTS

INTRODUCTION

Although fashion styles may vary from year to year, the basic garment components will remain the same. To construct a garment, different parts are sewn together. These different parts are known as garment components. For example: front, back, neckline, sleeves, collar, yoke, cuffs, placket and pocket.

Garment components are necklines, collars, sleeves, pockets, plackets, yokes and belts. This unit explains the types of the components with the steps of construction for the students to easily stitch them. As a number of necklines and their variation exist in terms of depth and breadth, garments can be made with a variety of necklines. The neckline in a garment can also be finished by the use of collars, which is an extra piece of fabric attached to the neckline. Collars are also made in a variety of shapes, such as flat, band, ruffle and stand collars. Sleeves are part of a garment that covers the arms. There are two types of sleeves – the set in sleeves and the extension sleeves. Belts are used as aaccessory on a garment to enhance its look along with serving the functional purpose of defining and providing fitting at the waist. Pockets are an important component added on to the apparel. Properly designed and applied pockets enhance the look of the garment.

Learning Outcomes
After Completing This Module, You Will Be Able To: • Identify Different Component Of Garment • Stitch Different Disposal Techniques Of Fullness • Assemble Different Garment Parts To Make The Final Product
Module Structure
Session 1: Garment Components
Session 2: Disposal Of Fullness
Session 3: Assembling Parts Of Garments

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SESSION 1: GARMENT COMPONENTS

The Garment is ready when number of parts is sewn together. These different garment parts are known as garment components. For example:

The garment components are front, back, neckline, sleeves, collar, yoke, cuffs, placket and pocket.

DIFFERENT GARMENT COMPONENTS

1. FRONT

It is section that covers the front body in the garment. Its shape depends on our measurement and garment design.

2. BACK

It is section that covers the back body in the garment. Its shape depends on our measurement and garment design.

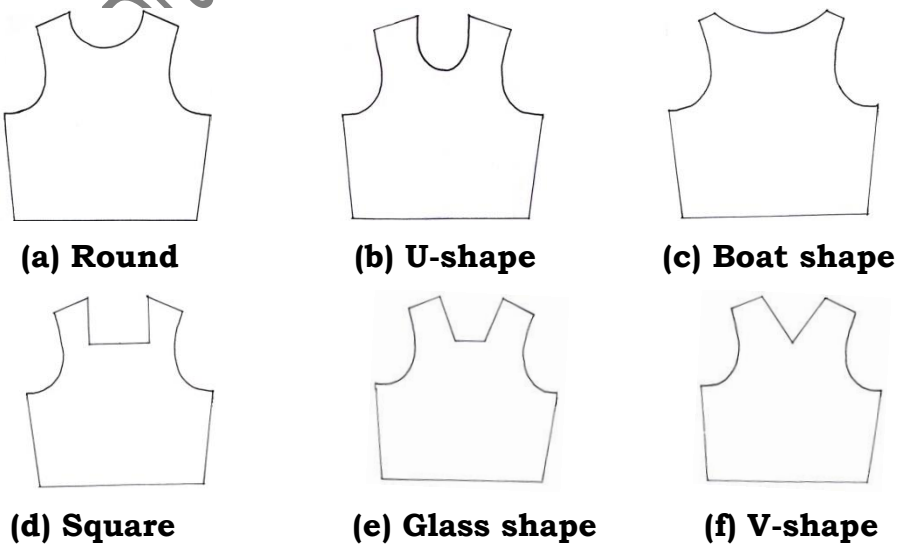
3. NECKLINES

A neckline is the opening in a garment that creates space for the wearer's head to slip into the garment.

Necklines are finished mainly in two ways: One by facing and other by binding. Piping or binding can be of the same or contrasting colour and can be used on neck of any shape. If one is not using a piping then in round necks a bias strip is used, which is stitched and turned inside and hemmed. For rest of the necks facing is necessary.

Necklines are classified as-

- Standard or Basic
- High or Raised
- Scooped (Width-wise, length-wise or both)



(a) Round **(b) U-shape** **(c) Boat shape**

(d) Square **(e) Glass shape** **(f) V-shape**

Fig.2.1(a-f): Different type of necklines

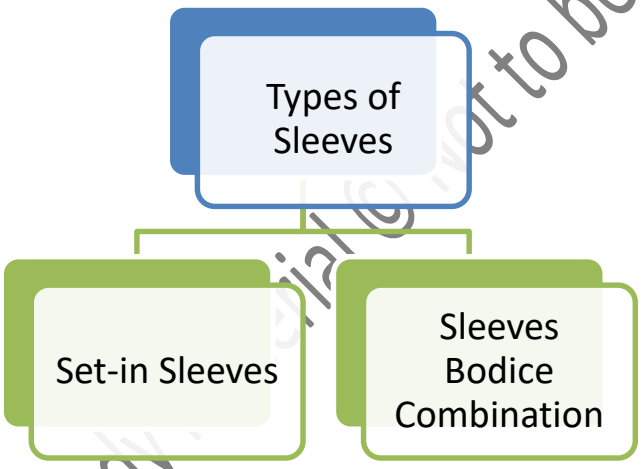
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4. SLEEVES

It is the part of a garment which covers the arm at different levels. The sleeve joins the garment in an armhole that encircles the arm over the shoulder. Varieties of sleeve designs are available, and each variation requires different sewing techniques. Variation can be created by changing its length, width and adding fullness.

Change in length develops sleeves like cap, short, elbow length, three-quarter length and full length. Change in width develops sleeves like fitted, bell or loose. Whereas addition of fullness in sleeves develops sleeves like puff, bell, draped, or gathered style. A wide range of sleeve designs are developed from the basic sleeve sloper.

Sleeves can be classified in two categories:



1. **Set-in-sleeves**: These sleeves are sewn to set into the basic bodice armhole. They are eased, gathered, and stitched into the bodice armhole seam to create variations in the sleeves. Design modifications in the sleeves are possible like length, amount of fullness, and hemline finishes creating variety of sleeve styles, they can be fitted or flared, and cut to any length. Puff, petal, bell, cap, bishop, leg-o-mutton, cowl etc. are the type of set-in-sleeve.



Fig.2.2: Plain sleeve

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(a) Puff sleeve: They are gathered at shoulders and caught in at the cuff to create puffy effect.

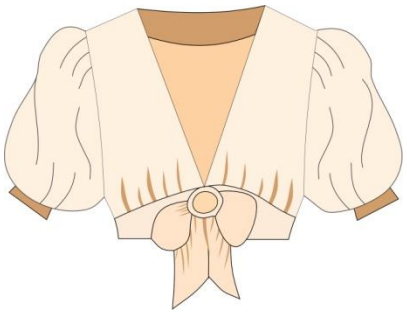


Fig.2.3:Puff sleeve

(b) Petal sleeve: This sleeve is joined at the top two edges overlapping. There will be no underarm seam for this sleeve. The layered panels that form this sleeve make it look like petals; they are usually short sleeves.

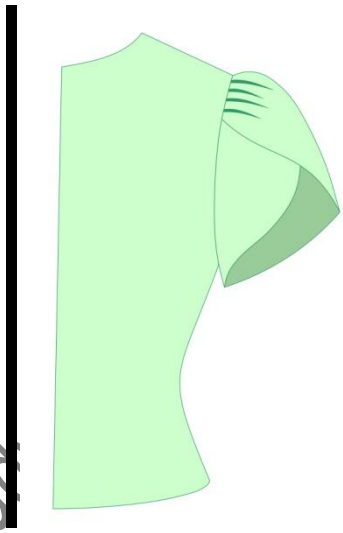


Fig.2.4:Petal sleeve

(c) Bell sleeve: The Sleeve has a full flare at the hem giving it a bell shape. The bell sleeve falls into flare at the lower edge creating a bell shape. Bell sleeves may have varied length; it can be finished with a facing or narrow hem.



Fig.2.5:Bell sleeve

(d) Cap sleeve: They arevery short sleeves which only covers the upper part of the arm. The cap sleeve is often self-lined.



Fig.2.6:Cap sleeve

(e) Bishop sleeve: The basic bishop sleeve is a long, full sleeve which fares out at sleeve edge which is either shirred, pleated, tucked or darted into a cuff, binding or elastic, giving it a balloon like appearance at the sleeve edge.



Fig.2.7:Bishop sleeve

(f) Leg-o-mutton sleeve: This is a full gathered sleeve head which tapers to fit towards the wrist giving it the appearance of a leg of mutton. It is known for its resemblance to a lamb's leg. It has fullness from the shoulder to the upper arm and is tight-fitting from the elbow to the wrist. This sleeve is made by slashing and spreading the upper sleeve to add height and width.



Fig.2.8: Leg-o-mutton sleeve

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(g) Cowl sleeve: It forms a draped effect similar to the cowl neckline bodice. The cowl sleeve has extra cap height and width that is created by triangular additions and is cut on the bias grain of the fabric. Draped folds form a stylized effect on the top of a sleeve.

2. **Sleeve bodice combination:** Patterns may be developed with the sleeve and the bodice attached, thereby eliminating the armhole seam. Three basic sleeves in this category are the raglan sleeve, dolman/magyar and the kimono sleeve.

(a) Raglan sleeve: This sleeve joined to the bodice with a diagonal seam running from the underarm at front and at back to the neckline. It has many variations, from fitted to loose, from hemmed or gathered into a cuff. A raglan sleeve can be cut in one piece with a dart at the shoulder or with an outside seam to help shape the shoulder. Different cuts and fabrics affect the look of raglan sleeves.



Fig.2.9: Raglan sleeve

(b) Kimono sleeve: This is a long one piece sleeve that is an extension of the bodice and extends to the wrist. They are cut with the bodice; the bodice front and sleeve front are one pattern and the bodice back and sleeve back are one pattern. The shoulder seam extends from the neckline to the wrist line and is called the over arm seam; the side seam of the bodice and the underarm seam of the sleeve are joined in one continuous seam line.



Fig.2.10: Kimono sleeve

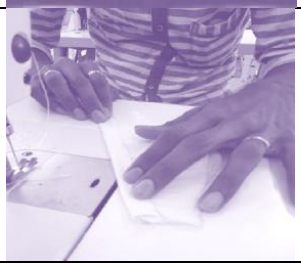
(c) Dolman/Magyar: In this sleeve there is one piece of bodice and sleeve with no armhole. Sleeve is cut as extension of bodice. Sleeve can be sort of wrist length.Sometimes a gusset is added to the underarm for ease. When the arm is bent or is dropped, very dramatic folds form. Dolman sleeves are similar to kimono sleeves with more fullness at the armhole seam line.

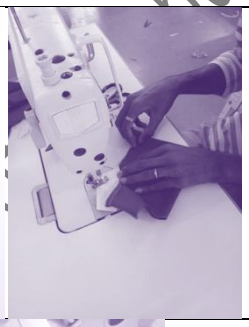
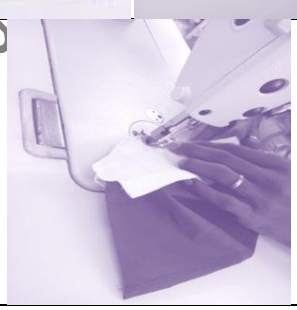


Fig.2.11: Magyar sleeve

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Construction Technique of a Sleeve

SLEEVE (Fig.2.12a-h)	
Description	**Figure**
STEP 1: **Cut the cloth as bodice part**	
STEP 2: **Cut the sleeve**	
STEP 3: **Fold the hem of the sleeve**	

STEP 4: **Stitch the hem of the sleeve**	
STEP 5: **Sleeve hem is finished and is ready to attach to the bodice**	
STEP 6: **Stitch the side seam and see the finished sleeve**	 
STEP 7: **Attach the sleeve to the armhole and stitch**	

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5. COLLARS

A collar is a component of a garment around the neckline. It is also one of the ways to finish a neckline. Collars enhance the appearance of a garment. It comes in different shapes and styles. It can vary in width and length and can be one piece or two pieces. Variation of collars may be added by introducing minor changes in the corners from pointed to square, round, curved, scalloped, square or in any direction. Collars require careful sewing. A well-made collar circles neck without rippling or pulling and keeps its neat appearance. Pointed tips should match. Edges should be smooth and flat.

Types of Collars

Flat	Standing	Rolle

1. **Flat collars**: It is a one-piece collar that lies flat and close to the garment alongthe neckline, rising only slightly above the garment's neck edge. It occurs most often in untailored garments, such as dresses and in children's wear. Peter pan and sailor collar are the type of flat collar.

    a) Peter pan collar: is a round flat collar, which can be one piece or two pieces. It sits flat and has rounded front collar edge; however, the designer can change the outer collar edge to any shape. It looks nice and gentle on children's clothing.



Fig.2.12:Peter pan collar

    b) Sailor collar: has a wide band at the back that is tailored down to a deep 'V' neck at the front. It is a design feature of traditional sailors uniforms-hence it is called the sailor collar. It is often used for children's outfits and summer clothing.

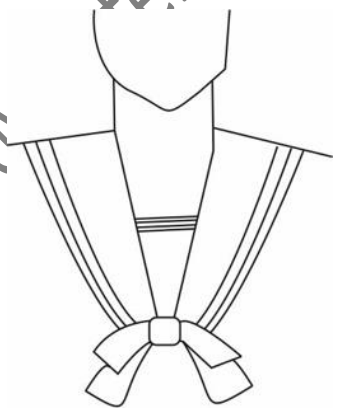


Fig.2.13: Sailor collar

2. **Standing collars**: It extends above the neck seam line of the garment. This is a close fitting collar which stands up stiffly against the neck. It is cut on the bias in two pieces with an opening at the front or the back. Mostly standing collars are straight, but they can be curved so that they stand up at a slight angle. Mandarin, stand, polo, etc. are the type of standing collar.

(a) Mandarin Collar: It is slightly more shaped and fits closer to the neck; it is also called Military, Nehru Jacket and Chinese collar.

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Fig.2.14 (a,b):Mandarin collar

(b) Stand Collar: is a band which stands up over the neck seam line.

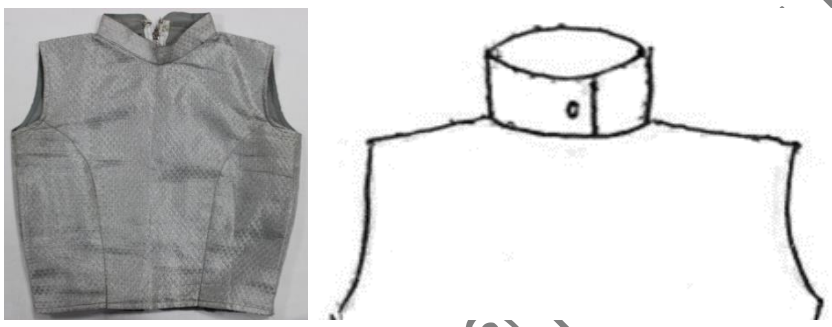


Fig.2.15 (a,b): Stand collar

(c) POLO COLLAR: It is close fitted, round and high collar that folds over and covers the neck. It is always cut on bias.

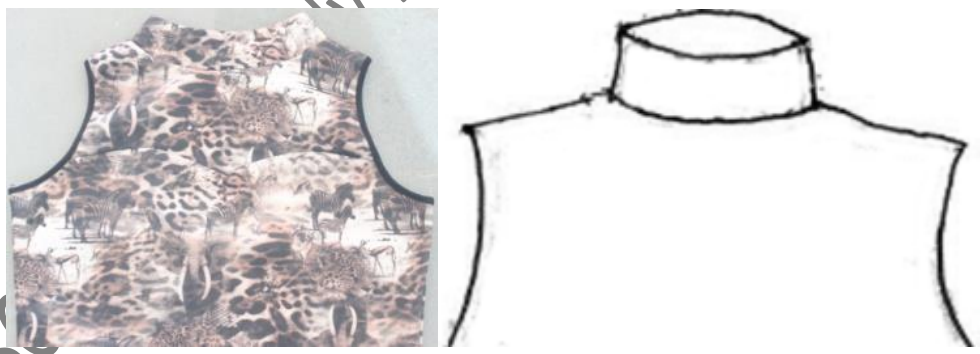


Fig.2.16 (a,b): Polo collar

3. **Rolled collars**: They are differentiated from flat collar by a roll line that breaks the collar into stand and fall areas. It is made from one piece of fabric cut on the bias and folded in half before stitching. Firsts stands up from the neck edge, then falls down to rest on the garment. The line at which the collar begins to fall is called roll line. Shirt collar, shawl collar etc. are the type of rolled collar.



Fig.2.17: Roll collar

(a) Shirt collar: The shirt collar with band is composed of two separate pattern pieces, the band and a collar section. A seam attaches the stand and fall of the collar along the roll line. The band or the collar stand is designed with a button/buttonhole closures.



Fig.2.18 (a,b) : Shirt collar (with checks and line)

(b) Shawl collar: The shawl collar is a design in which the collar the collar is cut as an extension of front bodice and then stitch together at center back. The collar folds over the front of the garment and rolls back to create a lapel. This collar always is worn open. The basic shawl collar is developed by attaching a full roll collar to the bodice front.



Fig.2.19: Shawl collar

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Construction Technique of a Shirt Collar

SHIRT COLLAR WITH STAND (Fig.2.21a-p)	
DESCRIPTION	FIGURE
STEP 1: Iron the collar fusing by keeping it on the collar fabric.	
STEP 2: Give Edge Stitch to the fusing with the fabric.	
STEP 3: Insert the thread into the fabric on collar point and stitch for the sharp edge.	
STEP 4: Trim the extra fabric.	
STEP 5: Step 5: Trimmed piece.	
STEP 6: Pull the thread from the fabric.	

