Diploma in Fashion Merchandizing and Readymade Garments

Diploma

PAPER II: APPAREL CONSTRUCTION MANAGEMENT (THEORY)

SYLLABUS

Unit 1: Sewing Machine

S.No.	Title	Details
1.	Sewing Commonterms	Grainline, bias binding, casing, dart, darning, dressmaker chalk, facing,fusible, interfacing, gathers, godet, gore, gusset, hem, interfacing, lining, muslin, notches, patchwork, pattern, piping, plackets, apparel production
2.	Types of sewingmachine	Manual sewing machine, motor operated sewing machine, digital sewingmachine, lock stitch sewing machine, chain stitch sewing machine
3.	Parts & Functions of sewing machine	Spool pin, thread guide, tension disc, take up lever, needle bar, bobbin case, presser foot, presser foot lifter, stitch regulator, bobbin winder, fly wheel, clutch or thumb screw, slide plate, needle plate or throat plate, feeddog, face plate, spool pin for bobbin winding
4.	Industrial Machines	Button sewing machine, buttonhole sewing machine, embroidery machine, zigzag stitch sewing machine, bartaking machine
5.	Care & maintenance	Sewing machine : oiling process, cleaning process
6.	Problems relatedto sewing machine causes and remedies	Causes and Remedies- • Threading problem • Needle problem • Oiling & Cleaning problem • Internal problem

Unit 2: Basics of Apparel style

S.No.	Title	Details
1.	Tailoring tools	Measuring tools, marking tools, cutting tools, stitching tools
2.	Measurement	Importance of taking body measurements, Points to be considered while taking body measurements, Types- direct and indirect measurement
3.	Silhouettes	Definition and its types-a-line, v-line/ chemise, trapezoid, tent, empire, low waist, i- line/ shift, sheath, pegged, bell, princess, balloon
4.	Types of dresses	One piece and two piece, casual wear, party wear, formal wear, informal

		wear, uniform
5.	Pattern making techniques	Meaning and definition of drafting, flat pattern and draping

Unit 3: Elements of Fashion apparel

S.No.	Title	Details
1.	Basic wears	Casual wear, formal wear, traditional wear, party wear, uniforms, maternity wear, sports wear
2.	Necklines	Jewel, round, U, V, square, glass, sweet heart, matka, funnel, scalloped, scoop, asymmetrical, keyhole, halter, boat, cowl, draw string
3.	Collars	Peter pan, cape, sailor's, shirt, shawl, Chinese, tie, polo or turtle, Nehru, ruffle, coat
4.	Sleeves	Plain, puff, bell, churidar, leg-o-mutton, Victorian, cowl, tulip, megyar, lantern, raglan, kimono
5.	Skirts	Straight, A- line, flared, circular, gored, knife pleated, box pleated, accordion pleats, pegged, mini, midi, maxi, wrap-a-round skirts
6.	Pocket, cuffs & Yokes	Basic styles of pockets, cuffs and yokes

Unit 4: Apparel Manufacturing

S.No.	Title	Details
1.	Introduction	Designing, layout, cutting, stitching, finishing, quality inspection
2.	Cutting	Fabric selection and design,
3.	Designing	Functions of designing section
4.	Fabric Preparation	Washing, checking grainline, straightening, pressing
5.	Layout	Types – open, length wise, width wise, bias, combination spreading of one way design, two way design, overall design fabrics, fur fabric, satin fabric, glazed fabric
6.	Cutting	Matching of lines & checks, cutting table preparation
7.	Stitching	Stitching of cotton, silk, satin, net, other drapable fabrics, jute, thick & thin fabric
8.	Needles	Type of fabric and needle
9.	Finishing	Ironing of different fabrics
10.	Quality inspection	Quality inspection benefits

S.No.	Title	Details
1.	Surface ornamentation	Meaning and definition, importance and role in apparel designing
2.	Basic types	Printing, dyeing, embroidery, appliqué, quilting, patch work, smoking, trim, fringe, piping, painting
3.	Printing anddyeing	Basic Hand Printing Process: block printing, stencil printing, hand painting, tie and dye Differences between dyeing and printing
4.	Embroidery	Difference between hand and machine embroidery Tools used for hand embroidery, principles of embroidery (tools, thread, design, fabric selection, neatness and finishing)
5.	Embroider ypattern	Design transfer techniques- direct drawing, transfer paper, carbon paper, tracing table, butter paper, tracing wheel, running stitch method Design selection criteria for apparel use- saree, necklines & sleeves of kurta, blouse, frocks, toppers, duppata

Unit 1: Sewing Machine

SEWING TERMINOLOGY

1. **Anchoring stitches**-These are machine stitches that are sewn with zero stitchlength, to keep from pulling out. This term can also be used to refer to when you stitch backwards for a couple of stitches, to anchorit.

2. **Applique**-This comes from the French word “appliquer,” which means to apply or put on. In sewing, applique is used to describe the process of applying one kind of fabric on top of another layer of fabric. This is fixed into place by sewing or by another fusing means. It can also refer to a surfaceembellishment.

3. **Armscye**-The opening in a bodice to which the sleeve is attached; also known as an armhole.

4. **Basting**-Basting stitches are temporary long running stitches, made by machine or hand, that hold fabric together before the final permanentstitching.

5. **Bias** -Bias refers to the diagonal of the fabric; a cut that's made diagonally across the crosswise and lengthwise grain of the fabric. This is a 45 degreeangle to the gain line, or diagonal direction of thefabric.

6. **Blanket stitch-**A hand stitch used for finishing a fabricedge.

7. **Buttonhole**-A small cut in the fabric that is bound with small stitching. The hole has to be just big enough to allow a button to pass through it and remain inplace.
8. **Casing** -A folded over edge of a garment, which is usually at the waist. It is used to enclose a way of adjusting the fit – for example for adrawstring.

9. **Clip**-To help flatten a curved seam, snip at even intervals along the inner curve, being careful not to cut into the stitchline.
10. **Crossgrain**-The line of fabric perpendicular to the selvage edge of thefabric.

11. **Dart -** A dart is a folded wedge of fabric used to shape a garment, particularly over curves. They normally appear around the waist andbust.

12. **Darn (or darning)-**Usually refers to the repair of a small hole, most often in knitwear, using a needle and thread. It is often done by hand, using a darning stitch.It can also refer to any number of needlework techniques that are worked using darning

stitches.

13. **Ease -**The allowance of space in a pattern for fit, comfort and style, over exact body

measurements. For example, a garment with a 40" bust made to fit someone with a 38" bust would have 2" of positiveease.

14. **Edge stitch** -Straight stitching very close to the edge of a seam, trim or outer edge. This is usually sewn to keep pressed seams inplace

15. **Facing** -A fabric piece used to create a finished edge on a garment, mirroring theedge it is sewn to and creating a enclosed edge. Typically used for necklines, edges with closures, orarmholes.

16. **French seam** -A French seam is a finished seam in which the seam is initially stitched with wrong sides together, then flipped inside and stitched right sides together. This encloses the seam allowance, creating a clean finish on the inside ofthe garment.

17. **Face**-The front of a piece of fabric (the *right*side).

18. **Gather** -A way of gathering the fabric to create fullness in the fabric, such asruffles. It is a technique for shortening the length of a strip of fabric, so that the longer piece can be attached to the shorterpiece.

19. **Grain**-Grain describes the direction of the warp and the weft in a woven fabric. The threads in a woven fabric are set up on a loom in a lengthwise and crosswise orientation. The lengthwise grain is used to lay out the garment pattern pieces. The crosswise grain runs from one selvage edge to theother.

20. **Grain line**-The imaginary line running lengthwise on the fabric, always parallel tothe selvage edge. The grain line is marked on pattern pieces with a straight line, usually with arrows at either end, and marked as "grain line" or "straightgrain."

21. **Grading** -After a seam is stitched, the two layers are trimmed to a different width in order to prevent a ridge showing on the outside of the garment seam. A second definition of Grading is the process of converting a pattern size to a larger orsmaller size.
22. **Hem** -The finished bottom edge of a garment. The hem indicates the edge which is usually folded up and sewn, thus creating a neat and evenfinish.
23. **Interfacing**-A term for a textile used on the unseen (wrong) side of fabrics. They support and stabilise the fashion fabric of thegarment.
24. **Lining**-A piece of material used to finish the inside of a garment. Linings can hidethe seam and make the garments easier and more comfortable towear.

25. **Notch**-The notches on a pattern help align the pattern pieces when you sew them together. Another type of notch is one that is added when sewing the outside edge of a curved seam. These notches are added by cutting wedge shapes into the seam allowance at even intervals, being careful not to cut into thestitching.
26. **Pattern**-A template on paper or cardboard from which all ofthe pieces of the garment

are traced onto fabric. All the parts are then cut out and assembled to create the final piece.

27. **Pintuck** -A narrow, stitched fold of fabric. This style is usually seen in multiples and creates a stylish and smartfinish.
28. **Pleat** -A type of fold in the fabric created by doubling the material back on itself and securing it in place. When ironed, they create a sharpcrease.
29. **Seam-**The line where 2 pieces of fabric are held together by thethread.
30. **Seam allowance-**This is the width of the fabric beyond the seam line. The standard seam allowance is normally1.5cm.
31. **Selvedge-**The woven edge of the fabric that runs parallel to the lengthwise grain– also called "selvage." They are the finished edges that do notfray.
32. **Staystitch** -Stitching placed on or just outside the seamline, stitched on a singlelayer of fabric. It is used to stablise the fabric and prevent it from stretching out of shape.
33. **Topstitch** -Topstitching is a row of stitches seen on the outside of a garment. They can be decorative and also add strength and wearing ability to anitem.
34. **Under stitch**-A row of stitching that attaches the facing to the seam allowance onthe inside of thegarment.
35. **Warp**-The lengthwise thread in wovenfabric.
36. **Weft**-The crosswise threads in wovenfabric.
37. **Yardage-**A term for an undefined length of fabric. Patterns will indicaterequired yardage needed for a garment in a specific size, detailing how much yardage is needed.
38. **Yoke**-A panel across the shoulders or thewaistline.

TYPES OF SEWING MACHINE

Though there are different types of sewing machine but mainly, three types are considered for sewing, as given below.

1. Mechanical sewing machines

2. Electronic sewing machines

3. Computerised sewing machines

1. Mechanical sewing machines-These machines are less expensive and are the simplest type of sewing machines in terms of build. They are the hand-operated sewing machine and treadle sewing machine.

Hand-operated sewing machine

(i) This is the simplest form of domestic sewing machine which is operated by hand.
(ii) A handle is attached to the flywheel which is detachable and is used to operate the machine.
(iii) A hand-operated sewing machine is generally used for domestic purpose for simple

(iv) This machine is suitable where there is no electricity supply

Treadle sewing machine

(i) This machine is the same as a hand-operated sewing machine but it is operated by feet, with an additional stand attached to the machine.
(ii) A belt is attached to the lower stand passing through the balance wheel and driven by feet.
(iii) These machines run faster than the hand-operated sewing machine.
(iv) This machine is also suitable for the places where there is no electric supply.
(v) When handling the treadle sewing machine, both the hands of the Operator are free to handle the fabric. Hence, this speeds up the work of sewing.

2. Electronic sewing machine

These machines became popular during the 1970s. There are many more features in an electronic sewing machine than in a mechanical sewing machine.

(i) These sewing machines run faster than manually operated machines.
(ii) In the electronic machines, balance wheel comes to motion by a belt, which is attached to an electric motor.
(iii) A single motor is attached to the electronic sewing machines and this motor supplies power to the needle.
(iv) It is essential to control the speed of this machine by putting pressure on an electronic foot pedal.
(v) Practice is essential to handle an electric sewing machine.

3. Computerised sewing machines

(i) These sewing machines are very fast and specific to use.
(ii) These machines are similar to the electronic sewing machines. However, a computerised sewing machine works with the help of various softwares.
(iii) Computerised sewing machines allow the Operator to tailor the functions according to the sewing needs.

A computerised sewing machine functions very appropriately in designing and stitching various components of the garment like sleeves, yokes, pockets, etc. These advanced computerised machines have an LED display or LCD display or touch screen. They are multi function machines and are expensive.

The following are some other types of sewing machines according to their specific applications.

(i) Lock stitch machine
(ii) Chain stitch machine
(iii) Double chain stitch machine
(iv) Buttonhole machine
(v) Button stitch machine
(vi) Bar-tack machine
(vii) Feed off arm machine
(viii) Over-lock machine
(ix) Blind stitch machine
(x) Over-edge machine

SEWING MACHINE: PARTS AND THEIR FUNCTIONS

The basic parts of a sewing machine are:

1. **Spool pin** is a metal rod placed on the top of the machine for correct positioning of the reel of thread.

2. **Thread guide** takes the thread from the spool pin to the needle through a small hole. It holds the thread in position from the spool to the needle. It smoothens the thread and protects it from abrasion.

3. **Tension disc** is a combination of two concave discs placed together with the convex sides facing. From spool pin, the thread passes through the thread guide, then between the tension discs to the needle. Tension discs control the delivery of the upper thread from the spool to the needle. The tension of the thread is adjusted by a spring and nut which decreases or increases the pressure.

4. **Thread take-up** lever is a lever fitted to the body of the arm located above the tension disc. It receives its up and down motion from the front axle. At the outside end of the lever, there is a small hole through which the thread passes. The take-up lever first loosens the top thread during the stitch formation, and then removes any slack to set or lock the stitch.

5. **Needle bar** is a metal rod to hold the needle at one end with the help of a clamp. Its main function is to give motion to the needle.

6. **Presser foot** is a detachable device for holding the material in place on the feed dog while stitching. This device is not used when attachments for tucks, ruffles or embroidery are used.

7. **Presser foot lifter** is the lever attached to the presser bar (located inside the face plate) to control the up and down movement of the presser foot. It must always be lifted up to take out the material from the machine.

8. **Stitch regulator** controls the length of the stitch.

9. **Bobbin winder** is a device which helps in winding the bobbin (located inside the slide plate) properly. The thread passes through it tightly or loosely, as desired.

10. **Fly wheel** (or balance wheel) is a round wheel located at the upper right of the sewing machine. This is made to revolve the machine. It controls the motion of the machine manually or electrically.

11. **Slide plate** is a rectangular plate, which facilitates the removal of the bobbin case without lifting the machine top.

12. **Needle plate or throat plate** is a semi-circular disc with a hole to allow the needle to pass through it. The fundamental purpose of this plate is to provide a levelled surface for the material and to prevent the dust from entering the inner parts of the sewing machine.

13. **Feed dog** consists of a set of teeth fitted below the needle plate. When the machine is in motion, the feed moves upwards, thus advancing the material as each stitch is made. It helps to move the material forward while sewing.

14. **Face plate** is a cover, which when removed, gives access to the oiling points on the needle bar, presser bar and take-up lever. 1

5. **Arm** is a horizontal part of the head that houses the drive shafts.

16. **Check spring** is a small wire spring behind or at the top of the tension discs. It provides a little amount of tension on the thread of the needle and acts a shock absorber.

17. Stitch thread regulator is a metal lever near the tension discs.

18. **Bobbin case** is fixed in the shuttle case placed in the bottom chamber (the hollow space under the slide plate) of the sewing machine and moves into position to catch the top thread and form the stitch as the needle is lowered into the bobbin case. The lower tension of the thread can be adjusted (by loosening or by tightening) by a small screw fixed on the bobbin case.

19. **Clutch or thumb screw** is in the centre of the fly wheel and it engages and disengages the stitching mechanism.

20. **Rubber ring** is a ring on the bobbin winder which comes in contact with the nut of the balance wheel. This should never be allowed to become oily, as it will make it slippery and will not be able to make proper contact with the balance wheel.

21. **Bobbin winder tension angle** is a device situated near the bobbin winder which helps to wind the bobbin evenly.

22. **Needle clamp** is a screw that is tightened to hold the needle in position.

23. **Handle driver** is attached to the handle attachment of the machine and helps to drive it with hand.

24. **Shuttle** holds the bobbin case and moves to form the loop as the machine is operated. It is fitted below the feed dog or to its left side.

25. **Treadle drive** is a large wheel located under the board in the treadle machine. It is connected tothe balance wheel with a leather belt. As it rotates, the power is transmitted to the balance wheel by the leather belt.

26. **Treadle** is the foot rest at the base of the treadle machine which is pressed with the feet to operate the treadle machine.

27. **Pressure regulating screw** is the screw above the presser bar, which can be tightened to increase the pressure on the fabric when stitching with fine/ lightweight fabric and loosened to accommodate thick fabric.

4.INDUSTRIAL MACHINES

Button Attaching Machine - As the name implies, the button attaching machine is virtually as simple as it gets and is geared for a singular task only.

Uses: With the prime objective of sewing on buttons, this machine is highly specific and serves one main purpose only, so that's one point off of versatility. However, it's fair to say that you can literally deal with every type of button with this machine, and the process is fairly automatic.

Buttonhole Machine - One of the most common types of industrial sewing machines, the buttonhole machine is utilized for punching holes in your garment. Yes, the task is specialized and carried out by a particular utility.

Uses: The main use for this machine is that with it, you can sew buttonholes with different stitch densities, which can result in different qualities.

Embroidery machine - These advanced embroidery sewing machines have many built-in embroidery designs and ability to store the designs in its memory along with USB ports so that you can import designs into the machine and store your favorite bought or designed embroidery designs. You can use them when and where you want them.

Some even have design editing features so that you can combine many designs and make a new one altogether. More advanced machines will have features like the ability to preview the designs on the LCD display screen (colour & b/w) and then change the thread colour etc.

Zigzag Sewing Machine - The zigzag sewing machine is pretty self-explanatory and is good at making a very particular pattern.

Uses: As the name implies, a zigzag sewing machine is proficient in making sewing patterns that appear in a zigzag shape. They can effectively be used on any garment that requires this pattern but is most notably used for the sewing of bras, jacket, and other clothes that require extra attention to detail.

Bartack Machine - Like the button attaching machine, the bartack machine is also very specific and functions a singular task only.

Uses: The main purpose that this type of machine serves is to reinforce seams and garment components. The principle dictates that any and every type of bartaking task can be executed to perfection by this machine, which is something you can't do with other machines.

CARE AND MAINTENANCE OF SEWING MACHINE

Introduction

The care and maintenance of a sewing machine helps to improve its working. This consists mainly of cleaning, oiling, and right handling, which contributes to good output, quality production and safety of the workers. Care and maintenance is also necessary in order to operate the machine smoothly and for its long term use.

Cleaning, Oiling and Handling of Sewing Machine

A clean, well-oiled sewing machine is essential for good output and safety. The maintenance of sewing machine is also important in preventing stitching faults. When not in use, keep the machine covered with a suitable cover to prevent dust from settling on it. In some organisations, this is done by the operators but in others, it is done by a mechanic.

Cleaning of sewing machine

While cleaning the machine, pay attention to the various parts of the machine, the machine table or stand, the work station, and even your hands, to avoid soiling the material being sewn, prevent accidents and damage to the machine. These directions mainly hold true for the lockstitch machine, but they can easily be adapted to other machine types also. The machine should always be kept covered when not in use to protect from dirt and dust. Before attempting to clean the machine, it is wise to remove the needle to avoid the danger of sewing into the finger during the cleaning process.

Material required for cleaning

1. Flat paintbrush (½" to ¾" wide)

2. Cleaning solvent or fluid

3. Soft disposable cloth

4. Screwdriver

5. Sewing machine manual

6. Small handy vacuum cleaner

All dust and dirt can be removed by wiping the part out carefully with the cloth, but if the machine is clogged, a more careful cleaning is necessary. Common tools like a small dry brush or old toothbrush or compressed air and a soft cloth are used to remove dust and lint.

Points to be considered while cleaning

1. Before cleaning any machine, turn it off.

2. Open the slide plate and remove the bobbin case. Then remove the throat plate. Whenever it is required, remove the face plate from the left end of the head.

3. Any lint, dust, or loose threads in the area around the feed dog and rotary hook, shuttle may be brushed or blown away. Do not use anything hard, such as a screwdriver or scissors points, to

remove the lint. Instead, carefully use a pointed instrument like a needle or pointed tweezers/plucker to pick out bits of thread and lint that cannot be brushed out.

4. Turn the hand wheel manually to expose any areas that might have been hidden initially. Brush again.

5. Carefully tilt the machine head back until the head rests on the post on the back of the table.

6. Brush out any lint, dust, or threads from the lower part of the machine.

7. Use a soft, thin and clean cloth to remove any lint on the machine parts.

8. Unscrew all plates and screws and the bobbin case.

9. Check the needle to be sure it is clean and the eye is not clogged.

10. Replace the needle, if necessary.

11. Wipe away any excess oil or dust on the head, machine bed, motor, table, and stand.

12. If there is lint between the tension discs and in the thread guides, use thread to floss the tension discs and remove any lint.

13. If you have oiled the machine, sew on few scraps to remove any excess oil.

14. Wash hands after cleaning and oiling the machine.

15. After completing the work, put a piece of fabric under the foot, lower the presser foot, cover the machine, and pick up any trash.

16. For cleaning the machine, it is good to clean one Notes area at a time. Remove only those parts that are detachable, and keep in mind the position and direction of each part that is removed for cleaning. Keep the parts in order to make it easier to attach them.

17. When using a screwdriver, apply pressure on the screw, if a screw does not loosen easily. Soak it in a good quality cleaning fluid available in the market for the sewing machine. Petrol or kerosene can also be used as cleaning fluids. Then set the screwdriver in the slot to loosen the screws if required.

18. Remove all the parts that is, the needle, presser foot, slide plate, throat plate, bobbin case, and the face plate. Put them in the tray and soak in cleaning fluid.

19. Wrap the motor to protect it from oil and cleaning solvent. Ensure that the sewing machine has been unplugged.

20. To clean the feed dog, remove the needle plate of the machine and brush off all lint deposits and dirt sticking to different parts.

21. To clean the shuttle case, remove all the screws holding the shuttle case. Take out the shuttle case and wipe its groove free of dirt, and thread bits.

22. Sometimes loose threads wind around the pivots of the treadle and make the sewing machine hard to run. Thread bits must be removed which are caught in the wheel along with all lint and dust sticking to the treadle parts.

23. Use a cloth or small brush to clean near the needle and feed dog.

24. If the machine starts to run hard, it is an indication that dirt or lint is jammed inside a bearing. In that case, remove the bobbin case to remove all lint and stray threads. Continuously run the machine and flush it with the cleaning fluid until the dirt and gummed oil are washed from the bearing

25. The bobbin case can be removed from the sewing machine easily. Use a dry brush to clean out all lint. Remove any thread that may be wound up around the hook shaft. In some machines, the hook assembly can also be removed for complete cleaning.

26. Remove bobbin and bobbin case, and clean small thread particles from there.

27. Pull a piece of cloth soaked in the solvent, back and forth between the discs to clean it from dust, lint or any other particles. Repeat with a dry cloth to make sure that no lint or thread is caught between them. To remove any remaining dirt and oil, dip a cloth or brush in a cleaning fluid and scrub all parts of machine that can be reached. Check the lower tension of the bobbin case and the upper thread tension discs. Pull a thread under the bobbin to remove dirt.

28. Clean the hand wheel, washer, and the shaft. Lubricate the shaft with two drops of sewing machine oil and place a small amount of grease on all gears. Reassemble the hand wheel and clutch. After properly cleaning these areas, reassemble all the parts of the sewing machine and run it. If reassembled correctly, it should run smoothly.

Oiling the sewing machine

Always keep your sewing machine well oiled. All dust should be removed from the exposed parts at least once every week, and the important parts of the machine should be oiled. Use good quality sewing machine oil. Always remove lint deposits, dust and thread bits before oiling any part of the machine. In order to operate the machine smoothly, it is essential to oil it repeatedly. Material required

1. Sewing machine manual

2. Sewing machine oil

3. Soft disposable cloth

Points to remember while oiling the sewing machine

1. Before oiling, ensure that the sewing machine is turned off.

2. Oil the machine using the directions given in the machine manual. Inspect the condition of all visible parts of the machine every time you oil it.

3. If a manual is not available, oil the machine as per the directions of the teacher/instructor as per the required frequency.

4. Locate oil holes of the sewing machine. They are mostly identified by arrows, or red or yellow paint. Put one to two drops of oil into each hole. Too much oil will clog the machine. Turn the hand wheel manually so that the oil will work its way between the parts.

5. Wipe off all dust and excess oil from the machine or table; clean up any spilled oil immediately.

6. Sew on a few fabric scraps to remove any excess oil.

7. Wash hands after oiling the machine.

8. Excess oil is a major problem that can spoil and damage the fabric.

Method for oiling of the sewing machine

It is necessary to oil the sewing machine periodically. If the machine is used everyday, oil it once a week. If you do not use it very regularly, then oiling once a month is sufficient. The frequency of oiling depends on its use, and sometimes on the material sewn. To oil thoroughly, remove the upper thread, needle plate, slide plate, face plate, bobbin case, and needle and presser foot. Put sewing machine oil in all oil holes and joints where one part rubs against another. One or two drops of oil are enough for each point. While oiling, turn the fly wheel back and forth to facilitate the flow of the oil to different moving parts. It is necessary to oil the shuttle case. After oiling the points on the head of the machine, tilt the machine head back to oil the points on the underside. On a treadle machine, the belt will have to be releasedbefore tilting the machine head back. Remember to oil the pivots of the treadle. When the machine has been completely oiled, wipe away excess oil and run it slowly for 2–3 minutes on a waste piece of material. Before you close the machine, place a scrap of fabric under the presser foot and lower the needle. The fabric will absorb the excess oil that might drain down through the machine and will prevent the formation of oil spots on your work the next time the machine is used.

If the sewing machine becomes gummed and dirty with oil, put a drop of kerosene or petrol in each oil hole and at joints, and run it rapidly for 1–2 minutes. Then wipe off the oil that oozes out with a soft cloth and re-oil the machine. It will require a second oiling within few hours after this treatment.

Check the machine instruction booklet/manual to determine the types of oil lubricant to use and where to use them. Do not oil the tension discs, the hand wheel release or the belts and rubber rings in any machine. Run the machine so the oil would be distributed into all the bearings. Use oil freely because all oil has been removed in the cleaning process. For later oiling, one drop of oil on each bearing and in each oil hole is enough.

After oiling the sewing machine, wipe away the excess oil and reassemble the machine. The oil used should be of good quality, preferably regular machine oil, as otherwise it may clog the bearings. Care should be taken to see that too much oil is not deposited in, as it is liable to spoil the cloth being stitched. It is advisable to do a few stitches on a waste piece of cloth until clear stitches are obtained.

Care and maintenance of sewing machine Most sewing machines encounter problems that can be traced to poor general maintenance or neglect. But with some simple tools and just a few minutes daily, weekly, or monthly, depending on how much our sewing machine is used, we can help keep our machine running smoothly.

PROBLEMS RELATED TO SEWING MACHINE CAUSES AND REMEDIES

Some of the common defects related to sewing and the sewing machine, the possible causes, and the best possible corrective actions associated with these are.

1. **Defect: The machine does not feed the material.**

Possible causes

(i) The stitch length has been set to zero.
(ii) The presser foot pressure is too low.
(iii) Feed dog is lowered.
(iv) Threads are knotted under the fabric.

Corrective action

(i) Set the proper stitch length.
(ii) Set pressure of presser foot.
(iii) Raise feed dog.
(iv) Remove fabric and knotted threads. Then again place the fabric properly.
(v) Place both threads back under the presser foot before starting to sew.

2. **Defect: Machine running heavily**

Possible causes

(i) Dust or lint clogging under the feed dog
(ii) Insufficient oiling
(iii) Thread caught in the shuttle
(iv) Machine not used for sometime with the result that the parts have jammed

Corrective action

(i) Clean the feed dog.
(ii) Oil the machine properly.
(iii) Remove the thread from the shuttle.

3. **Defect: The sewing machine does not run.**

Possible causes

(i) The presser foot is not properly placed and the needle hits the presser foot.
(ii) The needle has come out and is in the shuttle area of the machine.

Corrective action

(i) Place and tighten the presser foot properly.
(ii) Remove the needle and insert a new one again, or place it at the right position.

4. **Defect: The upper thread breaks.**

Possible causes

(i) The threading is not correct.
(ii) The thread has a knot in it.
(iii) The upper thread tension is too tight/high.
(iv) The needle is bent or blunt.
(v) Wrong size of needle
(vi) The needle has been inserted wrongly.
(vii) The needle and thread do not match, and are also not suitable for the fabric to be sewn.
(viii) Started stitching too fast
(ix) Thread take-up lever has not been threaded

Corrective action

(i) Thread the machine correctly.
(ii) Remove knots from the thread.
(iii) Make correct the thread tension.
(iv) Replace with a new needle, of good condition.
(v) Replace with a needle of the correct size.
(vi) Insert the needle properly.
(vii) Use a suitable thread and needle.
(viii) Start the machine at a medium speed.
(ix) Check the threading order.

5. **Defect: The bobbin thread breaks**

Possible causes

(i) The bobbin has not been fully inserted/pushed in the bobbin case.
(ii) The bobbin case has not been threaded correctly.
(iii) The bobbin does not turn smoothly in the bobbin case.
(iv) A lint in the bobbin case or shuttle

Corrective action

(i) Securely install the bobbin in the bobbin case.
(ii) Thread the bobbin case correctly.
(iii) The bobbin should not be overwound.
(iv) Check that the bobbin has been wound evenly.
(v) Clean the bobbin case and shuttle, and remove the lint. Defect: Skipped stitches

6. **Defect: Skipped stitches**

Possible causes

(i) The thread tension is too tight/high.
(ii) The needle is bent or blunt.
(iii) Wrong size of the needle
(iv) The needle and thread do not match.
(v) The thread take-up lever has not been threaded.
(vi) Light pressure on the presser foot
(vii) Incorrect setting of the needle

Corrective action

(i) Correct the thread tension.
(ii) Replace with a new needle of good condition.
(iii) Replace with a needle of correct size.
(iv) Use a suitable thread and needle.
(v) Check the threading order.
(vi) Increase pressure on the presser foot.
(vii) Reset the needle properly.

7. **Defect: The stitches are not formed properly**

Possible causes

(i) The thread has not been pulled into the thread guide.

(ii) Threading is not correct.

(iii) The bobbin case has been threaded wrongly.

Corrective action

(i) Fully pull the thread into the thread guide
(ii) Correct the threading.
(iii) Correctly thread the bobbin case.

8. **Defect: Irregular stitches**

Possible causes

(i) Incorrect size of the needle
(ii) Improper threading
(iii) Loose upper thread tension
(iv) Pulling of the fabric
(v) Light pressure on the presser foot
(vi) Loose presser foot (vii) Uneven or overwound bobbin

Corrective action

(i) Choose the correct size of the needle for the thread and fabrics.
(ii) Rethread the machine properly.
(iii) Tighten the upper thread tension.
(iv) Do not pull the fabric; guide it gently.
(v) Increase pressure on the presser foot.
(vi) Reset the presser foot.
(vii) Rewind the bobbin properly.
(viii) Remove overwinding of the bobbin.

9. Defect: Fabric pucker

Possible causes

(i) The stitch length is too long for the material.
(ii) The needle point is blunt.
(iii) Incorrect thread tension
(iv) Light pressure on the presser foot
(v) The fabric is too sheer or soft.
(vi) Using two different sizes or kinds of upper and lower threads

Corrective action

(i) Decrease the stitch length.
(ii) Replace with a needle of good condition.
(iii) Reset the thread tension.
(iv) Increase pressure on the presser foot.
(v) Use an underlay of tissue paper/backing.
(vi) The upper thread and bobbin thread should be of the same size and kind.

10. Defect: Bunching of thread

Possible causes

(i) The upper and lower threads are not drawn back under the presser foot

(ii) The placement of the feed dog is down.

Corrective action

(i) Draw both threads back under the presser foot.
(ii) Fit the feed dog properly.

11. Defect: Needle breaks

Possible causes

(i) A thin needle was used for sewing a heavy weight material.
(ii) The needle has not been fully inserted/pushed into the needle bar.
(iii) The screw of the needle clamp is loose.
(iv) The presser foot is not the correct one.
(v) The presser foot is loose.
(vi) Pulling of fabric

Corrective action

(i) Use the correct size of the needle.
(ii) Properly insert/push the needle in the needle bar.
(iii) Securely tighten the needle clamp screw.
(iv) Use correct presser foot.
(v) Reset the presser foot.
(vi) Do not pull fabric; guide it gently.

12. Defect: Loud noise is heard and/or knocking noise; machine jammed

Possible causes

(i) Dust has accumulated in the feed dog.
(ii) Lint is in the hook and shuttle area.
(iii) The thread is caught in the shuttle.