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STEP 7: Smooth the material to make it flat.	
STEP 8: Give 1/4" Stitch or edges stitch of the fabric.	
STEP 9: Give 1/4" Stitch on piece of a collar.	
STEP 10: Keep a fabric on the finished collar piece.	
STEP 11: Attach both the collar pieces together.	
STEP 12: Stitch the collar pieces.	

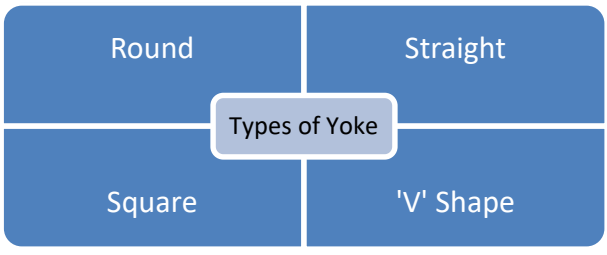
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STEP 13: Trim the extra fabric.	
STEP 14: Iron the collar.	
STEP 15: Finished collar.	

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6. YOKE

A yoke is a shaping device in a garment. It is placed around the neck and shoulders, or around the hips/waist. It provides support to a gathered skirt or the body of a shirt. It is one of the design elements that can eliminate dart intake and stabilize the upper part of garments.The yoke opens the potential for decorative effects with shaped seams, dart equivalents, and details like topstitching. Design options expand with the addition of a yoke at the shoulder and hip. It can be decorative and functional.



1. Round Yoke: It is a round shape yoke. Mostly used on baby's frocks.



Fig.2.20: Round yoke

2. Straight yoke: is a straight piece of fabric which is attached to the garment in form of a yoke.



Fig.2.21: Straight yoke

3. Square yoke: is a square piece of fabric which is attached to the garment in form of a yoke. It is mostly used at the necklines



Fig.2.22: Square yoke

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4. 'V' Shape yoke: is a V-shaped piece of fabric which is attached to the garment in form of a yoke. This yoke is mostly used at waistline or midriff.

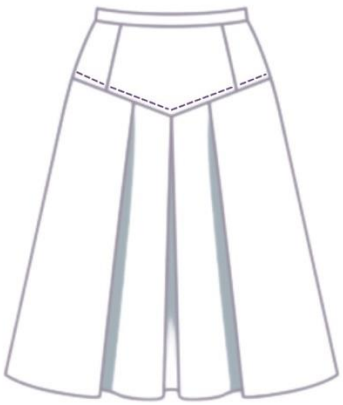


Fig.2.23: 'V' Shape yoke

Stitching technique of a yoke

The following steps are involved in stitching of yokes:

- Cut two identical pieces of yokes
- Start by stitching the inside yoke piece to the back of the shirt. Take the wrong side of the shirt facing the right side of the yoke piece, and then baste them together with a 0.6 cm seam allowance.
- Attach the outer yoke piece with the right sides of the yoke facing shirt back stitch through all three layers grade them to avoid bulky seam allowances.
- Press both yokes up away from the shirt back and topstitch along the center back seam.
- To top stitch center back yoke seam iron both yokes up which should be away from shirt back.
- Pin the center front pieces to the outer yoke with right sides together and stitch.
- Cut the yoke seam allowance and press seam towards yoke.
- Fold under the seam allowance of the inside yoke and press.
- Topstitch along the yoke seam line
- Stitch the two layers of the yoke together in the seam allowance along the neck and armhole edges.

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(a) (b) (c)



(d) (e) (f)

Fig.2.24 (a-f): Steps of yoke preparation

7. CUFF

Cuffs are the banded or turned-back finishes at the lower edges of sleeves and pant legs. Crisp, well-constructed cuffs contribute to the overall appearance of a garment's quality.

Cuffs are made by turning back (folding) the material or garment by attaching a separate band of material. A cuff may be made with ornamental border or it may be decorated with some other trimming.

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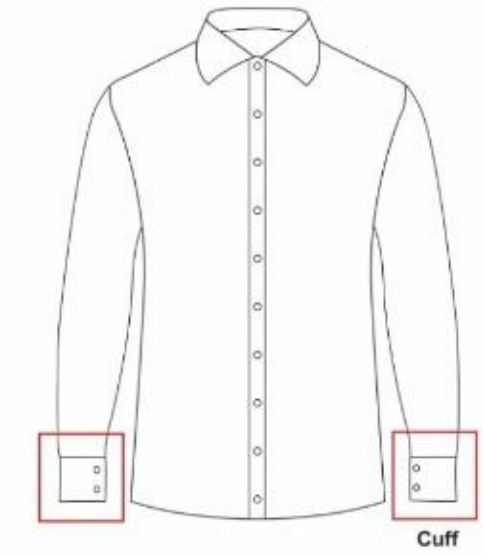


Fig.2.25: Cuff

TYPES OF CUFF

Barrel	Rounded	Metered	French

1. Barrel cuff: is the most common type of cuff which is straight, open-band cuff style. Long sleeved shirts and blouses usually feature barrel cuffs. The barrel cuff laps and buttons at the wrist.

(a) One button barrel cuff: More subtle and shorter in length.

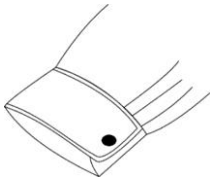


Fig.2.26: One button barrel cuff

(b) Long one button barrel cuff: More formal and longer in length.

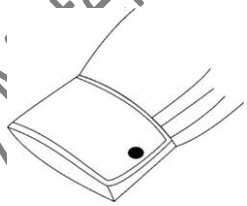


Fig.2.27: Long one button barrel cuff

2. Rounded cuff: It is used for formal wear.

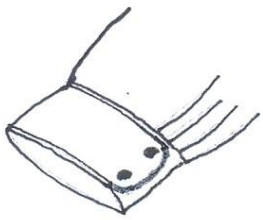


Fig.2.28: Rounded cuff

3. Mitered cuff:

(a) One button mitered cuff: The one button mitered cuff is a dressy cuff. It has elegant mitered angled at the button closure.

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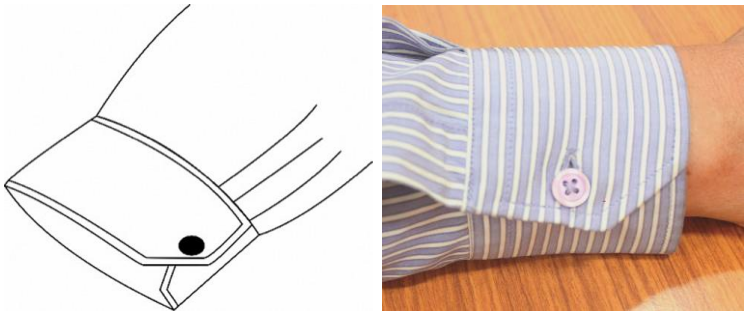


Fig.2.29 (a,b): One button mitered cuff

(b) Two button mitered cuff: The two-button mitered cuff is a popular dress shirt cuff.

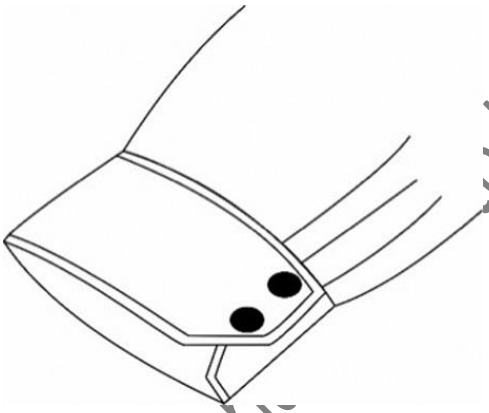


Fig.2.30: Two button mitered cuff

4. French cuff: It is the most formal style of open- band cuff. The French cuff is constructed like the barrel cuff but twice as wide. The cuff is folded back on itself so the cuff is doubled. The opening edges are superimposed rather than lapped and fastened with cufflinks or studs through the buttonhole in each layer.

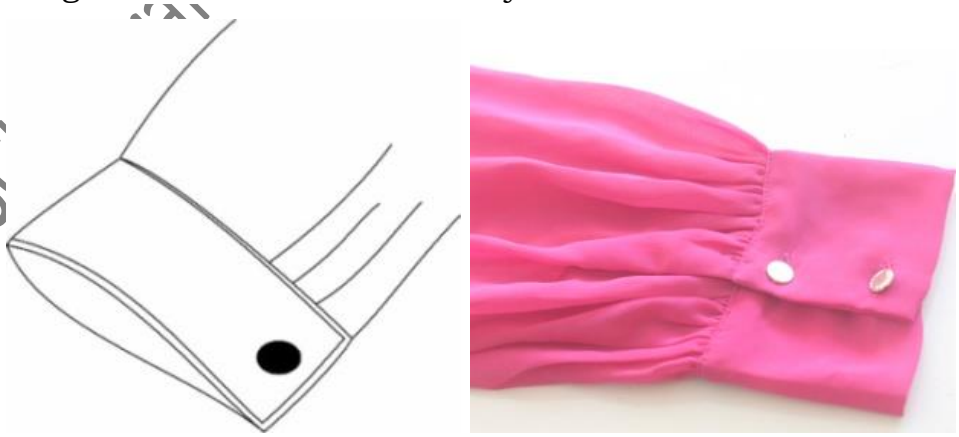
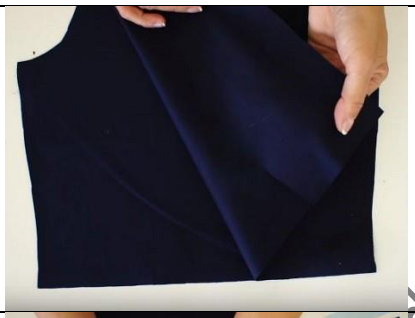
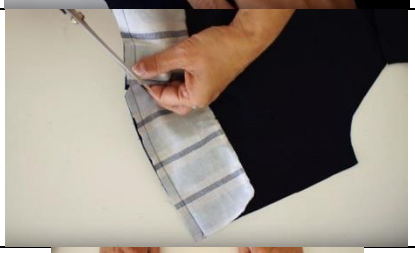
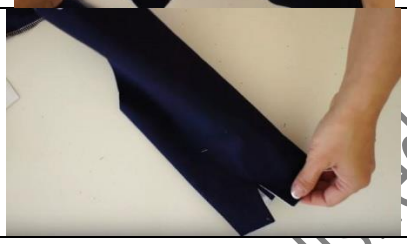


Fig.2.31 (a,b): French cuff

STITCHING TECHNIQUE OF A CUFF (Fig.2.34a-i)	
DESCRIPTION	FIGURE
Cut two pieces of fabric for the sleeve and another two pieces for the cuff/interfacing. Cuff pieces should be exactly of the same size as sleeve. Put an extra length on the sides for the seam allowance	
Cut a slit on both pattern piece Opposite the front, put a slit on the end of the pattern piece and interfacing.	
Put the pattern piece and interfacing together. Put the interfacing on top of each pattern piece with the right sides together.	
Stitch the top edge of the cuff with a half inch seam allowance. Turn from where the slit is and stitch the top of it.	
Cut right on the top of the slit and on the corners.	
Turn the cuff right sides out and iron it.	
To lock or close all the way along the sides, put the right sides together of the cuff and sew along the sides.	

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Sew the sides of the cuff right on the seam allowance. After sewing, iron the cuff. To make the cuff stay in order, look for the seam allowance of the cuff and sleeve on the sides. Pin it and sew.	
Turn the right sides out.	

8. POCKET

A pocket is a piece of fabric attached on the outside of a garment or into a garment seam or opening. Pockets are the mostly used on men, women and children garments. They are used to carry small articles, such as handkerchiefs or coins. Besides being functional, they add style to the design of the garment. Pockets are designed in a variety of sizes and shapes.



Fig.2.32: Flap Pocket

TYPES OF POCKET

Patch	In-seam	Hip	Inside set-in

1. Patch Pocket:Patch pockets are applied on the outside the garment and can be functional and decorative. The patch pocket is stitched to the outer surface of the garment. It may have rounded or square corners at the base. A patched flap for the pocket can be made to

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match. Patch pockets can be applied on pants, shirts, skirts, blouses, jackets, or coats.



Fig.2.33: Patch pocket

2. In-seam pockets: are sewn inside a seam. They can be placed anywhere along the seam. The in-seam pocket needs to be stitched neatly into the side seam of a garment. It is not visible when the garment is worn. Usually, they are placed inside the side seam of the waist to hipline, because the hands naturally fall at that length and accessing the pockets is easy.



Fig.2.34:In-seam pocket

3. Hip pockets: The hip pocket is the curved pocket design on the back side of the pants, trousers and skirts. It is stitched into a cut opening made with a single or double welt, with or without a pocket flap. These are usually referred to as “bound” pockets. They differ only in the style of the welts and/or flaps that are sewn into the slashed opening. The four most common bound pockets are:(a)The welt bound pocket, (b) The one-piece bound buttonhole pocket, (c)The lined bound buttonhole pocket, (d)The bound flap pocket

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Fig.2.35(a,b):Hip pocket

4. Inside set-in pocket/ slash pocket

It is stitched into a cut opening made with a single or double welt, with or without a pocket flap. These are usually referred to as "bound" pockets. They differ only in the style of the welts and/or flaps that are sewn into the slashed opening. The four most common bound pockets are:

- The welt bound pocket
- The one-piece bound buttonhole pocket
- The lined bound buttonhole pocket
- The bound flap pocket

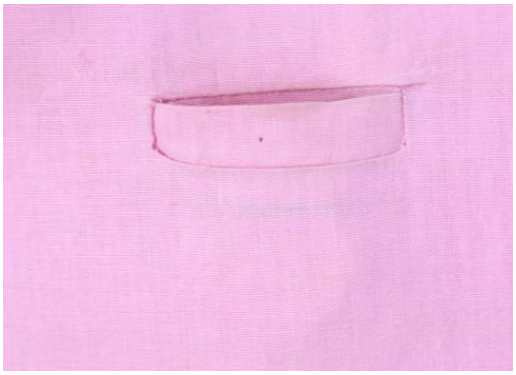


Fig.2.36:Slash pocket

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Construction Technique of a Patch Pocket

PATCH POCKET (Fig.2.40 A-E)	
DESCRIPTION	**FIGURE**
STEP 1: The given piece is for pocket construction.	
STEP 2: 1” Fold the pocket piece.	
STEP 3: Iron the pocket piece.	
STEP 4: Attach the pocket piece to the bodice part & give edge stitch.	
STEP 5: Finished pocket.	

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9. PLACKET

Plackets are an opening in upper or lower part of the garment, mostly at the neck, waist of skirt, pair of a trouser and cuff of sleeve. They are used to allow putting on or removing garment easily. In modern times plackets are also used as a design element.

It is generally a double layer of fabric that holds the button and buttonholes in a shirt. They are of more than one layer of fabric. Interfaced plackets give support and strength to stressed fasteners. Two sides of plackets generally overlap each other to protect rubbing of fasteners against the skin and also to hide the underlying clothing.

Types of plackets: There are different types of plackets such as French placket, concealed placket, classic front placket, partial button placket, bound placket etc. some of the plackets are shown in figures:

a) French placket



Fig.2.37: French placket

b) Concealed placket



Fig.2.38 (a,b): Concealed placket

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c) Classic front placket

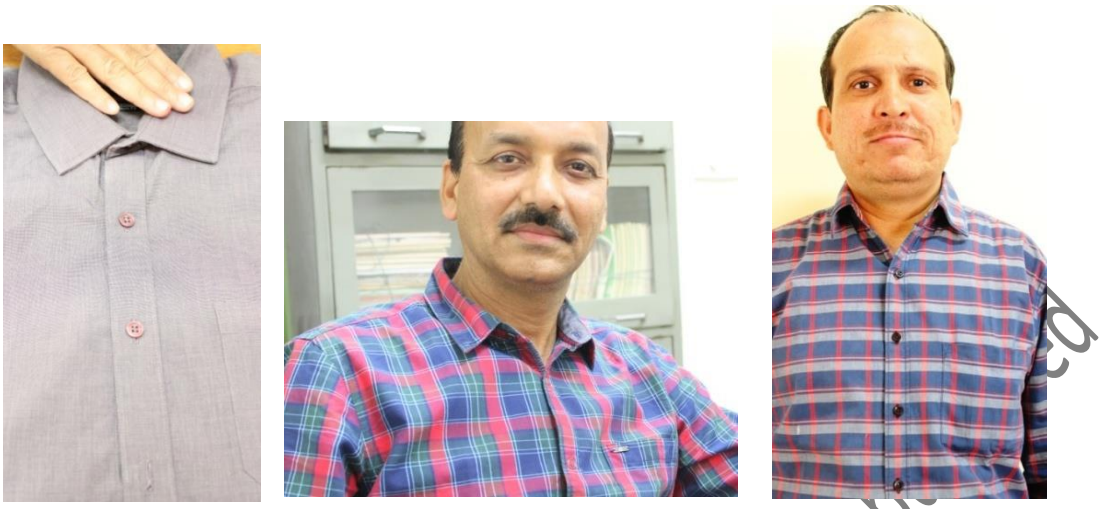


Fig.2.39 (a,b,c): Classic front placket

d) Bound placket



Fig.2.40: Bound placket

e) Partial button placket



Fig.2.41: Partial button placket

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Construction process of placket is given below:

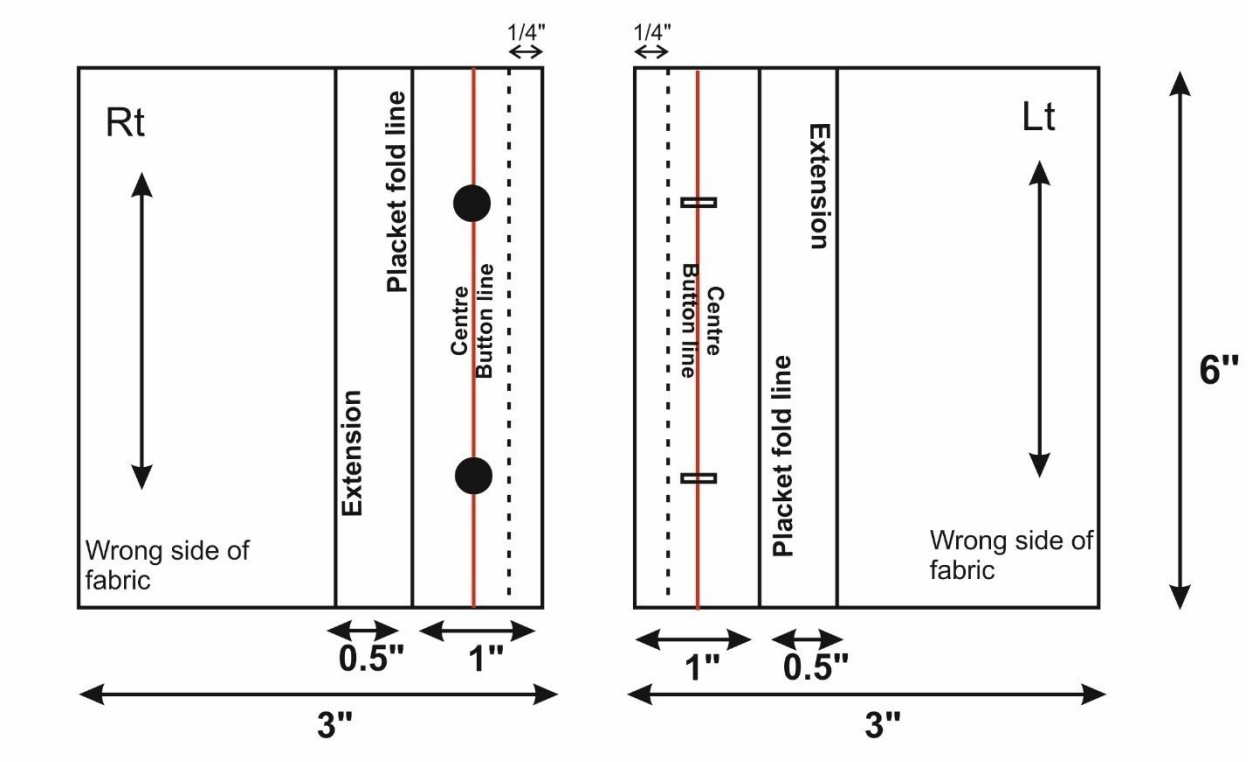


Fig.2.42: Preparation of sample for placket

Sample size- 6inch X 6inch

Placket fold- 1inch

Placket extension- 0.5inch

Preparation of sample:

1. Take a sample of 6inch X 6inch.
2. Divide the width of the sample into two equal parts i.e 3inch each.
3. The size of each piece is 3inch X 6inch.
4. On the wrong side (WS) of fabric of one piece mark it as right side(Rt) and mark other as left side (Lt).
5. Mark placket extension line on both the pieces 1.5 inches from the edge as shown in figure.
6. Mark placket fold line 1 inches from the outer edge as shown in figure.
7. Now, mark the button line and hem line on the placket fold as shown.

Placket construction:

1. Fold the pieces on the wrong side at the placket fold line.

2. Place the folded pieces as shown in figure (Rt over Lt).
3. Make sure that the button of both the pieces coincide each other.
4. Finish the placket by hem stitching at the ¼ inch mark from the outer edge of the placket fold.
5. Attach buttons on the button line of right side of placket and make buttonholes on the button line of left side of the placket.

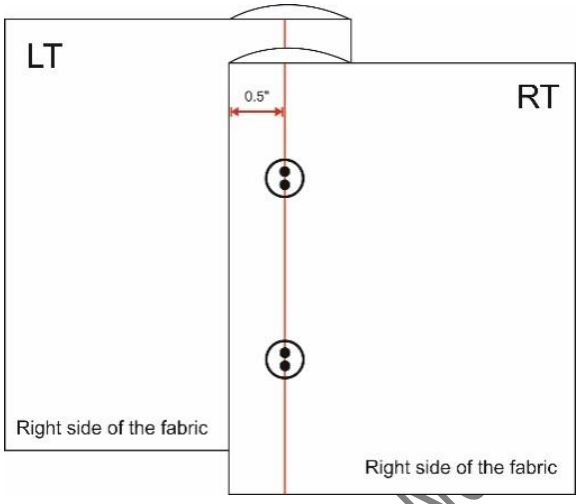


Fig.2.43: Construction of sample for placket

10. BELTS

Belts can add a professional finished look to many garments, belts should be selected with care. The type of the belt should be chosen, which is best suited to your garment and your figure. Remember, the wider and more eye-catching the belt, the more attention you will draw to your waistline. Belts are more of an accessory than a garment component. There are various types of readymade belts available in the market, but costume made belts, according to the garment enhance the aesthetics of the garment.

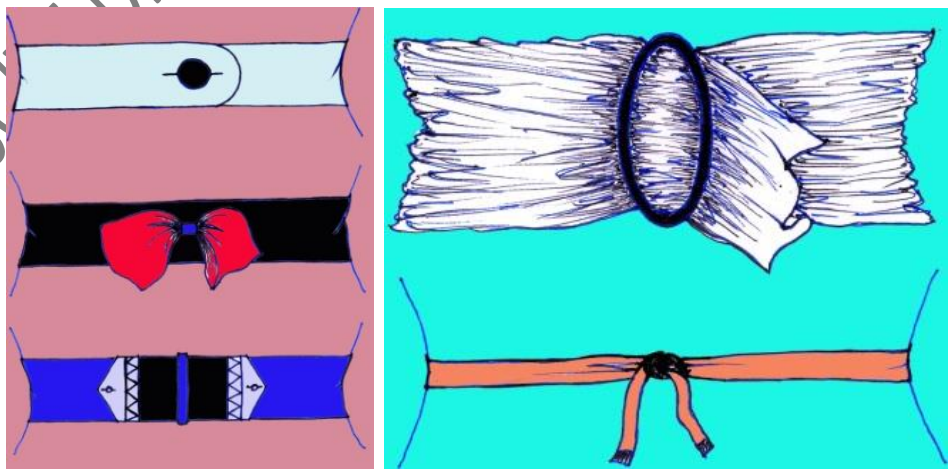


Fig.2.44 (a,b): Types of belts

PRACTICAL EXERCISE

Activity 1: Prepare scrap book for different types of garment components.

Material Required

1. Pen, pencil, and eraser
2. Scrap book
3. Pictures of different types of garment components
4. Glue
5. Markers and coloured pens
6. Scissors

Step-by-Step Procedure

1. Collect pictures of different types of garment components
2. Cut them neatly
3. Paste them on scrap book
4. Label them and write where they are used

Activity 2: Prepare samples of different garment components.

Material Required

1. Pen, pencil, and eraser
1. Practical file
2. Cotton fabric to prepare samples (7" X 7")
3. Sewing machine, thread and needles (sewing machine and hand sewing)
4. Glue, scissors, ruler
5. Markers and coloured pens

Step-by-Step Procedure

1. Prepare samples of different types of garment components (follow the method given in the above session)
2. Finish the edges of the samples
3. Attach samples in practical file
4. Label them

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CHECK YOUR PROGRESS

A. Fill in the Blanks:

1. _____ is the part of the garment which covers the arm at different levels.

2. _____ is one of the ways to finish a neckline.

3. A yoke is a _____ device in a garment.

4. ____ - ____ pockets are sewn inside a seam.

B. Questions:

1. Write the uses of collars and explain their different types.
2. Explain different types of sleeves.
3. Explain cuffs and its different types.
4. Explain pockets and their types.
5. Describe the different types of yokes.
6. Explain different types of necklines with diagram.
7. Write in detail about different types of plackets.

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SESSION 2: DISPOSAL OF FULLNESS

Fullness

A good fitted garment conforms well to the three dimensional body of the wearer. For a two dimensional fabric to fit a three dimensional body, fullness (extra amount of ease in the form of darts, pleats, gathers, tucks etc.) is added in the garment.

Fullness is introduced into garments for various reasons such as,

(i) to give preciseshape,

(ii) exactfit to the garment,

(iii) to allow freedom of movement,

(iv) comfort to the wearer,

(v) to make the garment look attractive.

Darts, tucks, pleats, gathers etc. are some of the techniques for introducing fullness in the garment.

1. Pleats

Pleats provide fullness in some parts of a garment according to the design by folding of fabric. They can be placed single or in a series and can be pressed flat or left un-pressed, according to the style of the garment. Pressed pleats give a smooth, slimming line to a garment, whereas, un-pressed pleats provide a softer and fuller shape. There are different types of pleats that can be used in garment construction. Following are some commonly used pleats:

i) Knife pleats: They are usually about 1.3cm to2.5 cm wide and are turned towards the same direction. Pleats can be top stitched in place to produce the slender effect. The main function of a knife pleat in a tailored garment is to provide fullness at the bottom of the garment.

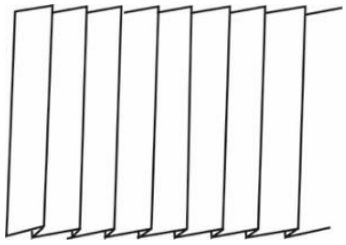


Fig.2.45: Knife pleat

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ii) Box pleats: Two knife pleats turned away from each other (one to the left and one to the right) form a box pleat. These are used quite often for uniforms.

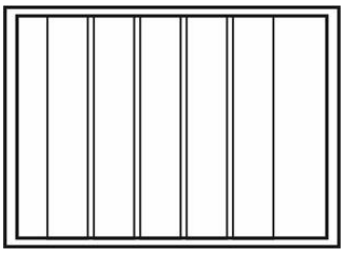


Fig.2.46: Box pleat

iii) Inverted pleat: It is the opposite of a box pleat. It is made up of two knife pleats turned towards each other so that the folds meet in the middle on the right side of the garment.

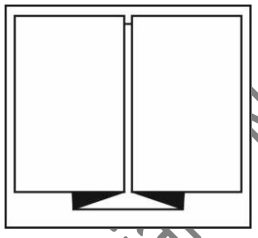


Fig.2.47: Inverted pleat

2. Darts

Darts are used to shape a flat piece of fabric to fit the curves of a figure. Darts are classified into two types:

i) **Single Pointed Dart:** It is called as standard dart and is triangular in shape i.e.wide at one end and pointed at the other. These are used to shape a flat piece of fabric to fit the curve of a figure.



Fig.2.48: Single pointed dart

ii) **Double Pointed Dart:** It is wide in the middle and pointed at both ends (Fig.2.72). They are used at the waist line of one-piece dresses.

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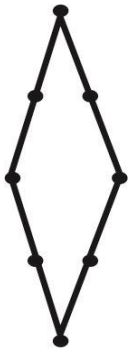


Fig.2.49: Double pointed dart

3. Tucks

A tuck is a fold of fabric stitched in place by running stitch or machine stitch on the right side of the garment to:

- Shape the garment to the body
- Add fullness to the garment
- Add decorative effect on different parts of garment such as shoulders, waistlines, yokes, pockets or cuff of sleeves etc.

Tucks add body to thin fabrics and textural interest to plain fabrics. There are different types of tucks that can be used in garment construction. The more commonly used tucks are:

i) Pin tucks:are narrow folds of fabric that are stitched to the base. Pin tucks are usually used to add design feature to a garment. To stitch each tuck, fold along the middle of the markings and tack or machine stitch about 1/8 inch wide from the fold.

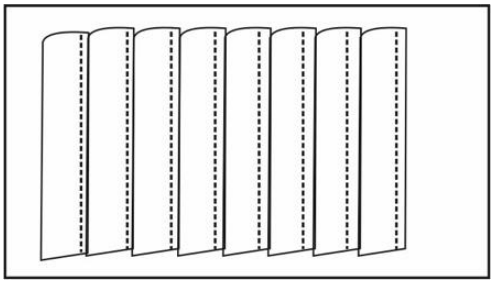


Fig.2.50: Pin tucks

ii) Piped or corded tucks:are made by placing cord on the wrong side of the fabric at center of tuck before stitching the tuck. Stitching is done close to the cord.

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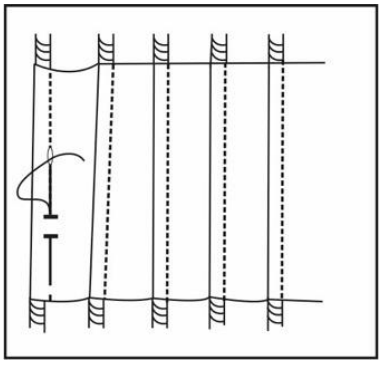


Fig.2.51: Piped or corded tucks

iii) Cross tucks: Cross tucks are stitched along the fabric in both horizontal and vertical directions, the decoration is called cross tucking. First, stitch the vertical tucks and press them to one side. Then stitch the horizontal tucks.

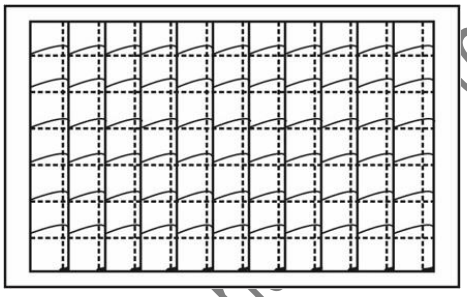


Fig.2.52: Cross tucks

4. Gathers

Gathering is an effective and decorative way of distributing fullness over a given area. Gathers are graceful folds of fabric that provide fullness, suggesting a soft look, which can be made using machine or hand stitches. These are formed by drawing the fabric together on a line of stitching and may be used to control the fullness at yoke lines, waistlines, necklines and upper and lower edge of sleeves.

i. **Gathering by hand:**Work two rows of running stitches 0.3 cm above and below the seam line. Draw the ends of threads until the section measures the desired length and secure the thread by winding round a pin.

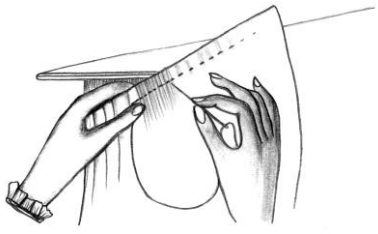


Fig.2.53: Hand gathering

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ii. **Gathering by machine:**Make seam line on the right side of the fabric by adjusting the machine for long stitch and loosen the upper tension slightly. Now work two rows of machine stitches 0.6cm apart. Distribute the fullness evenly by pulling both bobbin threads together.

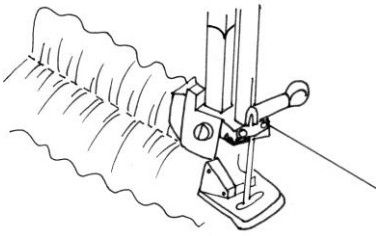


Fig.2.54: Machine gathering

iii. **Gathering by using elastic:**Gathers can be made by stretching a narrow stripof elastic and stitching on the part of the garment which is to be gathered.

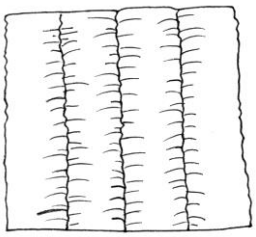


Fig.2.55: Gathering using elastic

5. Shirring or Gauging: When several rows of gathering (3 or more) are used for a decorative finish these are termed as shirring. The rows should be evenly spaced. Shirring appears as a decorative feature at the shoulder, waistline, at the lower edge of a sleeve and usually at the narrower parts of garment. Shirring can be done by these methods:

i. Thread shirrs – here thread is used to form gathers,

ii. Elasticised shirrs – here elastic is used to form gathers.

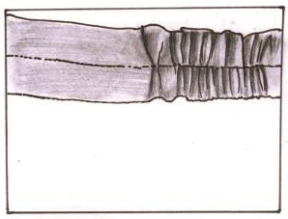


Fig.2.56: Shirring

6. Frills or Ruffles: Ruffles are used for the purpose of adding decoration to a garment. Sometimes they are used at the hems of skirts and dresses to add length. To make frills keep distance of at least one and a half times the length of the piece to which the frill will be attached. The width of the

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frill is usually anything from 3 to 8 cm. The longer side of frill should be cut along the lengthwise grain or parallel to selvedge of the material.

PRACTICAL EXERCISE

Activity 1: Prepare a collage of pictures of different types of pleats, darts, tucks, gathers, andshirring.

Material Required

- Pen, pencil, and eraser
- Chart sheet
- Pictures of different types of pleats, darts, tucks, gathersand shirring
- Glue
- Markers and coloured pens
- Scissors

Step by Step Procedure

- Collect pictures of different types of pleats, darts, tucks, gathers and shirring
- Cut pictures neatly
- Paste them on the chart sheet for prepare a collage
- Place collage in your classroom or practical lab.

Activity 2: Prepare samples of different fullness techniques like pleats, darts, tucks, gathers and shirring given in this session.