Corrective action

(i) Clean the machine and remove the lint.
(ii) Disassemble the shuttle case and clean it.
(iii) Oil the machine.

13. Defect: Threading cannot be done

Possible causes

(i) The needle is not at the highest position.

Corrective action

(i) Turn the hand wheel until the needle reaches its highest position.

14. Defect: The thread does not enter the eye of the needle.

Possible causes

(i) The eye of the needle is clogged.
(ii) The thread is thick in comparison to the eye of the needle.

Corrective action

(i) Clogging should be removed by using a fine wire.
(ii) Change the needle.
(iii) Select the thread according to the needle.

Unit 2: Basics of Apparel style

SEWING EQUIPMENT AND TOOLS

INTRODUCTION

Clothing along with food and shelter has been recognized as integral and inseparable part of mankind in all parts of the world. Historical records shows that primitive people were covering and decorating their body with paints, tattooing, mutilation as well as by fur, beads, stones, wood, leaves and barks etc. This was the first attempt that was made to cover the body. The main function of clothing is to provide protection against climatic extremities, means of self expression, aesthetic enjoyment, conformity, to indicate socio- economic status as well as a source of decoration.

CLASSIFICATION OF TOOLS USED IN CLOTHING CONSTRUCTION

Clothing construction requires a variety of tools that can be classified into the following categories:

- MeasuringTools
- MarkingTools
- CuttingTools
- FittingTools
- SewingTools
- Finishing / PressingTools
- GeneralTools

Using the right tool will help make the garment construction easier. These tools help increase the accuracy of the finished product, saves time and also simplify tasks.

MEASURING TOOLS

The following are the commonly used measuring tools for garment construction

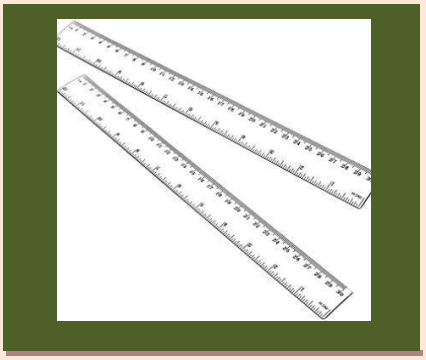
1. **Measuringtape**
2. **Ruler or YardStick**
3. **L -square or Tailor'sSquare**
4. **Hem marker/skirt marker**
5. **Gauge**

Measuring tape

Tape should be of good quality with a smooth surface and with metal tipped ends that prevent the tapes from raveling. At one end of the tape the metal tip is long (3") and is used when vertical measurements are taken. The other end has a short metal tip with a small hole at the centre. This side is used in taking circumference measurements. The small hole aids in drawing circle of perfect measure. Tape is marked with centimeters as well as inches to facilitate the conversion from one system to another. Generally tapes are of 150 centimeters(60 inches) long. The best tape choice is a flexible synthetic or fiberglass, which will not tear or stretch.

Ruler or Yard Stick

Ruler or yard stick is the best device for taking long, straight measurements on paper. Sticks of good quality and that are smoothly finished should be used. Ruler of 15 cm to 30 cmlong and yard stick of 1.5 meterscale marked in centimeters and inches are commonlyused.



L -square or Tailor's Square

It resembles the letter L – with perfect right angled corner. It is more accurate than ruler and convenient for measuring skirt lengths or straight lines of material before starting pattern layout. It is made of good quality, light weight, smoothly finished hardwood. Sometimes it is available with French curve, useful to mark corners, perpendiculars and curves of the pattern

MARKING TOOLS

1. **Tailor'schalk**
2. **MarkingPencil**
3. **TracingWheel**
4. **Dress Maker's CarbonPaper**

Most commonly used dress maker's marking tool is tailors chalk and it is made of either clay or wax. It is available in various colours like white, yellow, blue, red etc with different sizes and shapes which facilitates quick and efficient marking. Wax based tailor's chalk is available in a 2 inch square white colour piece, mainly used for marking woolen fabrics. Tailors chalk is very safe because it does not leave any stain or permanent marking on the material. Light brushing is sufficient to rub off the marked lines completely.

Marking Pencil

These are convenient and precise tools for marking cutting and stitching lines. These are available in white and pastel colours. Since the marking pencil is made of wax, the coloured lines can be removed by simple washing.

Tracing Wheel

It is used with or without dressmaker's carbon paper to transfer pattern marking onto the fabric. Tracing wheel is about 15 cm in length, having a wheel with saw-like periphery, which is connected by means of stem and at the rear end with a convenient handle. Tracing wheels are available in variety of edges 1)Needle-point wheel, makes a faint line that is desirable on fine thin fabric. 2) A serrated edge produces a prominent line that is good for marking heavy, loosely woven fabric, deep points are more effective on thicker fabric 3) A smooth wheel is recommended for delicate fabric such as velvet and knit that are subjected to snagging and are damaged by other types of wheels. Use of tracing wheel in conjunctionwith a carbon paper is very safe, because it does not leave any coloured markings, but a line of tinydots remain which aretemporary.

Dress Maker's Carbon Paper

By using carbon paper constructional details such as shape of the pattern, cutting and stitching line can easily be transferred on the material. These are available in white and several colours.

Care to be exercised while using carbon paper.

1. No carbon markings should never be placed on the right side offabric.
2. No lines to be markedboldly.
3. The colour of the carbon must not show through thefabric.
4. If the garment is underlined, marking may be made on the underliningonly.
5. White carbon paper is recommended for colour fabrics, because it is removed easily duringcleaning.

CUTTING TOOLS

Scissors and shears are the important tools to the dress maker. Various types and sizes of scissors and shears are designed to perform different constructional work. Common working principles of scissors and shears are similar but their application is different. Visually one can easily differentiate scissors and shears - shears have one finger ring bigger than the other for better grip while cutting thick or several layers of patterns. Whereas scissors have identical round finger rings. A separate pair of scissors or shears should be kept for cutting the cloth and the paper pattern.

The following types of shears and scissors are used in clothing construction.

1. **Shears**
2. **Scissors**
3. **Rotarycutter**

SHEARS

1. **Dress makingshears**
2. **Bent-handle shears**
3. **Electricshears**
4. **Pinkingshears**
5. **Serrated bladeshears**

Dress making shears

Dress making shears are heavy duty scissors which are designed specifically with the needs of seamstresses in mind.The distinguishing feature of dressmaker's shears is that the handle is offset from the blades, allowing them to be used to cut fabric against a flat surface without distortion. In shears, one of the finger rings is typically larger than the other. In industrial terms, the finger rings on scissors and shears are known as “bows”. The large bow of a shear is usually on the side of the blade which points towards the floor when in use. The length of the blade varies from 25 to 30cm.

The edges of dressmaker's shears are typically ground with a beveled edge and they are extremely sharp. It is important to keep shears, sharp to avoid mangling of the fabric, as specially while cutting multiple layers of fabric at a time for efficient cutting.

Dressmaker's shears are not symmetrical, as they are available in both right and left-handed versions to facilitate comfortable use. It is important to use dressmaker's shears which are engineered for dominant hand, as it reduces the risk of injury and makes work more comfortable. It is also a good idea to try out a pair of shears before use, to make sure that they are comfortable in handling. shears are available in different materials from heavy brass to very light weight materials. Some have rivets at the crossing of two blades.

Bent-handle shears

These shears have straight blades with a handle that is off-set at an angle allowing the lower blade to stay flat on a cutting surface. The design of the handle allows the bottom blade to rest on the flat surface below the fabric without lifting the fabric from the flat surface. The blade size is less than 15 cm long. Sharp shears are the key to prevent hand fatigue and accurate cutting along pattern lines.

Electric shears

These are used in most sample rooms. Electric shear is a type of hand tool suitable for a variety of cutting applications. They are essentially battery-powered shears Electric shears are also known as power scissors or cordless scissors. They resemble a utility knife with dual crossing blades on the end rather than a single blade, but a few models are designed slightly

different. Most varieties are powered by alkaline batteries, but a few are powered by rechargeable batteries. They are ideal for cutting silk, nylon, and soft, hard-to-cut fabric.

Pinking shears

They produce a notched cutting line (zig zag) which gives a neat appearance to the inside of garments, as these shears have saw tooth blades.

These shears are used for pinking seams or decorative edges on felt, suede, chintz, etc. They are used to add a ravel-resistant seam finish to loosely woven fabric. It automatically notches and reduces bulk in seams and creates a decorative finish. Blade lengths range from 7" to 10 1/2" and are available in lightweight models, as well as scalloping shears for a more rounded effect.

Scissors

Scissors are hand operated cutting instruments. They are 5 to 6 inches long, used for light cutting, trimming, clipping corners and cutting curves. They are designed for snipping threads and trimming seams. They are also used for cutting various thin materials, such as paper, cardboard, metal foil, thin plastic, cloth, rope and wire.

1. **Embroideryscissors:**
   These are light weight cutting scissors with 3 to 4 inches in size with narrow blade tapering into two sharp points. Blades are joined by a pin, screw or rivet and designed with two evenly sized ring handles. These scissors are ideal for clipping and notching, trimming fabric from delicate appliqués, embroidery and snipping thread tails.

2. **Button holescissors:**
   These scissors are adjusted to cut button holes of required length. They are greatly used when many button holes are to be made. Buttonhole scissors have a special adjustable screw for securing them partially open as per the length of buttonhole required. This open position translates to a precise cutting length (usually between 1/2" and 1 1/4") that prevents cutting of the stitches at the buttonhole end.

3. **Trimmingscissors:**
   These are used for trimming or clipping seams and cutting corners, and are generally 15 to 17.5 cm long with narrow blades and tapered sharp points.

4. **Snippingscissors:**
   These are spring-action clippers with or without a finger loop featuring very short blades for cutting thread tails and clipping seams quickly.

Care guidelines while using shears and scissors:

1. Take long strokes using the length of theblades.
2. Do not use fabric-cutting scissors for cutting paper or other nonfabric materials.

3. Wipe scissors with dry cloth after each use. This is especially important after cutting polyesters and other synthetics, since lint from these manmade fibersis abrasive and can dull the blades.
4. Keep the cutting blades sharp. Scissors and shears may be sharpened using a professional-style electric sharpener or they may be sent to a professional sharpeningservice.
5. Occasionally oil the pivot screw with a tiny drop of sewing machine oil. Open and close the blades few times, then wipe the blades with a softcloth.
6. Don't force a cut -this can deform the blades or spread thempermanently.
7. Store scissors or shears in a box orpouch.
8. Never drop shears on the floor, it looses itssharpness.

Rotary cutter

This tool helps in cutting more than five layers of cloth at a time. It is electrically operated having a round circular shaped blade with a guard in the front of the blade. It is generally used in small garment manufacturing units. There are several sizes and types of rotary cutters available. Blade sizes range from 18 mm to 60 mm in diameter. Smaller diameter blades make cutting out curves and details much easier; whereas the larger-diameter blades make quick work of long, straightcuts.

FITTING TOOLS

French Curve / Tailor's Curve: The main function of the curve stick is to give shape especially at neckline, arm hole, waist, crotch etc. It is made up of good quality wood or plastic with shaped curves marked in inches. Sometimes it is also used for measuring the length of the curve that is shaped.

SEWING TOOLS

The correct selection of sewing thread and needle prior to garment assembly is essential in order to achieve required finish to the garment.

The importance of thread and needle is often under estimated though fundamental to garment construction i.e. forming of stitches and subsequently joining of seams. Without hand and machine needle the construction work is incomplete. Clothing industry has demanded the development of threads and needles of various sizes and shapes to cope up with advanced technology at which the garments are manufactured with minimum machine troubles.

1. **Needle**
2. **Sewingthreads**
3. **Sewingaids**

Needle

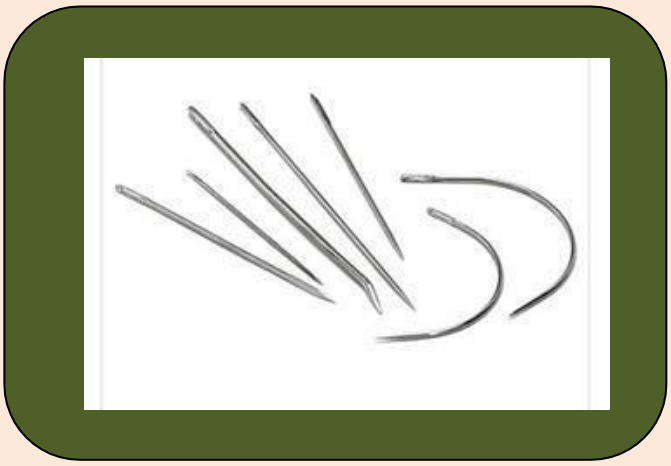
Needles are classified as follows

1. **Hand sewingneedles**
2. **Machine sewingneedle**

1. Hand sewingneedles

A hand sewing needle is a long, slender steel shaft, with an eye at one end. The shaft tapers to a fine ball point tip or wedge end. These needles function to carry the thread through the fabric while hand sewing. Needles are designed in a variety of sizes, types, and classifications developed according to specific use.

For each needle type, sizes range from a low number, (coarse needle) to higher number (finer needle). Diameter of the needle shaft increases proportionately at the eye end according to the length and size.



Hand needles are selected according to the following factors

1. Structure offabric
2. Weight and type offabric
3. Type ofthread
4. Size and weight of threadand
5. Intendeduse

The needles available for hand sewing are specified below

1. **Ball pointneedle**
   A needle is designed with a rounded tip and a small round eye, designated as medium length, sizes range from 5 to 10 for knits and lingerie fabrics. Ball point needle slides between the yarns instead of piercing as it penetrates the fabric. It reduces occurrence of holes and runs in fabrics such as jersey and tricot.

2. **Ball pointneedle**
   This needle is very fine, long with a small round eye used for beadwork, sewing sequins, pearls, etc.

3. **Betweens**
   A needle designed with a small rounded eye and designated as short length; sizes range from 1 to 12 to produce short fine stitches as in tailoring, handwork and open work

4. **Crewels/embroidery**
   A needle is designed with a long oval eye and designated as medium length; sizes range from 1 to 12 to carry multiple strands of thread for embroidery.

5. **Chenille**
   Large-eye needle with sharp point for ribbon embroidery,

6. **Darners**
   A coarseneedle designed with a large, long oval eye. Designated as long length, the sizes range from 14 to 18. It can carry multiple strands of thread for weaving on loosely woven woolen and open weave knit fabrics.

7. **Sharps**
   A needle with a small rounded eye and of medium length is called the sharp. Sizes range from 1 to 12. These are general purpose needles with sharp point for sewing and appliqué

8. **Tapestry**
   Large-eyed needle with a blunt point for cross stitch, needle point and for stitching knitted items.

2.Machine sewing needles

Sewing machine needles are made up of steel. They are manufactured in different sizes and types for both industrial and home sewing machines. Size range from fine to coarse and are chosen with regard to interaction of yarn of the fabric and size of thread. Higher numbers indicate thicker points and coarser needles. Needles are standardized and classified with regard to the type and model number of machine on which they are used.

There are many different kinds of needles among which majority of sewing needles are listed below

1. **Ball-point needles** are used for sewing knits and meshes. The rounded tip of this needle passes between the fibers of thefabric.
2. **Sharp-point needles** are used for sewing fine woven fabrics. The pointed, sharp tip pierces the fibersof thefabric.
3. **Universal point needles** can be used for sewing both knits and woven's. It is an excellent needle for general sewinguse.
4. **Denim needles** are used for sewing heavy, dense fabrics such asdenim.
5. **Leather needles** have a wedge-shaped tip for punching through leather, even for heavy vinyl and similar fabrics. Care should be taken while sewing with these needles as they leave large holes on removal ofstitches.

Sewing threads

Sewing thread is an integral component of the garment though it is often invisible. Typically, the cost of thread is less than 5% of the retail selling price of the garment but 50% of the responsibility of the garment's performance is dependent on sewing thread.

A wide variety of threads from cotton, polyester, polycot to rayon are available for varied uses. It is customary to use cotton thread or cotton materials and polyester or polycot thread for synthetics. Rayon threads are used for embroidery work.

SEWING AIDS

DRESSMAKER'S PINS:

Comes in different sizes for use in different fabrics for holding of fabrics together temporarily before machining. These are long slender pins with highly polished finish and a fine tip for easy

THIMBLE:

A sewing thimble protects the middle finger of the right hand while hand sewing. Helps to push needles through the material being sewn and to prevent fingers getting pierced by the needle

SEAM RIPPER
A seam ripper is used to remove and pick out unwanted stitches/threads. The fine tip of a seam ripper picks out single thread and cuts it.

NEEDLE THREADER:

It can be used for both hand and machine needles to push the wire through needle eye.

FINISHING/ PRESSING TOOLS

Once the garment is constructed, it is subjected to neatening through trimming and pressing. Pressing is important at every stage of stitching, because poor pressing can destroy the appearance of a well constructed garment. In addition to the sewing tools and sewing machine, good pressing equipment is also essential.

1. **Iron**
2. **Ironboard**
3. **Sleeve board**

IRON

There are different types of irons available in the market like flat iron, thermostatic, automatic, non automatic, charcoal, steam iron etc. Among all, the thermostatically controlled or automatic electric irons are the best, in which the temperature can be adjusted to various types of materials. These are most convenient for general purpose and homeironing.

Irrespective of types available in the market one should remember to keep base of the iron very clean and follow the guidelines given by the manufacturer while using.

IRON BOARD

Ironing boards can be free standing or mounted depending on the available space and frequency of use. Good padding should be provided to cover the base and it should be made from a natural fiber fabric like cotton or wool for best pressing. Foam pads are available for most ironing boards but they do not allow moisture absorption. A thick soft padding on the ironing board gives better results.

SLEEVE BOARD

A sleeve board allows pressing of narrow garments sections such as sleeves and trouser leg. The ideal sleeve board must be strong, stable and have sufficient space between the board and the base so that fabric does not crease in working. It is ideal for pressing necklines, shoulder seams and small hard to reach areas like pockets, belts, loops as they can be spread on this board without stretching or wrinkling the rest of the garment.

GENERAL TOOLS

PIN CUSHION: Pin cushions are useful to store needles before and after they are removed from the fabric. They can be made at home by using soft fabric and filling it with hair instead of cotton wool. Some pin cushions have an emery pack for cleaning and sharpening pins and needles, and some cushions can fit on the wrist for handy use. Pin cushions are available in a variety of styles like a tomato pin cushion, a wristband pin cushion and magnetic type.

AWL: It is a small, sharp-pointed tool used to punch small, round holes for marking in paper or leathers

LOOP TURNER: It is a long wire with a latch hook, used for turning bias strips to make spaghetti straps and narrow belts.

BODKIN: It is used for drawing elastic, cord or ribbon through a fabric casing. They are basically large needles with large eyes meant for easy threading.

ORANGE- STICK: This is a long tool whose point can be inserted into the corners of collars, seams, etc., so as to give a neat pointed appearance.

STILETTO: This is a pointed metal with a wooden handle and is used to make eyelet holes or openings.

DRESS FORM: It is a padded form of body and may be made of wood, cardboard, plaster, reinforced plastic. It is an essential necessity in all sample rooms for designing and fitting.

2.MEASUREMENT

Meaning of Anthropometric Measurements

The term anthropometry is derived from the Greek work “Anthropos” which means “Human being”.

According to **Encyclopedia of Britannia, 1971,** “it is a systematic collection of measurements of the human body”.

Comparative measurements of human beings are known as Anthropometric Measurements. In Anthropometric Measurements we take the measurements of different parts of human beings, like-height, length, head circumference, Waist circumference, Hip circumference and the weight.

In garment construction we need to take the measurements of an individual or a dress form to construct a garment of proper fit. Standard measurements obtained by calculating proportionately from some basic measurements like: the bust measurements are also used.

Importance of Anthropometric Measurements

Carefully taken measurements play a very important role in garment production for individual use as well as for industrial production. Proper measurements are important for consumer satisfaction. Following are some points that describe the importance of measurements:

1. Knowledge of anthropometry is needed in taking measurements and creating the standardized scale.
2. Anthropometric data is used in the readymade clothing industry.
3. Detailed measurements are useful for standard drafting and making paper pattern.
4. Measurements are also necessary for perfect fit because no two persons are same are alike in the body measurements.
5. The final look and fit of the garment principally depends upon the measurements taken.

6. Measurements are needed for calculating the exact quantity of fabric required, to avoid fabric wastage.

Guides for Taking Accurate Measurements

While taking measurements one should keep in mind some of the rules which will help in avoiding mistakes related to fitting, these are:

1. One should try to find out the client's requirements regarding the fit, style, shape, pockets, collar etc. before taking measurements. A preliminary talk with the client and showing patterns and fashion pictures and stitched garments can help a lot.
2. One should observe the figure of the client carefully and record any deviation from the normal figure,
3. The person to be measured should stand erect in a natural pose and if possible in front of a mirror.
4. Measurements should be taken in proper order and in a certain sequence and should be recorded simultaneously.
5. All girth measurement should be taken just right as ease for movement is included in the draft.
6. Repeat the measurements to confirm.
7. Measurements to be taken comfortably, without pulling the tape too tight or too loose.
8. Before starting the measuring one should locate the structural lines of the garment by tying a cord at waist line, scye line & neck.
9. Measurement should be taken over well fitted undergarments and if taken over out garments, then these garments should be fairly closely fitted.
10. While taking length measurement tape should be kept absolutely flat, smooth and straight i.e. parallel to the spine or centre front.
11. Care should be taken to start and finish measurements at the same point.
12. While taking width measurements be sure that tape does not sag and tape should be parallel to the floor.
13. Arc measurements are taken from centerlines to side seam.

14. One should avoid taking too many measurements or relying on elaborate methods of measuring which can create more mistakes.

Direct and Divisional Systems of measurements

There are two different approaches to the drafting of patterns by measurement; direct and divisional system.

Direct system - In the direct system, measurements are taken on the figure directly. This is the most commonly used system for garment construction.

The Direct measurement system has some drawbacks like taking of direct measurements is considered difficult and unreliable, and the construction of a basic pattern on such data is thought to be unscientific.

It is impossible, for instance, to establish exact points or levels on the figure from which one could measure with accuracy expected in drafting. The figure may vary slightly from day to day, and the physical state, even the mood of the person, may affect some measurement (e.g. a tired person usually tends to stoop more, and so will have a wider back). A different foundation garment may change some measurements, and personal preferences may have to be taken into account (preference for tighter- or loose- fitting clothes, for instance).

Apart all these difficulties, direct measurements must be used because there is no satisfactory substitute for them in dressmaking. The only thing one can recommend is to take and use measurements intelligently, according to a definite plan.

Divisional or proportionate system - The Divisional system depends on various measurements and proportions obtained by calculation from one or two basic measurements (mostly from the bust, sometimes by height).

The Divisional system is used mainly in tailoring where shapes of garments are less standardized, fashion changes more frequently, fashion details are more varied and subtle, and fabrics cover a much bigger range.

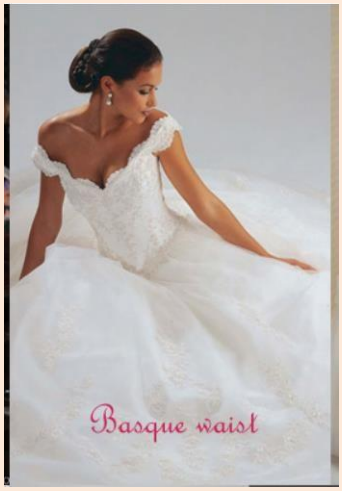
3.SILLHOUETTES

A dress silhouette is the overall shape that a dress creates when it hangs on your body—in other words, it's the outline of the dress rather than all the little details. From gowns to evening dresses, different silhouettes aim to emphasize or flatter different body types or parts. For instance, certain silhouettes (like A-line dresses or ball gowns) emphasize a small waist, while others (like shift or empire) draw attention away from the waist.

A-line. First coined by fashion designer and stylist Christian Dior, A-line silhouettes are among the most popular dress types because they look great on almost every body shape. The A-line silhouette features a fitted bodice and flares out at the waist to form a triangle shape like a capital A. A-line silhouettes emphasize a defined waist and broader hips. A-line dresses can range in length from above-the-knee to full skirts (maxi). Occasionally, the term A-line may describe any dress that has a hem much wider than its shoulders, regardless of a fitted upper body, cinched waist, or corset-style top.

Chemise /v – line - The term "chemise dress" has traditionally been used to describe a dress cut straight at the sides and left unfitted at the waist, in the manner of the undergarment known as a chemise. This term has most often been used to describe outer garments during transitional periods in fashion (most notably during the 1780s and the 1950s), in order to distinguish new, unfitted styles from the prevailing, fitted silhouette.It is a type of cut style which starts at the waist or below it and falls down towards the center, creating a V shape. It accentuates the hips portion, and is

suitable for curvy figures, and for ladies who have a short waist structure. It is also known as Basque waist.



Trapezoid silhouette

This silhouette which is similar to an A line silhouette but with a more pronounced flare near the hem is shaped like a trapezoid or rather a tent. Basically speaking it looks like a triangle, flaring as it does from under the armhole. This silhouette works as a short dress rather than as a full length dress, as it can overwhelm the figure.

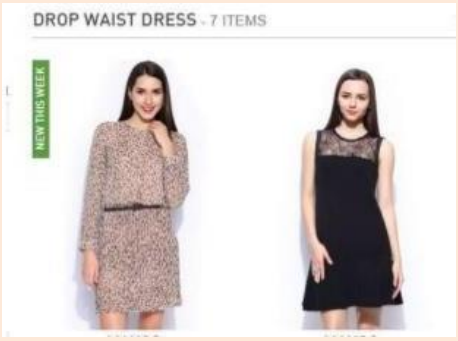
TENT

A TENT dress is a style that is wide like the TRAPEZE dress, but the hem is flounced. TENT dresses also do not fall below the knee like the TRAPEZE dress usually does.

Empire waist. Empire waist dresses are fitted through the bust but flare out immediately under the bustline, rather than at your natural waistline. This shape's effect is slimming; the cinch creates a high waist and a longer silhouette than if the dress cinched at your natural waist, elongates the wearer's frame—great for petite women or women who want to draw attention away from their waist.

Sheath. Sheath dresses are form-fitting at every point—from your neckline to your armholes to your hem. The sheath silhouette emphasizes your curves (especially useful for curvy or hourglass figures) and will often feature slits for freedom of movement.

Low-Waist Dress - Drop-waist dresses typically fit loosely from shoulder to hip, transitioning into a pleated or gathered skirt at the hip, rather than the natural waistline.



Shift./I -line Shift dresses flow from your shoulders, straight down along your body, with only slight differences between the measurements for bust, midsection, hips, and hem. Also known as column dresses, this silhouette is especially popular in the summertime because its boxy shape hangs off your body, giving your skin ample room to breathe in hot weather.

Pegged Dress - A pegged skirt tapers towards the bottom - much like pegged jeans have legs that are wider at the thighs but taper to be just wide enough for the foot to get through at the ankle. Pegged skirts may not taper as drastically as pegged trousers and may end up at the knee rather than ankle

Bell silhouette - Bell or Ball gown silhouette is fitted in the bodice till the waist and then flares generously to the hem to make a bell shaped skirt . This silhouette is typically found in traditional dresses/ wedding dresses ; a very popular choice of young women about to be married.
The flare of the skirt in this silhouette is mostly achieved by layers of fine fabric . A petticoat with many frills of crinoline under the gown also helps to create this silhouette.

Princess — This silhouette is quite similar to the A-line, It is fitted at top and follows clean lines as it flares out through the skirt.

BALLOON - BALLOON dresses have a similar shape to the BELL dress, because they have the fitted bodice at the top and a wide hem, but BALLOON dresses are loose and flow. They have all the fabric of a BELL dress without the bell shape, so the hem bounces with you as you walk. This is where the “balloon” part of their name comes from!

4.TYPES OF DRESSES

One piece dress- One-Piece is clothing for women of a shape in which the upper garment and the skirt are connected together.

Two-piece dresses sets like the name suggests are two piece dresses that are meant to go together. They're usually in the same colour or print and are available in a variety of silhouettes.forming a clothing ensemble with matching top and bottom parts

casual wear emphasises comfort and informality. Casual wear refers to the clothes we use for everyday wear. This style emphasises on comfort, relaxation, and informality. It includes a wide range of clothes and styles. Casual dressing gives first place to personal expression and comfort over formality and conformity.

Tee-shirts (polo shirts, turtlenecks, etc.), jeans, jackets, khakis, hoodies, summer dresses, skirts, sneakers, loafers and sandals are examples for casual wear. Sportswear, clothes worn for manual labour also falls under casual wear. It can be worn when you are going on trips, shopping, and casual outings with friends. This style is also worn by high school and college students unless the schools don't have a specific uniform. Casual wear is usually made from materials such as cotton, jersey, denim, polyester and flannel. Casual wear is not made from expensive and dressy materials such as chiffon, brocade, and velvet. Casual wear should not be worn for ceremonial events, parties, weddings and other formal events, business meetings or to work (in offices).

Formal Wear

Formal wear refers to clothing that is suitable for formal events such as ceremonial events, weddings, balls, formal dinners, etc. Formal wear is nowadays mostly worn at formal dances, high school prom dances, and entertainment industry award programs.

Although most people associate black tie with formal wear, the satirically proper dress code for formal wear is white tie for evening and morning dress for daytime. Women are supposed to wear ball gowns or formal evening (floor length) gowns.

Uniforms such as formal military uniforms, law court dress, academic and graduate dress are also considered as formal wear.

The following list will give a clear description of the dress code for formal wear.

Formal Wear for Men

- Black dress coat (tailcoat), matching trousers with two stripes of satin or braid (Europe or the UK) or a single stripe (the US)
- White vest
- White bow tie
- White piqué wing-collared shirt with stiff front
- Braces
- Shirt studs and cuff links
- White or grey gloves
- Black patent shoes and black dress socks

Formal Wear for Women

- Floor length evening gown long gloves (optional)
- Long gloves (optional)ss

Informal wear, also called business wear, corporate/office wear, tenue de ville and (colloquially) dress clothes, is a Western dress code for clothing defined by a dress shirt with necktie, sometimes with a business suit for men, and cocktail dress or pant suit for women. On the scale of formality, it is considered less formal than semi-formal wear but more formal than casual wear, yet retaining availability for more personal expression than semi-formal wear. Thus, informal should not be confused with casual wear such as business casual or smart casual despite that some people may refer loosely to informal dress as "formal" in contrast with merely casual.

Party Wear- rA party dress is a **dress worn especially for a party**. Different types of party such as children's party, cocktail party, garden party and costume party would tend to require different styles of dress. One classic style of party dress for women in modern society is the little black dress.

Uniform -It is **a type of clothing worn by members of an organization while participating in that organization's activity.** Modern uniforms are most often worn by armed forces and paramilitary organizations such as police, emergency services, security guards, in some workplaces and schools and by inmates in prisons. In some countries, some other officials also wear uniforms in their duties.When everyone in the business or school wears the same thing, employees and students have equal footing. No one can stand out due to better or more expensive clothing. This increases self-confidence and unifies the group. Everyone is on the same platform, regardless of economic status.Wearing a uniform means not having to buy work or school clothes. This creates less strain on the budget.

Finally, uniforms create a sense of belonging. Everyone wearing one feels at home, and that improves team building and overall satisfaction.

5. PATTERN MAKING TECHNIQUES

Pattern grading is the scaling of a pattern to a different size by incrementing important points of a pattern to smaller or bigger sizes.Once a designer has completed a drawing of a garment, it is transformed into a sample pattern.

“Patternmaking” is the process of creating all the correctly sized pieces needed to make a complete garment. For many smaller manufacturers, pattern making is still done on paper because the cost of computerized systems remains prohibitive.

Methods of Pattern Making

Pattern making involves three methods-

- Drafting
- Draping
- Flat paper patternmaking

Drafting:

It involves measurements derived from sizing systems or accurate measurements taken on a person, dress or body form. Measurements for chest, waist, hip and so on, and ease allowances are marked on paper and construction lines are drawn to complete the pattern. Drafting is used to create basic, foundation or design patterns.

Advantages of Drafting Method

1. It is easy to understand and easy to work with drafting method for a new worker.

2. Drafting is very useful for personal use and for small scale garment production like local tailors, boutiques.
3. Clothes made from drafting techniques are based on individual measurements and hence are perfect in fitting for an individual.

Limitations of drafting method

- It is a two dimensional method, thus look of a design can be seen only after stitching a garment.
- Drafting method is limited by its dependence on a chart of specified measurements, which makes it impractical for creating the ever changing designs.
- Rapid changes in designs and sizing are very difficult and long process in drafting technique.
- Drafting pieces do not contain seam margins, notches, stitch lines, some other details.