Material Required

- Pen, pencil, and eraser
- Practical file
- Cotton fabric to prepare samples (7" X 7")
- Glue
- Scissors
- Markers and coloured pens
- Sewing machine
- Machine needle and thread

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Step by Step Procedure

- Prepare samples of pleats, darts, tucks, gathers and shirring (follow the instructions as mentioned in above session)
- Finish the edges of samples
- Attach samples in practical file
- Label them and write where they are used

CHECK YOUR PROGRESS

A. Fill in the blanks with the most appropriate answer from the choices given below:

1. Darts are used to shape a flat piece of fabric to fit the _____ of a figure.
   a) Measurement
   b) Curves
   c) Silhouettes
   d) None of the above

2. _____ is a type of pleat in which two knife pleats turned towards each other so that the folds meet in the middle.
   a) Knife pleat
   b) Box pleat
   c) Inverted pleat
   d) None

3. _____ are folds of fabric that provide _____ is some parts of a garment.
   a) Pleats, fullness
   b) Darts, gathers
   c) Pleats, shirring
   d) Tucks, gathers

4. The main function of a _____ pleat in a tailored garment is to provide fullness at the _____ of the garment.

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a) Knife, bottom
b) Box, top
c) Inverted box, middle
d) None of the above

5. _____ pleats are used quite often for uniforms.
   a) Knife
   b) Inverted box
   c) Box
   d) Kick

B. Questions:

1. Explain how fullness is introduced in garments.
2. Define tucks. Explain the types of tucks along with diagrams.
3. Describe pleats with diagrams.
4. Write shorts notes on the following with diagram:

a) Darts
b) Shirring

5. Discuss in detail about gathers.

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SESSION 3: ASSEMBLING PARTS OF GARMENT

Before constructing and assembling parts of any garment there are few important points to be remembered to make stitching simpler, which are as follows:

- correct drafting of the garment,
- layout of draft on cloth,
- marking with stitch margins,
- cutting done as per markings
- stitching of garment components
- assembling parts of a garment
- Finishing of a garment

CONSTRUCTION OF A BABY FROCK

Fabric Marking of Baby Frock:

1. Spread the fabric on cutting table.
2. Lay the pattern pieces along the grain in a manner that there is minimum fabric wastage.
3. Secure the pattern, with either weights or pins.
4. Using fabric marking tool such as a tracing wheel and trace the pattern pieces on the fabric.
5. Mark all notches.
6. Now transfer darts, seam lines and other details on the fabric by using carbon and tracing wheel or tailors chalk or any of the method as per the nature of fabric.
7. Mark all the pattern pieces by numbering and labelling them as front, back, sleeve etc.
8. Now the fabric is ready to cut.

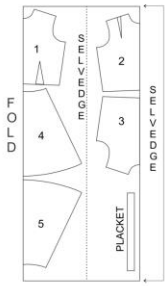


Fig.2.57: Fabric marking of baby frock

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Fabric Cutting:

For cutting all the pattern pieces, a fabric cutting scissor is used. A fabric cutting machine can be used to cut a number of pieces together. For cutting the pattern pieces, cut away the tracing line meant for cutting.

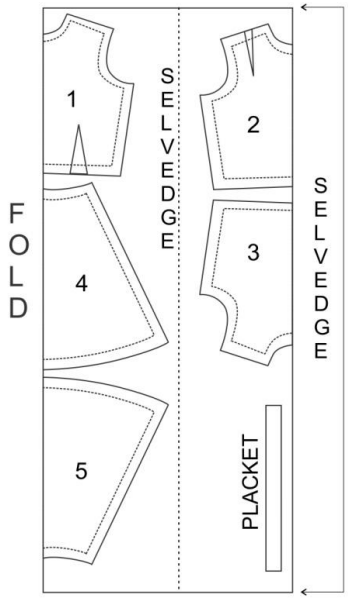


Fig.2.58: Fabric cutting for baby frock

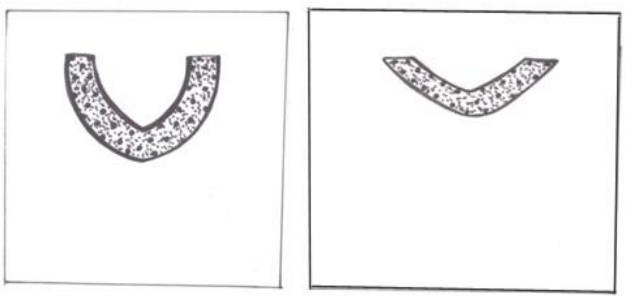
GARMENT CONSTRUCTION FOR BABY FROCK

- Attach placket at the back panel of the bodice the frock.

Bodice finishing

i. Neckline Finish:

- The neckline can be finished with either facing or binding. Here the frock is finished using shaped facing.
- The shaped facing is cut to the exact shape of the garment neckline.



(a) (b)

Fig.2.59 (a,b): Facing for front and back neck

ii. With right side facing each other, place the facing for front and back neck respectively on the neckline and stitch the facing.

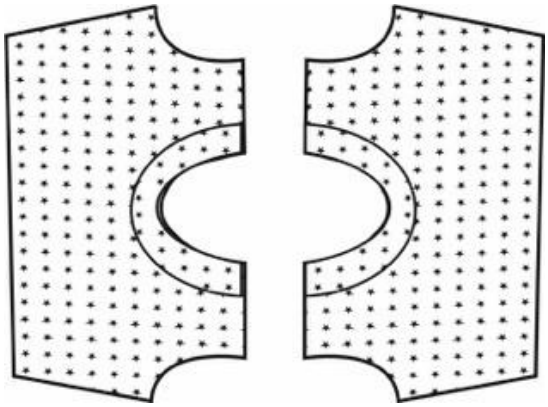


Fig.2.60: Attachment of facing (front and back)

iii. With right side facing each other, join front and back bodice at shoulder by a shoulder seam.

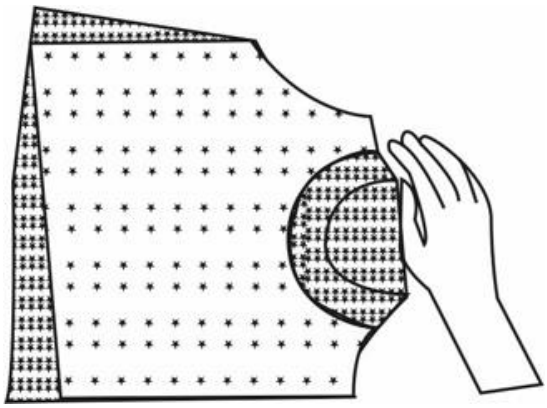


Fig.2.61: Joining of shoulders

iv. Finish the armhole either with facing or binding.

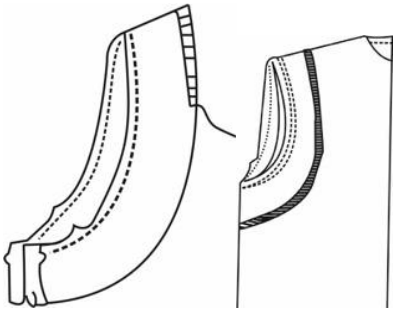


Fig.2.62 (a,b): Armhole finish

v. With right side facing each other, join front and back bodice by a side seam.

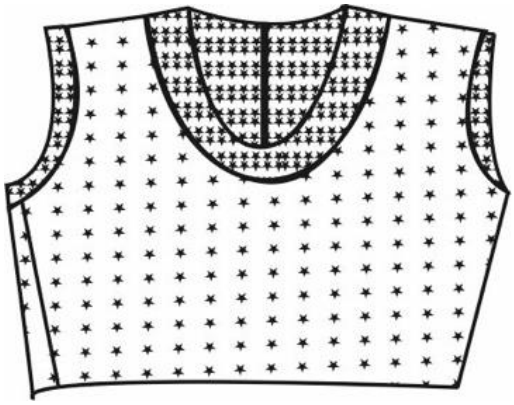


Fig.2.63: Side seam finish

Skirt Finishing

i. Fold and finish the hemline of the skirt panels.

ii. Form gathers on both front and back skirt panels.

iii. With right side facing each other, join front and back skirt by a side seam.

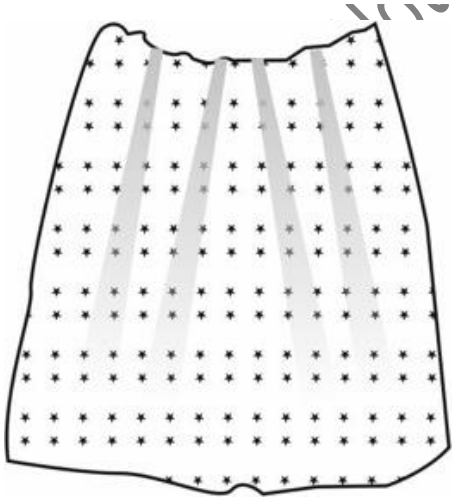


Fig.2.64: Finishing of skirt

Baby frock finishing

i. Join the bodice and the skirt portion of the baby frock by making a seam at the waistline.

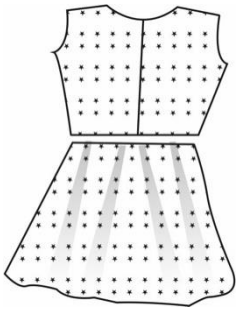


Fig.2.65: Joining bodice with skirt

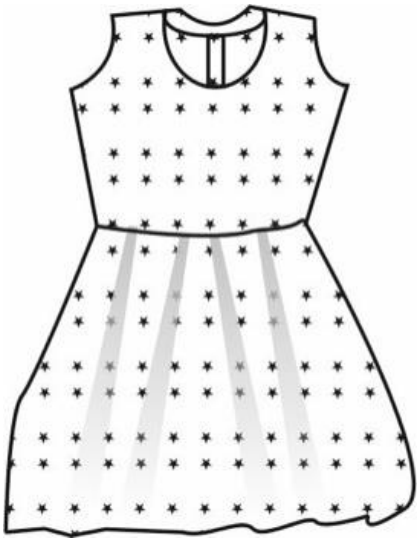


Fig.2.66: Finished Frock

PRACTICAL EXERCISE

Activity 1: Construct a baby frock.

Material Required:

- Pen, pencil, and eraser
- Draft of a babyfrock
- Ruler
- Measuring tape
- Tailor's chalk
- Fabric for preparing baby frock
- Sewing thread, needle, scissors
- Sewing Machine

Step-by-Step Procedure:

- Under the supervision of the instructor follow the following procedure
- Fold the fabric half.
- Lay the draft of frock on the fabric and cut all the pieces (Follow the instructions as given in the session above)
- Construct the frock (As explained above in the session)
- Finish the garment when it is completed

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CHECK YOUR PROGRESS

True or False:

1. To join the shoulders of bodice, keep the wrong sides of the fabric facing each other.
2. Bodice and skirt should be attached before joining shoulders of a frock.

Questions:

1. Draw a layout of fabric for cutting and label them accordingly.
2. Write the sequence for constructing a baby frock.

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MODULE – 3

FASTENERS IN GARMENTS

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MODULE 3:
FASTENERS IN GARMENTS

INTRODUCTION

Decorating a garment using decorative and functional accessories or details is referred to as trimmings. Accessories contribute to applied design in a garment. They are added for functional and decorative reasons.

Fasteners are closures that secure garment openings. Fasteners unfasten to enlarge the garment and fasten to make the garment fit the body. There is a wide variety of fasteners readily available in the market. They include buttons, zippers, and snaps, hooks and eyes and some others. To a certain extent, tradition governs the use of particular fastener in a garment. For example, formal shirts for men will always have buttons and Trousers will be closed by a zipper and a top button.The use, techniques, and application of trims, accessories, fasteners on the garment change according to the trends.

In this unit, thestitching techniques of some basic fasteners are also explained for the readers to easily apply the fasteners on the garment.

Learning Outcomes
After Completing This Module, You Will Be Able To: • Identify Different Types Of Fasteners • Sew The Fasteners
Module Structure
Session 1: Types Of Fasteners And Their Uses
Session 2: Sewing Techniques Of Fasteners

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SESSION 1: TYPES OF FASTENERS AND THEIR USES

FASTENERS

All garments need openings at some point or the other so that they can be put on and taken off easily. These openings can be closed in a variety of ways. The type of closures selected will depend on the position, the amount

of strain it will receive and whether it is to remain concealed or form a decorative feature on the garment. All types of fasteners must match perfectly on two sides of the opening without any puckering, pulling or gaping of the fabric and give a neat appearance to the garment.

In general, fasteners should be fixed on to double material for strength. They should be fixed in such a way that the right side of the garment laps over the left side for women and the left laps over the right for men. Fasteners should be selected to suit the colour, design and texture of the fabric, the style and use of the garment and the position of the placket. One should also consider the age and sex of the wearer. For example, buttons and buttonholes are generally used for men's shirts, trousers etc., just as press buttons and hooks and eye are commonly used for ladie's blouses and children's dresses.

1. Cord

Cord is a trimming made by twisting or plying two or more strands of yarn together. A cord can be constructed through different techniques such as knitting, braiding, knotting etc. Cord may be made by hand or machine. Both thick and thincordis available in the market. It can be selected according to the use, design and part of the garments. It is used as a fastener with eyelets or without eyelets.

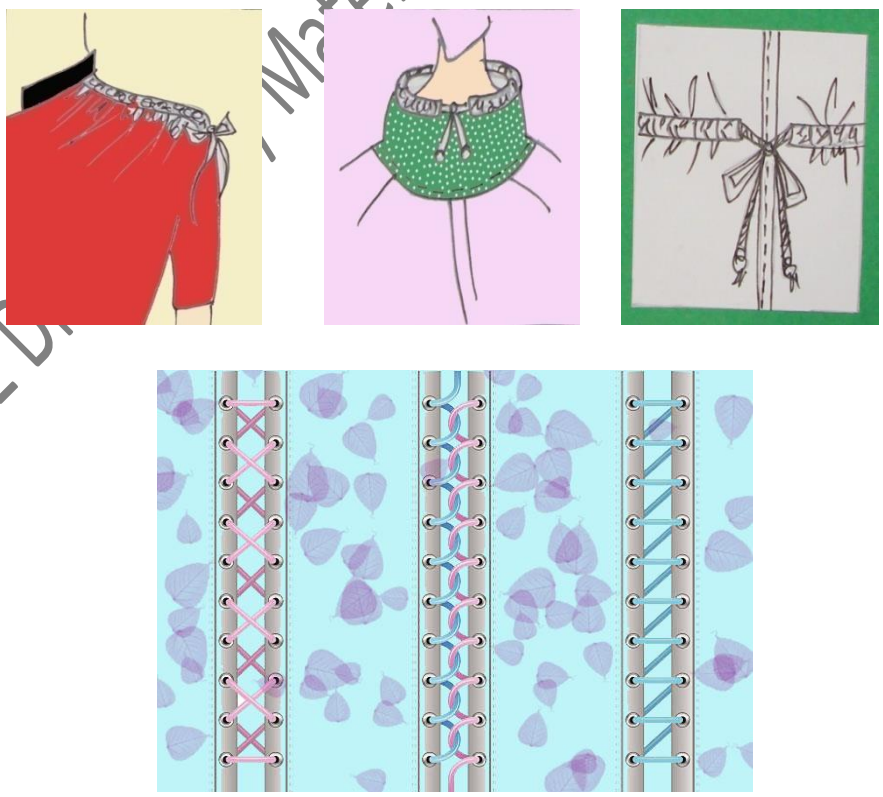


Fig.3.1(a,b,c,d):Cord as fastener

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2. Ribbons

A ribbon is a narrow strip of fabric.Ribbons are made from a variety of yarns, such as nylon, polyester, and cotton. They can be printed or plain and may feature metallic threads or wired edges. They are used with eyelets to form a decorative fastener.

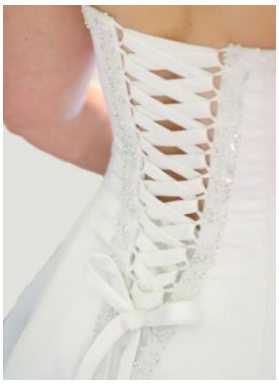



Fig.3.2(a,b): Ribbon as fastener

3. Buttons

Buttons should be selected carefully to suit both the weight and colour of the fabric. The advantages of using buttons as closures are numerous. They are both functional and decorative. They should be sewn securely by a strong matching thread in such a way that it allows the buttonholes to close under the button without puckering the fabric. The fabric on which the button is attached should be reinforced to prevent tearing or pulling when under strain.



Fig.3.3: Types of buttons

There are two types of buttons: Buttons with holes or buttons with a shank. Button with hole needa shank to be made with attachment, whereas for button with shank there is no need. Shank in a button is must as it lifts the button from fabric and allows it to be in place. The latter are attached to the garment from the underside. Buttons may be made of fabric, bone, glass, metal, plastic etc.

Buttons are placed centrally from front or centre back line of the garment except in unusual cases. Sufficient buttons should be placed equally to ensure that the opening is neat without gaping between buttons. The distance of spacing varies according to the position of opening, fabric width

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and size of buttons. Very few or many buttons can spoil the appearance of the finished garment. Buttons are placed on a garment where there is high strain.



Fig.3.4: Various types and shapes of buttons

a) Buttonholes

Buttonholes are made on the overlap section of the garment opening in line with the buttons on the under lap. They are so placed that when closed the button rests on the centre front or centre back line and centrally on all other openings. Buttonholes can either be made by hand or machine. The method you choose for a garment will depend on the design of that garment, the fabric and your ability to sew. Buttonholes can be horizontally or vertically placed on a placket. There are different types of buttonholes based on their construction such as basic, round-end, keyhole etc..

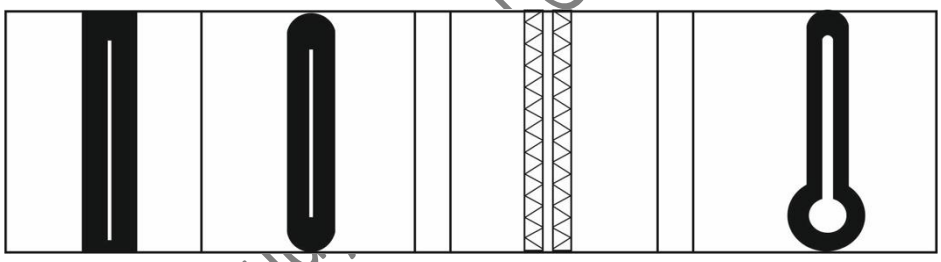


Fig.3.5: Basic,round-end and keyhole buttonholes

b) Button loops

Button loops are used for fastening as well as decorative purpose. They are used with shank buttons. The loop attaches to the shank of the button. It is applied on the right side of fabric.

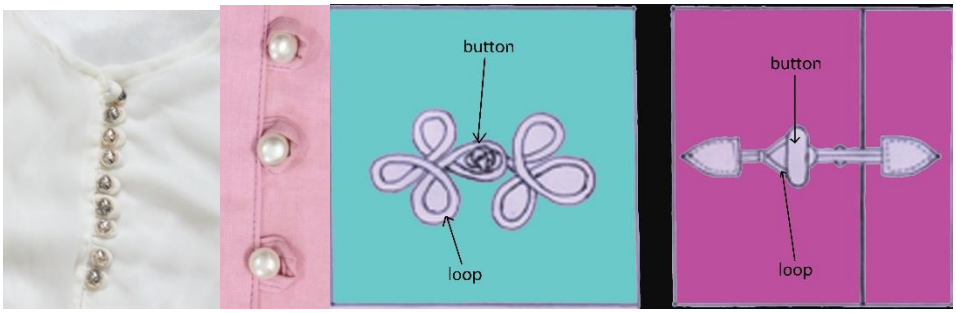


Fig.3.6(a,b,c): Different types of buttonloops

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4. Hooks and eyes

Hooks and eyes are small but comparatively strong fasteners. Though they are mostly applied at single point of a garment opening, such as waistband or neckline, they can also be used to fasten an entire opening. There are several types of hooks and eyes, each designed to serve a particular purpose. General-purpose hooks and eyes are the smallest of all the types and are used primarily as supplementary fasteners, for example a hook and an eye at the top of zipper placket.

Special-purpose hooks and eyes are larger and heavier, which can withstand more strain than those of the general-purpose type. The hook is always sewn on to the back of the overlap and positioned so that the end of the hook does not extend further than the edge of underlap of the garment. The hook and eye should be invisible when fastened. The eye can be a metal eye or a thread eye.



Fig.3.7(a,b,c): Hooks and clasps

5. Press buttons or snap fasteners

Press buttons or Snaps are a kind of small fasteners having less holding power than hooks and eyes. It is best to use them where there is not much strain on the opening. Each press button has two parts - a ball and a socket. The socket is placed on the underlap of the placket while the ball is attached to the overlap of the placket.



Fig.3.8: Snap fasteners

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6. Zipper

A zipper is a type of fastener. These are made of metal or nylon chains. The nylon chain is lighter in weight and more flexible than the metal chain. There are a lot of types available, in a variety of lengths, colours, and materials, but they all fall into one of the five categories: skirt or pant zippers, metal or jeans zippers, invisible zippers, open-ended zippers, and decorative zippers.



Fig.3.9(a,b,c): Zippers

7. Velcro

In addition to individual small fasteners, there are fasteners in the form of tapes that can be sewn or stuck on. Sewn-on velcrois ideal for both clothing and soft furnishings, while the stick-on variety can be used to fix curtain pelmets and blinds to fasten on windows. A velcro is made up of two strips, one has a mesh of filament fibers and other has a webed plastic hooks construction.

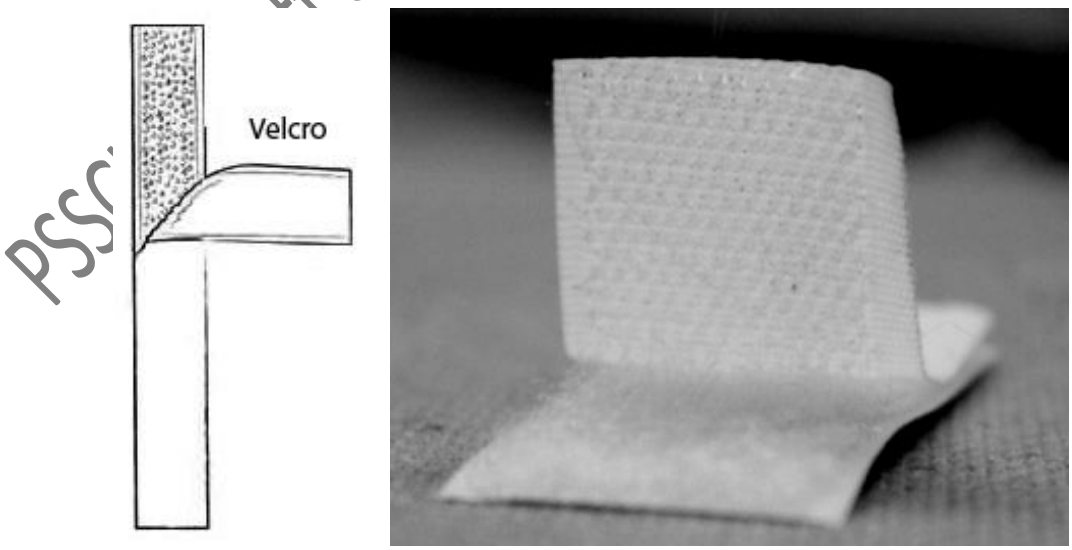


Fig.3.10(a & b): Velcro

8. Eyelets

An eyelet fastening can be very decorative and is often found on bridal wear or tight fitting dresses. A piece of boning needs to be inserted into the fabric between the edge and the eyelets, to give strength.

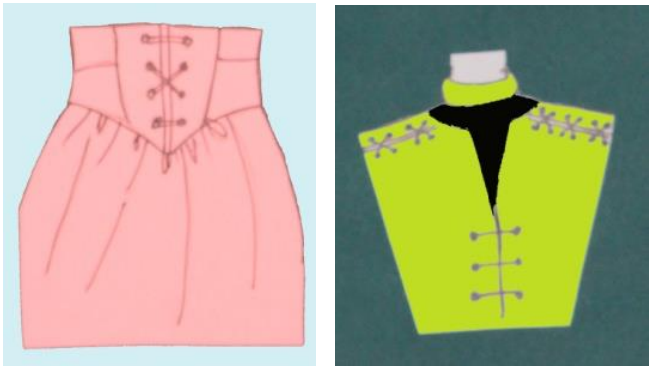


Fig.3.11(a & b): Eyelets

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PRACTICAL EXERCISE

Activity 1: Visit the market, collect information about various types of fasteners, and prepare a report.

Materials Required:

- Notebook
- Pen, pencils, ruler
- Scissors
- Glue

Step-by-Step Procedure:

- Visit your local market and observe the types of fasteners available
- One can also look for types of fasteners at magazines/ newspapers
- List out types of fasteners
- Collect the information
- Prepare a report (detail explanation about fasteners) with labelled figures or pictures pasted in it

Activity 2: Prepare a proto sample file for different fasteners.

Materials Required:

- A4 size card sheets
- File cover for sheets
- Glue
- Pencils, pens, sketch pens
- Samples of basic fasteners

Step-by-Step Procedure:

- Collect different types of fasteners
- Classify them
- Stick them in the file neatly
- Label them

CHECK YOUR PROGRESS

A. Crossword-

Search given fasteners names in the following crossword and circle them: Zipper, button, hook, clasps, ribbon, eyelet, velcro.

E	Z	I	P	P	E	R	B
J	Y	L	M	N	V	I	U
N	S	E	C	E	S	B	T
R	P	J	L	Z	R	B	T
H	D	C	A	E	G	O	O
O	R	M	S	X	T	N	N
O	P	A	P	C	L	W	Y
K	F	N	S	N	Q	J	N

B. Questions:

1. What are fasteners?
2. Make a list of types of fasteners and give their uses.
3. Explain buttons and its types.
4. Write short notes on the following:
   a. Velcro
   b. Zipper
   c. Eyelets
   d. Hooks and eyes

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SESSION 2: SEWING TECHNIQUES OF FASTENERS

Button Sewing Technique

As described in the earlier session, buttons are of various types and each type has a different sewing process as explained below:

To sew a button, place it at the right place. Then start with the proper needle and thread.

- From the wrong side of fabric, draw the thread through one hole of the button and take it down through the opposite hole of the button into the fabric. Repeat the action 4-6 times.
- One can also slip a straight pin underneath the thread on the right side of the button. Continue to follow the stitching process, repeating the stitches several times. If straight pin is not used do it directly from the holes.
- If straight pin is used then remove it from the button and slightly pull the button away from the garment. This will leave a shank, created by the thread between the garment and the button. Wind the thread tightly around this thread shank to complete the process. Knot and cut the thread at the base of the shank. If pin is not used then, it should be kept in mind that while sewing button thread tension should not be loosen.

Note: Using the same method 2 or 4 hole buttons can be sewn. In four hole buttons pattern of threading through button may be changed.

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Fig.3.12(a,b):Stitching a 2 holebutton



Fig.3.13: Stitching a 4 holebutton

Sewing shank button



Fig.3.14(a,b): Shank button

- Shank buttons are mainlyused as closures on heavyweightgarments such as coats. An additional shank of button is sewn when mostly attaching a shank button to the garment; similar procedure is used to create a shank for a flat button.
- Secure the thread and bring the needle to the surface at the position of the button and bring it through the hole in the shank. Take the needle down through the fabric and back to the surface again.
- Repeat, making several stitches through the shank and fabric.
- Work on the wrong side and make a couple of stitches through the threads to secure.
- Then, once the threads are secure, fasten off

Buttonholes Sewing Technique

Buttonholes are made on the overlap section of the garment.They may be placed vertically or horizontally on the garment. Buttonholes are slits cut in garments to receive and hold buttons in place. The length and width of the button holes depend upon the size or shape of the buttons. The length of the button hole should be equal to the width of the button. For making a buttonhole:

- Starting from the end which is to be a square end, work the buttonhole stitch.
- Button holes should be worked on the overlap before the buttons are fixed.
- The length of the button hole should be the diameter of the button plus about 1/8 inch.
- Mark the buttonholes lightly with a pencil.
- Cut the buttonhole line carefully following a straight thread.

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- Fasten the thread on the wrong side with tiny back stitches and work buttonhole stitches starting near the square end going to the round end.
- To end insert the needle on the wrong side and fasten the thread end by running the needle through under the completed stitches.

Buttonholes can either be hand stitched or machine stitched using a buttonhole attachment. Buttonholes can either be hand worked, machine worked or bound buttonholes.The raw edges of the slits are protected by either working knotted stitch termed buttonhole stitch, or binding the edge with self or contrasting material.

Sewing Procedure

The position and size of each buttonhole should be marked on the overlap with tacking thread to vertical lines of tacking threads are used to mark the ends of the buttonholes and a horizontal tacking line to mark the centre of each buttonhole where and opening will be slashed, follow the steps:

- Mark one end of the buttonhole with vertical tacking. Mark centre with a horizontal line of stitches.
- Using a short stitch sew 1/8 inch along each side of this horizontal line and across the other end of the buttonhole.
- Slash carefully between the stitching with small sharp scissors.
- Overcast the raw edges using a matching thread to your garment/fabric.

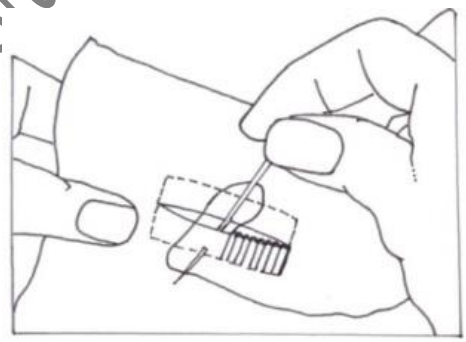


Fig.3.15: Stitch the buttonhole

- Work form right to left on the lower edge of the slash.
- Insert the needle in to the slash and bring it out at the line of tacking stitches below.

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- Loop the thread around the needle point from left to right. Pull the needle away from you throw the fabric, so that a not forms exactly on the slash edge.
- Stitch along the length of the slash using this technique. Make the stitches very close together to form a strong, secure edge.
- When you get to the corner, fan the stitches to make a bar of satin stitches at the other and of the buttonhole to reinforce it.

The stitch can be slightly varied in width and length to suit the garment or product, but it needs to be tight and close together.

Hooks and EyeSewing Technique

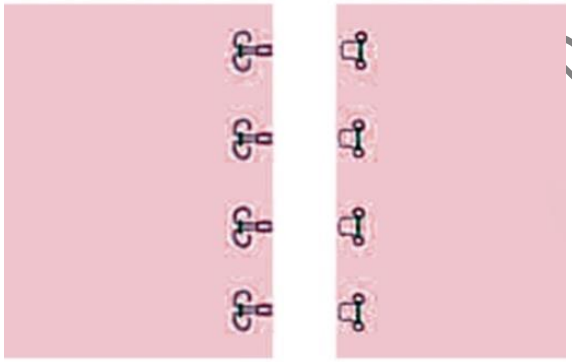


Fig.3.16: Metal hooks and metal eye

When invisible fastening is required, then hooks are used together with eyes, lopps or eyelets. They are generally sewn on double material for greater strength. Hooks may be humped or straight. Eyes are sometimes rounded, straight or curved bars.Different shaped hooks and eyes are used on different garments—large, broad hooks and eyes can be decorative and stitched to show on the outside, while the tiny fasteners are meant to be discreet. A hook that goes into a hand-worked eye produces a neat, close fastening.

Sewing Procedure

- Mark the position of hooks.
- Sew the hook first, and then the position of the eye.
- For sewing the hook, position the hook on the underside of the overlap 1/8inch (3mm) from the edge.
- Attach the hook using buttonhole stitchesthrough both holes on the hook and overcast the neck of the hook to keep it flat.

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Method of Sewing Hooks

The method of sewing is the same for all the hooks.

1. Hold the hook firmly between the finger and thumb and overcast the rings. This helps to fix the position of the hook.



Fig.3.17: Method of sewing hooks ring

2. The stitches should not pass through the right side.
3. Pass the needle up from the eye or ring between the fold to the second position and over-sew three or four times over the shank if it is a humped hook, pass under the hump.
4. Pass the needle up between the fold and bring it out to the left and close under the nose and work three or four stitches.



Fig.3.18: Method of sewing hook hump

5. Work down toward the second position and close the rings. Thus, the shank will be closely covered with overcasting.

Method of Metal Eyes

1. The eye is mostly sewn on the left side of the under half of the placket.
2. The loop of the metal eye can be covered with the loop or buttonhole stitch if needed.

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Fig.3.19: Method of sewing metal eye

3. If this is done after stitching on the eye, care must be taken not to pass the stitches through the cloth.

Method of Thread Eyes

These eyes are not as strong as metal eyes as they wear away through constant friction of the hook. They are cheap and can be made to match the colour of the cloth and are therefore less visible. Thread eyes are suitable for thin material because they are flexible and do not drag the material as compared to metal eyes. The length of the eye will depend on the size of the hook. They are usually not more than 1/8" long. For making a thread eye:

1. Mark the position of the eye.
2. Thread the needle neatly with single thread and bring through from the right side to the wrong side at the left hand side of the eye insert the needle 1/8" from where the needle comes out to the right through the material and bring it out again in the first position.

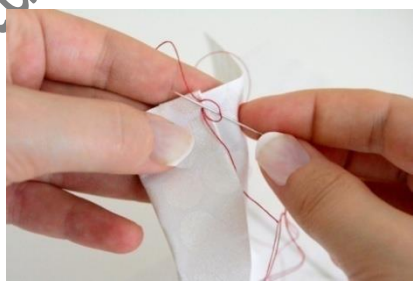


Fig.3.20 Step-1: Method of sewing thread eye

3. Three, four or five strands should be worked together.
4. Pick up a small portion of material close to the strands to the left of eye.
5. Pull the needle through the loop of thread. Work loop stitch close together over the strands to the other end of the eye.

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Fig.3.20 Step-2: Sewing thread eye

6. Insert the needle into the cloth close to the strands and work the stitch in the same manner as the first loop stitch pass the needle close to the last stitch through to the wrong side and work a double back stitch.
7. The strands must all be of even tension and not too slack. The loop stitch must be firm and closely worked.

Press Studs Sewing Technique

Press studs or buttons are available in different sizes, this fastener consist of two parts the socket and ball both parts have four small holes. For sewing first mark the position of the button and finish all the four holes using the buttonhole stitch. The press stud must be sewn on neatly and strongly. It is best to use these where there is not much strain at the opening. The ball of the studs is usually on the right side of the under-lap and the socket on the wrong side of the overlap.Take care that the stitching areas of the socket and ball part are not covering each other, otherwise press studs will open easily.