Draping:

It involves the draping of a two dimensional piece of fabric around a form, conforming to its shape, creating a three-dimensional fabric pattern. This muslin is transferred to paper to be used as a final pattern (Armstrong). Ease allowances for movement are added to make the garment comfortable to wear. Advantage of draping is that the designer can see the overall design effect of the finished garment on the body form before the garment piece is cut and sewn. However, it is more expensive and time consuming than flat pattern making.

Principles of Draping

- Always use grain lines.
- Straight grain should always run perpendicular to the floor and cross grain parallel to the floor.
- The body lines such as bust line, waistline, hipline etc should be parallel to the floor

- Use good quality pins that do not loose shape easily.
- Establish seam lines on the form
- Tear the muslin piece instead of cutting
- Check the balance of the warp and weft
- Mark grainline on muslin; mark cross grain at the fullest part of the dress form
- Place the muslin on the form as per the marked lines, place it in position with pins
- Pin the fabric to the form at the seams.
- Never pull the fabric and distort the grain
- Darts, pleats, tucks etc need to be pinned
- Drape all pieces of the garment
- Mark all lines clearly
- Mark curved seams with small dots at frequent intervals.

Advantage of draping

- Draping is advantageous because without cutting the fabric one can know the entire effect of a garment rather than just minute details.
- It is a three dimensional method, the design can be visualized while draping and any necessary changes can also be made.
- Dress form can be of particular size or of standard measurements.
- This helps the designer to achieve the difficult designs by draping different fabrics. For designs such as cowls this method alone can offer good results.
- In draping we can see the features of garment, and characteristics postures in relation to fabric and time into which we are going drape it, and immediately we can sense the harmony between draped fabric and wearer

Limitations of draping techniques

1. It is an expensive technique of garment construction and not so common in India.
2. Draping requires more talent than required for flat pattern design.
3. Initially dresses are drape

Flat Pattern Making:

It involves the development of a fitted basic pattern with comfort ease to fit a person or body form. A sloper is the starting point for flat pattern designing. It is a simple pattern that fits the body with just enough ease for movement and comfort (Shoben and Ward). Five basic pattern pieces are used for womens clothing. They include a snug-fitting bodice front and bodice back with darts and a basic neckline, a sleeve and a fitted skirt front and back with darts. However, as fashion changes frequently womens styles fluctuate frequently. These basic slopers are then manipulated to create fashions.

A basic sloper has no seam allowances, which facilitates its manipulations to various styles. It has no design interest, only construction lines are marked on it. It is necessary that the basic structure of a sloper should be such that adjustments can be introduced easily. For a good pattern making, accurate measurements are of utmost importance.

Three Major Patternmaking Principles

For making flat pattern and for making alterations according to different design it is very important to know the pattern making principles. If we know the basic principles of pattern making and alteration, we can create any design without affecting the size and shape of the original pattern. Any pattern can be created and modified if we know the basic three principles, which are:

1. **Principle of dart Manipulation:** there are many rules for creating, combining and dividing the darts and transferring dart at different places on a pattern piece. Dart can be shifted to a new place by slash and spread method and by pivot method.

2. **Principle of added Fullness:** there are rules for adding fullness in a garment. Fullness can be provided in a garment with the help of gathers, pleats, tucks etc.

3. **Principle of contouring:** there are rules for making contoured patterns to make it fit the curves of the human

Advantage of flat pattern designing

1. Flat pattern methods provide the versatility to create designs according to fashion change. This method requires a basic pattern fitted to the dummy or the individual figure. Initially this is time consuming and tedious process but it will not require repetition.
2. Basic slopers are basic blocks which can be adapted for a particular design.
3. Pattern alteration is very easy. Patterns can be altered by creating and shifting darts to new places, by adding or deleting darts, by adding pleats, gathers, yokes etc. This alteration is very simple in case of flat pattern technique.
4. The main and one important advantage of this technique is that the newly developed designer pattern retains the size of original basic pattern.
5. Grading in different sizes can be done very easily by flat pattern techniques. It saves the time and energy to be otherwise wasted in making pattern for different sizes.
6. It is very useful for mass production of garments as it based on standard measurements.
7. One basic pattern or sloper can be used again and again to develop several designs, and every time we don't need to take measurements.
8. All paper patterns have seam allowances and detailed markings. It makes it easy to work.
9. Provide better understanding and use of commercial patterns.
10. The woman with a problem figure can save hours of alteration, basting and fitting an individual garments by making her own patterns from a basic pattern, fitted to her figure.
11. A creative person whose interests and talents lie in the costume arts can design her own wardrobe by creative use of flat pattern design. One can restyle old and out of date pattern.

Limitations of flat pattern

1. It is not as easier as drafting. We need to know in detail about the basic principles of pattern making and pattern manipulation to construct a properly fit garment.
2. It is a two dimensional method, the final appearance of the design can be seen only after stitching a garment.
3. It needs proper training and practice.

Unit 3: Elements of Fashion apparel

1. BASIC WEARS

casual wear emphasises comfort and informality. Casual wear refers to the clothes we use for everyday wear. This style emphasises on comfort, relaxation, and informality. It includes a wide range of clothes and styles. Casual dressing gives first place to personal expression and comfort over formality and conformity.

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What is the difference between Casual and Formal Wear?

Casual vs Formal	
Casual is everyday wear.	Formal wear is worn for formal events.
Occasions	
Casual wear is worn for informal and relaxed occasions such as trips, shopping, meeting friends, etc.	Formal wear is worn for formal events such as ceremonial events, weddings, state dinners, etc.
Clothing	
Casual wear includes jeans, tee-shirts, skirts, summer dresses, hoodies, etc.	Formal wear includes dress shirts, dress coats, ties, trousers, long evening gowns, etc.
Shoes	
Sneakers, loafers, slippers, and sandals are worn for casual wear.	High-quality shoes are worn for formal wear.
Materials	
Materials such as cotton, jersey, denim, polyester and flannel are used to make casual wear	Materials such as satin, velvet, silk, brocade, etc. are used to make formal wear clothing.
Feel	

Traditional wear -A major part of any country's culture and people are the clothes they wear. Better known as the 'Traditional Costume or Attire' of a country, in different cultures, what a person wears is often indicative of his to her personal and social identity, marital status, occupation and sometimes-even religion.

Though following these traditions and wearing traditional clothes is slowly reducing in most countries where westernization is coming more into play, costumes and traditional wear will always have an important part, on the most important days…like festivals, weddings and important events and functions.

It maybe not be practical to wear on a daily basis in this day and age but sure enough is part of our culture and nationality which defines us as a race.

India being so diverse culturally and geographically, almost every region and state in Indian has their own attire.

Some similarities and common factors can be found in these costumes for instance the Sari/Saree can be called the Traditional attire of Indian Women, but the sari is worn differently in different parts of the country.

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Sportswear or **activewear** is clothing, including footwear, worn for sport or physical exercise. Sport-specific clothing is worn for most sports and physical exercise, for practical, comfort or safety reasons.

Typical sport-specific garments include tracksuits, shorts, T-shirts and polo shirts. Specialized garments include swimsuits (for swimming), wet suits (for diving or surfing), ski suits (for skiing) and leotards (for gymnastics). Sports footwear include trainers, football boots, riding boots, and ice skates. Sportswear also includes bikini and some crop tops and undergarments, such as the jockstrap and sports bra. Sportswear is also at times worn as casual fashion clothing.

For most sports the athletes wear a combination of different items of clothing, e.g. sport shoes, pants and shirts. In some sports, protective gear may need to be worn, such as helmets or American football body armour.

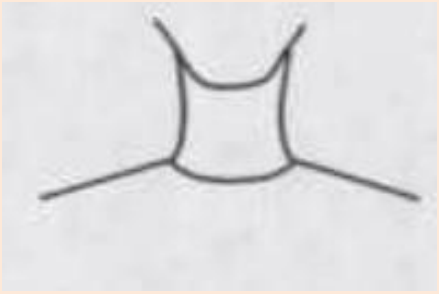
Sports fabrics are technical materials which help to keep the wearer comfortable during exercise. The type of fabric required will depend upon the intensity of the exercise and the activity. Yoga clothing should use fabrics with exceptional stretch ability for easy movement which will likely require the fabric to be of a knitted construction. Apparel for long distance running will keep the wearer in good comfort if it has excellent moisture wicking properties to enable sweat to transfer from the inside to the outside for the garment. Performance clothing for outdoor sports in the winter or snow sports should use breathable fabrics with very good insulating properties.

Maternity clothing is worn by women as an adaptation to changes in body size during pregnancy. The evolution of maternity clothing began during the Middle Ages, and became fashionable as women became more selective about style and comfort in the types of maternity clothing they wore.

Maternity wear is generally designed using a loose, suitable cut that includes elastic, tabs, stretchable fabric such as elastane, and spandex that allows the consumer extra-comfort in her gestating days. After pregnancy, many women also wear maternity clothes until they have lost the weight of pregnancy and can fit back into normal clothing.

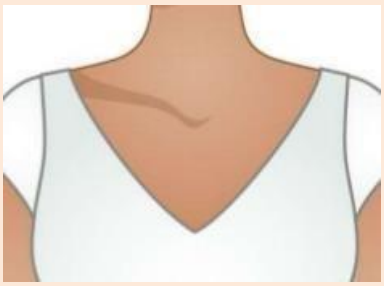
2. NECKLINES

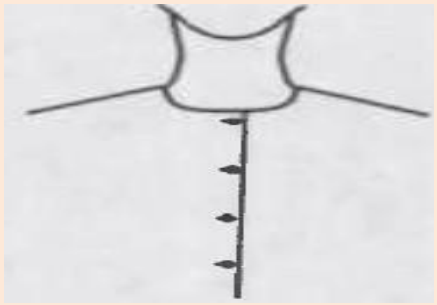
Necklines are perhaps the most conspicuous part of any dress design. It is the top edge that surrounds the neck, especially from the front view, it is part of the bodice around the neck. In women's garments, neckline can be shaped in different ways and styles to get a decorative effect.



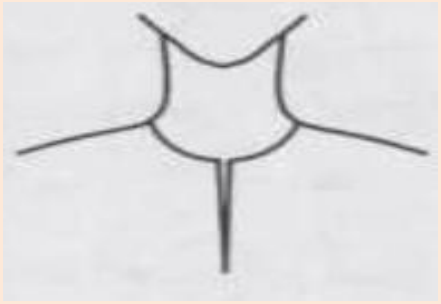
Jewel neckline: This is high round neckline located at base of neck or throat, also called tshirt neckline or crew neck. Mostly found in casual wear.

V- neckline: This is a classic neckline formed by two diagonal lines from the shoulders that meet on the chest creating a V shape. The depth of the V can vary from demure styles to plunging. They are generally seen in casual wear.

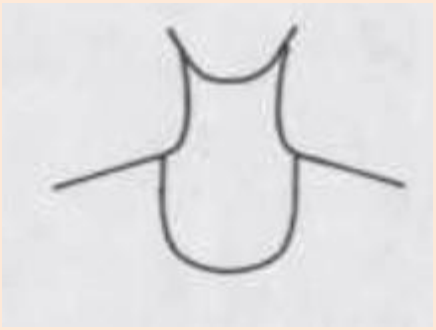




Cardigan neckline: A Jewel or V neckline that opens in the front, usually with buttons along center front.

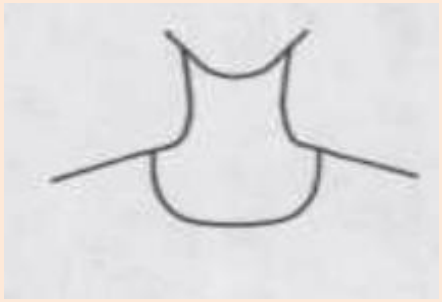


Slit neckline: A narrow vertical opening in a neckline. The slit may be in the front or back. It may be held closed with a button and loop or other fastener.

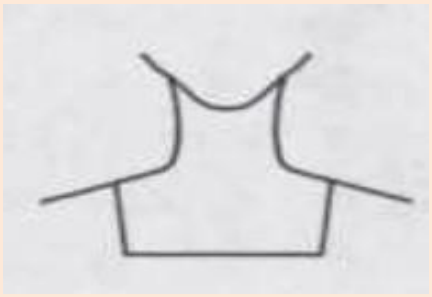


U-neckline: It is cut in front in the shape of letter

'U'. It is the modification of round neckline. The depth of neckline is more than the normal round neckline.

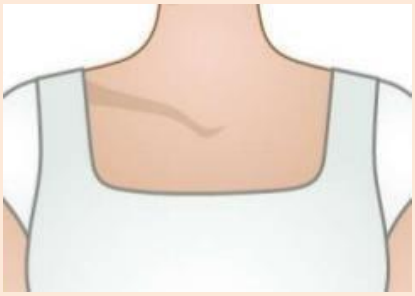


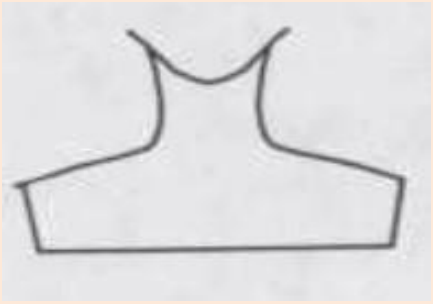
Scoop neckline ; These have a curved U-shape, with the arms of the U hanging on the shoulder, the depth of the U can vary, from demure styles to plunging, conservative to scandalous, but one that is not more than 6” below the collar bone.



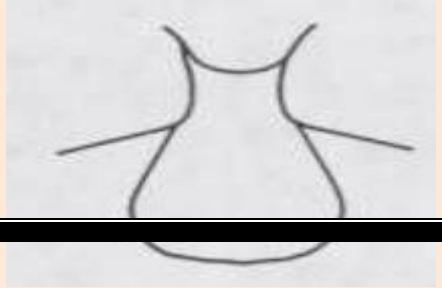
Square neckline:

This neckline shape resembles the square shape and has two corners in front. It is a characterized by three linear edges, the bottom edge meeting the side edges at right angles. The bottom edge cuts across the figure horizontally and the side edges pass over the shoulder. It is a moderately low-cut neckline.

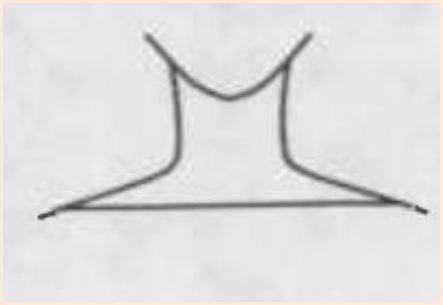




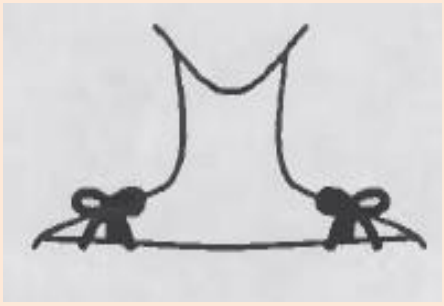
Florentine neckline: It is a moderately low, but very wide, angular or square neckline.



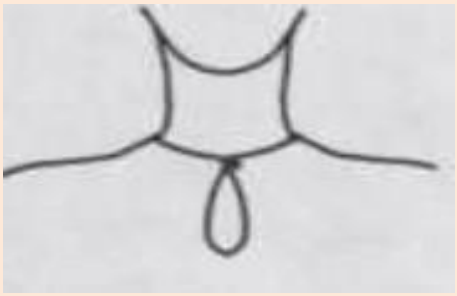
Horseshoe neckline: A low rounded curved neckline, shaped like a horseshoe in front.



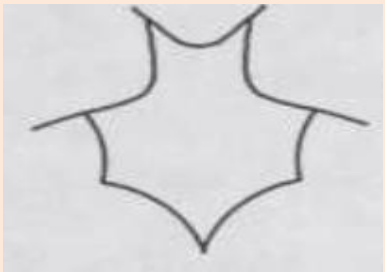
Boat neckline: It is a wide, high neckline that runs horizontally, front and back, almost to the shoulder points, across the collarbone. Also called *bateau neckline.*



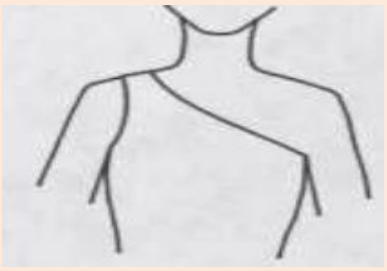
Sabrina neckline: Wide horizontal neckline, not as high as boat and usually has a little bow on each shoulder where they connect.



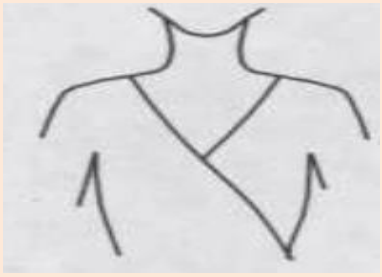
Keyhole neckline: It is a high neckline with an opening cut out at the front. Opening can be round or wedge shaped.



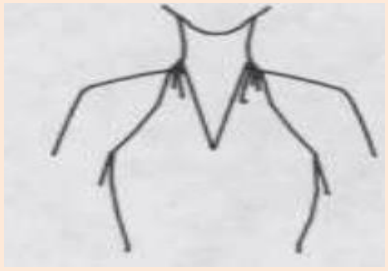
Sweetheart neckline: A neckline that has a curved bottom edge that is concave and shaped like top of a heart.



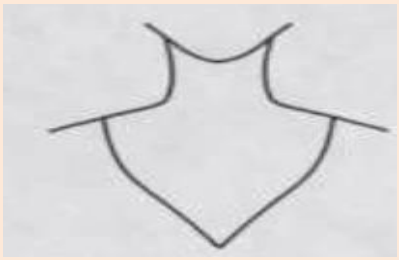
One-shoulder neckline: It is an Asymmetric neckline starting over one shoulder and extending diagonally to under the other arm. It cuts diagonally across the torso and is also called *Asymmetric neckline*.



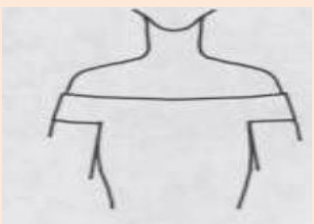
Surplice neckline: It is formed by one side of the garment overlapping the other, forming a V shape neckline in the front. It is also known as the bathrobe neckline.



Halter neckline: This neckline has a Vneck or scoop front neckline with straps which wrap around and connect at the nape of the neck.

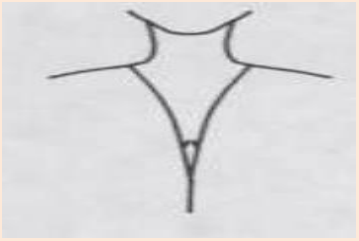


Décolleté neckline: Any neckline thatreveals or emphasizescleavage, is cut very low in front. It is mostly used in ball gowns, evening gowns, leotards, lingerie and swimsuits.



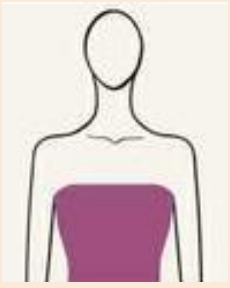
Off-the-shoulder: This is similar to boat neckline but is lower, below the shoulders

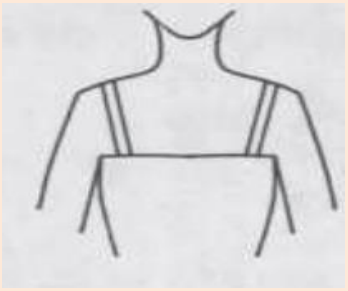
and collar bone. It is a low neckline extending around upper part of arms, baring the shoulders.



Plunging neckline: Low-cut neckline, usually V-shaped, extending to the level of the breasts or to the waist. Lower than décolleté neckline.

Strapless neckline: Neckline just above the bust. May be held in place by darts and fitting, boning, elastic, or shirring.

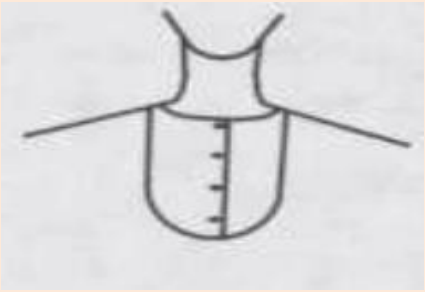




Camisole neckline: A straight across neckline just above the bust line, held by two narrow straps over the shoulder that leaves the shoulders bare. Strap width may vary from very narrow (spaghetti) to wide. Also called spaghetti neckline when it has very thin straps.

Funnel neckline: High neckline cut in one with garment by slanting or curving shoulder seams upward towards the neck.

Banded neckline: A flat, shaped narrow band finishing the neckline and front opening.



Bib neckline: A front center portion of a garment, usually oval or square. May be set into a blouse or dress below the neckline or extend upward from the waist of pants or a skirt.

Gathered neckline: Full neckline drawn close to neck. May be adjusted or gathered with a drawstring cord or elastic. Also called *drawstring, peasant,* or *gypsy neckline.*

Cowl neckline: Draped neckline resulting from bias cut with excess fabric forming soft folds in front or back.

Asymmetric neckline: Any neckline that looks different on either side of the center front of the top or dress. It can be cut differently or it could be the same, but one side is folded down while the other is fastened up.

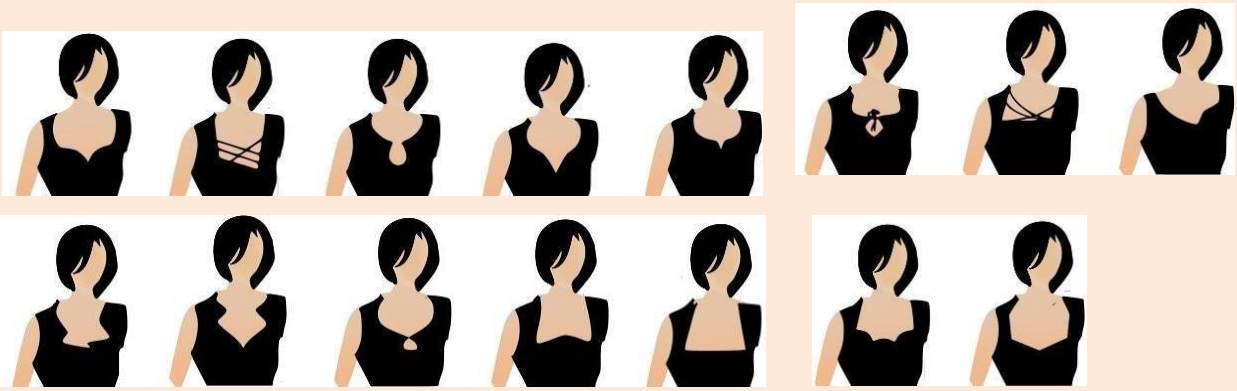
Caftan neckline: A round neckline with a slit going down the center front. It's usually embellished with trim, braid or beading.

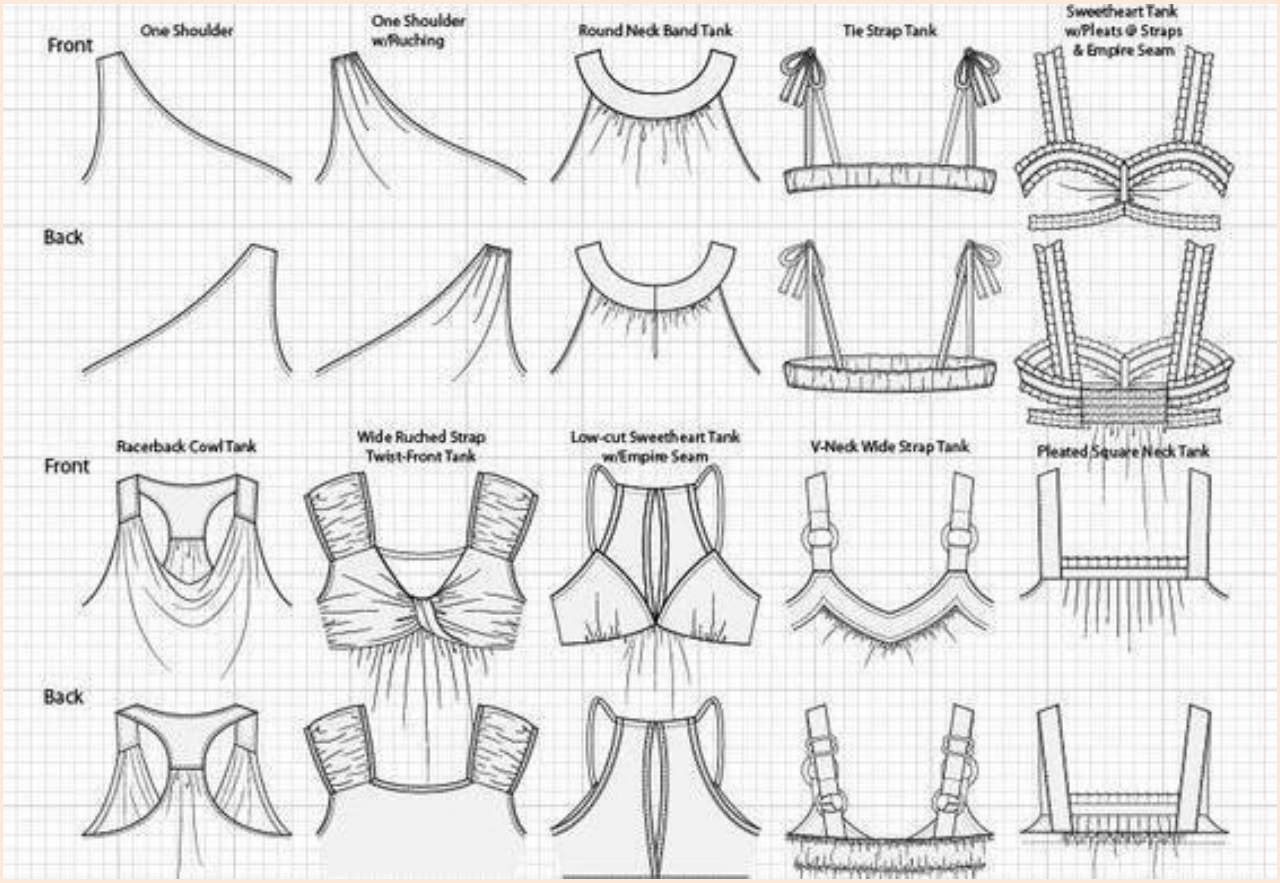
Queen Anne neckline: It has a collar getting up in the back and a V-neckline of varying depth. The shoulders are covered.

Grecian neckline: The 'Greek' neckline is characterized by a piece of fabric which, starting from the centre of the breast, opens to surround the neck.

Illusion neckline: It uses two different fabrics to create an optical illusion. The covering bodice ends with a staright cut or heart shaped above the breast, which is joined by a transparent fabric or lace to cover the sternum to the neck.

Variations of necklines



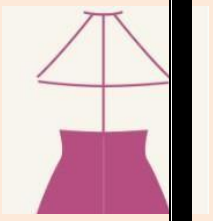


Sometimes the back neckline too can be done in various variations:

Closed: this neckline covers the back and remains close to the neck.

U-shape: deep round shape neckline.

Bare: deep neckline supported by thin straps.



Strappy: bare back created by different straps combined.

Open: This neckline makes the back visible through an opening.

V-shape: deep neckline ending with a tip.

X cross: neckline with straps that cross in the centre of back.

Bow: neckline with a decorative bow that holds back the shoulder straps.

Some other back variations

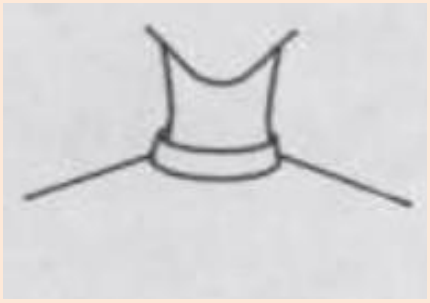
3. COLLARS

A **collar** is the part of a shirt, dress, coat or blouse that fastens around or frames the neck. A collar is added to the neckline of a garment in order to enhance its appearance. A collar could be made close to or away from neckline and the collar edge could be round, curved, square, or pointed (long or short) depending upon design variation.

Collars can be categorized as:

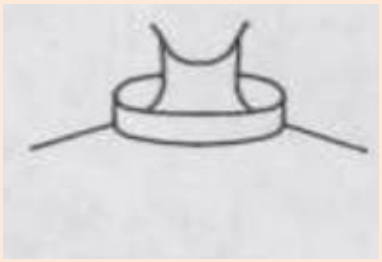
- *Standing or stand-up*: fitting up around the neck and not lying on the shoulders. Collar when stand itself is a collar.
- *Turnover or roll*: standing around the neck and then folded or rolled over. It may be a partial roll or a full roll. A collar where the collar is supported by a stand.
- *Flat or falling(Rippled)*: lying flat on the shoulders. When collar is without a stand.
- *Shawl collar*: formed by an extension of the garment front. These collars can be a stand-up collar or a turnover collar. The collar is seamed at the center back.

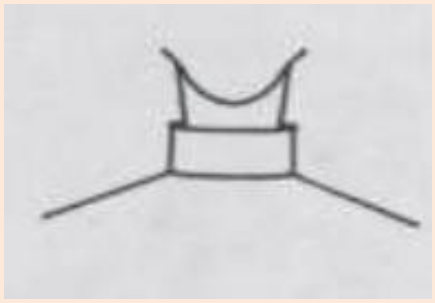
STANDING OR STAND-UP COLLARS



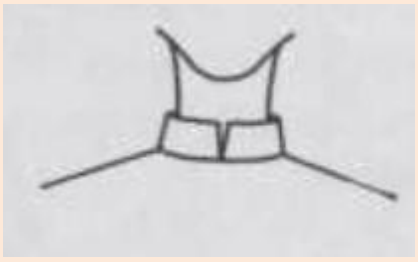
Band Collar: Straight or slightly curved collar cut on a straight grain or bias. May fasten in the front or back. Also called *stand-up collar*.

Ring Collar: A stand collar on a wide neckline. Also called the *moat collar or wedding-band collar*.



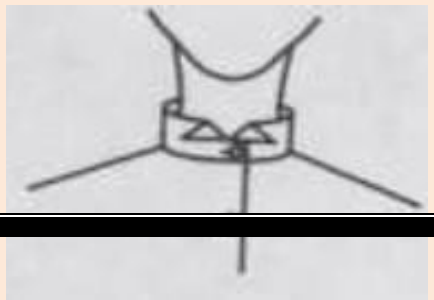


Choker Collar: Wide, high stand, close fitting collar that fastens in the back. Also called *Victorian collar*.



Chinese Collar: Stand collar with square or rounded ends that do not quite meet at centre front. Also called *Mandarin Collar* or *Nehru collar*.

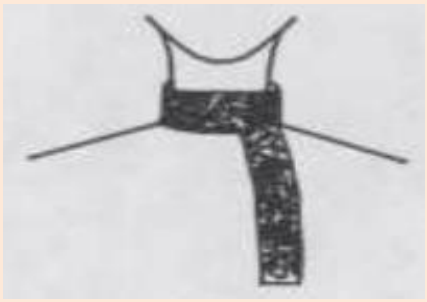
Medic Collar: Narrow stand collar that



fastens on the right side. Also called *Ben Casey collar*.

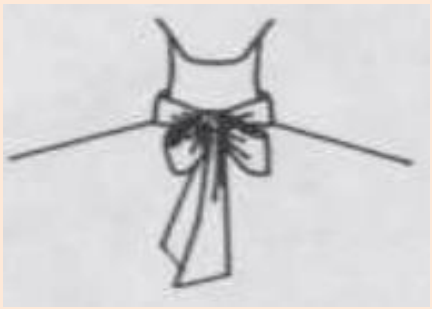
Wing Collar: A stiff stand collar with pointed ends that fold outward. Also known as *Butterfly Collar*.

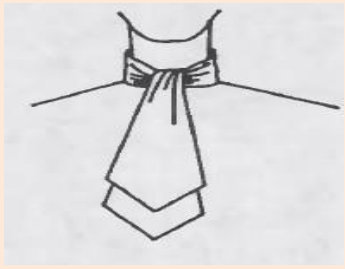
Cossack Collar: Wide stand collar that fastens on the left side. May be embroidered. Also called *Zhivago Collar* or *Russian Collar*.



Clerical Collar: Stiff white stand collar, fastened in the back. Also called a *Roman collar*. When the white collar is partly covered by a black or colored collar, it is called a *Rabat Collar*.

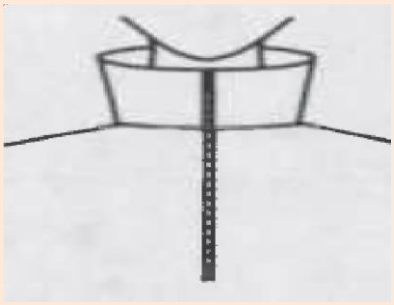
Bow Collar: Long extension of wide stand collar tied in a bow. Also known as *Pussy Bow Collar*.