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Fig.3.21: Press stud

Sewing Procedure

To sew the press stud, mark carefully so that the socket and ball of the press stud are directly opposite from each other when the joining is correctly lapped.

1. Mark the position for the stud taking care to match the lap of the opening.

2. Place the socket side of the press stud on the under-lap of the garment, the ball portion on the overlap. To sew on the socket, align the 2 part of the press studs by putting the needle through the centres of both studs.

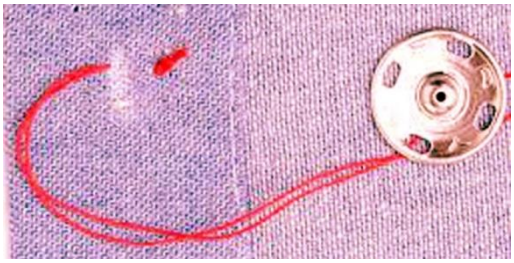


Fig.3.22 (a): Step-1

3. Sew through each hole several times, going under the press stud as we sew from hole to hole.



Fig.3.22 (b): Step-2

4. The stitches should not come on the right side of the garment.



Fig.3.22 (c): Step-3: Stitching of press stud

5. Fasten the thread securely when the press stud is sewed.



Fig.3.23: Finished press stud

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Zipper Sewing Technique

A standard zipper is the type most commonly used on skirts, dresses and trousers. The invisible zipper is sometimes used on tailored skirts and dresses. The heavier zippers a naturally the strongest, they can have both metal or nylon teeth and the zipper tape can be of cotton, nylon or a cotton/polyester mixture.They can be applied by various techniques depending on the fabric, strength and seam where they are applied in a garment.

Sewing Procedure

Pre-shrink the zipper if the garment is washable. This will prevent puckering. Always insert your zipper into flat, pressed seams. The length should be matched to the length of the opening. There are certain points which should be considered when inserting zippers, these are:

- Stitch the zipper in by machine if your machine has a zipper foot, otherwise sew zippers in by hand.
- Uses pick stitch to do this and the stitches will be both strong and invisible.
- It is a wise precaution to neaten the turnings of the opening before putting the zipper in because threads can very easily catch in zippers and make them stick. Follow these steps:

1. Align the lower end of the zipper so that it tucks into the hem.

2. Always try to pin from the bottom of the zipper upwards.

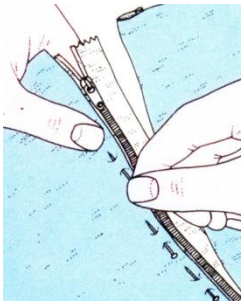


Fig.3.24 (a): Step-1

3. Tack each side of the zipper opening and then press the seam before putting in the zipper. Fold the facing and hem down over the tapes.

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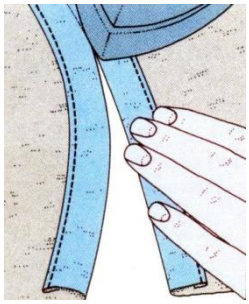


Fig.3.24 (b): Step-2

4. To stitch the rest of the seam, first close the zipper.

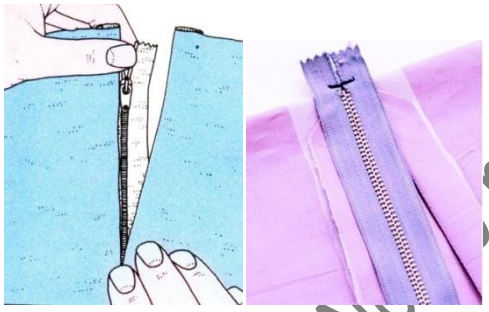


Fig.3.24 (c and d): Step-3

5. Finish off the seam in the appropriate way for the fabric.



Fig.3.25: Step-4 Finished zipper

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PRACTICAL EXERCISE

Activity 1: Collect various types of buttons with holes (2 and 4 holes) and shanks and prepare samples of the following for sample file.

1. Sew a 2-hole button
2. Sew a4-hole button
3. Sew a shanked button

Materials Required:

- Buttons- 2-hole button, 4-hole button and shanked button
- Hand needle
- Thread
- Pure cotton fabric samples (7”x 7”)
- Practical file
- Glue
- Scissors

Step-by-Step Procedure:

- Collect various types, shapes, sizes and variety of buttons
- Prepare a sample of any 2-hole button
- Prepare a sample of any 4-hole button
- Prepare a sample of any shanked button
- Place it in the practical file

Activity 2: Collect various types of hooks and press studs and prepare samples of the following for sample file:

1. Buttonholes
2. Attaching hooks and eyes
3. Hand worked eye
4. Pant hook and eye
5. Press studs

Materials Required:

- Various types of hooks and eye and press studs
- Hand needle
- Thread
- Pure cotton fabric
- Practical file
- Glue
- Scissors

Step-by-Step Procedure:

- Collect various types of hooks, press studs, and buttonholes

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- Prepare a sample of buttonholes
- Prepare a sample of hook and eye, hand worked eye
- Prepare a sample of pant hook and eye and press studs

CHECK YOUR PROGRESS

A. Match the Column

1. Button with holes	a. Eye
2. Hook	b. Loop
3. Shank button	c. 2,4

Questions:

1. Write the method of attaching zip.
2. Write are the types of buttonholes, explain the sewing technique along with diagram.
3. Explain press stud and the sewing technique of press stud along with diagram.
4. Describe the buttons, its types and explain the sewing technique along with diagram.
5. Explain hooks and clasps, write sewing technique along with diagram.

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MODULE – 4

CLEANING, STORAGE, WASTE DISPOSAL, ORGANIZATIONAL RULES AND REGULATIONS AT WORKPLACE

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MODULE 4: CLEANING, STORAGE, WASTE DISPOSAL, ORGANIZATIONAL RULES AND REGULATIONS AT WORKPLACE

INTRUDUCTION:

Conducive work place is important for larger production of goods for individual, small or large scale units. Clean and well maintained working area creates a positive atmosphere and helps workers work with pleasure.

The workplace environment effects employees' productivity, performance and well-being. Keeping clean and maintained workplace; machines, furniture and surrounding is very important for employers to reduce their workers reimbursement claims and continue with high efficiency.

Maintenance includes repairs of equipments, lights fixtures, proper waste disposal, and storage. Cleanliness provides safe and healthy surrounding.

This unit includes social responsibility of company which include quality, pricing and safe use of chemicals for customer satisfaction. Waste management in textile and apparel industry includes waste while manufacturing, while usage and discarding of textile products as waste. The waste recycling exchange will explain students how to minimize waste materials at various stages and how they can be recycled, reused by the same company or by other companies.

In this unit students will also learn Organisational policies, purpose, benefits and importance of policies.

Learning Outcomes
After Completing This Module, You Will Be Able To: • Perform Cleaning And Maintenance At Workplace • Demonstrate Proper Storage And Waste Disposal • Describe Organizational Policy, Goals, Rules & Regulation And Workmen Security
Module Structure
Session 1: Cleaning And Maintenanceat Work Place
Session 2: Proper Storage And Waste Disposal
Session 3: Organizational Policy, Goals, Rules&Regulation And Workmen Security

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SESSION 1: CLEANING AND MAINTENANCE AT WORK PLACE

Cleaning and maintenance at workplace is of vital importance. It includes keeping the workplace, its structures, furniture, equipment, tools, machines, and facilities in good repair conditions and in proper operating efficiency with proper safety measures. It includes various chores like repairing, replacing, servicing, inspecting and testing. Maintenance should be done department wise for quick and accurate results. Proper maintenance staff is responsible for these maintenance activities in an organization.

Maintenance:

Maintenance is the regular process of keeping machines in its usual operating state so that it can carry on expected performance without causing any lose of time on account of breakdown or accidental harm. In other words, maintenance means to keep equipment in the running condition so that it can be utilized to its full calculated capacity and efficiency for maximum amount of time.

The responsibility of the maintenance engineers have increased considerably due to ever-growing complexity and size of industrial organization. It has become very important to make effective use of available facilities that have been set up at high investment cost to achieve maximum profit. It is essential to learn the equipment efficiently and this is only possible when the equipment facilities are looked after properly.

Maintenance purpose also includes taking care the safety aspects when the failure of the component may cause major accidents. Maintenance is also related with productivity through equipment output and its running cost. Regular maintenance work raises equipment performance level thus reduces running cost.

There are two major types of maintenance work:

1. **Routine/preventative maintenance** is usually planned. Regular interval and fixed maintenance procedures are very common in all organizations. It includes scheduled inspections, repairs and replacement to make sure everything continues to work accurately and smoothly.
2. **Breakdown Maintenance**: The breakdown maintenance is done as per the requirement or crash down of any equipment in an organization. Remedial maintenance is needed when break downs takes place which needs immediate action to be taken to get things up and running again.

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Maintenance should start with proper planning and on the basis of details given by the maintenance staff. An assessment of all potential risks should be carried out and workers should be engaged in this process. A maintenance plan is a useful tool to begin with; a list of premises, plant and equipment to be maintained should be prepared in a proper manner. The plan should include details of the maintenance to be carried out on each item/product and when it will be carried out. It is very essential to keep records of all the procedures undertaken and note down the changes and amendments needed.

Using Appropriate Equipment

Workers involved in the task of maintenance should have the appropriate tools and equipment to rectify faults in machines and tools, including suitable personal protective equipment in case of accidents. It is essential to make sure one has all of the required tools before starting the work; many accidents take place when someone decides to manage with an unsuitable item, tool or piece of equipment.

Making Area Safe

Keeping the workplace safe is of prior importance in a textile industry. One may need to restrict right to use the equipment and the area being maintained. The work area needs to be safe by preventing access. Warning signs should be fixed to machinery.

BENEFITS OF MAINTENANCE

A. The Elements of an Effective Cleaning Programme

Dust and Dirt Removal: Vacuum cleaners are apt for clearing light dust and dirt. Industrial processes have special techniques for cleaning walls, ceilings, ledges, machinery.

Mopping wet floors and sweeping decreases the amount of airborne dust. The dust that gets collected in shelves, cupboards and lockers, lights, windows, may need manual cleaning. Special-purpose vacuum cleaners are useful for eliminating harmful stuffs. At some work places lockers are provided to employees for storing their personal belongings. Washrooms need to be cleaned once or twice a day.

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Maintain Light Fixtures

Dust and dirt on light fixtures decreases light levels. It is very essential to clean the lights regularly as it improves lighting.

Tools and Equipment



Fig.4.1: Tools and equipment

Maintenance of tools is very necessary; it can be stocked in the tool room, appropriate fixtures with marked places needed for tools to give systematic display in the tool room as well as near the work area. They should be put in proper place after use. This decreases the possibility of being misplaced or lost. Supervisors should regularly check, all tools and give damaged tools for repairing.

Waste Disposal

The daily assortment of waste adds to good quality housekeeping practices. Separate waste items that can be recycled. Placing scrap baskets near the areas where waste is produced promotes organized disposal of waste and collection becomes easier. All waste collecting bins should be labelled clearly (e.g., plastic, scrap metal, glass etc.).

Storage

An organization should have proper space to store material to deal with storage problems and it should be surely an organized one. The site of the stockpiles should be voluntarily available when needed and not obstruct with work. Stacking cartons should be tied correctly; stored materials

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should not block stairs, aisles, exits, fire extinguisher. All storage areas should be noticeably marked.

Flammable, toxic and other hazardous materials should be stocked in permitted containers and in selected areas that are suitable. Storage of materials should meet all provisions specified in the fire codes and the directives of environmental and occupational health and safety agencies in jurisdiction.

B. Benefits of Clean Environment

Good cleaning in an organization has an encouraging outcome on the workers and as well as it creates a good image of the organization. Some of the advantages of keeping a clean environment in an organization are as follows:

1. **Healthy employees = lesser sick days:** Keep workers healthy by keeping work environment clean and this will bring in return lesser sick leaves and more productivity. To maintain cleanliness, daily disinfecting the surfaces, washing floors, vacuuming carpets, and sanitization of toilets must be performed to minimize the spread of infections.

2. **Cleanliness brings satisfaction:** Cleanliness reflects positivity and lays an overall good image of the workplace when an employee walks into a spotless and lemony fresh smelling area.

3. **Preserves assets over long term:** The expensive items in building, mainly carpets and hard floors should be handled carefully while cleaning. Investing in commercial carpet cleaning equipment or commercial floor scrubbers can make the cleaning procedure more efficient.

4. **Image at stake:** The good will and image of an organization depends on its clean physical and internal environment and neat appearance to all.

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PRACTICAL EXERCISE

Activity 1: Role Play (Importance of cleanliness at the workplace)

Requirements:

1. Students to perform the role play
2. Some other students around
3. Teacher in charge
4. Classroom basic things like table, chairs, books, pen, lunch boxes

Step-by-Step Procedure:

1. The teacher introduces the importance of cleanliness at workplace and introduces the topic of role play (like tailor working on sewing machine after lunch without washing hands and the fabric getting stained)
2. Students will play the role of tailor, supervisor and an argument arises between them
3. Teacher will explain the importance of maintaining cleanliness at the workplace
4. Finally, conclusion is generated after discussion with students.

CHECK YOUR PROGRESS

A. Fill in the blanks:

1. _____ and _____ at a workplace is of vital importance.
2. _____ signs should be fixed to machinery.
3. _____ and _____ on light fixtures decreases light levels.
4. The daily assortment of _____ adds to good quality housekeeping practices.

B. Questions:

1. Explain term maintenance and types of maintenance.
2. Explain benefits of maintenance at work place.
3. Explain benefits of clean environment of work place.

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SESSION 2: PROPER STORAGE AND WASTE DISPOSAL

Solid wastes from textile and apparel factories consist of textile materials and supplies that are not as per the required quality standards or remain after being used in production. Inferior quality of raw materials should not be accepted if textile companies would like to attain better, efficient and speedy production operations and to reduce the amount of waste they generate. Materials that remain after being used should be sorted carefully during production and related industrial organization should be contacted to seek ways of reusing these materials. Various accessories are used while the fabric is transformed into a garment. If a garment is to be described as environment friendly, every single piece of the garment should be environmentally sound and should match environmental norms. Especially, buttons, metals in zippers, nickel in buckles, chromium in leather accessories, neoprene-based adhesives, rubber in sponges, and hooks in underwear fall in this category.

SOCIAL RESPONSIBILITY OF COMPANIES

Current consumer demands such as better quality, minimum price and made-to-order clothes, the concept of clean cloth has also emerged as an essential concept in textile production. This is related to textile products that do not pollute the environment, pose any problems to human health and violate the social rights of employees who are supposed to work under internationally accepted work and social standards. Public feedback against clothes made by companies that fail to fulfil with these requirements may affect the market share of these companies negatively. For commercial customers and manufacturers, this could discredit their trademarks and cause sales to drop.

First of all, national legal directives pertaining to protection of the environment must be implemented.

Contamination of underground water reservoirs and drinking water by chemicals must be taken care. The personnel responsible for storing and disposing these chemicals must possess required qualifications. It would be much better if the chemical waste is disposed of by a specialized firm.

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Chemical substances should not be mixed with other waste materials. Storing and burning wastes in open areas must be prohibited. Waste materials must be kept in safe areas so that it would not pose any threat to employees. For instance, keeping such waste in the corridors or on the landings could block emergency exits, causing a safety hazard.

Waste water must be treated at a waste water treatment plant, liquid and solid oil must be passed through separate filters. They must be cleaned regularly and the contents must be disposed of properly.

WASTE MANAGEMENT IN TEXTILE AND APPAREL INDUSTRY

Wastes are generated during different stages in the lifecycle of the product which are following:

- Manufacturing
- Usage
- Discarding the textile product as waste.

Due to disposal and discharge of waste materials freely and carelessly, hazardous substances in the waste contaminate the soil. Thus, waste collection areas turn into chemical reactors which cannot be controlled easily and these uncontrolled piles of waste materials become potential explosives.

The solution for discarded materials which cannot be recycled in or outside the plant is to convert these materials into heat energy and minimize the risks involved by means of anti-leakage measures.

The 5R principle of waste management can also be applied to textile and apparel wastes. These are given briefly as follows:

- Reduce
- Reuse
- Recover
- Replace
- Recycle

Fabric wastes generated in textile and apparel factories can be divided into 4 groups:

- Fabric type (woven fabric, knit fabric)
- Fabric size
- Fabric content
- Fabric colour

For increasing sales of a garment product and to give it attractive look for customers, a variety of smart-looking materials and accessories are used in packaging. Though it is known for a fact that packaging materials and accessories are quite important as part of successful sale strategies, it should be kept in mind that some of these materials have nothing to do with the functional use of the product. At the end, these will be nothing but

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wastes and will have to pass through certain recycling processes. Therefore, it would be better to assess this matter with respect to environmental protection and protection costs; do not use packaging materials and accessories not related with the functional use of product and develop new techniques to increase sales.

Collecting waste regularly at the end of the useful working life-span of a product is one of the very important activity of waste management.

THE WASTE RECYCLING EXCHANGE

Waste materials generated during the production process of a plant can be used as raw materials in another. For this reason, the waste recycling exchange was setup within the framework of environmental protection practices so as to reuse the wastes generated during the production processes in various other sectors of the industry.

The waste recycling exchange provides the following advantages to companies:

- The exchange reduces extra spending of the company for the disposal of wastes.
- Buying of these wastes by another company turn these into an investment.
- Financial burden due to storing these wastes is automatically eliminated.
- Joining the exchange contributes to environmental protection initiatives.