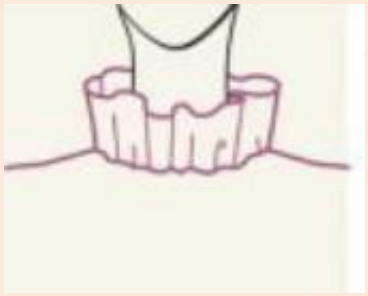


Ascot Collar: Long, medium-wide to wide stand collar with the two ends brought to the front and looped over each other. May be an extension of the collar or attached at back neck of collar. Longer variations are called *stock-tiecollar* or *flip-tie collar*.

Funnel Collar: Large wide stand collar variation which stands away from the face. Generally opens in front.

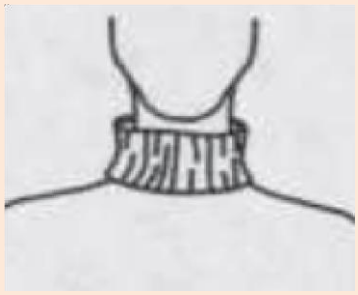


Ruff Collar: a high standing pleated collar, made of starched linen or lace, also known as *Millstone Collar*.



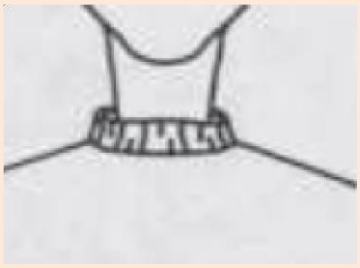
Ruffle Collar: Straight piece of fabric, lace, or trim gathered to neck edge to form ripples.

STAND COLLARS MADE OF RIB KNIT



Turtleneck Collar: High rounded neckline finished with very wide strip of rib knit that is often worn folded over.

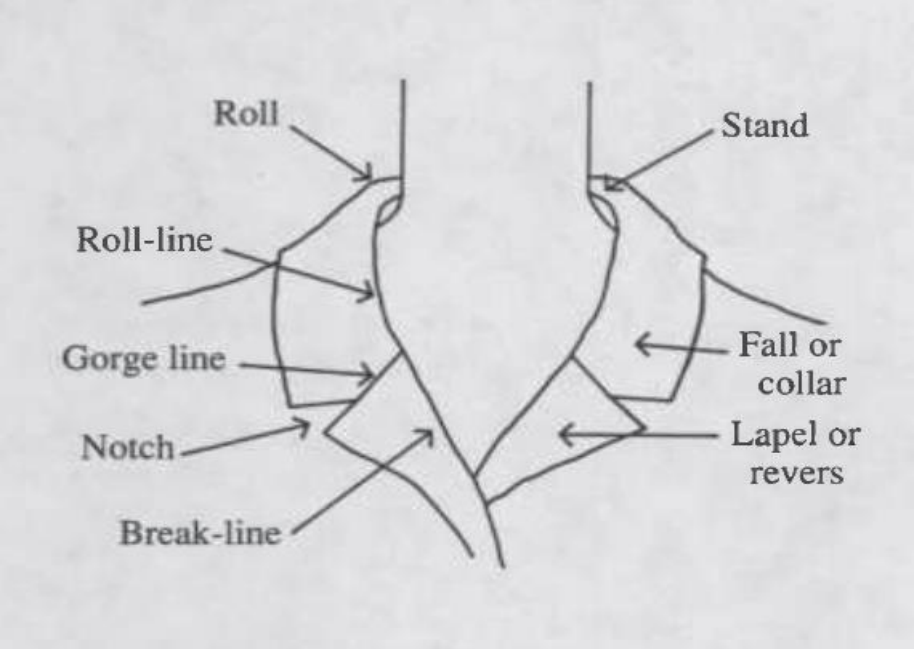
Mock-turtle Collar: High rounded neckline finished with medium wide strip of rib knit.



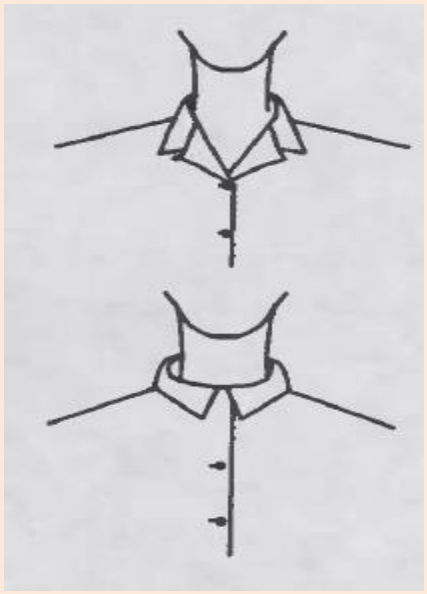
Cowl Collar: Wide bias-cut draped collar. May be of knitted fabric like a wider and deeper variation of the turtleneck which drapes in soft folds.

TURNOVER OR ROLLED COLLARS

Parts of a turnover collar



PARTIAL ROLL COLLARS



can be worn open or closed. Lapels are formed when worn open. Also known as *Camp Collar*.

Convertible Collar: A partial roll collar

which

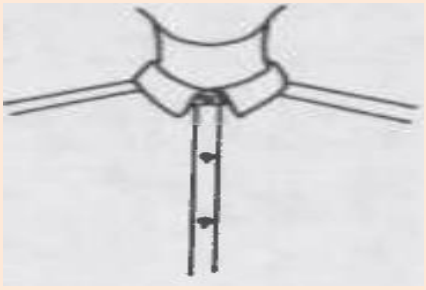
Notched Collar: Tailored collar used for suits. There is a *notch* where the collar ends and joins the lapel. It has square corners on lapel and collar.

Cloverleaf Collar: same as the notched collar but with rounded corners on lapel and collar.

Peaked Collar: with sharp point on lapel.

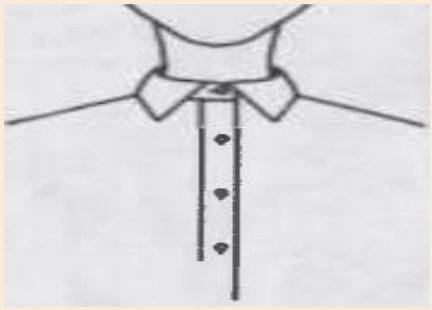
Johnny Collar: A very small partial roll collar attached to a V neckline. Usually a single-layer knitted collar.

Chelsea Collar: A medium-wide collar for a low V-neckline, with a partial roll and long pointed ends.



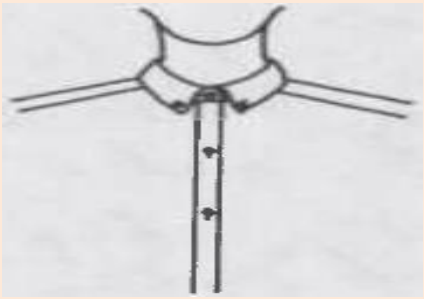
FULL ROLL COLLARS

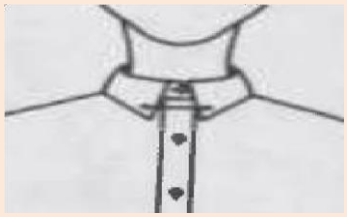
Shirt Collar: The traditional two-piece high stand, full roll collar, (called band and collar). The ends of the collar may be square, round, or pointed. Variations include:Spread Collar, Button-down Collar, Pin Collar & Tab Collar



Spread Collar: variation of a shirt collarwith wide spacing between ends of the collar.

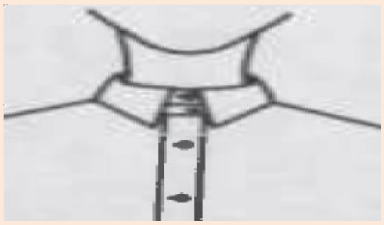
Button-down Collar: variation of a shirt collarwith buttonholes in the ends of the collar, fastened to the shirt by small buttons.





Pin Collar: variation of a shirt collarwith eyelets through which a collar pin is inserted

TabCollar: variation of a shirt collarwith a small strap that buttons or snaps to other side of the space between the ends of the collar.

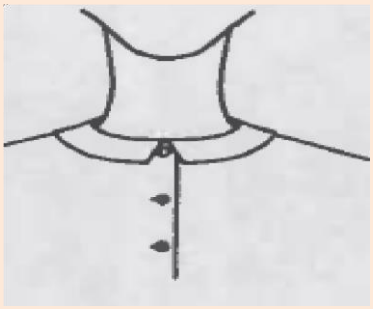


Barrymore Collar: A button-up shirt collar style with long, exaggerated points (4 to 5 inch long points) in front (similar to Byron or poet's collar.)

Swallow-tailed Collar: with extremely long, narrowpointed ends.

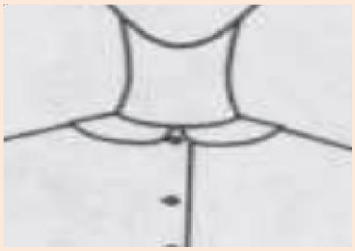
Club Collar: Medium sized collar with rounded front edges. Also known as*Buster Brown Collar*

FLAT COLLARS

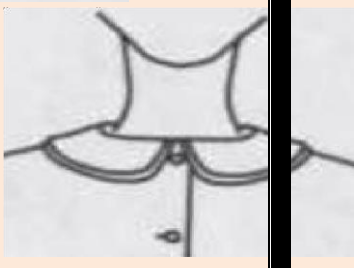


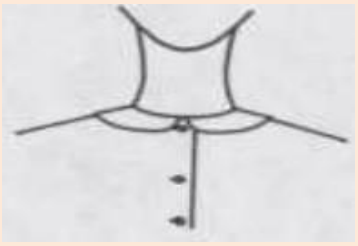
Bermuda Collar: Narrow collar with squared ends at center front. Also known as *Pointed Flat Collar*.

Peter Pan Collar: Small, flat, rounded collar.



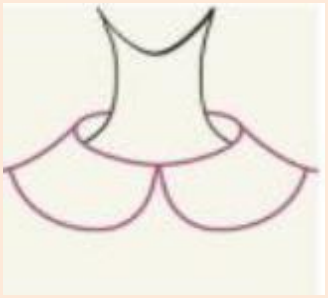
Double Collar: Two collars of the same shape, the upper one smaller to show the lower one.

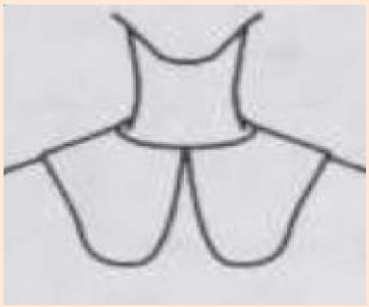




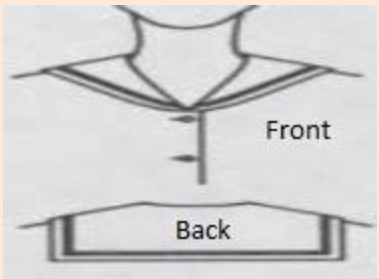
Choir-boy Collar: Medium-sized collar with rounded ends at centre front.

Puritan Collar: Wide collar extending to the shoulders with pointed squared ends or rounded corners at centre front and outer edges.

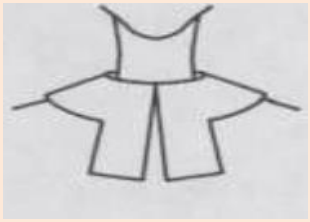




Platter Collar: Medium-sized collar with large rounded ends in front. Also called *Dog's Ear Collar*.

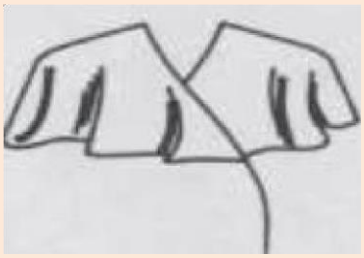


Sailor Collar: Collar is square in back and tapers to a V in front. Variations include braid trim around the edges and a dickey or inset in the V. Also called *middy collar or nautical collar*.

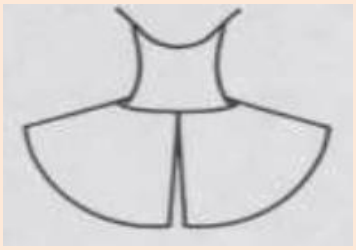


Bishop Collar: Large round collar. The front edges extend downward and are squared.

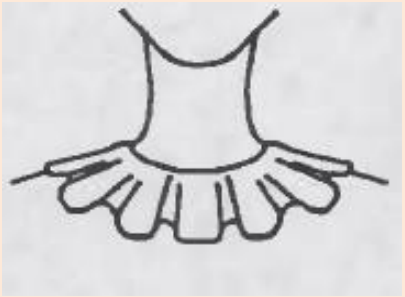
Bertha Collar: Wide, flat, round collar, often of lace or sheer fabric, worn with a low neckline, extending from neckline to shoulder. Opening may be at front or back.



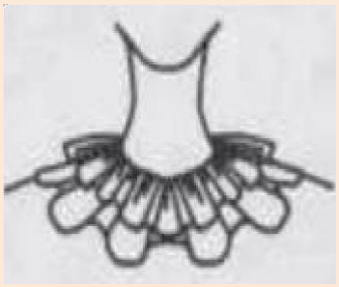
Cape Collar: Large circular collar that looks like a cape and extends or hangs over the shoulders.



Pilgrim Collar: Wide rounded collar extending to shoulders with pointed ends at center front.



Circular ruffle Collar: Edging made from a circular piece of fabric.

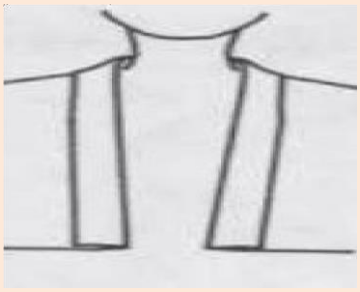


Pierrot Collar: A straight ruffled collar that lays on top of the shoulders. It usually has two or more rows of ruffles.

SHAWL COLLARS

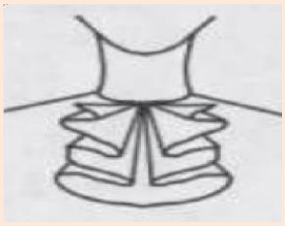
Shawl Collar: Collar formed by an extension of the facing and

garment front (undercollar).



Tuxedo Collar: Variation of a shawl collar that continues the length of the garment front opening.

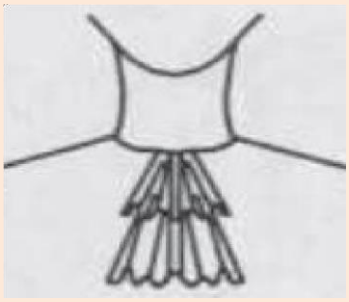
OTHER COLLAR VARIATIONS



Cascade Collar: A cascade collar is a circular-cut ruffle that is attached to the neckline of a garment. The ruffle can extend as far down as the waistline in a straight or diagonal line, or team up with another ruffle to add even more visual interest.

Bib Collar: Flat rounded, square, or oval shape collar that runs down the front of a dress or top like a child's bib. Often covered with ruffles, pleats, or embroidery.

Jabot Collar: Collar ruffles made entirely out of lace or lace-trimmed linen attached to neckline at center front.



Fichu Collar: Named after an 18th-19th century scarf (fichu) worn across the shoulders and tied in front, this collar is distinguished by fabric that folds away from the neck and over the shoulders, and is often accented by a tie at front.

Portrait Collar: A wide-lapelled, fold over collar that frames the collarbones and exposes the parts of the shoulders near the neck.

4. SLEEVES

These are part of a garment which covers the arm of the weareror through which the arm passes or slips. There are many variations of the sleeves but they are all based on the three main styles: set- in, Raglan, and Kimono.

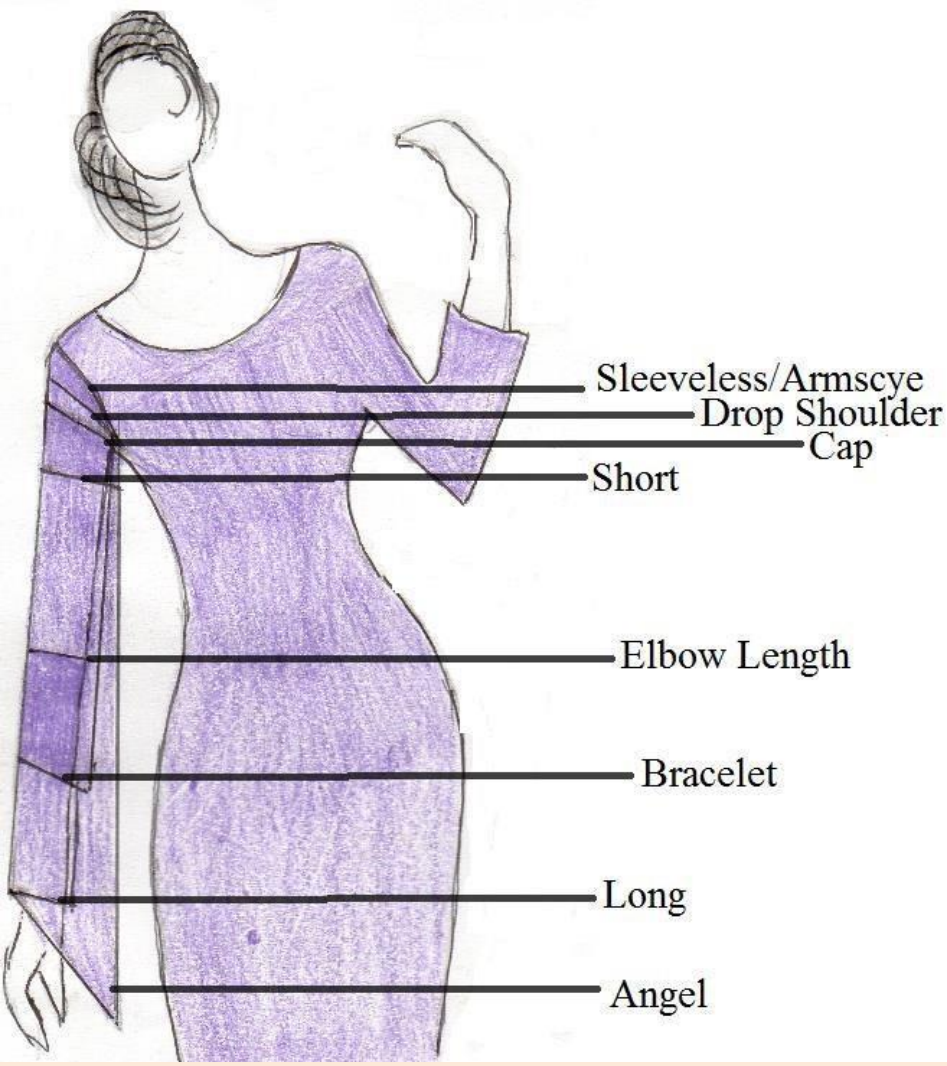
Kimono sleeve: cut in one with the body of the garment, with no armhole seam.

Set- in sleeve: cut separately from the bodice of the garment and sewn into the armhole of the bodice.

Raglan sleeve: extends to the neckline and has slanting seam lines from under arm to neck in front and back. The armhole starts from the armpit and ends on the neckline or next to the neckline.

Design can range from short to long, very full to tight fitting, interest can be added at cuff or sleeve head.

SLEEVE LENGTHS



Armscye/Armhole: No sleeve or sleeveless.

Drop shoulder: The sleeve is attached to an armhole shaped to extend wider than the natural shoulder.

Cap: Extension to the front and back of the garment to cover the top of the arm.

It covers only the shoulder part and doesn't enlarge under the armpit level.

Short: Sleeve length ending about half the distance between elbow and underarm.

Elbow length: Any style sleeve that ends at the elbow.

Bracelet: Three-quarter length cuff less sleeve to show bracelet.

Long: Long sleeve tapered to the wrist so it can be pushed up to stay in place. Also called *push-up***.**

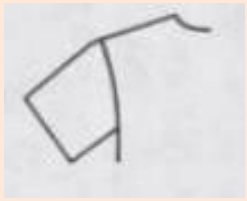
Angel: Any long flowing sleeve. May extend longer than the wrist.

VARIATIONS OF SLEEVES

SET-IN SLEEVES

Cut separately from the bodice of the garment and sewn into the armhole of the bodice.

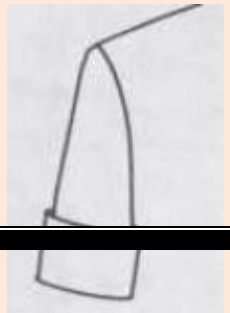
Plain sleeve/Set-in sleeve: The plain/set-in sleeve has a high rounded sleeve cap. The sleeve underarm seam and the blouse side seam are constructed first so the sleeve is set into the armhole. May be any length.



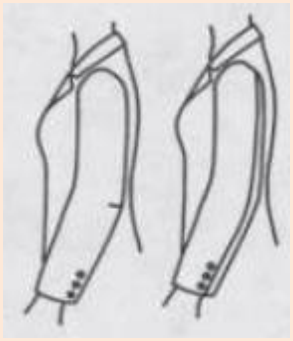
Shirt sleeve: A sleeve with a barely rounded wide sleeve cap, attached to the armhole before the underarm seam and side seam are sewn as a continuous seam. May be any length. Long shirt sleeves are usually cuffed,

this sleeve is also called *tailored shirt sleeve***.**

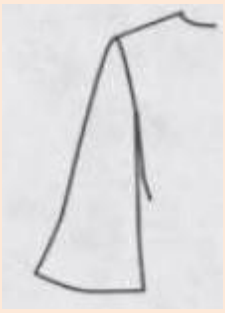
Barrel sleeve: Straight long set-in or shirt sleeve which is smooth at the armhole with minimal fullness at the cuff.



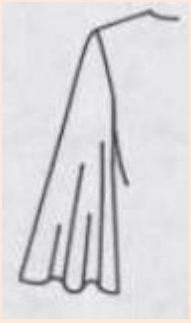
Roll-up sleeve: Straight short or elbow length sleeve designed to be rolled or folded up to from a cuff. May be either plain or shirt sleeve.



Fitted sleeve: A full-length narrow set-in sleeve. May either be one-piece with darting at the elbow or two-piece with vertical seams down front and back of arm, also called *suit sleeve***.**



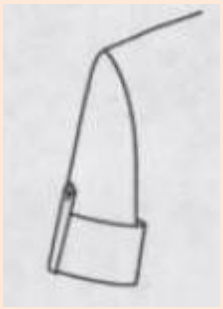
Bell sleeve: A set-in long sleeve that is smooth at the armhole, fitted from shoulder to elbow and flared from elbow to hem edge.



Butterfly sleeve: A set-in sleeve that is smooth at the armhole, widely flared at the hem edge, may be elbow length or longer.

The difference between a Butterfly sleeve and aBell sleeveis that butterfly sleeves usually don't go completely around the full arm.

Bishop sleeve: It is a billowy long set-in sleeve that hangs gracefully over the arm from a smooth cap. The sleeve has more fullness at the bottom than the top and gathered at wrist by cuff. May be gathered at cap as well as at wrist.



Button-tab sleeve: A long roll-up sleeve with a button-tab sewn above the elbow. The sleeve is rolled up and fastened by the tab with buttonhole and button. May be either plain or shirt sleeve.

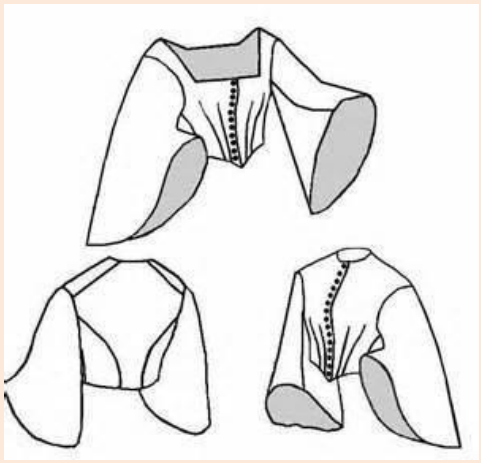
Puffed sleeve: Short full sleeve with gathers at armhole or lower edge or both. Also called *puff sleeve.*

Poet Sleeve: A long sleeve fitted from shoulder to elbow, and then flared (somewhat dramatically) from elbow to wrist (or sometimes mid-hand). Often features ruffles on the cuffs.

Layered sleeve: A wide sleeve that consists of multiple circular layers of overlapping fabric.

Balloon sleeve: Long full sleeve with gathers at armhole and at lower edge. Usually made of crisp fabric.

Leg-o'-mutton sleeve: Sleeve with full gathered or pleated top tapering to narrow at the wrist. Also called *leg-of-mutton sleeve* and*Gigot sleeves*.



Pagoda sleeve: a wide, bell-shaped sleeve or funnel-shaped sleeve popular in the1860s, worn over an engage ante or false undersleeve, arranged to show the sleeve lining and an inner sleeve.

Paned sleeve: a sleeve made in *panes* or panels, allowing a lining or shirt-sleeve to show through popular in the 16thand17th centuries.

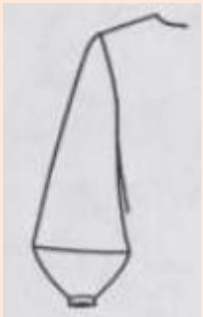
Petal sleeve: Sleeve is shaped with a curved overlap along outer arm, it resembles a petal as

the sleeve sections cross over each other at the cap. Also called *lapped sleeve.*

Circular cap sleeve: Short flaring sleeve that extends out from a smooth cap at armhole.

Melon sleeve: Sleeve made in lengthwise sections that are wider in the middle of the sleeve to give a melon shape in the middle of the sleeve. Usually made of stiffened fabric.

Juliet sleeve: A long, tight sleeve with a puffed upper section.



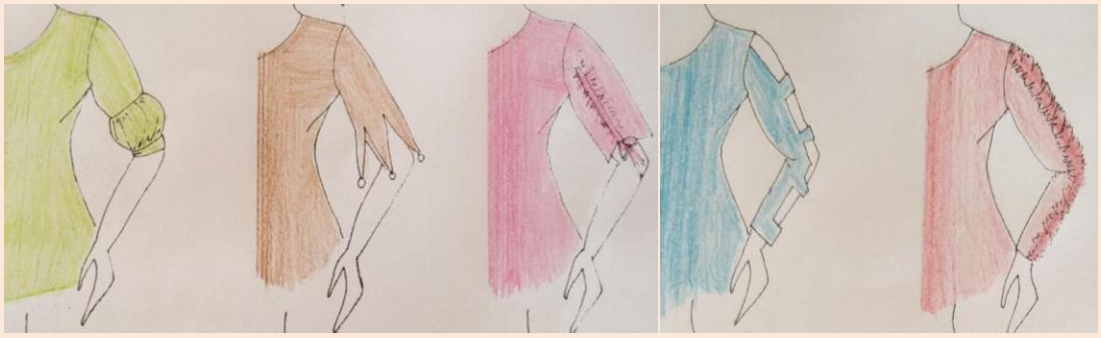
Lantern sleeve: Long or 3/4-length sleeve made with two sections and a crosswise seam(s) to give width. Sleeve is smooth at the armhole

and wrist and flares out from the cap and hemline.

Hanging Sleeve: A sleeve that opens down the side or front, or at the elbow; the reason is to allow the arm to pass through.

Virago Sleeve: A full "paned" sleeve which is gathered into two or more puffs by a ribbon or fabric band above the wrist.

Variations of Set-In Sleeve



KIMONO SLEEVES

Cut in one with the *front and back of garment*, with no armhole seam.

Kimono sleeve: Sleeve may be cut in one with the front and back of the garment or may be attached to the front and back with a vertical seam. Shape is usually angular under the arm in contrast to curve of dolman. Also called *mandarin sleeve.*

Dolman sleeve: Sleeve may be cut in one with the front and back of the garment or may be attached to the front and back with a vertical seam. Shape is usually curved under

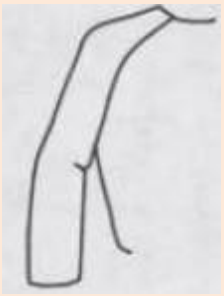
the arm. Sleeve is usually long and fitted at the wrist.

Batwing sleeve: Long sleeve with deep armhole almost to the waist and extending to narrow wrist. May be cut in one with the garment or may be a separate sleeve. Also known as a *Magyar sleeve*.

Cape sleeve: May either be a semicircular extension of the front and back bodice or a circular or semicircular piece sewn over the top of the shoulder to give a cape effect.

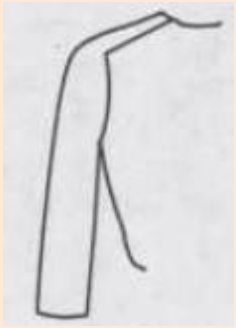
RAGLAN SLEEVE

Extends to the neckline and has slanting seam lines from under arm to neck in front and back. The armhole starts from the armpit and ends on the neckline or next to the neckline.

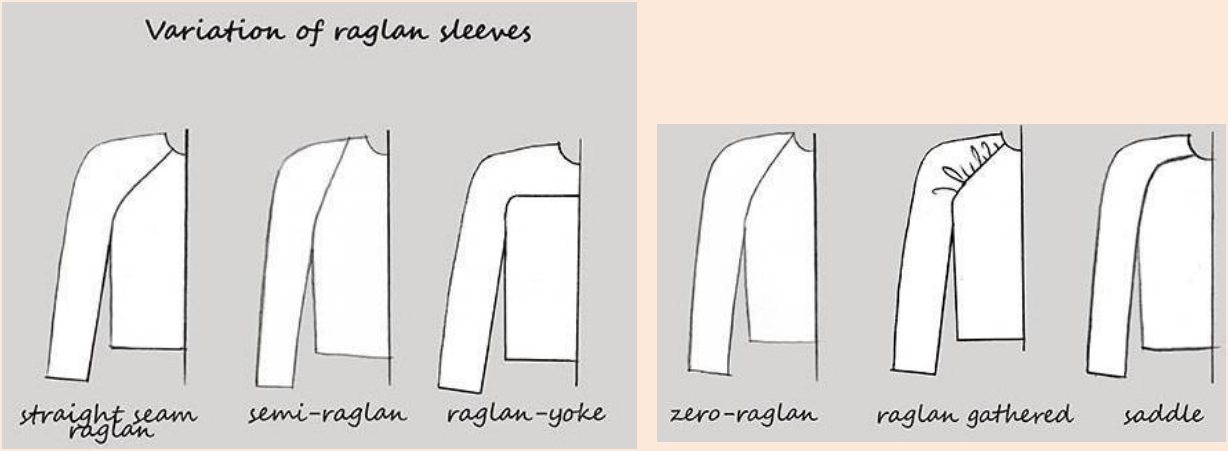


Raglan sleeve: Sleeve joined by diagonal seam that extends from underarm to neckline. May have a dart to shape the shoulder or may have an additional seam along the outside of the arm.

Peasant sleeve: A wide raglan sleeve with gathers at the neckline and lower edge. Gathers may be controlled by drawstring or elastic. Sleeve may be short or long.

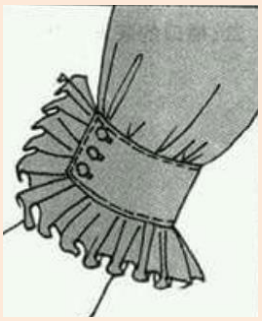


Saddle sleeve: Variation of the raglan in which the shoulder portion is horizontal across chest then diagonal under arm. Also called *epaulet sleeve***.**



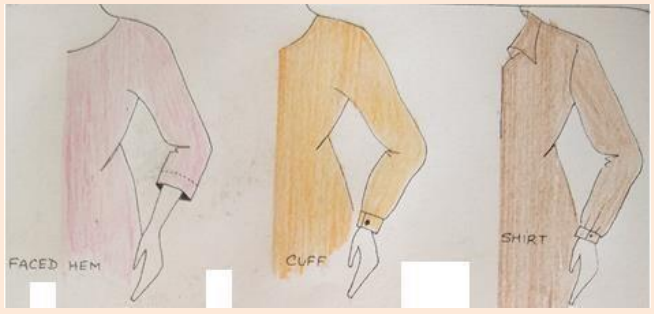
SLEEVE FINISHES

The finishing of a sleeve edge usually depends on the pattern design. It may be a simple self-hem or faced finish (shaped or bias) or decorative double binding made from self or contrasting fabric. The finish is sometimes attached with casing, ruffles or with cuff.

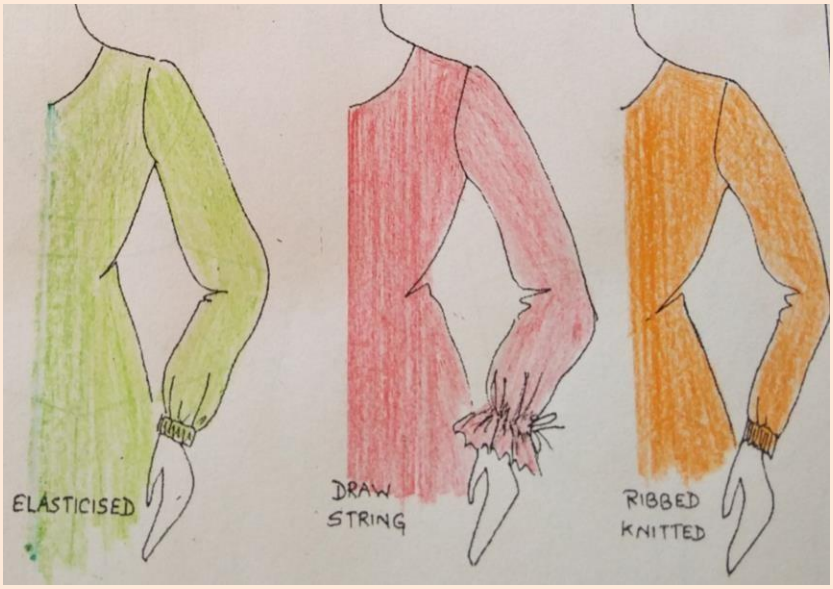





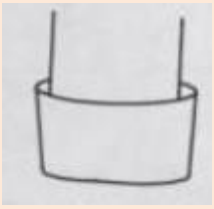




FACED HEM
CUFF
SHIRT

TURN UP
LONG FITTED
BUTTON TAB

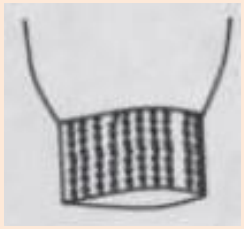


CUFFS

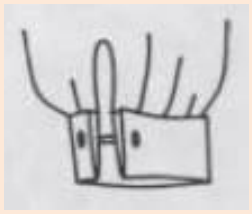


Roll-up cuff: Usually a straight sleeve which is folded up to form a cuff.

Barrel cuff: A band of fabric stitched to the sleeve. Usually closed with one or two buttons. Also called *single cuff.*

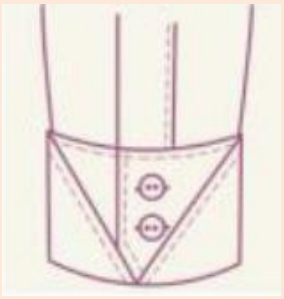


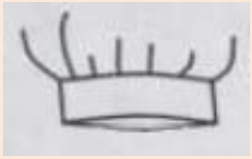
Knit cuff: Rib knitted fabric which fits closely but is stretchy enough to slip over the hand.



French cuff: Wide cuff which turns back and is fastened with a cuff link through all layers.

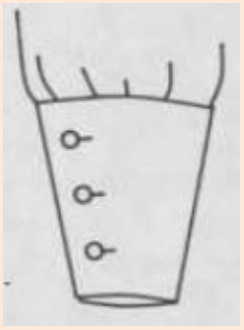
Neapolitan cuff: A two-button turned-back cuff with an extra piece of fabric folded back to imitate a French cuff, but is held together by two buttons. Also called *cocktail cuff, capril cuff* or *bond cuff***.**

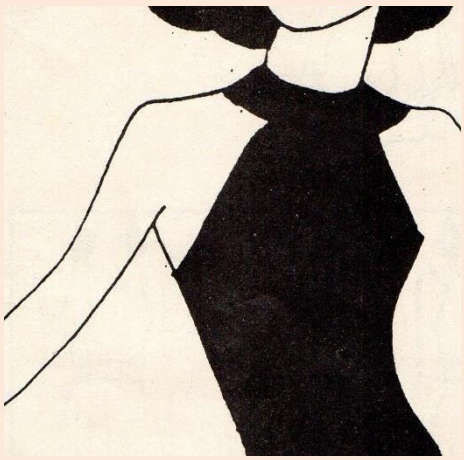




Band cuff: Has no vertical opening. It slips on over the hand.

Gauntlet cuff: A wide turned-back cuff that flares wide at the arm and tapers toward the wrist. Also called *cavalier cuff***.**





SLEEVELESS

When the armscye is finished off directly with piping or facing, without attaching a sleeve or a ruffle, it is known as sleeveless. Sleeveless garments are well preferred as the restrain of sleeves is absent thus making the garment

more comfortable, airy and light. This is best suited for summer apparel and to show off beautiful shapely arms.

5.SKIRT

A Skirt is a garment that covers the body below the waistline or the lower half of the body. Both men and women have been wearing skirts for hundreds of years. Skirts according to style or fashion are:

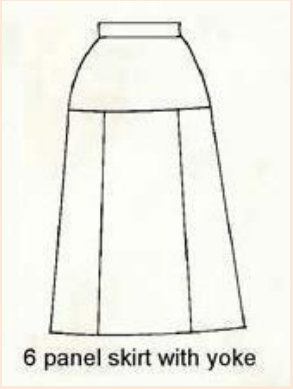
A-Line Skirt: this skirt fits at the waist, slightly touching hips and thigs, broader at the hem. As it is narrow at the top and wider at the bottom it looks like the letter 'A'.

Circle Skirt/ Circular Skirt: this skirt is made in a circular shape that has a flare at the hem and are usually made of lightweight fabric. Also known as Umbrella Skirt.

Gored Skirt: also known as flare skirt, is derived from the A-line skirt. The only difference is, these skirts are wider at the bottom. Depending on the number of gores (panels) they are also named as four gore skirt, six gore skirt and eight gore skirt.

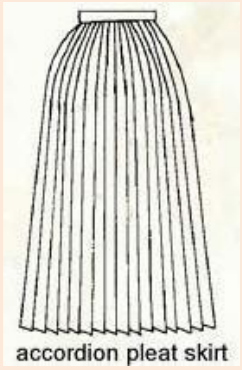
Gathered Skirt: the simplest of skirts, gathered at the waist. When it is gathered at the hip and set in a yoke it is called a Yoked Skirt.

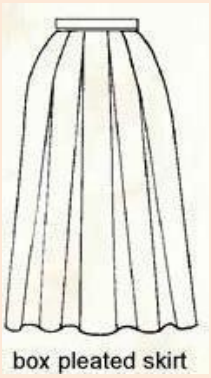
Yoked Skirt/Skirt with yoke: this skirt can have either pleats, panels or gathers set in the yoke, the yoke is generally from the waist to the hips.



Wrap around Skirt: these skirts wrap around the waist and the leg, sometimes having a slight flare design. It is fastened with a button or tie. A casual wear and mostly made of cotton fabric.

Pleated Skirt: pleats are folds of fabric sewn at the top of the skirt, it hangs from the waist to different lengths. The pleats can be either knife pleats, accordion pleats, box pleats, inverted box pleats.





Sun-ray Pleat Skirt: a flared skirt with stiff pressed pleats which are narrow at the waist and widens towards the hem. Very broad sun-ray pleats are called umbrella pleats.

Drape Skirt: it is an elegant skirt with soft folds.

Trumpet Skirt: this skirt is fitted from waist to above knee and then

flares out from the knee to the floor or to the desired length.

Fishtail Skirt/Mermaid Skirt: this skirt is fitted from waist to calf and then flares out from the calf to the floor.

.

Pencil Skirt: this skirt hugs the body and lengthens from the waist to beneath the knees or down to mid-calf.

.

Tube Skirt: similar to pencil skirts but made in a stretch fabric and usually reaches just below the knee.

Straight Skirt: fitted at the waist and hips but falling in a straight line downward so that it is loose at the knees. Similar to pencil skirt only less tight.

Tiered Skirt: also known as gypsy skirt, its length can be from mini to full length.

Prairie Skirt: an American style skirt, it can be slightly flared to very full, with one or more flounces or tiers.

Tutu Skirt: it is a specialised skirt, originally used in ballet. This skirt is made of tulle.

.

Balloon Skirt: is a youthful skirt which has the middle or central part flare, narrowing down to the lower edge, forming a silhouette of a balloon.

Bubble Skirt: it creates a bubble at the bottom of the skirt as the hem is tucked back under. Also known as the puffball skirt.

Peasant Skirt: also known as dirndl skirt, is a casual skirt lightly gathered at the waist, falls below the knee and made with several layers. The layers can be of the same fabric or different fabrics for each layer.

Tulip Skirt: is like an inverted tulip, it has more fabric around the waistline and a close fitting hemline.

Sarong Skirt: A long, wide piece of sheer, often patterned fabric, tied around the waist for a skirt-like effect. Used widely in tropical climates as a skirt or as a cover-up over a swimsuit. Also known as Pareo.

ruffles in the
the stomach. [A
framework used
fullness or
of the back of a
worn under the
waist.]

Bustle Skirt: this skirt has
back, and flat across
bustle is a type of
to expand the
support the drapery
woman's dress, it is
skirt, just below the

Grommet Skirt: also known as skirts with gussets or godets, these

skirts are great for dancing as they are made with godets which is an extra piece of fabric. The addition of godet causes the skirt to get additional flare and volume.

Handkerchief Skirt: this has an asymmetrical or uneven hem.

Skort: sometimes called a scooter or ‘skant’, is a pair of shorts with a fabric panel resembling a skirt covering the front. Some skort are skirts with shorts hidden underneath.

Skater Skirt: is a short, high-waisted circle skirt with the hemline above the knee, often made of soft light weight fabrics

R ah -

rah Skirt: a short skirt with layered flounces worn by cheerleaders

Button/zipper through Skirts: is a skirt that fastens with buttons or zipper from top to bottom of skirt.

Harem Skirt: a straight skirt with high slits on either side.

Overskirt: is a skirt worn to lay over another garment, either another skirt, petticoat, underskirt or breeches.

Peplum Skirt:is a pencil skirt or a tube skirt with a peplum. [A peplum is a ruffled or flared panel of fabric, which falls just below the natural waistline.]

Hobble Skirt: is a skirt with a narrow hem that restricts or impedes the wearers stride. It was a short lived fashion (fad) in the early 1910s.

High Waisted Skirt: the skirts that fits higher than the waistline are called high waisted skirts.

Low-rise Skirt: is a skirt that sits around the hips, an inch or two below the belly button. They are not worn at the natural waist, nor low enough to expose the buttocks or crotch. Also known as low waist Skirt.

Kilt: a knee-length skirt with deep pleats usually of plaids, worn as part of the dress

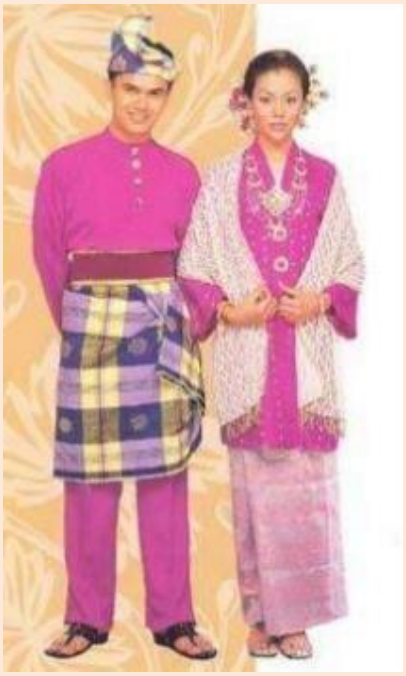
for men in the Scottish highlands.

Sulu: a traditional skirt/national dress worn by the men and women of Fiji.

Foustanella: a white knee-length pleated skirt worn by the men in Greece and Albania.

Sampot: it's a long rectangular cloth worn around the lower body. It can be draped and folded in different ways, it is similar to dhoti. Also known as *Pha Nug.*

s**Sarung**: a large tube or length of fabric, often wrapped around the waist and worn by men and women throughout South Asia and other places.



UNIT 4 APPAREL MANUFACTURING

1.INTRODUCTION

Garments Manufacturing: - A complete garment has to face several processes from its order receiving to shipment. During garments manufacturing, a process flow chart must be needed to complete an order easily. Also, a process flow chart helps to understand a garment manufacturing method that how the raw materials are converted into wearable garments.

Each process of garments manufacturing flow chart is discussed in the below with the details*:*

1. **Design**:-Design is provided by the buyer. After placing an order buyer send the technical sheet and art-work of an order to the merchandiser. This process is done both manually or by using the computer.

2. **Fabric layout** - To cut the fabric properly fabric is spread inlay form. Fabric Spreading is done manually or by using a computerized method.

3. **Fabric Cutting:** - Fabrics have to cut here according to the marker of garments. The fabric Cutting process is done by using a manual method or computerized method.This is the major operation of the cutting room when they spread and cut into garments. Of all the operations in the cutting room, this is the most decisive, because once the fabric has been cut, very little can be done to rectify serious defects.

- A first planning consideration is whether the totals arrived at in the cutting room are the same as those required to maintain full production in the sewing room and subsequently the planned delivery schedule. Any cloth problems created in the cutting room can affect the output in the sewing room. Assuming all components of fabric, design, and trims are acceptable and correctly planned and cut, the next stage is to extend the cutting room programme to the sewing room.
- All cutting operations are carried out by straight knife cutting machines.

4. **Stitching**: - All the parts of a garment are joined here to make a complete garment. The sewing process is done manually.Stitching or sewing is done after the cut pieces are bundled

according to size, colour and quantities determined by the sewing room.Garments are sewn in an assembly line, with the garment becoming complete as it progresses down the sewing line. Sewing machine operators receive a bundle of cut fabric and repeatedly sew the same portion of the garment, passing that completed portion to the next operator. For example, the first operator may sew the collar to the body of the garment and the next operator may sew a sleeve to the body. Quality assurance is performed at the end of the sewing line to ensure that the garment has been properly assembled and that no manufacturing defects exist. When needed, the garment will be reworked or mended at designated sewing stations. This labor-intensive process progressively transforms pieces of fabric into designer garments.

- The central process in the manufacture of clothing is the joining together of components.
- Stitching is done as per the specification is given by the buyer.
- High power single needle or computerized sewing machines are used to complete the sewing operation. Fusing machines for fusing collar components, button, and buttonhole, sewing machines for sewing button and buttonholes are specifically employed.

5.. **Garments Inspection:** - After completing sewing, inspection should be done here to make fault free garments. Garments Inspection is done by using the manual method.

6. **Garments Ironing and Finishing:** - Here garments are treated by steam; also required finishing should be completed here. This process is done by using the manual method.

7. Final Inspection: - Finally, the complete garments are inspected here according to the buyer's specification. Final Inspection is done by manual method**.**

2.CUTTING - FABRIC SELECTION AND DESIGN

Fabric selection is a crucial step in designing a project because fabrics are designed for specific applications, a fabric manufactured for one purpose, may not be adaptable for another use.Therefore selecting the appropriate fabric is only the first step in providing serviceable fabrics for apparel manufacturing.Designers specify the fabric as part of their design concept. Designers may develop new styles for fabrics that have been successful.

1. Various aspects of Fabric selection

Fabrics used in garment manufacturing can be categorized into two groups: properties and characteristics. A property is a static physical dimension such as yards per pound; whereas, the characteristic is the reaction of the fabrics when a force is imposed upon it. Elongation, elasticity, shrinkage and seam strength are examples of characteristics. These are the measure of reactions to dynamic conditions. Characteristics are physical or chemical changes in the fabric resulting from the application of outside forces.

2. GENERAL CONSIDERATION OF FABRICS FOR APPAREL MANUFACTURING

The apparel producer is interested primarily in the characteristics of a fabric. Although fabric characteristics are related to fabric properties, a fabric property is of no interest to the apparel manufacture unless it controls a fabric characteristic or cost factor vital to him, or unless the property itself such as thickness or weight, has definite utility or style value.There are three viewpoints to stipulating fabric selection

- The consumer's viewpoint
- The fabric producer's viewpoint
- The garment producer's viewpoint

The consumer's interests lie solely in the appearance and wearability characteristics of the fabric; the durability, utility and style values.The garment producer is interested in the garment production working characteristics of the fabric, the cost of producing a given garment with the fabric. If the garment producer is a jobber or manufacturer who sells the garment directly or indirectly to consumers, he will be interested, also, in all the consumer values. If the garment producer is a contractor his interest lies only in the field of the production cost aspect of the working characteristics.The same applies to the fabric producer. If he fabricates cloth for garment manufactures, he must consider garment production work characteristics. However, if the fabric producer makes cloth for over the counter retail sales, he does not have to consider whether the working characteristics are good enough to produce the garment with industrial equipment and methods.

In the sampling stage, factory learns the garment construction details and material required for a given order. The sampling department is also work as a research and development (R&D) section for the factory. Sampling process helps production team start the bulk production without many

issues.

Selection of fabric: There are thousands of fabric designs and fabric quality. Fabric selection is done based on fabric quality required, like fabric color, fibre content, surface texture, hand feel, physical and chemical properties. If the required fabric is already available in the market, factory purchases those fabrics from the stock. For this factory need to explore various places for finding the required fabrics. Otherwise, they work with the fabric supplier to develop the desired fabric quality.

Designing

The designers work in different ways. Some sketch their ideas on paper, while others drape fabric on a dress form and some others use computerized design system. These systems are becoming widely used and provide the designer with a highly versatile and flexible tool for creating new designs in the shortest time. The designer with the help of forecasting trends of style, colour and fabrics develops the illustrations/sketches for haute couture or readymade or mass market.Designers make designs as per the latest trends and buyers test. For big manufacturers, the designing department plays an important role in retaining customers by showing new designs to their buyers in every season.

3. DESIGNING: FUNCTIONS OF DESIGNING SECTION

- Apparel design department is responsible for product development. They focus on developing garment designs in similar product categories the company does its business. Designers develop new design collection every season. Designers make designs as per the latest trends and buyers test. For big manufacturers, the designing department plays an important role in retaining customers by showing new designs to their buyers in every season.
- Designers develop a library for fabrics, trims and accessories, and for garments.
- Apparel retailers and brands those have own manufacturing set-up, normally set up the design department for developing new designs.

Design Department - The design department can be considered as the research and development department of a clothing factory, because it is in this department that the prototypes of garments are developed and prepared for selling and production. For most factories the process of product development involves seven stages;

1. Forecasting
2. Designing
3. Collection Planning
4. Pattern Making
5. Technology
6. Production of sample garments
7. Pattern Grading

1. Forecasting

   Fashion forecasting is information that offers effective and highly accurate trend predictions to the fashion, style and related industries. Fashion intelligence and industry experience shape the reports which are creative, inspiring and highly focused on various product. This provides analysis of current and future fashion trends and a very comprehensive coverage of Colour & trend direction, 18 months in advance of the season followed by design reports for each trend, 12 months ahead.

2. Designing

   The designers work in different ways. Some sketch their ideas on paper, while others drape fabric on a dress form and some others use computerized design system. These systems are becoming widely used and provide the designer with a highly versatile and flexible tool for creating new designs in the shortest time. The designer with the help of forecasting trends of style, colour and fabrics develops the illustrations/sketches for haute couture or readymade or mass market.

3. Collection Planning

   This process is in effect the pre production phase of sampling and the objectives are to set out in detail the styles, fabrics and colors which will represent the company's proposals for the forth-coming season. The designer works in close co–operation with the marketing department and tighter they attempt to determine the best possible style, fabric and price combinations. Using the sketches of core collection, various alternatives and approaches will be examined:

   - Developing the variations from the core designs,
   - Trying the same cloth on a number of different designs,
   - Modifying some of the ideas to make garments more acceptable to a wider range of customers,

- Addition of ‘fill-in’ type garments for which there may be a steady demand throughout the season.
- Inclusion of garments which some of the larger buyers have indicated an interest.
- Balancing the contents of the collection so that it contains the optimum style and price combinations.

4. Pattern Making

Pattern making may be done manually by a trained patter maker with a paper and measuring tools or by using an auto CAD or by draping fabric directly onto the dress form. The resulting pattern pieces are used to construct the garment in required size. Various shapes and sizes of pattern pieces can be produced for various styles of garments.

5. Technology

Technological innovations in the garment industry have been tremendous. Each and every department of the apparel industry has the scope of highly efficient machines. Use of sophisticated and advance ,machine improves the quality of the product and maximizes the profits of the company.

6. Production of sample garments

Sampling unit within the industry makes sample garments supervised by the pattern maker or the designer. Sampling is a continual process during the development of new product. A sample needs to conform to the design, fabric and color trends along with the perfect fit analysis. Cost of each sample must be accurately calculated in order to determine the cost price and then the selling price.

7. Pattern Grading

Pattern sizing and grading done on computer or manually is link between pattern design and generation and preparatory stages of cutting in different sizes. It is the process where patterns of different sizes are produced from the original master pattern.

4.FABRIC:WASHING, CHECKINGRAINLINE,STRAIGHTENING PRESSING

WASHING DEPARTMENT - The garment is sent to the **washing department** until complete with all the operations and is then finished in line with the buyer's requirements for that particular style and thus plays an important part in the final look and texture of the garment, which must be faithful to the buyer's specifications 100%. There are various types of washing procedures involved and they are categorized as follows: standard washing/water, washing/drying, softener washing, desize washing, enzyme washing, stone enzyme washing, rubber ball washing, denim washing, bleach washing, tinting / T-staining. The process which is used to transform the outlook appearance, warmness & fashion appeal of the garments is called garment washing. Garment pre- wash became popular, especially since 1978 when jeans garments started pre- washing and got instant popularity. It gave different a look of the clothes. Garment washing is mainly done after stitching. Wash types usually depend on the product natures and usages. Based on consumer demand and fashion trend, the buyer will fix the washing type of any product. For example, stone enzyme wash is required for denim item, but light softener wash is perfect for a knitted item. Garment wash here refers to garment pre- wash performed after production of garment's before using it for the consumers. Garment washing is utilized for the following reasons:

(1) Usually, some Garment shows up hard, feeling rough, stiff and not responsive enough for wearing if not pre- washed.

(2) Garment is often made bigger and larger. Pre- wash returns those to the right size and dimensional instability.

(3) After pre- wash garment becomes fit as they get rid of shrinkage; as a result, the garmentbecomes a soft hand feels and become size free.

(4) After wash some garment's become more attractive, lucrative and lively, such as jeans, twill, cotton, gabardine etc.

(5) Different washing methods are being used to make an additional appeal for customers/Buyers.

(6) During manufacturing dirt, spot or oil mark may add to the garment's what may eliminate by washing process.

(7) To eliminate starch and chemicals what used during fabric manufacturing and dyeing process.

There are different varieties of garment wash used nowadays:

1. Normal wash
2. Pigment wash
3. Bleach wash
4. Stone wash with or without bleach
5. Acid wash
6. Enzyme wash
7. Caustic wash
8. Garment wash and over-dye
9. Whitening

A simple outline about different garment wash has given here:

1) **NORMAL WASH:** Normal wash consists of washing garments in hot water with adequate detergent and softener, rinse with plain water and dry in tumble dryer until it is 100% dry. Some sodium is added to lend the garment a prominent washed look. Water temperature, proportion of

components of wash is adjusted as per requirement of wash and types of fabric; the garment is made of.

2) **PIGMENT WASH:** Pigment Wash is similar to normal wash but a bit costlier. The garment is solid color pigment dye. The requirement is that the color should fade evenly to lend the garment a prominent washed look. Pigment wash requires a higher temperature of water than a normal wash.

(1) Use hot water 50-60 degree C.

(2) Load the tumble washer not more than 70 % of its capacity. It enables garment to move inside smoothly. If fully loaded with garments due to the friction of the garments with tumble body.

3) **BLEACH WASH:** -Bleach wash means that bleach chemical is used in water while washing in a tumble washer. Strict washing time is a requirement with such wash because otherwise the garment may be over bleached and the color cannot be reversed.

4) **STONE WASH: -** Stone wash means washing garments with special stones so that garments achieve a very strong washed effect. Volcanic stones are used in such wash abrade exposed parts of the garments, this idea of washing with porous volcanic stones is to give the garment a strong and rough wash to achieve the pronounced washed effect through abrasion on the exposed areas, such as the seams and pocket corners.

Sometimes, bleach is added to the wash so that the color fades in a more pronounced manner. This is done to make navy blue jeans into a more faded light blue. Such wash requires a lot of skill, experience; workmanship and expertise so that desired results are achieved

5) **ACID WASH:** It is a patented process and can be used only by permission. It is also a kind of stone wash. The wash is performed in two steps: in the first step, garment is washed without water and in the 2nd step with water.

(1) Soak volcanic stones in potassium permanganate solution. Stones absorb chemicals and become saturated. The stones are then dried in normal air or sun. The stones are ready for work.

(2) Denim garments are now made ready for wash. They are desized/detached in water in a tumble washer and dried in a spin dryer.

(3) The garments are put in a separate tumble washer filled with *treated stones*. Water is not added. Now run the tumble dryer wash the garments without water. Tumble washer is run to wash the garments without water. Stone will abrade the garments, especially, the exposed parts. Hidden parts will not be abraded.

(4) After that, the garments are taken out of the tumble and transferred to another tumbler filled with water for washing and rinsing. After rinsing is over, the prominent acid wash effect will show up.

The treated stones carry the chemical to bleach the exposed parts and bleach them to white. But the hidden parts remain untouched. Whitening agents are often added to water during rinse to make the white color in the blue jeans whiter to display acid wash.

6) **ENZYME WASH:** Enzyme wash is performed with a kind of live cell. Enzyme can break some fibers of fabric and gives the fabric special effect desired on the garment. Enzyme wash provides the fabric a soft, sanded or “peached” effect very desirable on many garments. Enzyme wash is also useful for indigo denim.

In this case, enzyme can replace stone but gives denim a stone wash look, with better and nicer blue and white contrast on the fabric. Enzyme wash is, however, costlier than stone wash.

7) **CAUSTIC WASH:** Caustic wash is a pre- printing wash. Caustic is a strong chemical with highly corrosive features. Prior to printing on cotton fabrics, gray goods are treated in boiling water with caustic, which also has strong cleaning power, especially for grease. This wash can remove all soil, dirt, grease, fine particles of cotton seeds as well as all foreign materials. As a result, only pure cotton fiber in the fabric for printing is left. It leads to stability of printing and well-cleaned fabric. However, when we want to do caustic wash on garments, we just do the opposite of the above; prior to printing, fabric is not treated with caustic wash for cleaning.

8) **GARMENT WASH AND OVER-DYE:** This type of wash is also used for denim garments to give them an exclusive look. This is performed in the following way:

Wash the denim garments with stone so that the double needle seams, pocket flaps, and exposed parts get washed down to light blue color or white.

(8.2) Put into dye the tumble to dye the garments to get the desired color.

(8.3) A coat of new color will appear on to the garment, especially, in areas where the garment has been washed to a light shade. It creates a unique but different look. In this process of wash, the lining or pocketing will pick up the color too. By this wash, direct dye or reactive dye same as dyeing fabrics or yarn may be used. Direct dye is cheap. So, direct dye may be utilized with the concomitant use of color fixing agent, after dying to make the color more stable. In case of solid color fabric staining within the garment is not a problem. However, if garments of different colors are washed together by the consumers, color may transfer to other garments. Reactive dye is always preferable in this case.

9) **WHITENING:** Whitening agents are used to create a super white look. (Unless the garments you wash is all colored namely no white color at all in the fabric, you should use whitening powder in the rinsing process to make the white part more white) In denim where there are colored warp threads and white weft threads. If such garments undergo “stone wash and bleach” whitening powder is used for the final rinsing. It makes the white threads in the fabric whiter and generates a stronger contrast between blue and white on the surface of the fabric. After washing, denim checks the reverse side of the fabric to *evaluate if adequate* whitening agent has been used during rinsing. It is a common practice that garments having white parts should be washed with whitening powder at the time of rinse. It generates a quick and desired look.

CHECKING GRAINLINE OF THE FABRIC

After the fabric is purchased and before cutting and sewing process, the following two procedures must be undertaken in order to avoid any deformities during construction.

Grain is the direction of the yarns in a fabric. Grain can be lengthwise grain, crosswise grain, and bias. Grain is very important when constructing garments since it determines how a garment will hang, fit and appear. All fabrics that are made up of yarns have grain or direction. Technically, the term grain only refers to woven fabric while the term direction is frequently used with knit fabrics.

All fabrics made from yarns are *'grain perfect'* after knitting and weaving. Looms and knitting machines construct fabrics in a grain perfect manner. However, a fabric can become off-grain during the processes of finishing (dyeing, printing, permanent finishing, and/or packaging, winding onto a bolt). Garments that are not cut and sewn according to the fabric grain can stretch in places they should not, have sagging hems and be uncomfortable to wear. Patterns are specifically designed with grain in mind so that the body can take advantage of the amount of stretch or lack of give in the fabric.

Woven Fabric - The lengthwise yarns (sometimes called the warp) run parallel to the selvage edge of the fabric. They are usually more tightly twisted, stronger, and more stable than the crosswise yarns.

Selvage – the firm edge along the lengthwise direction of a woven fabric. The crosswise yarns (sometimes called the woof, weft, or filling) are perpendicular, or at right angles to the selvage. They are woven under and over one or more yarns to create the fabric. These yarns are usually somewhat more loosely twisted and weaker than the lengthwise yarns.

Bias is any diagonal direction on a fabric. The fabric will 'give' or stretch.Any slanting line or cut in a garment that is not at 45 degree angle is referred to as garment bias. Basically a bias cut in cloth is a slanting or diagonal severing of the material. Both warp and woof threads will be cut.

True bias is the 45-degree angle or middle between the crosswise and lengthwise grain. Fold the fabric so lengthwise and crosswise yarns lie on top of and parallel to each other. This is where a woven fabric will have the greatest stretch. True bias is used for bindings, facings, pipings, folds, cords etc. It equally severs both warp and woof threads.

On grain print is a fabric wherein the prints on both the crosswise and lengthwise yarns run at right angles. This kind of fabric has perfect right-angled corners and is said to be 'grain perfect'.

Off grain print is a fabric which does not show perfect right-angled corners and the lengthwise and crosswise lines/print does not run at right angles. Such kind of off-grain printed fabrics are difficult to sew because it is impossible to match the seam lines, at centre front, at centre back and at shoulders.

With the grain When the edges of yarns along a bias cut edge tends to close up compactly when stroked with fingers, it is referred as with the grain. While working with a bias edge, it is better to work *with the grain* to avoid stretching or raveling.

Against the grain When the edges of yarns along a bias cut edge tends to fray or come apart when stroked with fingers, it is referred as against the grain.

Straightening of fabric grain - Woven fabrics especially of lower quality are often slightly "*off grain*", it means lengthwise and cross wise threads are not completely perpendicular to each other. To make sure that the lengthwise and cross wise threads in the fabric are at right angles to each other, referred to as "*on-grain*", it is necessary to straighten one of the cut ends.

Methods of straightening woven fabrics

1. **Pull The Thread From Selvedge To Selvedge** - This method is appropriate for loosely woven fabrics.
    1. In woven fabric one filling yarn is carefully pulled until the fabric puckers.
    2. Cut along the puckered line to the pulled yarn.
    3. Repeat the pulling and cutting process until the opposite selvedge is reached.
    4. The cut edge will be on grain and can be used in cutting patterns.
2. **Cutting Along A Prominent Filling Yarn /Print Line -** When a filling yarn is readily visible the fabric may simply be cut from selvedge to selvedge.
    1. This method can be used for a striped or plaid fabric with lines that run along the crosswise grain. The stripe or plaid must be *woven* into the fabric.
    2. Cut along one of these lines from one selvedge to the other, close to the cut edge of the fabric.
3. **Tearing -** This method is appropriate for tightly woven fabrics. Loosely woven fabrics may stretch out of shape with this method.
    - Clip into the selvedge near to the cut edge of the fabric.
    - Tear the fabric all the way down to the opposite selvedge.

4.**Steam press method:** If the above mentioned method does not work, clip the selvedges at intervals, sprinkle water on the fabric and press with a hot iron in the appropriate direction till the fabric become grain perfect.

5.**Immersion method:** This is the most effective method for straightening washable fabrics. The fabric is folded lengthwise and the selvedges are tacked together. It is then immersed in water until completely wet, and excess water is squeezed out. The fabric is hung up, till it is half dry. The half dry fabric is placed near the corner of a table and stretching process is carried out

to make it grain perfect. After straightening, it is kept on a flat surface and dried. When dry, press with an iron, remove the tacking stitches along the edges.