A large number of prospective purchasers increase the financial value of these wastes. For that, certain pieces of information should be presented to the waste recycling exchange about the waste materials generated during the production process.

- Type and composition of the waste material
- Possible pollution data
- Frequency of waste generation
- Quantity
- Form of shipment
- Type of packaging

Some of the wastes from the textile and apparel industry that can be reused by the exchange are as follows:

- Cotton seeds from cotton gin mills (used in oil and feed factories)

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- Greasy cotton and blend waste discarded by cotton yarn and cotton production facilities
- Waste materials such as comber waste, off-combing, plucked yarn (used in rough yarn factories)
- Carpet hems from carpet factories (raw material for bed fibre factories)
- Fabric hems and sewing yarn discarded by apparel companies
- Sacks, empty barrels, drums and cardboard boxes.

CONCLUSION

Rising environmental problems have requested companies manufacturing goods to meet basic necessities of people to turn their looks to environment-based management strategies. This new approach also forms the basis of ecological production. The main objective of ecological production is to adopt and implement certain strategies that can make maximum use of nature without upsetting the ecological balance.

Due to the changing demands and technologies, textile and apparel product, which are among the basic necessities of people, can negatively affect the environment as well as humans during the production, usage and disposal stages. The share of environmentally friendly eco-textiles within international textile and apparel trade has been increasing so as to minimize hazardous effects. Significance attached to ecological safety by consumers (end users) and their understandings of liability have provided great assistance to this issue. Further improvement of the present level of ecological awareness will help parties involved in various processes in textile trade and production to set more competent and to-the-point environmental quality standards.

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PRACTICAL EXERCISE:

Activity 1: Prepare a report of waste management.

Material Required:

1. Practical file
2. Pencil, marker, eraser, pens
3. Ruler
4. Camera (if available)

Step by Step Procedure:

1. Visit any garment manufacturing unit and note down the details of their waste management methods/procedures
2. Take photographs (if possible) of the methods
3. Prepare a report along with photographs and also mention the types of waste in their organization and the ways to recycle the waste they use
4. Submit your report

CHECK YOUR PROGESS:

A. Fill in the Blanks:

1. The 5R principle used in waste management applied to textile and apparel wastes are reduce, _____, recover, replace and _____.
2. Waste materials generated during the production process of a garment can be used as _____ _____ in another process.

Questions:

1. Explain the 5R principle of waste management.
2. Explain the four types of fabric wastes.
3. Explain the advantages of waste recycling exchange.

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SESSION 3: ORGANIZATIONAL POLICY, GOALS, RULES & REGULATION AND WORKMEN SECURITY

For smooth functioning of any organization it is necessary to have defined organizational policy. Organizational policy consists of guideline and practices to be followed which in turn will protect employee, company & customer. In other words, organizational policy defines what is to be permitted and not permitted within organization. Types of related policies:

- Health and safety policy deals with health and safety of employee.
- Quality policy deals with the quality of the products to be produce by organization.
- Security policy includes security of the employee like industrial security and social security.
- Energy conservation policy includes the energy saving by optimum use of available resources like electricity, steam etc.
- Welfare policy deals with welfare of the employee and the society.
- Grievances policy deals with employee's grievances in case of emergency or accidents.
- Accidental policy is similar to the above policy. This includes grievances paying to the employee in case of accidents.
- Mediclaim policy deals with medical expenses reimbursement to the employee in case of severe illness or injury.
- Provident fund & pension policy includes the provident fund payment or deduction to employee or pension payment or deduction to employee.
- Sexual harassment policy deals with women social security at work place.
- Customer policy provides guidelines on dealing with customers and customers expectation from the organization.
- E-policies deals with the communication guideline to followed by the employee through internet and E-mail.

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Purpose of Organizational Policy

- It provides clear definition to employee of boundaries within which he/she has to work.
- It defines acceptable and unacceptable behaviour of employee.
- It also provides guidelines for dealing with inappropriate behaviour of employee.

- The policy also set expectations of customer.

Benefits of Organizational policies

- It encourages consistent organizational performance and behaviour.
- It provides a support for consistent service to customers.
- It also safeguards the organization against legal issues or liabilities.
- It helps to protect organizations and customer proprietary information and other assets.
- It helps both employer and employee to react at different situations in similar way.
- This also reduces the chances of unfair practices in organization.

Importance of Organizational Policies

- It provides clarity to the reader when dealing with accountability issues that is of critical importance to the organization.
- It helps to support and explain the standards expected from employees and help employers manage staff more effectively.

Organizational Goal

- Organizational goals are planned objectives that a company's management set to outline expected outcomes and guide employees' efforts.
- There are many advantages to set organizational goals.
- They encourages employee towards hard work.
- It validates a company's activities and survival.
- It defines performance standards.
- It provides constraints to pursue unnecessary goals and function as behavioural incentives.

Importance of Organizational Goals

- It helps to define a company's intention or purpose,
- It assists in company's growth and achieving financial objectives.
- Setting definite organizational goals can also help a business to measure their organization's progress.
- It determines the tasks to be enhanced to meet specified business goals.

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- Goals have to be specific, measurable and achievable.
- Organizations have a clearer path to achieve success by setting clear and realistic goals.
- Goal setting and achieving them will help an organization to achieve increased productivity, efficiency, and profitability.
- Organizations should clearly address organizational goals to engage employees in their work and attain the organization's desired ends.
- The clear knowledge of organizational goals helps employees decide their course of action to help the business to attain set goals.
- Employees should also be ready with the appropriate tools and resources required as they do their work to meet the overall organizational goals.
- Setting goals can also help organization to evaluate employee performance.
- By developing sound goals helps organizations with planning.
- With the time goals may become unrealistic and need to be modified accordingly.

Rules and Regulations

- Rules can be defined as the guidelines or instructions of doing something correctly.
- These are the principles that manage the conduct or behaviour of employee or a person in an organization or country.
- In other words, regulations refer to the directions or acts enforced by law, in a particular country.

Organizational Rules & Regulations

- This also specifies desired behaviour of employee in company or organization.
- This will give an employee or individual guidelines to follow when entering into a specific business or contract.
- These are made to enforce laws at workplace.

Importance of Rules and Regulations

- Rules and regulations can help to keep employee or workmen safe and secure from unethical business and industrial practices.
- Rules and regulation can ensure fair competition of companies.

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- Rules and Regulations are important for establishing a sustainable business.

Objectives of Rules and Regulations

- To safeguard the companies interest.
- It protects the company from lawsuits.
- It helps employee to understand what is expected from him/her.

In organization, all the above points are of equal importance for the long term growth of the company. The company's profitability, productivity and efficiency should be consistent in the long run. It is main function of all organizational policies, rules and regulation and goals.

Workmen Security

The workmen security system in country consists of number of schemes and programs spread through variety of laws and regulations. The industry in India has very basic social security systems for workmen to safeguard them. In our country there are two major security plans.

1. Employees provident fund scheme: This scheme is run by Employee provident fund organization (EPFO). This scheme applies to organizations with at least 20 employees or workforce. The employer has to pay contribution the employees PF scheme if they are earning up to Rs.15000 per month (subject to change with new rules)

2. Employee state insurance scheme: This scheme is run by Employee state insurance corporation (ESIC). In some ESIC schemes there is employer contribution required from all companies and in some cases this is applicable where there are minimum 10-20 workmen.

Apart from above workmen security schemes includes:

- Pension
- Health insurance
- Medical benefit
- Disability benefit
- Maternity benefit
- Gratuity

The above all schemes are made compulsory by the Government in organized sector. But in Unorganized sector these schemes and benefit are not given to employee or workmen.

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PRACTICAL EXERCISE:

Activity 1: Preparea survey report of organizational plan.

Material Required:

1. Practical file
2. Pencil, marker
3. Eraser, pens
4. Ruler
5. Camera (if available)

Step by Step Procedure:

1. Visit a garment industry discuss with the concerned official regarding their policies rules, regulations and goals.
2. Collect the information about workmen security schemes and policies in visit.
3. Prepare a report.
4. Submit your report with photographs (if possible).

CHECK YOUR PROGESS:

A. Fill in the Blanks:

1. Organizational policy is consisting of _____ and _____ to protect employee, company & customer.
2. Rules can be defined as the _____ or _____ of doing something correctly.
3. The workmen security system in country is consist of number of schemes and programmes spread through variety of_____ and _____.

B. Questions:

1. What is organizational policy?
2. What are the organizational goals?
3. What is the importance of rules and regulation?
4. Explain workmen security & policies laid by government

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MODULE – 5

JOB CARDS IN GARMENT INDUSTRY

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MODULE 5:
JOB CARDS IN GARMENT INDUSTRY

INTRODUCTION

There are different types of jobs performed in various sections of the garment manufacturing industry unit. It is important for operators to have knowledge about contents on the job card, specification sheets to read and understand the work expected from different workers especially for a sewing machine operator. Cards are a method of production control, making it easier to track and plan throughout the process. There are a variety of cards, the functions of which occasionally overlap based on the production and the preferences of the company producing it. It includes –

i. Style description job card
ii. Positioning strategy job card
iii. Sizing and fit job card
iv. Material selection job card
v. Component assembly job card
vi. Final assembly and finishing job card
vii. Style presentation job card

All sections in industry for which job cards are prepared

The job card should be in a language which is easy to understand for concerned workers. The best way for any sewing operator to perform job with perfection is to be aware of the various terminologies on the card associated with sewing machine operation. Many of the defects might be caused by operators due to misunderstanding of the job card. The operator should understand important features of the card. They should be trained to read, understand and efficiently carryout the instructions and specification of the job card.

Learning Outcomes
After Completing This Module, You Will Be Able To: • Explain Terminologies On The Job Card Or Work Ticket • Identify Garment Components And Understanding The Stitch Specification
Module Structure
Session 1: Terminologies On Job Card Or Work Ticket
Session 2: Specifications For Garment Components
Session 3: Reporting Of Damage Or Fault In Material

SESSION 1: TERMINOLOGIES ON JOB CARD OR WORK TICKET

Job card is a record card relating to a job and providing details of the time taken to do a piece of work and the materials used. This is used to allocate direct labour and material costs. This is prepared by the master operators for the time study. In production, a job card is a card that gives the detail of a job to be performed in a production facility. It is used as a means to authorize and instruct the production people to take up the production work. Job cards are used to assign jobs at the terminals (workstation) and are also used for special purposes. Normally, each terminal (workstations) is pre-set with the operation/job that would be performed by the operator. There may be possibility that the operator had to do multiple jobs. In that situation, operators use job card to change the operation in the terminal. Job cards are labelled with job (operation) name and number. In real time Radio frequency identification (RFID) system, data is captured through scanning of RFID cards (tags) at operator terminals (workstation). Operator scans the job card of the job that will be performed by him/her.

Sometimes a job card has a detailed description of work that is to be performed for a work order. When industry management creates a job card, they specify planning and scheduling information also.

Job cards are a means of tracking what actually takes place in the production process. The job card is generated for a single production, then the work and time used into that production is recorded on the card.

Style Description contains the following explanation:

Brand, style number, merchandise group, selling period, body types and size ranges; person responsible, verbal garment description, fabric description, detail drawing of front and back of the garment and special instructions related to the execution of the garment.

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Table 5.1 Style Description Job Card

Part 1: Style Description

Style Number _____

Brand _____

Merchandise group _____ Selling Period _____

Body type(s) _____ Size _____ Sample size _____

Date approved _____ Approved by _____

Date modified _____ Approved by _____

Verbal description:

Fabric(s)

Trim(s)

Detailed Drawing Front	Detailed Drawing Back

Special Instructions:

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Sizing and Fitting job card specially indicates the size range by gender and body type

Table 5.2: Sizing and Fit Job Card

Part 3 Sizing and Fit (Circle or write in the appropriate indicators)

Size Ranges by Gender and Body Type

Unisex Male Female	Infants Boys Girls Misses Women's	Toddlers Young men's Preteens Misses petite Women's petite	Children Men's Young juniors Misses tall Women's tall	Students Men's tall Juniors	Adults Men's stout

Size indicators for range selected above

General body size: Extra small Small Medium Large Extra large

1x 2x 3x

Other _____

Number codes of size range:

_____

Dimensional size:

collar _____ sleeve _____ chest _____ waist _____ inseam _____ other _____

Fit indicators for range selected above

Height:

Short Medium Tall-Petite Tall Other _____

Circumference:

Trim slim tapered stocky other

_____

Weight range (infants, panty hose):

_____

Silhouette:

Closeness of conformance to body: little moderate high

Amount of fabric stretch: little moderate high

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Material Selection includes:

This chart analysis each material used in the garment. It specifies material name, content, yarn type/size; fabric weight/size; care instructions and method of application of material are explained in this chart.

Table 5.3 Material Selection Job Card

Part 4 : Materials Selections/Specifications

Style Number _____

(Use this analysis process for each material in the garment. Add pages as needed: piece goods, support fabrics, trim, closures, thread)

Number of materials _____ List of materials _____

Materials Type _____

Vendor _____

Vendor location _____

_____

Swatch

Colour(s) _____

Fibre content _____

Yarn type/size _____

Fabrication _____

Count/gauge _____

Weight/size _____

Structural/applied design _____

Finishes _____

Care instructions _____

Material name _____

Vendor _____

Vendor location _____

_____

Swatch

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Colour(s) _____

Fibre content _____

Yarn type/size _____

Fabrication _____

Count/gauge _____

Weight/size _____

Structural/applied design _____

Finishes _____

Care instructions _____

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Garment Components Assembling:

This chart basically explains instructions to be followed while stitching and assembling the parts of a garment. This chart specifies the specifications for stitch/ seam type, special instructions to be followed and finished component measurement.

Table 5.4 Component Assembly Job Card

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Part 5 : Garment Components Assembly Style Number _____ (top front, top back, bottom front, bottom back, sleeves, collar, plackets, waistband) Component _____ No. of pieces _____ No. of materials _____	
Drawing of component pieces	Drawing of finished component with measurements
Operational Breakdown	
Operation 1	Operation 5

_____	_____
SPC _____	SPC_____
Stitch/seam type _____	Stitch/seam type _____
Special instructions _____	Special instructions _____
Operation 2 _____	Operation 6 _____
SPC _____	SPC _____
Stitch/seam type _____	Stitch/seam type _____
Special instructions _____	Special instructions _____
Operation 3 _____	Operation 7 _____
SPC _____	SPC _____
Stitch/seam type _____	Stitch/seam type _____
Special instructions _____	Special instructions _____
Operation 4 _____	Operation 8 _____
SPC _____	SPC _____
Stitch/seam type _____	Stitch/seam type _____
Special instructions _____	Special instructions _____

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Final Assembly and Finishing:

This chart notifies the following points:-

- Final assembly operations
- Types of stitches & seams
- Finishing operations
- Colour matching/shading of materials
- Quality of stitches & seams
- Consistency & overall appearance

Table 5.5 Final assembly and finishing job card

Part 6 : Final Assembly and Finishing Style Number _____ (Add pages if needed) Total number of component _____ Total number of materials _____	
Final Assembly Operations	Finishing Processes
Operation 1 _____	Process 1 _____
SPC_____	Instructions _____
Stitch/seam type _____	_____
Special instructions _____	_____
Operation 2 _____	Process 2 _____
SPC_____	Instructions _____
Stitch/seam type _____	_____
Special instructions _____	_____
Operation 3 _____	Process 3 _____
SPC_____	Instructions _____
Stitch/seam type _____	_____
Special instructions _____	_____

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Operation 4 _____	Process 4 _____
SPC_____	Instructions _____
Stitch/seam type _____	_____
Special instructions _____	_____
Operation 5 _____	Process 5 _____
SPC _____	Instructions _____
Stitch/seam type _____	_____
Special instructions _____	_____

Analysis of Finished Garment

Matching fabric design _____
Colour shading _____
Consistency of stitches and seams _____
Compatibility of materials _____
Overall appearance _____

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Table 5.6 Style Packaging/Presentation Job Card

Part 7 Garment Packaging/Presentation

Style Number _____

Label/Ticket Information

Brand label

Type _____ Size _____ Location _____

Wording _____

Size label

Type _____ Size _____ Location _____

Wording _____

Fibre content label

Type _____ Size _____ Location _____

Wording _____

Country of origin label

Type _____ Size _____ Location _____

Wording _____

Care instructions label

Type _____ Size _____ Location _____

Wording _____

Performance/Marketing Information

Hangers/Display devices

Type _____ Size _____ Location _____

Bags

Type _____ Size _____ Location _____

Label information _____

Hang tag tickets

Type _____ Size _____ Location _____

Label information _____

Others

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"Work Ticket" is a form that shows the time spent by an employee working on a particular job. It is used as a basis for billing the costs of direct labour to customers, and may also be used for calculating wages of employees who are paid by the hour and is also known as time card.

Simplest job card of the garment producing unit may have following details on it:

Name of the customer: Buyer's name (e.g. Jockey)

Date: Date of preparing the job card (e.g.05/04/2017)

Product number: Number given by the buyer for the product in the work order (e.g.3300244863)

Sales order Number: Number given by the producing company to the product (e.g.55101057)

Item: Number of item in the product (e.g.1/5/9)

Shift: Working shift of operator (e.g. I/II)

Lot number: Number of the lot of production (e.g.S170110056)

Bundle Number: Number of bundle of particular lot (e.g.11)

Quantity: Number of item to be prepared (e.g.50.00)

Blend: Information about the fabric (e.g.50% cotton and 50% wool)

Size: Size of the product or item (e.g. S/M/L/XL/XXL)

Style: If any specification style- mentioned

Cutter: table no. (e.g.5)

PRACTICAL EXERCISE

Activity 1: Prepare various job cards.

Materials Required:

- Pen, pencil
- Practical file
- Newspapers/ Magazines/ Internet etc.

Step-by-Step Procedure:

- Research on industrial job cards and industrial terminologies used in job cards
- Prepare practical file with images and explain the various job cards

CHECK YOUR PROGRESS

A. Fill in the blanks:

1. Cards are a method of production control, making it easier to _____ and _____ throughout the process.
2. Job card is prepared by the _____ _____ for the time study.
3. Work ticket is also known as _____ _____.

B. Match the column:

1. Blend a) calculate wages of employees

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2. Terminal	b) information of the fabric
3. Sales order number	c) workstation
4. Job card	d) number given by the producing company
5. Work ticket	e) allocate direct labour and material costs

C. Questions:

1. Why it is important to understand the terminologies on the job card for sewing machine operator in the industry?
2. How many types of job cards are prepared for clear understanding of work to be done?

ublished

SESSION 2: DEVELOPING GARMENT COMPONENTS USING SPECIFICATION

Understanding garment components and its specifications is very important to be able to do the construction perfectly. A garment component is a garment part that requires one or more separate pieces to be processed as a unit. Garment components are the basic sections of garments, including top fronts, top backs, bottom fronts, bottom backs, sleeves, collars/neckline treatments, cuffs/sleeve treatments, plackets, pockets, and waistline treatments etc. Hems may be completed as part of a component or as a part of final assembly or finishing. Stitches, seams, and/or bonding are used to assemble components of the final garment structure. Components are usually assembled simultaneously by different sewing machine operators. The brief description of each component is as follows:

- **Top front, top back, bottom front, bottom back** are the major sections of the garment. Fronts and backs may be one or more pieces depending on the style of the garment. Left and right sections are usually mirror images of each other but may be different if the garment is asymmetrical. Sometimes side seams are eliminated so that front and back are one piece. Front and back usually determine the basic shape, silhouette, and length of the garment. Front and back often have other components attached to them before the garment is assembled.
- **Sleeves** are a fundamental part of garment design, silhouette, and fit. They are functional in covering the arm. Sleeves can be of various length and styles, frequently with additional components, such as sleeve plackets and cuffs attached.
- **Plackets** provide a finished opening in the garment to allow a body part to pass through. Types of placket formations and methods of assembly vary widely in cost, quality, and design. Plackets often require some type of closure.
- **Collars and other neckline treatments**, such as facings and knitted bands, may finish, support, and provide aesthetic emphasis for the neckline of the garment. Neckline treatments may also involving closures and plackets to allow the head to pass through and still maintain a close fit at the neck.
- **Cuffs and other sleeve treatments** are components used to finish the lower edges of sleeves. Cuff type varies with the style and function of the component and garment, materials used, and method of assembly and attachment. Other sleeve treatments include casing, facings, and finishing the hems.
- **Pockets** may be functional, aesthetic, or both. They may be sewn onto garment parts, cut into the body of a garment, or incorporated into garment structure or inserted in to a seam. Pocket treatment may also

involve a closure. Pockets are sometimes used as a means of differentiating brands and style of products, particularly on jeans.

- **Waistline treatments** include components that serve to define the waistline of the garment, provide entrance to the garment, and /or hold the garment in place on the body. Waistline treatments may involve formation or application of bands, casings, facings, and elastic etc. They may or may not involve a waistline seam.

Components such as collars, cuffs, and pockets are small parts that are usually constructed independent of the final assembly. Many small parts are attached to the major garment component (tops, bottoms, and sleeves) before final assembly, but cuffs may sometimes be added after the sleeve is attached and the underarm seam is sewn. The particular treatment given to a component involved consideration of functional use, aesthetics, quality, complexity, materials, components, shape, sequence of assembly operations, time and costs.

It is necessary to understand the garment components for easy breakdown of steps of construction and analysis of complex garment construction. The operator must identify the components; determine the number of pieces and number of materials in each component, the operation breakdown, types of stitches and seams, stitches per centimetre (cm.), compatibility among materials, compatibility of materials, assembly methods, and pressing.

The first step is to identify the components used in the garment structure. The second step is to examine the shape and structure of each component individually including the number of pieces in the component, number of materials, and operation breakdown. The number of pieces in the component is a factor in preparation of parts, method and complexity of assembly, selection of seams, amount of handling that each component requires, and labour cost. Each garment piece requires developing a pattern, marking, cutting, sewing, and handling, all of which contribute to the cost of product development. The larger the number of materials in components, the greater is the sourcing, inventory, handling costs for the garment.

The third step is determining the operation breakdown in the analysis of components. An operation breakdown determines the sequence of assembly and a list of the steps in the production process. Appropriate methods for each operation are determined to meet cost and quality requirements. The methods used to assemble components often determine the sequence of final assembly.

Selecting stitch and seam types depends on the methods of assembly, materials use, predetermined quality level, performance expectations, cost limitations, equipment available and aesthetic requirements. Most stitch and seam types are identified according to ASTM (American Society for Testing and Materials) Stitch and Seam Standards. Stitch and seam quality depends on how materials react with each other, thread, needle, stitch and seam types, machine settings, and skills of operators.

Quality of stitch is based on the correct formation of the stitches as compared to the ASTM Stitch and Seam standards and consistent stitch length. Quality of a seam is judged on the selection of the stitch type, number of stitches per cm, seam width, and appropriateness of the seam type for the particular fabric and styling.

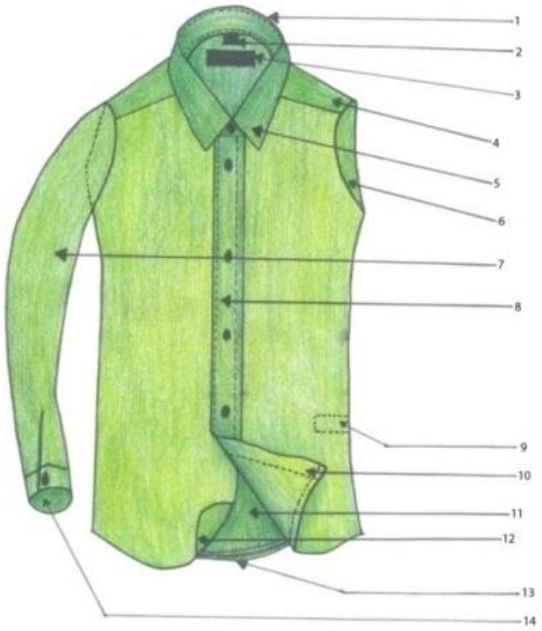


Fig.5.1: Components of shirt

S. No.	Component
1.	Collar stand
2.	Main label
3.	Composition label
4.	Yoke
5.	Collar
6.	Armhole
7.	Sleeve
8.	Box pleat
9.	Care label
10.	Upper front facing
11.	Body back part
12.	Lower front facing
13.	Bottom
14.	Cuff

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This sewing machine operator job card gives brief description of the component to be prepared with stitch specifications for operator to perform the operation.

An example of job card for one garment component- the pocket

Component of the garment: select whichever components are part of the garment as per style.

Table 5.7 Garment components

top front	top back	bottom front	bottom back	yoke	sleeves	collar	cuffs	plackets	pockets	waistline treatments
*	*			*	*	*	*	*	*	

Component being specified: Pocket (component on which the operator has to work)

Number of pieces: 1(number of component to prepare)

Number of materials: 2 (pocket piece and thread)

Drawing of the component

Drawing of finished component

Operation 1: Hem pocket.

Operation 2: Attach pocket to shirt front; reinforce corners.

Operation 3: Finish the pocket

With the knowledge of stitches & seams the operator can easily perform the task with perfection.

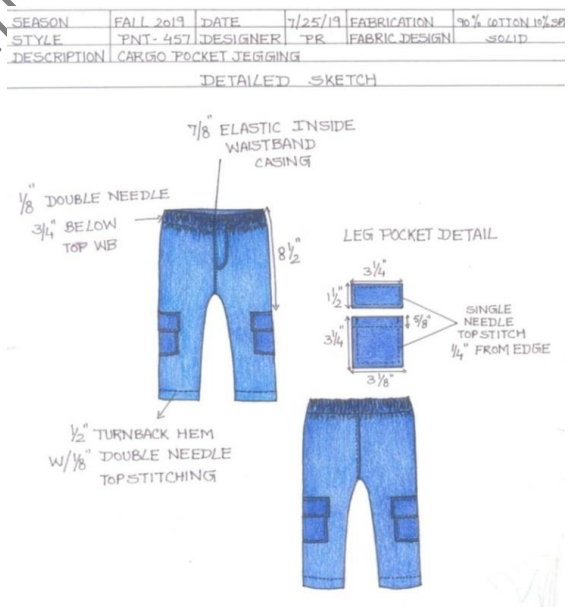


Fig.5.2: Specification sheet of a garment component

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PRACTICAL EXERCISE

Activity 1: Prepare a job card for sewing machine operator of a garment component with required specifications.

Materials Required:

- Paper/ Sheet
- pen
- Any 1 garment component

Step-by-Step Procedure:

- Select the garment component.
- Prepare job card for sewing machine operator with specifications of any 1 garment component.
- Place it in the practical file.

CHECK YOUR PROGRESS

A. Match the Column:

1. Top front	a) fundamental part of garment
2. Sleeves	b) are functional and aesthetic both
3. Stitch and seam type	c) major section of garment
4. Neckline treatments	d) require closure
5. Pockets	e) depends on method of assembly

B. Questions

1. Write about importance of specification sheet.
2. Explain different components of the garment.
3. Prepare a sketch of shirt components.
4. Prepare a sketch of pocket component.

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SESSION 3: REPORTING OF DAMAGE OR FAULT IN THE MATERIAL

A. Details of Damage or Fault in the Material

Fabric faults are responsible for major defects found by the garment industry. Due to the increasing demand for quality fabrics, high quality requirements are today greater since customer has become more aware of "Non-quality" problems. In order to avoid fabric rejection, mills have to produce fabrics of high quality, constantly. Often inspectors are given the responsibility of inspecting finished garments without adequate training in fabric defects and their causes. The ultimate solution is to provide actual examples or photographs of both major and minor defects.

- **Bad Selvedge**

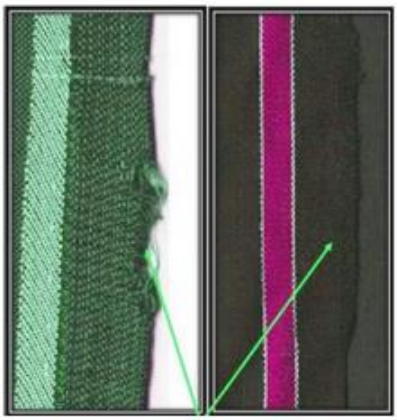


Fig.5.3: Defective selvedge

A bad selvedge is the result of-

- Loose or tight selvedge yarn in the Beam.
- If the pick yarn is entangled into the shuttle box the bad selvedge is occurred.
- If lower strengths yarn exist in the selvedge and comparatively fewer yarn can cause a bad selvedge of a fabric.
- Unparalleled weaving shed causes the bad selvedge.

2. Burl Mark: When a slub or extra piece of yarn is woven into the fabric, it is often removed by a "burling tool." This will usually leave an open place in the fabric.

3. Drawbacks: It is caused by excessive loom tension gradually applied by some abnormal restriction. When the restriction is removed, the excess slack is woven into the fabric. Usually the ends are broken.

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4. Dropped Pick: It is caused by the filling insertion mechanism on a shuttle-less loom not holding the filling yarn, causing the filling yarn to be woven without tension. The filling yarn appears as "kinky" (i.e. loose).

5. End Out: It is caused by yarn breaking and loom continuing to run with missing end.

6. Jerk-in: It is caused by an extra piece of filling yarn being jerked part way into the fabric by the shuttle. The defect will appear at the selvedge.

7. Knots: It is caused by tying spools of yarn together.

8. Mixed End (Yarn): Yarn of a different fiber blend used on the wrap frame, resulting in a streak in the fabric.

9. Mixed Filling: It is caused by bobbin of light weight yarn or different fiber blend used in filling. It will appear as a distinct shade change.

10. Open Reed: It results from a bent reed wire causing wrap ends to be held apart, exposing the filling yarn. It will be conspicuous on fabrics that use different coloured yarns on wrap and shuttle.

11. Slub: It is usually caused by an extra piece of yarn that is woven into fabric. It can also be caused by thick places in the yarn. It is often caused by fly waste being spun in yarn in the spinning process.

12. Smash: It is caused by a number of ruptured wrap ends that have been repaired.

13. Soiled Filling or End: Dirty, oil looking spots on the wrap or filling yarns, or on package-dyed yarn.

14. Stop Mark: When the loom is stopped, the yarn elongates under tension; when loom starts again' the slackness is woven into the fabric.

15. Thin Place: It is often caused by the filling yarn breaking and the loom continuing to run until the operator notices the problem.

16. Oil spot or stain: Discolouration on a local area in a fabric that may be resistant to remove by laundering or dry cleaning.. It is also produced in woven fabric if too much oiling has done on the loom parts.

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B. Report any Damage or Fault in Material

Sewing Machine operator is a skilled job so the operator is well versed with the operation, inspection and repairing of sewing machines. A sewing machine operator threads the machine, adjusts the tension, selects stitch settings and then gets down to sewing. He reports any defect or fault in material or assembling to the person responsible, as per company quality standards.

Steps of reporting to the relevant person-

1. He/she is supposed to give immediate verbal information to the Line In-charge/Line Quality controller/Mechanic.
2. Define the problem correctly.
3. Mention machine type and number.
4. The exact time of problem when it happened.
5. Precautionary action taken by him/her.

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PRACTICAL EXERCISE

Activity 1: Prepare a chart of common fabric faults.

Materials Required:

- Chart sheet
- Pen, pencil
- Eraser
- Ruler
- Markers and coloured pens

Step-by-Step Procedure:

- List out common fabric faults
- Prepare it in a chart form
- Label it neatly

CHECK YOUR PROGRESS

A. Match the Column

1. Bad Selvedge	1. will appear as a distinct shade change
2. Slub	2. faulty weaving
3. Mixed end (Yarn)	3. tying spools of yarn together
4. Knots	4. extra piece of yarn

B. Multiple choice Question

1. Usually caused by an extra piece of yarn that is woven into fabric
   a) Bad Selvedge,
   b) Thin Place,
   c) Mixed End
   d) Slub

2. It is often removed by a "burling tool."
   a) Stop Mark
   b) Soiled Filling or End
   c) Dropped stitch
   d) Burl Mark

C. Questions

1. Explain any three faults in material.
2. Define-
   a. Drawbacks
   b. Dropped pick
   c. End out

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ANSWER KEY

MODULE – 1

Session 1

Fill in the blanks:

1. Basting needle
2. Lapel
3. Blanket stitch
4. Facing
5. Rolled hem

Session 2

Fill in the blanks:

1. French seam
2. Run and fell seam
3. Plain seam with over lock finish

MODULE – 2

Session 1

Fill in the blanks:

1. Sleeve
2. Neck
3. Shaping
4. Set-in

Session 2

Fill in the blanks with appropriate choice:

1. (b) Curves
2. (c) Inverted pleat
3. (a) Pleats, fullness
4. (a) Knife, bottom

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5. (c) Box

Session 3

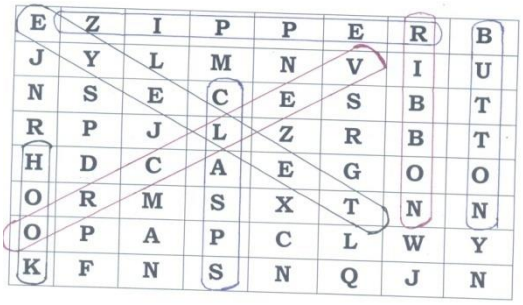
True or False

1. True
2. False

MODULE – 3

Session 1

Crossword-Search given fasteners names in the following crossword and circle them: Zipper, button, hook, clasps, ribbon, eyelet, velcro.



E	Z	I	P	P	E	R	B
J	Y	L	M	N	V	I	U
N	S	E	C	E	S	B	T
R	P	J	L	Z	R	B	T
H	D	C	A	E	G	O	O
O	R	M	S	X	T	N	N
O	P	A	P	C	L	W	Y
K	F	N	S	N	Q	J	N

Session 2

Match the column

1. – c (2,4)
2. – a (eye)
3. – b (loop)

MODULE – 4

Session 1

Fill in the blanks

1. Cleaning, maintenance
2. Warning
3. Dust, dirt
4. Waste

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Session 2

Fill in the blanks

1. Reuse, recycle
2. Raw materials

Session 3

Fill in the blanks

1. Guidelines, practices
2. Guidelines, instructions
3. Laws, regulations

MODULE – 5

Session 1

A. Fill in the blanks

1. Track, plan
2) Master operators
3) Time card

B. Match the Column:

1) b
2) c
3) d
4) e
5) a

Session- 2

Match the Column:

1) c
2) a
3) e
4) d
5) b

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Session 3

A. Match the Column:

1. Faulty weaving
2. Extra piece of yarn
3. Will appear as a distinctive shade change
4. Tying spools of yarns together

B. Multiple choice questions:

1. Slub (d)
2. Burl mark (d)

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