Note: If a printed fabric is off-grain the fabric grain can be straightened but not the print. Hence it is necessary to carefully inspect print of the fabric before purchasing. It is better to avoid any printed fabric that is badly off-grain.

5.PATTERN LAY OUT

The placement of pattern on the fabric, in an economical manner, that is without wasting fabric is known as pattern layout. All the patterns should be arranged prop-erly following grain of the fabric. Example the bodice centre front will be in straight (lengthwise direction) grain.

Objective of layout

Once a design is finalized, the next step is to construct it. The various steps involved in garment construction include pattern making for the chosen design, fabric estimation, layout on fabric, cutting, assembling, stitching and finally finishing. The main advantage of a pattern layout is that it minimizes fabric wastage, thus helping to optimally utilize the fabric.

A layout can be defined as a methodical arrangement of various pattern pieces on the fabric. The main objectives of a layout is

1. To ascertain if the fabric bought is sufficient for the design planned.
2. To minimize fabric wastage
3. To optimize the use of fabric

Importance of layout

Layout and cutting of clothes have become complex of late and an exciting art. Layout can be viewed as a process of placing all pattern pieces of a garment style correctly on fabric to ensure economical usage. It is simple if the basic principles are learnt thoroughly and clearly if designers pay attention to incremental changes in fashion demand (Aldrich, 1997). Layout procedure has two main media involved. These are final patterns and fabric on which the patterns are to be laid. Knowledge and understanding of these media is an essential tool for successful layout and appreciable constructed garments. Fabric is the prime raw material in garment construction. 70 percent of the garment cost is incurred by the fabric. Therefore every centimeter of fabric saved is money saved! It is one of the preliminary processes in garment construction. It involves planning of pattern layout on the fabric. It is a crucial process which influences the economy of the fabrics

consumed for a garment. it also allows to take care of any defects in the fabric by subjecting it through checking for quality. it helps to minimize quality issues like bowing, shade variations or pattern defects with in a garment. it calls for higher accuracy. Therefore layout plays an important role in arriving at most economical fabric consumption.

Principle of layout

The principle of layout is based on the thumb rule of following grain direction and fit of the garment greatly depends on the grain of the components cut. The way a particular garment fits or hangs will be the resultant of the grain properties. Especially in woven fabrics, lengthwise grain is primly followed to cut major components, crosswise for those parts which undergo more stress. Off-grain or bias for maximum stretch or give.

Factors that influence the layout –

- Type of the fabric – refers to the construction, woven, knit or leather.
- Directions in the fabric – lengthwise grain, width wise grain, off grain, courses, Wales or non-direction materials like leather.
- Width of the fabric – narrow, medium, double with or tubular fabrics.
- Surface of the fabric – brushed, un-brushed.
- Pattern of the fabric – whether solid dyed, chequered, plaids, all over printed, randomly designed.
- Style of the garment – type of component to be cut out like symmetric, asymmetric.
- Number of components to be cut.

- Press the fabric without any wrinkles before laying the patterns.
- Place the fabric on a large or a hard flat surface, which is easy for work.
- Place the larger patterns first. Place sim-ilar pattern together, with same length. Example placement of bodice front and bodices back next to each other, such that the side seams are close to each other.
- Place the smaller patterns in gaps in between the larger pattern.
- If pattern is to be cut in more num-ber, example two sleeve patterns, place them on fold. This concept is not pos-sible when the fabric has a one way design or when the patterns have dif-ferent front and back patterns.
- Keep weight, pencil, pins ready in hand, to draw, or pin or place weights on patterns, so that it remain in cor-rect position.

Types of Pattern Layouts

Based upon the place-ment of the patterns, the layouts are classified as

Open Layout - Open layout is the simplest layout. The fab-ric is spread on the table and the patterns are laid from left to right one after the other. This is easy for beginners. No fold is made in this method. It can be used for all patterns. This is used especially for designs with dif-ferent left and right patterns.

Lengthwise Centre Fold - The fabric is folded in the lengthwise direction. The selvedges of both sides are placed one on top of the other and folded in the middle. The fabric forms a fold at the centre. All folded patterns are placed along this fold. This fold is also used for different type of frocks, shirts and blouses.

Width wise Fold - The required width needed for the pat-terns is taken on the fabric and folded in the lengthwise direction. This is com-monly seen when many small patterns are found in garments. The fold should be parallel to the selvedge. This is used for many garments from simple baby's panty to integrated men's coats.

Bias /Crosswise Outer Fold - Crosswise centre fold is similar to length-wise centre fold. In this fold, the fabric is folded in crosswise direction. It is best suited, when the patterns are too narrow to be fitted in the lengthwise fold. This fold can also be used when special effects are needed like having a dress with hori-zontal strips using a material with length-wise stripes.

Double Fold or Combination Fold

In combination fold the fabric is folded in lengthwise and crosswise grains together. This layout is used for sari petticoats and jablas (Figure 11.4)

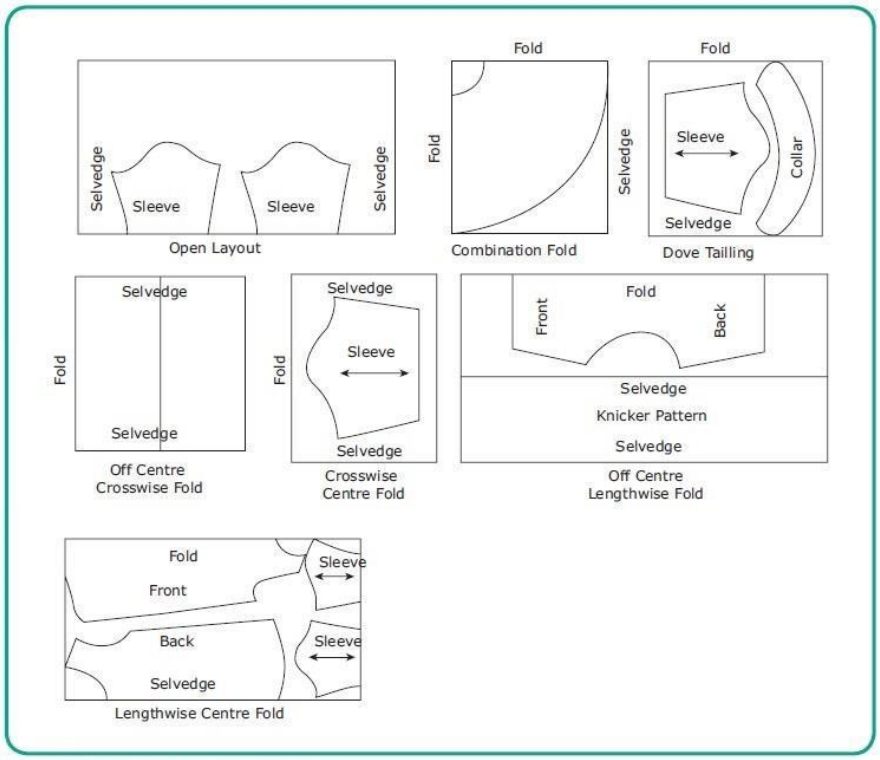


Figure 11.4 Different Types of Layout

Make a trial layout by keeping weights or two pins per pattern, to make sure that cloth will be sufficient. Rules 6 to 9 must be borne in mind while making the trial layout.

Straight grain lines on patterns must be kept parallel to the fabric selvedge. To ensure this, measure and adjust the pattern so that both ends of the straight grain line are the same distance from the selvedge and pin the pattern to the fabric along the grain line arrows.

Fold lines on the patterns must be kept on folded edges of fabric.

Leave enough space between patterns for cutting outward notches and marking seam allowance (if the patterns do not include seam allowances). Also make sure that there is enough material left for cutting out belts, facings, etc. for which you may not have made paper patterns.

Fabrics with one way design – When cutting these fabrics, you must take care to see that all the pattern pieces are arranged in the same correct direction.Any fabric that has a woven, knit or printed design that needs to be running in one direction on the finished garment is called a one-way design.

These designs can be any type of pattern or design including:

- floral,
- abstract shapes,
- stripes,
- plaids,
- checks.

The pattern may be all over the fabric (overall print/motif) or only on one edge (border print/design).

Many prints are treated as one-way designs when they have a dominant motif that needs to be placed carefully.

In a two-way pattern half the motifs face upright and half are upside down so that the pattern gives the same feeling in either vertical direction Fabrics printed with one-way or two-way patterns, however, must always be utilized in a consistent direction. That is, fabrics so printed must always be cut with respect to the "top" and "bottom" of the pattern so that a piece of fabric showing upside-down motifs is not placed next to a piece showing right side-up motifs. Because direction of motifs is a consideration in the utilization of these patterns, they are referred to as directional.

Fabrics with nap and pile – have to be treated like fabrics with one way design **Fabrics with bold designs such as plaids, and crosswise stripes** – Match plaids and stripes so that they form continuous lines across seam openings or meet at equal angles.

Asymmetric designs – These designs call for right and left sides to be cut separately from a single layer of fabric, taking care to see that you are not cutting both the sections for the same side. If the material has no right and wrong side, this problem will not arise.

Rules to remember in pattern layout

- Press the fabric before laying it out on the table.
- A large table is useful for comfortably laying out all the pattern pieces.
- For an open layout (where single thickness of fabric is used) place the fabric with the right side up.
- For all other layouts, fold the right sides facing each other so that the wrong side faces seamstress.
- If a combination fold is used, lay and cut the lengthwise pattern pieces first before refolding the cloth for crosswise layout.
- Since most garments are made with the lengthwise grain running vertically on the body, align the pattern pieces on the fabric accordingly, with the grain line of pattern parallel to the selvage.
- Pin all the pattern pieces to the fabric. Use only dressmaker's pins as they do not damage the fabric. Pins should be perpendicular to the stitching lines and the cutting line.
- Place large pattern pieces first and then fit in the smaller ones.
- Lay the pieces as close to each other so that fabric is not wasted.
- Fit pattern pieces that are similar in shape next to each other. This process is called ***dovetailing***.
- Always test out to see if all the pattern pieces fit into the fabric being used.
- Mark seam allowances on the fabric if the pattern indicates so.
- If pattern details are being transferred using a carbon paper, use a paper that is as close to the colour of the fabric as possible.

- Mark pattern details only on the wrong side of the fabric.
- Keep the fold lines of patterns on the folded edge of the cloth.
- When using a lining material, mark only on the lining than on the actual fabric the garment is made.
- Try to fit the wide end of one piece to the narrower end of the other
- Arrange all pattern pieces before cutting the cloth**.**

6. Cutting:

Fabric cutting is a very important process for manufacturing garments. Apparel can be rejected if the cutting process will not be perfect. As a result, some points should consider before cutting which helps to minimize the probability of garments rejection by the buyer. The clarification of cutting is very complex. In readymade garments industries, the fabric is cut from lay and spreading with accuracy and properly which is known as fabric cutting. Marker outline is used to cut the fabric. During garments manufacturing, fabric cutting is very important as if something is cut in the wrong way which is not be rectified. .

Basic steps to cutting fabric -

1. Ensure that you have lightly pressed the fabric with a medium hot iron. For accuracy in cutting you need to get the wrinkles out.
2. Use the sharpest scissors you can get your hands on for cutting
3. Layout your fabric on a large hard surface (I use my big dining table for cutting) – gives you a perspective. Also ensures smooth cutting. It will be best if you can find a big surface where you can rest the full or the folded cloth without any edges hanging outPrepare the paper pattern by cutting it out.

   2.Prepare the fabric by prewashing and pressing. Learn more about prewashing fabric before sewing here.

4.Most of the time there will be creases in the paper pattern; use a dry iron to take them out.

5. If the fabric has a one-way design then lay all of your pattern pieces in the same direction with the finished project in mind.

6.Accurate notch size. If it is large in size, it can be seen after sewing of fabrics. Also, there is a great probability of producing problems in the matching of patterns after sewing.

7.Lay out the fabric on your cutting surface as per the grain. Should position the pattern pieces on the fold or the grainline as indicated.

8.You can first layout all the pattern pieces on the fabric and see which pattern arrangement works. Try out different arrangements to get the prints/nap etc correct, save on fabric. You need to know that all your pattern pieces will fit into the fabric you have at hand. So ensure that all the pattern pieces will fit within the fabric. This has to be done before cutting. If they do not fit you may have to adjust the placement of the pieces. Likewise, if you are marking directly onto the fabric mark the big pieces first, then the smaller pieces. This way if the cloth is not enough you can adjust and cut smaller pieces better than big pieces.

9.Pin paper pattern to fabric. You can also use pattern weights. This ensures that there will be no shifting of the paper pattern. Pin near the outer edge as well as inside. Pattern weight can also be used. I prefer pins but there are people who say pins distort the fabric.

10.Trace around the pattern.. Mark the darts etc by tracing with a carbon paper or by tailor's tacks.

11.Remove paper pattern.

12. Or alternatively, you can keep the paper pattern and cut it. In this case, keep one hand on the pattern to keep it from moving. If you lift the pattern even once the whole thing may get distorted.

13. Make long strokes of cutting with your scissors – this is advised for cutting long straight edges. But for cutting curves take short strokes.

14. Cut off the excess fabric outside the marked lines using a scissors or a rotary cutter.

Cutting tips for different fabric types

Cutting plain fabric This fabric can confuse you – both the face and the back of the fabric can look almost the same. You will have to mark the face of the fabric with a chalk before cutting this. You can choose the side which is smoother without any lines of the weave as the face (front).

Leather or faux leather If you are cutting leather or faux leather you can save a lot of frustrations by using a rotary cutter and mat. That is not to say you cannot use scissors. But rotary cutter cuts best.Never ever pin the pattern to the faux leather. Pin holes look horrible and it is better to use pattern weights. You can use paper clips or binder clips also clipping the pattern to the edges. I have even used tic tac hair clips

Printed fabric One of the joys of sewing your own clothes for me is matching prints on the seam line.If you are cutting stripe, plaid and other fabric with prints and designs do not follow the lengthwise grain. Instead, you can follow the print. Cut the pattern pieces out of a single layer of fabric. Then match the design of the second piece with the first.

Striped fabric – Check out the post on the 16 different types of stripes in fabric. One important thing to note when cutting stripes is to ensure that the two sides left and right gets the same

amount of stripes. Otherwise, it could look unbalanced.Lengthwise stripes elongate a body, so if you want a slim look choose this direction for cutting the fabric – you would also consider lengthwise stripes when cutting sleeves. You can check out this post on tips for making you look slim with the right clothes and prints. If you cut striped fabric on the diagonal and join it, you get interesting results.

Check fabrics it is unpardonable when you have both sides looking unbalanced checks.It is very difficult to match. The main things are to get the checks in balance on both sides, where are the dominant checks placed, whether you want crosswise matching.You need the same number of checks on both sides of pattern pieces.- this should be ensured especially for sleeves, legs, etc. This is called crosswise matching. For eg you may want to match the chequered pattern on the sleeve with the bodice so that they look continuous. It can look very nice but may be challenging. You can achieve this with careful planning. Match at the seam lines and not at the cutting lines.

Printed/patterned cloth Check out the post on the different types of fabric patterns in dress materials. With printed clothes you have a challenge in getting prints similar for two sides – like getting the same prints on both sleeves may prove to be difficult if you have only so much fabric. In such cases, it becomes imperative that you buy more fabric than is required if you require this kind of pattern matching.

slippery fabrics like chiffon This is a tricky and frustrating space – cutting slippery fabrics. You can use thin paper, tissue paper underneath to cut these fabrics without disaster. Also use serrated scissors.

Wetting the fabric lightly with a spray bottle will give some weight to the fabric. But you have to be careful with the cutting surface.

If you have an absolutely unmanageable fabric in your hands you can skip cutting before sewing altogether. Mark the pattern on the fabric. Sew the seams. Cut it out after sewing with enough seam allowances.

Delicate fabrics For tissue like fabrics you can keep a thin paper/ tissue paper along with the fabric and cut together. use this method for silk also .

Directional prints A very important thing to consider when cutting printed fabrics is the direction of the prints. You do not want an upside down design on your sewn garment (imagine an upside down house print). Keep all the pattern pieces in the same direction before cutting.

If you have a one way print fabric, care needs to be taken that all pattern pieces are cut in the same direction. The fabric has to be kept in one directions to get the print in the way you want.

- Sometimes you may also want a particular print on a special place of the garment. This is should also be taken into consideration when buying the fabric (may need more yardage) and placement of patterns
- You should be aware that if you want to match prints along the seam line you will need more cloth than the pattern calls for. This is because once we have cut one side of the

pattern, you will have to search for the matching portion in the rest of the cloth for the same print. When looking out for the matching print, take into consideration seam allowance along the seam also.

- Keep the part you have already cut on the matching printed portion. Mark around and cut it out. If you use invisible zippers along the seam you will not even notice that the fabric panel belongs to two pieces.

7.POINTS TO BE KEPT IN MIND WHILE STITCHING THE GARMENT

1 Select the best fabric

2. Prewash fabric before sewing

3 Learn to cut fabric properly

4. Get a good enough sewing machine

5 Press as you sew

6 Always interface where necessary

7 Maintain your sewing machine

8 Learn to make clothes from sewing patterns

9 Get some nice sewing supplies and tools

10 Plan the sequence of stitching in advance

11 Always clip and trim seam allowances wherever necessary

12. Buy the best quality sewing notions and trims

13 Follow couture sewing techniques

14 Hang garments before hemming

15 Check for loose thread trails and trim away

16 Follow the Fitting standards in clothing

1. **Select the best fabric** Quality fabric choice is the number one pre-requisite of a great looking polished sewn garment.

   Buy as per your sewing pattern or follow the general guidelines to see how much fabric you need for your sewing

   Different fabric types call for different types of sewing techniques – checkout relevant articles for sewing with sheers and transparent fabrics, satin, leather plastic, vinyl , pleather poplin polyester and denim.

3. **2. Prewash fabric before sewing**

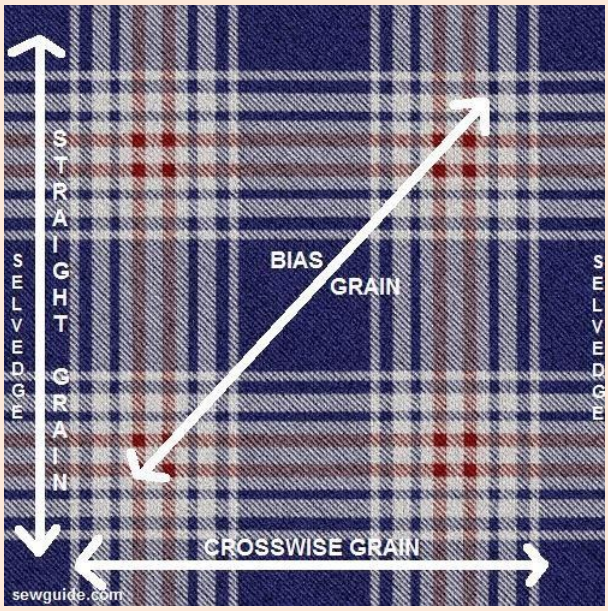
Most of the fabric shrink in wash. This will make your finished sewn garment unfit to wear after the first few washes if you have not prewashed the fabric.

Prewashing the fabric is nothing but hand washing it and drying it properly. Remember to iron all the wrinkles out before using it.

3. Learn to cut fabric properly

Use Sharp good quality scissors to cut fabric

- Find the right side of your fabric. For your knits, stretch it by the crosswise grain – it will curl to the rightside. For wovens usually the right side will look brighter with a good sheen. If you still cannot, look for the selvedge holes – you will find open holes on the wrong side. There may also be thread knots /slubs on the wrong side.
- Ensure that the fabric is cut on the lengthwise grain for dresses pants skirts etc for proper drape and good fall. Learn more about cutting the fabric properly here and about grainline and how to cut fabric on the bias



4. Get a good enough sewing machine

Your Sewing machine doesnot have to be a fancy piece for you to take up sewing. An ordinary straight stitch or zig zag sewing machine will suffice.

5. Press as you sew

It is very easy to skip the pressing when sewing clothes.

Pressing is such an important thing when sewing, the whole look of your final product may depend on this.So ignore pressing while sewing at your own peril.

An iron can give that professional 'not- homemade' look to your home made clothes. Always sew the seams open.

6. Always interface where necessary

Interfacing is a fabric material which is used to give firmness, strength, stability and weight to seams and fabric surfaces.The fabric would just flop around if not for the interfacing- I cannot imagine a collar or cuff without interfacing.

You can use fusible interfacing on just about any fabric. Just place the glue side of this interfacing on the wrong side of your fabric and then use a hot iron to press in place.

Always use interfacing on facings and seams with stresses like butonholes, zippers, behind pockets.

interfacing does for you

- Reinforces
- Prevents sagging
- Neatens edges
- Stabilises
- Give shape

7. Maintain your sewing machine

Your sewing machine can make your sewing life hell if you do not give it the care it deserves.

9 Get some nice sewing supplies and tools

You most likely already have the most essential sewing tools like sewing machine, tape measure, scissors, pins, chalk and pattern paper.

10 Plan the sequence of stitching in advance

You can stitch the sections as per the sequence detailed below or as per your pattern instructions.

11. Always clip and trim seam allowances wherever necessary

For seams to work nicely this is a necessity, especially if you have curved seams. Your pattern pieces have curves and you stitch straight lines . To conform to the curves the seam allowances should be trimmed to the minimum and clipped at intervals

12. Buy the best quality sewing notions and trims

Sewing notions and trims you use on your clothes shout the quality of the final product. Even a well tailored clothing in a good fabric can be ruined with a cheap looking zipper or button. So do not compromise on this.

13 Follow couture sewing techniques

Finishing the fabric edges, using delicate invisible stitches are all techniques designers use to finish their exquisite creations. Learn and follow them.

14. You may think that it is simple enough to leave the inside fabric edges as is. But after a few tumbling in the washing machine the fabric edges will definitely fray and create a mess inside your garment. It looks professional and polished if you have finished fabric edges inside your garment too.

14 Hang garments before hemming

Most fabric stretches. To ensure that the stretch is done away with before hemming hang the dress for at least 12 hours before you hem it. You will eliminate the stretch of newly sewn clothes this way.

15 Check for loose thread trails and trim away

Nothing is nore unsightly than loose threads on a garment you are wearing. When you back stitch at the start of a seam and when ending, it you will be leaving lot of thread tails – just clip all of them at the end of your session painstakingly.

16 Follow the Fitting standards in clothing

There are some standards of clothing that you should ensure that your finished sewn product should adhere to. Ensure that they are followed so that you make something that you are proud of

You should ensure that the garment you have sewn meets the following criteria

- Buttons fasten easily, neatly and securely.
- There are no loose seam stitching or hanging threads
- Buttons and buttonholes are all placed at an equal distance from the edge
- Stitches are all even and smooth
- Collars are neatly finished, equal on both sides, undercollar doesnot roll to the front collar. The corners are neatly turned out.
- Darts are lying smooth without any projections. Dart on either side of the bodice are placed equally and look the same.
- Facing at the neckline is neatly turned inside the garment without any bulges. The fabric edges are finished
- Prints and patterns of the cloth you have chosen look neatly joined.
- Hem stitching is looking smooth without any projections or bulges and at an even distance from the hem edge
- The pant hem is ending 2 cms from the ground when you are wearing shoes. Long sleeve hems are touching the top of your hands.

  Dressmaking is rewarding. But shoddy work is not encouraging. Make clothes you can wear with pride by following these tips.

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8.TYPE OF FABRIC AND NEEDLE

Sewing Machine Needle Type	Needle Size	Fabric Type
Universal needles	(10)	Voile, sheers, delicate silk
	(12)	Shirtings, poplin, rayon, light wool

	(14)	Medium - heavy, calico, linen
	(16)	Heavy fabric, upholstery, bag making
	(18)	Extra heavy fabric, upholstery
Sharps needles	(10)	Voile, microfibre
	(12)	Shirtings, microfibre, patchwork
	(14)	All Sharps produced perfect top stitching
Ball point needles	(10)	Light knits, tricot
	(12)	Interlock, Lacoste
	(14)	Medium heavy knits, double knit
Stretch needles	(11)	Light lycra, elasticised fabrics
	(14)	Elastic, heavier lycra, elasticised fabrics
Jeans needles	(14)	Denim, tightly

		woven fabrics
	(16)	Heavy denim, vinyl, furnishings
Leather needles	(14)	For all leather and suede
	(16)	Do not use on synthetic leather
Metafil needles	(12)	Decorative sewing on various fabrics
Quilting needles	(12)	Quilts made from cotton, wool or polyester with wadding centre
Embroidery needles	(11)	Decorative sewing on lightweight fabrics
	(14)	Decorative sewing on heavier fabrics
Twin needles	Various	Decorative sewing on most fabrics

9.FINISHING – IRONING OF DIFFERENT FABRICS

PRESSING

Pressing or **ironing** is the most important finishing process in the readymade **garments sector** which is done by subjecting a **cloth** to heat and pressure with or without steam to remove unwanted creases and to impart a flat appearance to the **garments**. **Pressing** or **ironing** is also done to introduce creases in the **apparel**.

Objects of Pressing or Ironing:

Pressing or ironing has different types of objects which are mentioned below:

1. Removal of unwanted creases and crinkles,
2. Shaping,
3. To apply creases where necessary,
4. Under pressing,
5. Final pressing.

1. Removal of unwanted creases and crinkles: - Various types of unwanted creases and crinkles arise during manufacturing the garments. These may be formed due to the washing of garments. Pressing or ironing is done here to remove those unwanted crinkles and creases from the garments.

2. Shaping: - In the apparel dart and seam are used for proper shaping to the wearer. Pressing is done here to increase the beauty and attractiveness of the created shape by using dart and seam. In some cases, it needs to shrink or stretch of garments parts for shaping.

3.To apply creases where necessary:

In the garments manufacturing industry, pressing or ironing is done for applying a creasing effect in the apparel to increase the beauty. Also pressing or ironing is done before sewing the garments to increase the beauty and proper sewing.

4. Under pressing:

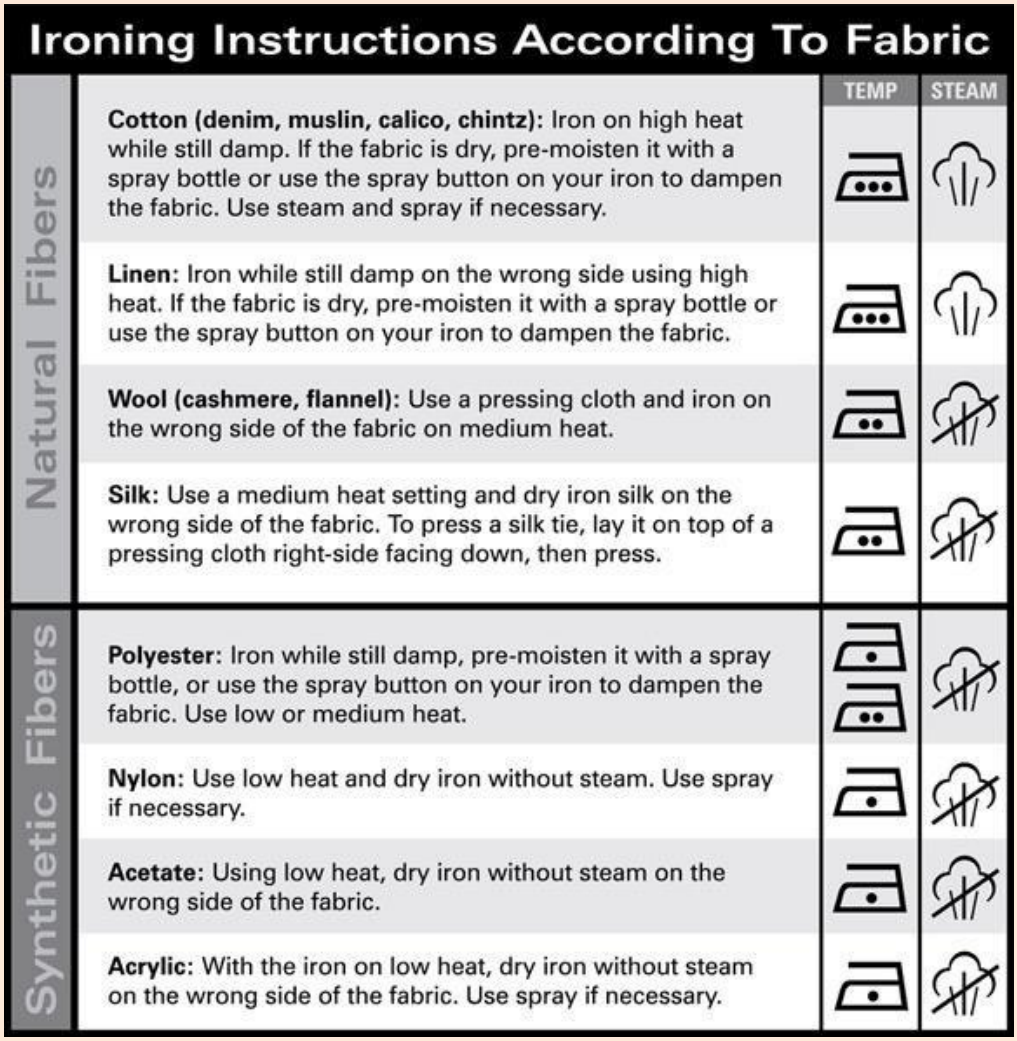
Before sewing the garments, some parts needed minimum pressing to sewing easily and beautifully which is called under pressing. In the readymade garments industry, under pressing is done for making coats, jackets, and trousers.

5. Final pressing:

After making the garments, pressing is done finally before folding which is called final pressing. Pressing or ironing is done here to increase the beauty of garments and to impart a flat appearance to the clothing.

As every fabric is different, your ironing technique may need to be adjusted to make sure you don't damage your favorite linen pants or cashmere sweater. Make sure to check the label inside your clothing or linens to see the recommended fabric care instructions, including ironing recommendations. Follow these simple rules if you are missing a label:

- If you are ironing a piece of clothing but don't know what the fabric is made out of, use the lowest temperature first and test on an inside seam.
- Use a low-temperature setting if you are ironing a fabric blend
- If you are ironing clothing made of multiple types of fabric, start on a low setting



Natural Fibers

- **How to Iron Cotton** (denim, muslin, calico, chintz): Iron on high heat while still damp. If the fabric is dry, pre-moisten it with a spray bottle or use the spray button on your iron to dampen the fabric. Use steam and spray if necessary.
- **How to Iron Silk:** Use a medium heat setting and dry iron inside out. To press a silk tie, lay it on top of a pressing cloth right-side facing down, then press.
- **How to Iron Wool (cashmere, flannel):** Use a pressing cloth and steam iron inside out on medium heat.

Synthetic Fibers

- **How to Iron Acetate:** Using low heat, dry iron without steam on the wrong side of the fabric.
- **How to Iron Acrylic:** With the iron on low heat, dry iron without steam on the wrong side of the fabric. Use spray if necessary.
- **How to Iron Nylon:** Use low heat and dry iron without steam. Use spray if necessary.
- **How to Iron Polyester:** Iron while still damp, pre-moisten it with a spray bottle, or use the spray button on your iron to dampen the fabric. Use low or medium heat.

Whether you are ironing linen, silk or cotton, the most important thing is to have an iron that works well and is up to making your clothing or fabric wrinkle-free. Look for an iron that not only has temperature settings but includes specific fabric types so you don't have to guess.

The finishing department is the department that comes after all the departments and plays an equally important role in the garment's final appearance.

Activities of the finishing department are listed below -

- **Thread trimming**
- **Attach button and button holing in case these jobs are done in the stitching section**
- **Checking of garments**
- **Stain removing**
- **Garment Pressing / Ironing**
- **Folding and Tagging**
- **Packing**
- **Communicate with internal department**

1. Thread Trimming: -In the stitching department, thread trails and thread chains are not trimmed neatly. Uncut threads and thread tails in garments are trimmed in the finishing department by helpers. Uncut and loose threads on garments are considered defects.

2. Checking garments: - All garments are checked at the finishing stage for visuals and measurement. Finishing checkers check the complete garment inside and out. Checking is done for garment detailing, such as care labelling, and trims.

3. Button attach and Butting holing: - Products those have trimming like button, snap button, eyelets are attached in finishing section.

4. Removing stains:-Stains and spots are found on garments. Spots are removed using a hand spot gun or by using a stain removing machine prior to pressing. Dust and stains can be removed by machine washing. So, many times finishing department wash garments inside department.

5. Repair work and mending - Defective garments may need to repair for stitching and fabric defects. All repair activities are done in finishing department itself instead of sending defective garments to stitching department.

6. Ironing garments: - Garments are ironed using a steam iron. This is done to remove creases in the garment. For knitted garments measurements are set by steam press. Vacuum pressing tables are used for garment pressing.

7. Folding and tagging: - Pressed garments are folded in a specified dimension. Tags, such as price tags and hang tags are attached to the garment by means of a kimble gun or threads.

8. Packing garments: Finally, properly folded garments are packed into poly bags as per customer requirements. Individual poly bags are then packed into bigger cartons.

9. Preparation of packing list: The packing in-charge prepares a packing list for the shipment. After packing is completed for an order, the finishing department informs the concerned merchant.

10. Internal shipment audits - Quality department perform internal shipment audit in the finishing department. This audit is done prior to final inspection.

11. Documentation and reporting- Like other departments, finishing department maintain production records for pressing, and packing.

10.QUALITY INSPECTION

QUALITY INSPECTION -

Garment Inspection? - Garments inspection is an important term in the readymade garments sector. Quality inspector is the main in apparel inspection, who certifies the garments export order, whether it is perfect for shipping or not. The quality inspector has to ensure perfect quality

according to the buyer's instruction in various stages of garments inspection, which have been discussed in this article.

BENEFITS OF QUALITY INSPECTION

Improve Product Quality- Automated quality inspections can improve product quality. It's true that a manual quality inspection process is labor intensive and prone to human error. When the quality inspection process is automated it becomes more accurate and repeatable, ensuring that products are produced at the highest quality levels. The process is also much quicker, meaning that products are able to get to market more efficiently.

Business Growth - Quality inspections that are automated can also help facilitate business growth. When the quality inspection process is made more efficient via automation it has a positive impact on the bottom line of the company as a whole. Product quality overall is improved which means that the products are more in-demand. In addition, an automated system is able to collect data for every feature on all products which is attractive to potential buyers. The quality data is right there for them to see as they make decisions.

Cost Effective- Automating the quality inspection process is also morecost effective. While there is an upfront cost associated with an automated inspection system, it is a one-time investment. The long-term ROI of the inspection system must be considered. Over the lifetime of the system it will amount to significant cost-savings compared to the cost of labor associated with a manual quality inspection process. Employees expect to be paid more as they become more experienced whereas an automated inspection system involves no additional costs.

Customer Satisfaction - Using quality control tools and processes like **Test Measurement Calibration** and **TraQtion** not only ensures that your product are safe and exactly as they should be, but it also ensures that your customers are not disappointed by the foods they by. The better quality your products, the happier the consumer, will be and the more money you will make selling your stuff to them. By effectively inspecting and exercising control over your company's production processes, you can lower your production costs by ensuring that inferior products and defects are kept to an absolute minimum. This has the knock-on effect of being better for the environment too. If you want **improve the custumer experience in your business** this is a good article to read.

Can Use Your Resources More Effectively- Quality control procedures enable you to use the resources available to you in the most effective way possible so that nothing is wasted and you don't have to worry about going over budget.

Increase Morale - Implementing better quality control procedures can actually boost the morale of your employees because it can make them feel more like they are working towards a common goal, creating high-quality goods for the market. It can also help to foster a happier

atmosphere because staff know exactly what is expected of them, which means they won't be caught off guard by a disgruntled manager who isn't happy with their work.

Products are Uniform- When you run a business, you need to ensure that every product you put out meets the same high standard. If some products are of a higher quality than others, disgruntled customers, who've paid more for an inferior product than their friends, are sure to rear their heads. Luckily. Effective quality control is an easy way to ensure that every product you sell is the same.Asyou can see, there are so many advantages to quality control that you can't afford not to implement it in your business.

UNIT – 5 SURFACE ORNAMENTATION

Fabric embellishments are decorations that are normally added or attached to fabrics to make them more beautiful and add more value in terms of money. Today adding embellishments has become the ultimate tool of the decorator.. The embellishment on fabric can be achieved through printing, tie-dye, batik, stencils, lamination, bonding, Decorative cutting,Special seam applying and etc. The most important thing which designers should keep in the mind while embellishing the fabric is “principles of arts”. The design should have balance, proportion, emphasis, variety, movement, rhythm, and harmony.

“Textile embellishment refers to the process of adding color, pattern, texture or design to fabric through the use of outside mediums such as thread, ribbon, sequins, yarns, buttons, buttonholes and more” . Decorative design incorporates only exterior in the garments. It neither affects fit nor performance of the garment, but contributes to the over all purpose of the garment. It is least important among the three aspects of a design. It acts sub ordinate to and must agree with both structural and functional design. Functional components of the garments like openings, belts, buttons, structural seams, darts, gathers may be decorative due to the visual stimuli they provide besides contributing to the fit and performance. The design that offers only visual effects is decorative only . The colour, constructional details and decorative trims are three common ways to incorporate decorative design into structural design. A well designed garment thus offers adequate visual stimuli through structural lines and shapes, attractive fabric colours and creatively used textures.

Importance of Embellishments

· Embellishment is important as decorative detail or feature added to something to make it more attractive.

· Add value to the fabric.

· To make a product better than what it is already.

· To add beauty and increase profit in fabric.

· Make fabric good according to the taste and demand of consumer.

· Make fabric elegant and attractive with different techniques.

It is necessary for both male and females fabrics if enhance the beauty. There must be some limits of embellishment for male fabrics and even for female fabrics. The age of the end consumer plays a vital role in the fabric embellishment. It also depends upon the likes and dislikes of individual which vary from individual to individual.

Advantages of Embellishments

· Identity and Creativity.

· Add beauty to the fabric and Garment.

· Increase the value of the fabric and the Garment made out of it.

· Shows the personality of the wearer.

· Attract consumers.

· Simple material can be converted into many styles and shapes.

Types of textile embellishment techniques inwards sewing in addition to crafts: Here I volition bring upward the types of embellishment methods that are used to decorate surface pattern on textile or garments.

- Printing
- Dyeing
- Embroidery
- Quilting
- Appliqué
- Patchwork
- Trimming (Fringe trim, Sewing trim)
- Lacework (either pre-made or home-made)
- Piping (made from either self-fabric, contrast fabric, or a merely a cord.)
- Beads
- Batik
- Smocking
- Painting

Some other embellishment items that are used on garments for enrich beauty. For example:

- Buttons
- Zippers
- Buckles
- Grommets
- Sequins

In add-on to the multitude of structure in addition to finishing techniques used, the textile tin dismiss also live worked upon or embellished inwards a diversity of ways to lift its surface. Most embellishing methods, such every bit embroidery, quilting, applique in addition to bead-work are age-old techniques of decorating textile in addition to are yet largely executed past times hand. Influenza A virus subtype H5N1 specialized industrial sector inwards trimmings, lacework, embroidery in addition to other embellishments has also developed that uses innovative technology scientific discipline to recreate thehand-worked effects on an industrial scale in addition to pace.

2.Techniques of Embellishing on Garments

A few textile surface embellishing techniques are briefly discussed inwards below:

Printing: Textile printing is the process of applying colour to fabric in definite patterns or designs. In properly printed fabrics the colour is bonded with the fibre, so as to resist washing and friction. Textile printing is related to dyeing but in dyeing properly the whole fabric is uniformly covered with one colour, whereas in printing one or more colours are applied to it in certain parts only, and in sharply defined patterns.

In printing, wooden blocks, stencils, engraved plates, rollers, or silkscreens can be used to place colours on the fabric. Colourants used in printing contain dyes thickened to prevent the colour from spreading by capillary attraction beyond the limits of a pattern or design.

D**yeing;**Dyeing is the application of dyes or pigments on textile materials such as fibers, yarns, and fabrics with the goal of achieving color with desired color fastness. Dyeing is normally done in a special solution containing dyes and particular chemical

material. Dye molecules are fixed to the fiber by absorption, diffusion, or bonding with temperature and time being key controlling factors. The bond between dye molecule and fiber may be strong or weak, depending on the dye used. Dyeing and printing are different applications; in printing, color is applied to a localized area with desired patterns. In dyeing, it is applied to the entire textile**.**

Embroidery: Embellishing fabrics amongst stitches inwards yarn or thread, using a needle, is 1 of the oldest forms of art. While the library of embroidery includes hundreds of varieties of stitches, they tin dismiss live categorized broadly into 4 principal techniques – raised operate or stump-work where raised effects are created past times stitching over pads of wool in addition to cotton; couched operate – creating a pattern amongst cords past times sewing them onto the base of operations fabric; fl at running in addition to filling stitches of which at that topographic point are hundreds; in addition to counted thread embroidery, e.g. needlepoint in addition to cross stitch, where the stitches are placed over a counted let on of threads of the base of operations fabric. Schiffli embroidery is an instance of machine embroidery made on the 'Schiffli' machine that industrial plant sideways amongst a K needles. This machine embroiders amongst a top, decorative in addition to a back, binding yarn, in addition to is used for making laces in addition to sheer drapery fabrics. Many embroidery stitches tin dismiss right away live produced inwards digitized embroidery machines which, for large scale production, conduct keep multiple heads to attain a let on of identical designs simultaneously using an embroidery software program.

Quilting: Quilting is the technique of Embellishing fabrics stitching together, past times manus or machine, multiple layers of textile amongst a filling of cotton, foam or polyester batting inwards betwixt the layers. Quilting is widely used for making bedspreads, quilts, comforters etc. Single-needle, hand-guided quilting machines are used for making outline quilting, where the stitching lines follow the outlines of the impress design, vermicelli, which uses gratis motility all-over stitching patterns, in addition to trapunto or Italian quilting, a shape of 'couching' where a cord inserted in addition to stitched betwixt the textile layers creates a raised pattern. In mass-scale

automated production, multiple-needle machine quilting is used to brand uncomplicated geometric patterns. In stitch-less quilting, multiple layers of textile are fused together thermally or past times an adhesive, creating the appearance of stitched.

Applique: In applique, pocket-size pieces of textile or other stuff are couched or stitched onto a base of operations fabric. In contrary appliqué, the base of operations textile is on overstep of the stitched textile in addition to the overstep textile is cutting out to reveal the appliqued textile underneath.

Patchwork:Patchwork, used to a greater extent than oftentimes than non for making bed quilts in addition to cushions, is the technique of creating a textile layer past times joining pocket-size pieces of textile (traditionally scraps of quondam clothes or textiles) inwards geometric or abstract patterns. Being a hand-worked technique, it is to a greater extent than oftentimes than non produced on a pocket-size scale.

Trimming: Two types of trimmings are virtually popularly applied on textile or garments for decoration. Such as:

- Fringe trim: Fringe is an ornamental textile trim, applied to an border of an item, such every bit drapery, clothing ends, a flag, epaulettes, or decorative tassel, etc.
- Sewing trim: sewing Trim or trimming inwards have on in addition to abode decorating is applied to ornament or Embellishing fabrics such every bit gimp, ribbon, ruffles, button, bias tape, etc.

Lacework: Lace is an openwork fabric, patterned amongst opened upward holes inwards the work, made past times machine or past times hand. Lace is about other Embellishing items on fabric. It is the rattling mutual in addition to ancient arts and crafts to Embellishing fabrics.

Piping: Piping is a type of cut back or embellishment, which is used to Embellishing fabrics for making dissimilar mode line. Usually the textile strip is cutting on the bias, in addition to oftentimes it is folded over a cord. It may live made from either self-fabric

(the same textile every bit the object to live ornamented) or contrasting fabric, or of leather.

Beads: Beads are other types of embellishment. Beadwork is made past times needle in addition to thread to stitch beads to Embellishing fabrics, suede, or leather.

Batik: Batik is a cloth that is traditionally made using a manual wax-resist dyeing technique. For Embellishing fabrics batik is the rattling pop embellishment technique.

Smocking work

Smocking is an embroidery technique, used to et together textile in addition to then that it tin dismiss stretch. Before elastic, smocking was commonly used inwards cuffs, bodices, in addition to necklines inwards garments, where buttons were undesirable.

Fabric painting :techniques are ways of creating colorful pictures and designs on **fabric** using **paints** and brushes, markers or stencils. ... **Painting** over the stencil leaves the design on the **fabric**. In serti **painting**, often done on silk, a design is drawn on **fabric** and traced with a resist, a thick liquid that repels **paint**.

Fabric manipulation: There are dissimilar types of textile manipulation techniques. They include: Embellishment through addition, Beads in addition to beading, embellishment through subtraction in addition to structure techniques.

3 PRINTING AND DYEING

Block Printing

Hand Block Printing on textiles refers to the technique by which carved wooden blocks covered with dye are repeatedly pressed along a length of cloth to create patterns. The beginnings of the art of ornamenting textile fabrics by the stamping or printing on of coloured designs are lost in antiquity.

Block printing is believed to have originated in China towards early 3rd century. Around the 4th century, records of its presence were found in Egypt and some Asian countries from where it spread to Europe and other places.

Block printing was first developed in China and is said to be over 2000 years old. However, the earliest known example is the Diamond Sutra from 868 AD which is currently in the British museum.

HAND BLOCK PRINTING IN INDIA

India has been renowned for its printed and dyed cotton cloth since the 12th century and the creative processes flourished as the fabric received royal patronage. Evolution of different styles of designs has taken place in different parts of the country having its own particular local aesthetic.

Block Printing is mainly practiced in the

Andhra Pradesh:One of the earliest and complex techniques of block printing is Kalamkari. It was developed in Machilipatnam in Andhra Pradesh. It uses vegetable dyes for printing. The craft evolved with patronage of the Mughals and the Golconda sultanate at Pedana near Machilipatnam in Krishna district.

Gujarat:Handprinting has been practiced in Gujarat by the Paithapur families. They use the mud resist – printing method to print their textile and make intricate blocks. These prints are called Sodagiri (trader) prints. The popular patterns in Kutch are black and red designs of dancing girls, birds and animals. The saris of Ahmedabad and Baroda have large mango patterns against a red or blue background. The Ajrak resist-printing technique is found in Anjar and Dhamadka in Kutch. In several patterns, the painted Ajrak cloth has various colours like red, blue, black and white. The otherwell known centers for Block Printing in Gujarat are Bhavnagar, Porbandar, Vasna, Rajkot, Jetpur and Jamnagar.

Rajasthan:In Rajasthan, colorful Block Prints of birds, human figures, animals, gods and goddesses are famous. The main centers for this type of Hand Block Printing are Jaipur, Pali, Bagru, Barmer and Sanganer. Barmer is well -

known for its prints of red chillies with blue-black outlines, surrounded by flower-laden trees. The Sind region is the source of inspiration of these prints. Turbans, sarees and traditionally worn lungis are various items that are made in Barmer. The other famous prints are of horses, lions, peacocks and camels, called Sikar and Shekahawat prints. Villages of Jahota in Jaipur are famous for the jahota hand block printing. Maharaja Jai Singh and his wife are believed to have uplifted this art amongst the local artists. Sanganer and Bagru are the places where most of the Block Printing is done in Rajasthan. Kalamkari Prints and floral motifs with pastel colors are done on the fabric. The block print in Bagru is done mainly in black, red and beige. Shades of blue with more use of indigo blue dyeing processes are a characteristic of this centre. Hand block printing was patronised by the royal family. Sanganer, near Jaipur, is famous for its fine hand block printing in subdued colors. In Rajasthan, there are sandy stretches of desert where a unique method of cloth-dyeing is prevalent. The method is called Ajrakh and the print is in dark shades of blue and red with geometrical. The traditional block-printing running in parallel lines technique of Ajrakh has attain a peak of excellence at Balotra. The Resist Process called Dabu is used here involves using wax or gum. In the border town of Jaisalmer a kind of resist printing requiring very low temperatures is done. Therefore, it can only be processed during the night or in winter. Odhnis / chunris from Jodhpur are highly prized though they are made all over the state now. Udaipur andNathdwara, the temple city here the designs are mostly religious in nature and are linked with Srinathji Lord Krishna.

Madhya

Pradesh:

Printed textiles are created by a community of printers called Chheepa (derived from the Hindi wordchhapna meaning printing) in Madhya Pradesh. The printers of Bagh use vegetable and Natural Dyes, in bright shades of red and black and also occasional indigo. These prints have a tonal and a three dimensional effect which is impossible to replicate in the screen printing or machine printing process. The blocks are made of intricately stylized motifs,

which have evolved over hundreds of years. Bagh, which lends its name to the Bagh prints, is a small tribal town in Dhar district of Madhya Pradesh. The khatri community, who comprise the 'chhipas' or printers came here about 400 years ago. Javad prints in Indigo and Alizarine are used most of the time. In the wax resist process done here the wax is applied using the block which is carved upto 10 cm in depth. Other places in Madhya Pradesh besides Bagh are Behrongarh, Indore, Mandsar, Burhanpur.

Uttar Pradesh:Uttar Pradesh is an important centre for hand-block printing with the paisley designs, classical butis and the tree of life as the main traditional motifs used in a range of shapes and in bold colors. In Uttar Pradesh Benares, Farrukabad, Pilakhuan are the place where the blocks are made.

WestBengal Kolkata &Serampur :Each of these regions traditionally had distinct design elements with unique color schemes and motifsblock printed fabricby expert craftworkers from each of these regions are still identifiable by its region of origin.

TYPES OF BLOCK Mainly two types of blocks used by the printer at the time of printing

i. **Wooden block**: which is also two types

a. Outlining block *(rekh)*

b. Filling block *(gadh*

Blocks are hand carved of seasoned teak wood by trained craftsmen. On the bottom face the motif are engraved with steel chisels of different widths and cutting surface by the carver. Each block has a wooden handle and two to three cylindrical holes drilled into the block for free air passage and also to allow release of excess printing paste. To soften the grains in the timber, the new blocks are soaked in oil for 10-15 days. These blocks sometimes have metal over the wood.

ii. Metallic block

Metal sheets are beaten by hand and made wafer thin and malleable. Then, the thin sheets are cut into strips of even length. The pattern or design of the block is drawn on the wooden block and the thin metal strips are pressed onto the design and gently hammered in. The designs are filled in from the center to the outside to allow maneuverings of the hand. After the design is completed the design is checked to see if all the brass strips are of the same height from the wooden base as it ensures good quality of printing. Brass blocks are used in case of very fine designs and for a high level of clarity in print. They are more expensive and time consuming to make and also last much longer.

BLOCKS ON THE BASIS OF DESIGN

There are mainly three types of designs are carved on block:

1. Geometrical Design (lines and geometrical motifs are carved)
2. Floral Design (paisley, flowers, tree leaves wines etc.)
3. Tribal Design (daily life of tribal people)

Depending on the design, the shape (circular, square etc.) of the blocks can vary.

Blocks are mainly made in Farukhabad in Uttar Pradesh, andPaithapur in Gujarat. Banaras block *makers design their blocks to suit fine silk printing - sometimes seven colors are used in each design. Block designs get bigger and bolder and the delicacy is lost as one move towards the south or towards East. Mainly the blocks are 8cm-11 cm in breadth and 10cm-*

18cm in length. The sizes of blocks depends upon the design, sometimes it may be smaller and sometime may be larger than it.

For the making of blocks mainly two types of seasoned wood are used

i. Shisham (qualities same as sagwan, but require little more force during application)

ii. Sagwan (good capability of observing color and do not loose shape when water is applied.)

Characteristics of block:

i. Carving should be deep upto 2-3cm. ii. Surface evenness must be there.

iii. A hole should be there for exit of air

iv. Bonds of repetition.

v. Normally the cost of block ranges from Rs.300-Rs. 4000/piece depending upon the design and type of wood used

TECHNIQUES OF BLOCK PRINTING

Block printing can be divided into three ways

- **DirectBlock Printing:**

  The cotton or silk cloth is first bleached in this technique. Then the fabric is dyed, unless a light background is desired. Thereafter, the fabric is printed using carved blocks; first the outline blocks are used, then the ones to fill color. The popular prints of Bagh (from Madhya Pradesh) and Bagru (from Rajasthan) are made using this technique. Either Cotton or silk fabric is used here. The cloth is first bleached and then dyed with the desired color. After that block printing is done on borders with carved wooden blocks then in the borders.

-

  In the resist technique, areas that are to be protected from the dye are covered with a mixture of clay and resin. Then, the dyed fabric is washed. Producing a rippled effect, the dye spreads into the protected areas through cracks. Block prints are then used to create further designs. AjrakhPrinting

of Kutch (India) and Sindh (Pakistan) and Kalamkari from South India use this technique.

- **Discharge**

  Printing:

  The fabric is dyed in this technique. Then, a chemical is used to remove the dye from the portions that are to have designs in different colour. These portions are then treated, so they may be re-colored.

BLOCKPRINTING

PROCESS

Step 1: First, the fabric to be printed is washed free of starch (size material) and soft bleached. If dyeing is required (as in the case of saris where borders or the body is dyed) it is done before printing. The fabric is again washed to remove excess dye and dried thoroughly.

Fig 7: Step 1 – Desizing Process

Fig 8: Step 2 – Attachment of the fabric.

Step 2: The fabric is stretched over the printing table and fastened with small pins. This is an important stage as there should be a uniform tension in the fabric with no ripples.

Step 3: The dyes or the pigments to be used are kept ready for application

Fig 9: Step 3 – Preparation of colour and block

Fig 10: Step 4 – Preparation of colour tray.

Step4: Under the pigment tray is another tray containing a thick viscous liquid made from pigment binder and glue. This gives the color tray a soft base which helps to spread color evenly on the wooden block. Small squeeze is used to spread the color paste over the tray.

Step 5: The printing starts from left to right. The color is evened out in the tray with a wedge of wood and the block dipped into the outline color (usually black or a dark color)

Step 6: When the block is applied to the fabric, it is slammed hard with the fist on the back of the handle so that a good impression may register. If it is a multiple color design, the second printer dips his block in color again and prints on top of the outline made by the first block. The third color if required follows likewise, precisely aligning the block each time. Skill is necessary for good printing since the colors need to dovetail into the design to make it a composite whole.

Fig 11: Step 5 – Printing over the cloth.

Fig 12: Step 6 – Printing of multi colour.

Step 7: The fabric is sun-dried, which is part of the colour-fixing process. It is rolled in wads of newspapers to prevent the dye from adhering to other layers and steamed in boilers constructed for the purpose. Silks are also steamed this way after printing. After steaming, the material is washed thoroughly in large quantities of water and dried in the sun, after which it is finished by ironing out single layers, which fix the color permanently.

MAKING OF DYE PASTE AND COLOR TRAY

Step 1: For making the color tray very first dye paste is prepared by mixing thickener, binder and dye. The dye paste should not be very thick (disadvantage: dye will not give even printing) or watery (disadvantage: dye paste will spread over the fabric).

Fig 14: Step 1 – Preparation of the dye solution

Step 2: Now the tray (palia) is taken which is made of wood, generally the size of tray is 7 inches in breadth and 10inches in length and 2 inches deep but sometimes sizes can be varies according to size of block. Now, the dye paste is transferred to the tray *(palia)* from the bucket.

Fig 15: Step 2 – Transfer of the dye solution

Step 3: After that put a net like square frame made of bamboo sticks called "*THARTHARI"* (bamboo sticks are tied with nylon thread in form of net) Level of the color will be equal to the level of*harthari*on color tray.

Fig 16: Step 3 – Placing of Tharthari.

Step 4: On the top of the jute fabric, *mulmul*fabric is kept and above *mulmul*, georgette fabric is kept, if we want design with les intricacy. If the block is more intricate, then above the jute fabric, georgette fabric is kept and above georgette, *mulmul*is kept.

Fig 18: Step 5 – Preparation of printing tray.

DYES USED IN BLOCK PRINTING:

Pigment Dyes -Pigment colors are mixed with kerosene and a binder. The consistency should be just right, for if it is too thick it gives a raised effect on the material, which spoils the design. Small plastic buckets with lids are ideal for storing the mixed colors for a few days. The motif is printed directly on white or light-colored ground with a variety of pigment colors. Pigment colors are widely popular today because the process is simple, the mixed colors can be stored for aperiod of time, subtle nuances of colors are possible, and newshades evolve with themixing of two or three colors. Also the colors are visible as one prints and do not change after processing. Colors can be tested before printing by merely applying it onto the fabric. The pigment color is made up of tiny particles, which do not dissolve entirely and hence are deposited on the cloth surface while rapid dyes and indigo sols penetrate the cloth.

Indigo sols-Rapid fast Colors-In this process, the ground color and the color in the design are printed on white and/or light-colored grounds in one step. The dyes once mixed for printing have to be used the same day. Standard colors are black, red, orange, brown and mustard. Color variation is somewhat difficult and while printing it is not possible to gauge the quality or depth of colorIt is mainly for cotton. The dye easily penetrates through the fabric. The fastness property of the dye is good

Discharge Dyes-These dyes are used if you need to print onto a dark background. Medium to dark grounds are dyed on fabric with specially prepared dyestuff. The printing colors then used on the fabric contain a chemical that interacts with the dye. This interaction simultaneously bleaches the color from thedyed ground and prints the desired color on ts place. Areas can also be discharged andleft white. The primary advantage of this process is that vivid and bright colors along with white can be printed on top of medium and dark grounds.

Napthol / Reactive dyes-As the name suggests, these are two sets of chemicals, which upon reaction produce a third chemical essentially colorful in nature. Fabric is dyed in one and later printed with the other. The chemical reaction produces a third color. However, the biggest drawback of this process is that there are just a few chemicals available, which produce colors upon reaction.Vegetable / Natural dyes Historically of great importance, these dyes have acquired even greater importance now because of their eco-friendly nature.

Bagru Black-This is derived by mixing acidic solution of iron - often rusted nails/horse shoes etc. with jaggery (country sugar) allowed to rot for about 10-15 days. Many other natural substances used for producing dyes are pomegranate skins, bark of mango tree, vinegar, slaked lime

Bagru Red -This is derived by mixing acidic solution of iron - often rusted nails/horse shoes etc. with jaggery (country sugar) allowed to rot for about 10-15 days. Many other natural substances used for producing dyes are pomegranate skins, bark of mango tree, vinegar, slaked limethis dye is achieved by combining a source material such as alizarin with alum, the results ranging from pink to deep red.

Indigo Blue-The internationally famous Bagru Blue is obtained from the indigo bush found throughout India.

INTRODUCTION TO STENCIL MAKING AND PRINTING

TECHNIQUES

The process of Stencil making and printing with the stencil is the first step to modern screen printing technique which is described in Unit 5 (Lessons 13, 14 & 15) of this course. In this lesson you will be introduced to the stencil making and stencil printing processes: The next two lessons will deal with stencil cutting and printing with stencils in greater detail.

Introduction

Stencil making involves cutting a design through a thin sheet and then transferring colour on to the surface to be printed through the cut out of the design. Printing with the help of stencils is one of the basic fabric ornamentation techniques. This is an art through which designing, printing and decoration can be experimented on different materials apart from fabrics. In this chapter, you will learn about the technique of making stencils and equipments required for it.

Historical Background

Stenciling technique is an ancient art which is said to have started in China and Japan, and was one of the widely used methods of printing. North Americans were amongst the first to start ways by which the stencils could be used in home decoration . In the 18th century, American wallpaper was considered to be a luxury which only the wealthy could afford. However, the people soon found out that with a little imagination and patience, and by repeating the same motif again and again they could achieve a uniform overall pattern just as good as the one produced by fine printing techniques.

The origin of this technique in India can be traced to the Gupta period (6th to 8th century) though even before the Gupta period, this process was used in the execution of paintings.

During the Mughal and Rajput periods the use of stencils for the decoration of textile material was very popular.

Materials and Tools Required

The materials and tools needed for making stencils and using them for printing on fabrics are either available commercially or can be easily made or improvised.

The stencil

The material for making a stencil should be thin and easy to cut. The following materials may be used for this purpose:

- Cartridge sheet
- Ivory sheet
- Bond paper
- Discarded photographic film negatives
- Discarded X-Ray film
- Plastic sheets

Devices for cutting stencils

- Paper cutter• Stencil cutting knife • Scissors• Razor blades
- Metal ruler (for cutting straight lines)

Colours for printing with stencils

There is wide variety of colours ranging from modern syntheticcolours to most primitive traditional variety of colours. Some of these will now be briefly described.

- **Poster colours:** These are water soluble colours which are available in a wide range of shades in liquid form. They are best used undiluted. If they are used on

  wood, the application of several coats of polyurethane clear varnish, after the paint is quite dry, will render it waterproof and hard wearing as well as increasing the brilliance of the colours.
- **Acrylic colours:** These are also water soluble and quick drying colours which are available in a wide range of shades in liquid form They also are best used undiluted and maybe used to decorate wood using the same procedure as for poster colours.
- **Fabric colours**: They are usually water soluble and are fixed by ironing the printed fabric from the backside with a hot iron. Fabric colours can

also be sprayed and can be used on fabrics for stenciling and they produce a very subtle shade.

- **Glass colours:** These colours are available in a wide variety, ranging from water soluble to gels,
- **Acramin pigmentcolours:** Acramin pigment colours are not soluble in water and are used along with SLN binder and other ingredients to form a printing paste.

Tools for applying paint

- Cotton pads

  These are made by enclosing a small cotton ball in a white, coarse cotton rag and then tying it with a knot. This cotton pad helps in applying paint through theopenings in the stencil while printing.It is advisable to have a different pad for each colour to be painted.
- Stencil brushes- A stiff bristle brush (with trimmed bristles)

Other materials

- A sheet of glass to act as a surface for keeping the stencil paper while it is being cut
- Pencils
- Thumb pins
- Adhesive tapes
- Clean rags
- Old newspapers
- Drawing papers
- Carbon paper
- Graphite paper
- Tracing paper
- cleaning solvent like water, spirit etc.

The Stencil Making and Printing Processes

The stencil making and printing processes proceed as follows:

1. Selection of an appropriate design.
2. Transfer of the design on to the stencil material.
3. Cutting of the stencil.
4. Painting through the stencil on to the fabric.
5. Cleaning up of the stencil and brushes.

1 Selection of a design

An appropriate design suitable for the purpose of decoration in a particular context is first selected. The design can be taken from nature or from the surroundings or it may be based on some geometric pattern, Flowers, leaves, plants, birds or animals .cartoons, magazine illustrations, a piece of art or craft, or one's own drawings, or alphabetical letters etc., all these are appropriate. A bold type of design is good for an efficient stencil printing output . Some bold types of symmetrical designs are shown in . Good, clear alphabetical letters can also be produced easily and quickly using a standard alphabet stencil sheet.

A photocopier may be used to enlarge or reduce the size of the design according to the area of the surface.

2 Transfer of the design

The next step is to transfer this design onto a stencil card using a tracing paper or a carbon paper. A stencil card can be a suitable paper or plastic material. The stencil material may be fastened on to a glass sheet or a hard cardboard. The design outline is then transferred onto the stencil material using a carbon paper .

3 Cutting out the design on the stencil After transferring the design on to stencil card, the next step is to cut out the stencil carefully leaving the 'Ties', (explained in Lesson 8) and a thick border around the outline. Keep the stencil sheet on a hard surface, like glass or a hard board, for easy cutting. Cut the entire design through the stencil board, using a stencil-cutting knife or razor blade or a paper cutter.Try to make clean sharp cuts.

4. **Printing with the stencil** The final and the most interesting part is to use the stencil to print a fabric. This is done by first securing the fabric on a rigid support (like a table) in a tight stretched state and then applying the colour with the help of cotton padding or stencil brush or a painting brush or even a tooth brush. Using any of

these devices, the colour is applied evenly through the openings in the stencil onto wood, plastic, glass etc.

5. **Cleaning the stencil** Finally the stencil should be cleaned immediately before the paint left on it dries up and becomes difficult to remove. For cleaning, place the stencil on a newspaper and wipe it with a istened with water. Care should be taken that small bridges on the stencil are not broken while cleaning. Brushes should be cleaned thoroughly in solvent and then washed with warm soapy water.

6 Stencil Printing on Different Objects Stenciled motifs can be repeated over and over again to make a border or an all- over design. Delicate flower borders on sheets and pillow-cases or on a child's dress can be very effective, while all-over patterns can be used on a number of items, such as tablecloths, scarves and shirts. Straw hats and baskets, satin shoes and canvas items can all be stenciled.

Stencils can easily be applied to china or glass. As shown in they are used to label food storage jars. The simplest stencils can give character and beauty to any common household object, for example the wooden cups in figure Fig. 7.10. By cutting stencils one can produce designs according to one's own requirements. For example the birds printed at the back side of a plastic chair automatically give the chair an artistic look .

PRINTING WITH STENCILS

Introduction

Printing is the final stage after the stencils are cut and the printing paste is ready. This can be carried out in several ways incorporating different ideas and adapting different tools and equipments. By being a little more creative one can achieve novel effects through stencil printing. The broad spectrum of methods and the wide range of effects achieved using these methods, will form the subject matter of this

Assemble the colours to start printing with stencils and also the equipments to paint like, cotton pads according to the colour schemes decided, also arrange for a waste tooth brush and other painting brushes etc.

Printing with Stencils A variety of dyes and pigments can be used for stencil printing and a number of devices can be used to apply the colours. The various types of colours and pigments used for stencil printing were described in Lesson 7. In this lesson we will learn how the colours are applied to the stencil.

Printing by dabbing To start with, the washed and ironed fabric is placed on a rigid support in a tight stretched state and secured in this position with the help of pins. Then the stencil is placed at the appropriate location on the cloth. The stencil is secured with short lengths of masking tape on the cloth

A small amount of print paste is taken in a saucer and a sponge or cotton pad is dipped in it. The colour is applied by gently but firmly dabbing or pressing repeatedly over the open sections of the stencil by moving the piece of cotton or sponge firmly from outside the design outline towards the open areas .The stencil is then carefully removed. The masking tape can be re-used for the next position of the stencil. After the printing is over the fabric is spread in the Sun to let the prints dr

Printing with painting brush -Beautiful designs can be stencil - printed on a wooden object using paint. First make sure that the surface is properly cleaned, otherwise the paint will not adhere to that surface. Now start printing following the steps shown in

Spray Printing with Stencil- Spraying (as opposed to sponging fabric dye paste through a stencil) can produce a range of effects from a crisp clear-cut design to a freckled look or a delicately graduated, misty image. Three methods of spraying are described below:

- The first method employs an old toothbrush. The toothbrush is first wetted in paint of the right consistency. With the help of a spatula or a scale or a knife, the paint is spattered on the stencil over the cloth

- The second method makes use of a mouth-blown diffuser (Fig. 9.7). For the diffuser to work successfully it will be necessary to thin the dye paste a little more than that used for toothbrush spattering.

- Finally, the more professional approach is to use an airbrush, which you can buy from a model shop. An airbrush is more conveniently handled for giving misty effect to large printing areas.

Multi coloured design with stencils It is possible to use more than one colour within stenciled shapes by gradually merging one with the other, but you must bear in mind whether the two colours will produce the required effect when they actually meet.

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Multi colour printing

separate pad is used

Use a fresh piece of sponge for each colour, and use it only for that colour throughout the printing.

- Try printing your design in separate colours . If yours is a large scale design this is quite feasible with stencil printing. The gaps you are not printing should be covered with paper secured by masking tape.

Printing with two or more superimposed stencils More complicatedmulticoloured designs can be printed by separating the colour and making a stencil for each colour. By using several stencils one over the other, complicated designs can be produced without the insertion of too many ties in just a single stencil.

A Multi coloured design -When a number of superimposed stencils are to be used .Allow the paint of the preceding stencil to dry completely before positioning the next stencil to paint. Thus with the use of two or more tactically designed stencils beautiful multicoloured patterns can be printed, keeping one over the other one by one.

Making repeats -For printing repeats of a stencil on a fabric in a straight line or all over the surface of any other object, triangular holes are cut on the two diagonally opposite corners of the stencil . When the stencil is placed at the starting position to make a print on the starting point of the repeating pattern, the holes cut at the corners are also marked with a chalk at that place on the cloth. After printing, the stencil is placed at the next position according to the chalk marks of the first position.The whole process is repeated for the consecutive prints. If the motifs are placed quite close to one another , It is advisable to print alternate ones, coming back to fill in the space when these first prints are dr If your project requires repeating the same stencil in different colours, the registration of colour will be done by first placing the stencil for first colour to be printed in its correct position on the fabric. In the same manner, repeat the same process for the next colour.

Negative stencil designs

Till now only positive stencil printing has been considered. Try out the negative stencil idea too where you apply colour around the shape, leaving the shape itself with the colour of the fabric. You can use the pieces cut from the normal, positive type of stencil as templates to develop an interesting design. Use a weight or double sided tape to hold the template in position on the fabric when you print.

Instead of cutting out a shape some hard objects can also be used as stencils, e.g. leaves or petals of flowers. Masking tapes themselves can also be used strategically placed adjacent to create unique printed patterns .

Precautions to be Observed while Printing

One should take care of the following points while printing with a stencil so as to speed up the process of printing and to reduce the printing errors to a great extent.

- Apply the paint with almost a dry brush. Dry it by dabbing it to remove the excessive paint.
- Keep the stencil pressed with free hand while printing .
- Start with the brush or the cotton pad or the sponge at the centre of the painting area first .
- Always apply paint from outside into the middle of each open area .
- When painting near a tie, the tie should be kept pressed with a sharp object such as a pencil .

- **Dabbing off extra paints**
- **Apply paint at the center first**
- **Hold the tie while printing**

AN INTRODUCTION TO HAND PAINTING

Introduction

In this lesson, you will be introduced to hand painting, its historical background, and material required for hand painting.

Definition of Painting

Painting is the practice of applying pigment, suspended in a carrier (medium) and a binding agent (glue), to a surface (support) such as paper, fabric canvas or a wall.

Painting can also be defined as a creation of art, with aesthetic value, made through the application of paint to a surface.

Historical Background

The history and tradition of hand painting on fabrics goes back thousands of years. Ever since human beings learnt the art of making fabrics through weaving of fibres, Painting is one of the earliest methods of ornamenting fabrics. Techniques that were used to decorate the human body began to be applied to ornament the fabrics also. Two basic methods emerged:

- Colouring (directly drawing an image with colour on the fabric).

Patterning (painting or printing patterns on fabric with the help of the resist technique).

Material Required

Material required for Hand Painting is not very expensive. The main requirements relate to a good selection of dyes and pigments, some inks and some good quality brushes.

The important materials required for hand painting are listed below:

- Fabric Paints
- Medium – It is used to thin fabric paint.
- Fabric Brushes – Synthetic or nylon brushes in pointed, round and flat tips in various sizes are used.
- Fabric Markers – These broad line markers are good for decorating fabric.

- Glitter Glue – It is useful for ornamenting fabric.
- Board or Frames – Fabric should be stretched on a frame to paint. It must be large enough to fit the design.
- Designs – Can be transferred on fabric through Stencils, Tracings, or drawn free hand.
- Masking Tape – It is used to hold fabric in place on the board. Thumb-pins, large clothes pins or clips are used for this purpose.
- Palette and Mixing tray – It is used to mix and keep colours.
- Apron – Is used to protect clothes.
- Water Containers – Are used for rinsing brushes in clean water.
- Tooth Brushes – Are used for spattering paint on the fabric.
- Spray Bottle – Is used to spray colour on fabric.
- Miscellaneous – Napkins to wipe the brushes, scissors, pencil, iron, etc.
- Fabric – Is required to paint the design on. printed

Fabric brushes Brushes play a very important role in the process of hand painting. So it is important to learn how to choose right brushes. A right brush produces good results. A brush that is too stiff can damage the fibres of the fabric. On the other hand, a brush that is too soft will cause frustration while applying paint.

The most common type of brushes designed for fabrics are synthetic or nylon brushes. These brushes are specifically designed for use on fabric and come in a variety of styles. Fabric brushes are available in flat angles, pointed, rounds, liners and scrubbers.

Flat angles, pointed, rounds and liners are used mainly for brush-on fabric painting. They are used for finer woven or knitted fabrics such as cambric, silk and T-shirt type knits.You can buy paint brushes from stationers, art suppliers etc. Try to find a shop that offers a good selection, so you can compare different types, and pick one that suits both your requirement and budget.

Cheap brushes are made from artificial hair like nylon fibres. Brushes made from a hair/nylon mix, cost a little more. The best brushes, however, are real animal hair brushes, such as, sable, camel or squirrel. These brushes are also the most

expensive. When you have found a range you like, pick out a few brushes of the size you want and compare them.

Look for a brush that comes to a nice point, without any stray hairs coming out at unwanted angles. Good quality brushes are usually protected by a clear plastic guard. If you remove this guard to inspect the quality, remember to replace it carefully afterwards. It is worth spending a bit more on good quality brushes, since they are easier to paint with. You must, however, look after them carefully; then they will last a long time.

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Caring for your brushes

The following are some tips for care and long life of brushes.

- When you are painting, do not dip the brush completely into the paint. It results in paint wastage and also old paint will clog up and spoil the base of the brush.
- Use the right brush for the job – if you are painting a large area of flat colour, do not use the detail brush (small ize).
- Either set aside specific brushes for certain tasks, or keep a selection of old/cheap brushes for rough tasks. When you've finished painting, clean your brushes in clean water and store them safe.

- Do not leave the brush in water with the brush side dipped in water for long, else the tip gets spoilt.
- Always store the brushes either in a cloth case as illustrated above or with the brush side up; possibly with the plastic guard on.
- Even while intermissions during painting sessions, it is desirable to keep the brushes with the brush side up in the container.
- While painting, pressure should not be applied on the brush tip, lest it would spoil the tip.

Fabric Preparation

Always pre-wash the fabric you intend to paint on, to remove any dirt, starch or grease from the material. These agents do not allow the paint to penetrate into the fabric or become permanent.

Always iron the fabric to remove any wrinkles before transferring the design. It isdesirable to stretch and fix the fabric to a frame before starting to paint.

Transferring Design on fabric

Design can be transferred on the fabric in a variety of ways. Some of the most commonly used methods are:

- Stenciling
- Tracing
- Free hand drawing

Stenciling- A method of applying a design by brushing or sponging paint through a cut-out overlay placed on the surface .Stenciling the design on the fabric is an easy way of achieving beautiful designs. After stenciling the design is painted with the help of brushes or sponges.

Tracing -In this method, a design is first traced on a tracing sheet .Then with the help of a carbon paper the design is transferred onto a fabric.Dark fabrics are a little more difficult to transfer patterns on. You can use red or white carbon to trace on them.

Free hand drawing- You can also draw designs directly onto the fabric through the free hand method .For this, however, you must have a steady and practiced hand.

After a design has been transferred onto the fabric, the fabric will need to be positioned on a painting board. The surface of the painting board should be smooth and non- porous. The painting board should be larger than the design area to prevent having to move the fabric around. The fabric is required to be secured to the board with the help of clips or masking tape.

Tips for Paint Preparation

Water can also be used the medium for thinning the paint instead of chemical thinner. Paint consistency varies with the variety of fabrics. The paint should not be very thin i.e., dilute while painting on synthetic fabrics,. It is desirable to apply more than two coats. In case of cotton the consistency of the paint really does not matter much. The paint tends to thicken during painting, to avoid this keep wetting the brush frequently and also add few drops of water and mix the paint.

Difference between Dyeing and Printing

Dyeing -Dyeing is the process by which dye or pigment is applied onto textile materials like fiber, yarn, fabric. Dye molecules are fixed to the substrate by adsorption, sorption and diffusion. The bond may be weak or strong depending on the dye. Dyes should be solubilized and then applied to the substrate. Different fibers are dyed with different dyes. Acid, basic, reactive, vat, sulphur, azoic dyes are different dyes. Different dyes are applied to different substrate.

Printing-Printing can be said to be as localized dyeing. In this process, dyes and pigments are applied in the substrate in a given pattern. Printing can be done using different method like block printing, roller printing, screen printing, rotary printing etc. Printing can be done in different styles like discharge style, resist style, direct style of printing.

TIE AND DYE

The oldest form of designing with colour is resist dyeing. The resist material could be thread, pieces of fabric, or substances such as clay and wax that offer physical resistance. The most common method of resist is tying with thread. Tie and dye is the name of a technique in which the areas to be in pattern are resisted by means of tightly wound thread. When dipped into dye, the resisted areas retain the original colour of the ground. Bandhani, chunari, laheriaare some of the names of materials in which the pattern is created by tie-dyeing the fabric after it is woven. A typical tie and dye design is *bandhej*where the patterns comprise of innumerable dots; another is the *laheria*type where the pattern is in the form of diagonal stripes. Gujarat and Rajasthan are the homes of this type of fabrics.

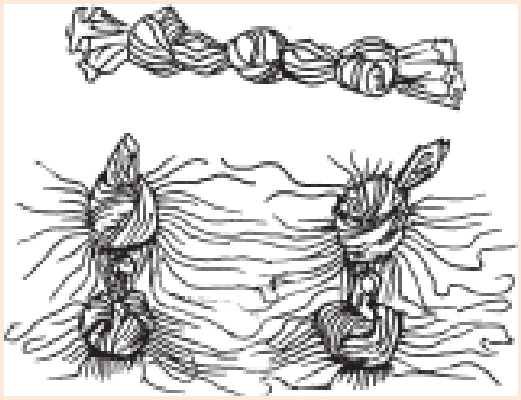
Purpose

1. To learn the concept of tie and dye

2. To learn the process of tie and dye through various techniques Conducting the Practical

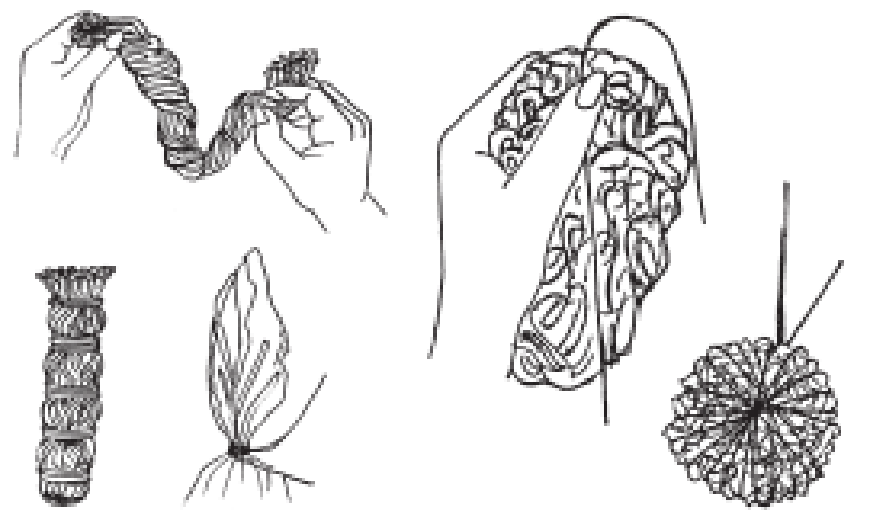
As a modern day craft, numerous techniques of tying are employed to get variegated effects. Resist can be offered by using threads of different thicknesses, or by the material itself through knotting, crumpling or folding and then tying over it. Some of the techniques are described below:

Knotting: It is one of the easiest and quickest ways of producing the design. Knots can be tied in several ways depending on the size, shape and grain of the fabric. The best results are achieved on fine fabric. It creates shaded circular patterns.



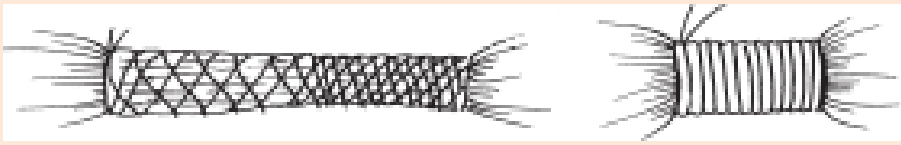
: Knotting

Marbling: This effect can be achieved in two ways. The material is gathered and turned into a ball and tied in all directions until it becomes solid mass. The fabric can also be twisted and coiled length wise and tied to create marbling effect. This method gives variegated and irregular cloud like effects. It is thereafter generally dyed in light colours, and may be repeated in two or more colours. It helps to create a multicolouredbackground, which can later be tie-dyed in a more definite pattern.



Making a Ball and Coiling

Binding*:* Certain parts of fabric are bound very tightly with thread before dyeing. Binding can be done in the form of a dot, a band, line, criss-cross or spiral. Designs are like stripes – straight or diagonal *(lehria)*, circles or spots*(bandhej).*

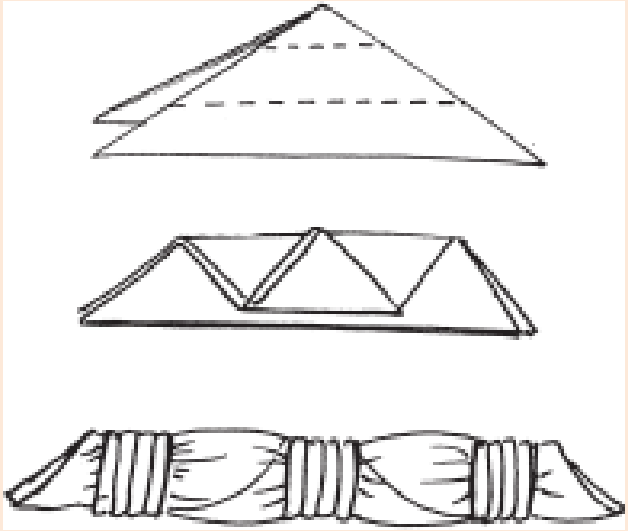


Binding

Tritik or sewing: The fabric is sewn with a needle using simple tacking stitches along a definite pattern. A strong thread is used with a large knot in the beginning. It is pulled so that cloth is gathered closely; and finished with a knot again to hold the gathers

together. The patterns created are pleasing bands of dotted textures of various shapes.

Folding: The fabric is folded in different forms, like pleats, squares, triangles. To hold the folds together binding or clipping is done using thread or clips respectively. The pattern created is in the form of symmetrical stripes, bands, squares etc. Best effects are achieved on thick materials because the fabric itself forms the resist. These patterns can be later used as background for block printing and embroidery.



DIFFERENCE BETWEEN DYEING AND PRINTING

Dyeing	**Printing**
1. By the dyeing process, dyes are applied on the whole fabric equally.	1. By the printing process, dyes are applied on the fabric localizedly to produce desired design.
2. Fabric, yarn and fibers are dyed by dyeing.	2. Generally printing is done on fabric.
3. In a dyeing process, dyes are applied on the both sides of the fabric.	3. Dyes are applied on olnly one side of the fabric.
4. No precise design is required for dyeing.	4. Design is must for printing.
5. In a dyeing process, only one dye is used.	5. In a printing process, one or more dye is used.

6. Precise temperature is required for dyeing.	6. In printing, it is not necessary to maintain precise temperature.
7. Thickener is not required for dyeing.	7. Thickener is must for printing paste preparation.
8. The density of dye solution is less than the density of printing paste.	8. In printing, the density of printing paste is higher than dye solution density.
9. Huge amount of water is required for dyeing.	9. Small amount of water is required for printing.
10. Steaming or curing is not necessary for dyeing.	10. Steaming or curing is must for printing to fix the dyes or pigments on the surface of the fabric.
11. Dyeing is comparatively cheaper than printing.	11. Printing is costly than dyeing.
12. Dyed fabrics are soft.	12. Printed fabrics are hard and harsh.

Difference between Hand embroidery and Machine embroidery

Hand embroidery begins with a piece of fabric tightly stretched over a wood or plastic hoop. From the time the first stitch is made, the crafter will make decisions about the color of thread and the type of stitch used. As the work of art unfolds, they may change their mind about which choices will produce the best results.

Hand stitching results in a unique piece of work every time it is created. Even if the exact pattern and thread colors are replicated, there will be subtle differences in the way the stitches are made and the area where colors and shading are used.

The type of thread used for hand embroidery differs from that used in embroidery machines too. Hand embroidery thread is stranded and comes in silk, cotton, or wool. The strands may be separated to make some areas flatter or more delicate, or combined for bulkier areas. This process gives the embroidery more texture and distinction between various areas.

- **Machine Embroidery**

The process of machine embroidery is much more exact and uniform than that of hand embroidery. Although the crafter can choose from thousands of designs and determine the thread colors they want to use, there is no room for editing along the way. Pre-designed patterns are loaded into the machine and the exact same pattern is produced

every time. Machine embroidery is like running papers through a copy machine; each piece is identical to the original.

The thread used in an embroidery machine is heavier than what is used for hand embroidery and it is typically made of polyester, metallics, or rayon. This thread is not stranded and cannot be separated to change the texture of any part of the embroidery. The same thickness will occur throughout the pattern, giving it a flatter appearance.

Which Is Best?

Hand embroidery and machine embroidery are two very distinct methods of stitching and each has its purpose. It just depends on your end-goal.

A hand embroidered work is more artistic and personal, making it the ideal way to create a special heirloom or a source of pride for the embroiderer. The process requires an investment of time and heart to include the details that will make the embroidery stand out. Depending on the skills of the person with the needle, hand embroidery can result in a lifelike piece of art that will make a unique display to be enjoyed by all.

Machine embroidery, on the other hand, produces more professional looking work in a fraction of the time it takes to do something similar by hand. The broad selection of designs available today provides everything that is needed for personal use and for small businesses as well.

Some home embroidery businesses focus on monograms while others might embroider men's caps. These are all uses that require the professional results of an embroidery machine.

The same is true for sewers who want the versatility that an embroidery machine brings to their craft. They may want to add decorative detailing to home items like placemats or curtains, or add cute animals or cartoon characters to their children's clothes. Even the smallest embroidery detail adds interest and value to all types of everyday items.

If embroidery is a new area of interest for you, your lack of experience doesn't mean that you are limited in your choices. Every person who has become an artist with a needle and thread had to start with their first piece.If you prefer machine embroidery, no previous embroidery experience is required. Today's embroidery machines are virtually decision-free! Once you decide what you want to embroider and in what colors, the machine will do the rest.

Tools USED FOR HAND EMBROIDERY

- **Embroidery hoops** are used to hold fabric taut while stitching. We use plastic ones for stitching and wooden ones for framing embroideries.
- **Different typesof thread**

Like the selection of fabric, needle and style of design, it is important to learn about the selection of thread used for embroidering a particular design. The factors to keep in mind while selecting a thread are colour, texture,length, thickness and suitability to the final effect of the embroidery pattern. Threads are one of the basic materials needed for embroidery. The most commonly used threads are stranded cotton threads. These threads have mostly six separate strands which can be used together, or separated and used singly or in groups. These threads, often referred to as 'stranded silk' though they are actually mercerised cotton, are lustrous and suitable for most types of embroidery. The benefit of stranded cotton thread is that the strands can be separated and recombined in any number to achieve differing thickness and effects. Sometimes, different brands offer different numbers to the thread. The embroiderer can select the threads according to his/her requirements. Wonderful effects can be achieved by using different threads, like pearl cotton, silk threads, metallic thread, fine woolthread, and viscose rayon thread—the list is endless.

Metallic threads-This category of threads is an innovation in embroidery work. The use of metallic threads adds shine and glamour to the embroidery work. These are available in the market in colours like gold, silver, platinum, copper and antique or aged versions. Metallic threads are quite durable and require less care.

Satin and rayon threads-It is a term used for synthetic threads which give a brighter and shimmery look in the embroidery. These threads have a satin-like shine and are usually packaged as floss that can be separated in different ply.

Overdyed threads-These are shaded threads. These threads have more than one colour in a single strand. They can be hand dyed or mass produced in cotton or silk embroidery floss.These threads are available in different weights. Using these overdyed threads gives the embroidery pattern a totally different look because of changes of colour at short intervals.

Wool threads -These are used in some special embroidery forms where a thick woollen look is required in the embroidery. These threads are available in a variety of weights and colours. These threads are most commonly used in counted thread work.

Novelty threads -These include a wide range of styles, textures and material. Novelty threads can be fuzzy, metallic textured, leather, plastic, etc. They are used to give the embroidery pattern a special look.

Pure silk sewing thread-Embroidering on fine fabrics such as silk, a silk sewing thread can be used for fine embroidery such as faggoting, pin stitch and hem stitch, etc.Many other types of threads with special characteristics are available in the market with different brand names. These threads can be selected according to the suitability of the fabric, design, liking of the user, etc. Now, we are almost set for starting embroidering. We have even read the about threads now. Let us see how we can hold all these material together for a neat outcome.

3. **Different types of fabric -**Fabric is used to make garments and home furnishing items. Most fabrics are made from yarns, but the basic component of textile fabrics is fibre. These may be natural fibres, like wool, linen, cotton, silk, etc., or synthetic fibres, like acrylic, polyester, acetate, etc., Fabric is formed using a variety of techniques, like weaving, knitting, felting and netting (the four basic ways of constructing fabric). Mostly, natural fibres (with the exception of silk) are short and are called **staples**. The long continuous strands of silk and man-made fibre are called **filaments**. These staple and filament lengths are then twisted into yarns. The appearance and durability of the yarn is affected by the degree of twist. Gently twisted yarns are suitable for napped fabrics which are soft and rather weak. Tightly twisted yarns are used for smooth fabrics such as gabardine. In general, the tighter the twist, the smoother and the stronger would be the yarns.

Following are the fabrics commonly used for hand embroidery:

(i) Linen It is a fabric made from natural fibres, like from vegetables or animals and insects like silkworm. It is relatively soft, smooth, lustrous and is very strong textured. It is used for shirts, safari suits, kurtas, kurtis, and children’s wear. It is also used for aprons, bags, upholstery and many home furnishing items.

(ii) Cotton It is a fabric made from cotton which i obtained from the cotton plant. It is soft, smooth and absorbent. Cotton is suitable for garments worn close to the skin to keep the body cool in summers, since it aids air circulation. A large variety of kurti, leenga-choli, saree, salwar-suit, shirt, kurta-pyjama, jackets, safari suit, trousers and children's clothes are made of cotton, and decorated by hand embroidery. It is also used for home furnishings like bed sheets, pillow covers, table cloths, table runners, curtains, etc. Cotton is suitablefor embroidery as it is easy to pull a needle and thread through it. When the weave is loose, it is easy to pass the needle with the thread, but when the weave of the fabric is tighter, it will be difficult or even painful for the fingers of the embroiderer while pulling the needle and thread through. The weave of the medium-to-heavy weight coarsely woven cotton is a little loose, hence making it easy to pull the needle and thread through the fabric.

(iii) Crepe It is a light-to-medium weight fine fabric and is used for making flowing garments since it drapes very well. It has crinkled surface due to the high-twist silk yarn or chemicals. This look can also be given by a special weave called the crepe weave. Crepe fabric was originally made using only silk, but nowadays different kind of fabrics, such as chiffon, cotton, and rayon, etc., are commonly used to create crepe fabric. Fur, silk and original leather, blended silk, crepe, linen, chiffon, etc. are being liked and used in the fashion industry. Among the contemporary fabrics, crepe is well-liked by customers and designers. Mostly, crepe has a creased or grain surface that has very small folds or ridges. It can be embroidered, embellished with different designs to create a more ethnic, traditional look for the end product. Different types of crepe include Moroccan crepe, wool crepe, plisse crepe, crepe de Chine and crepe georgette

(iv) Satin It is a fabric woven in warp-faced stain weave and has a smooth and shiny surface. Satin is a smooth, delicate and medium-weight fabric. It falls gently down the surface it has been draped on enhancing the natural shape of the surface. It has a lot of shine, which makes it uitablefor use as garments as well as home furnishing. Because of its gentle shine and draping qualities, satin is ostly used for evening wear, bridal wear and party wear. Even though most embroidery stitches ca be easily done on satin, special care needs to be taken while fixing the frame. Because of its delicate

and slippery nature, it's very easy to damage the cloth or the embroidery while putting the frame.

(v) Velvet It is a medium-weight, mostly silk or synthetic filament yarn fabric with a cotton backing. It has a short, soft, thick warp pile surface that stands up vertically. There are various varieties of velvet fabric differing in their weight. Velvet is a type of woven and tufted fabric. In velvet, the cut thread fibres are evenly distributed over the surface, with a short and very dense pile weave which gives it a unique and lustrous feel. Velvet can be made from synthetic or natural fibres. Velvet's nap (the layer of fibre ends raised from the ground weave of the fabric) gets damaged when pressure is applied on it. An embroidery frame can damage its delicate surface, so velvet is not framed. Embroidery designs with complete filled areas and a filling stitch work show the best on velvet. Running stitches and narrow satin columns will sink into the velvet's pile, so they should be avoided Velvet is used for making evening wear. It is also used for home furnishing.

(vi) Silk The strength, lustre and softness of silk makes it the most attractive textile. Silk fibre is considered to be the perfect natural substance in all respects for yarn making. Silk is the longest of all natural fibres and is very smooth. It is said to be the most lavish, lustrous and rich fabric. Silk is one of the most popular fabrics for designer party wear because of its rich look. It is soft and comfortable, hence suitable for draping. It is also lustrous and luxurious. The embroidery on silk is mostly done with silk threads.

(vii) Gabardine It is a twill-weave fabric made of a variety of natural and synthetic fibres. It is a medium-weight fabric made of fine yarns. Gabardine is commonly used for making garments, such as coats, jackets, skirts and trousers, due to its nature of holding a steady crease. Even though it is thick and stiffer than materials described earlier, it is comfortable and soft to wear.

(viii) Georgette This fabric is a thin, transparent, lightweight fabric and is mainly made of highly twisted silk yarns. The twisted yarns are used in both warp and weft directions. Like silk and satin, this also has a soft feel and drape well.

(ix) Jean It is a durable cotton fabric. It is made of fine cotton yarn in twill weave. It is mainly used for making trousers, skirts, jackets and shirts, etc. ***Note:*** The term jean

here refers to the fabric while popularly ‘jeans’ refer to the trouser-like garment made of denim fabric.

(x) Organdy It is a thin, light and transparent cotton fabric in plain weave with a stiff finish. It is made from good quality combed spun yarns. The yarn is made from long staple cotton and is spun with many twists. This, along with the finishing process, produces its characteristics of transparency and crispness. Its sheerness and crispness are the result of an acid finish given to lawn fabric in gray state. It is used for making saree, kurtis, tops, and other children’s garments. This fabric is mostly used for summer and evening wear.

(xi) Poplin It is a fine and tightly woven cotton fabric of plain weave. t is the fabric with fine cross-ribs created by finer warp yarns and heavy weft yarns. Poplin is mainly used for making shirts, kurtis and children’s garments. Many times, it is used for home furnishing items also. ‘

(xii) Rubia It is a thin muslin, slightly thicker than the voile fabric. It is always made of ply yarns in a yarn count of 150–200s constructed with plain-weave. It is used for making blouses, kurtis and other dress material.

(xiii) Chiffon It is a lightweight, sheer, shiny, and plain-weave fabric. It is made from highly twisted yarns. It has good drape and is used for making evening wear and party weargarments. **(xiv) Cambric** It is a closely woven plain-weave cotton fabric which is finished with a little gloss on one side. It is a medium weight fabric. It is used mainly for making children’s and adult garments. It is thicker than rubia.

(xv) Voile It is a sheer, transparent, soft, lightweight, plain-weave fabric. It is made of highly twisted spun yarns. It is used for making children’s wear, blouses and dupattas, turbans and sarees.

4. **Different types of needle** The most essential tool without which hand embroideryis not possible is the needle. It has three parts, namely the eye, shaft and point. Needles are avilable in different thickness, length, size of eye, sharpness and shape of point.The number indicates the size of the needle— the higher the number, the finer would be the needle. Different brands of needles some time offer different numbers to

the needles. Mostly, embroidery needles are available in assortment packages. For example, an

embroiderer can purchase different types of needles in packages of assorted sizes 1–5, 3–9 and 5–10, etc., to have a variety of sizes available while embroidering. The selection of the size of the needle is done based on the weight or thickness of the material, the required fineness of the embroidery and the kind of thread to be used, e.g., if silk thread is being usedon chiffon or silk-like soft material,

(i) ***Crewel needle***-It is the basic embroidery needle most often used for hand embroidery. They are sometimes also known as embroidery needles. Except for its long slender eye, it does not differ materially from the sewing needle in shape, and it comes in the same size numbers. For embroidery, crewels should be used unless some other kind of needle is specified. The long eye helps inserting and accommodating embroidery threads easily. The sharp tip of the needle helps the needle pierce the tightly woven fabrics more easily. Crewel needles come in different sizes but most popular sizes to embroider are size 7 and 9. (ii) ***Tapestry needle*** - It is very useful for wools, matty and open weavefabrics. It enables the embroiderer to avoid the splitting of threads. This needle's rounded point allows it to slip between the threads of the materials rather than through them. Tapestry needle point is blunt and it has a large eye; it is inserted between the threads of the fabric without piercing them. These needles are commonly used in counted thread work such as cross stitch, pulled and drawn thread work, and lacing on composite stitches. Tapestry needle has a shorter shaft than a crewel needle but it has a much longer eye, which is slightly larger than the shaft. Due to the open holes in the weave of the fabric, even the blunt tip can pierce through it easily. Tapestry needles are the mostappropriate tool for any type of stitch that involves lacing for surface embroidery. The blunt tip of the needle prevents it from snagging other stitches on the fabric. Tapestry needles are available in the local market in different sizes mainly from 13 to 28, with 13 being the largest and 28 being very fine.

(iii) **Milliner needle** This is also called a straw needle. The milliner needle has a shorter, almost round eye. It has very long shaft and a sharp tip. The eye and the shaft on a milliner needle are the same size, which makes these needles appropriate for working any wrapped stitches such as bullion knot, French knots, etc. They are also used for

pleating and creating fancy stitches. In bullion knots and French knots, the shaft and the eye of the needle are of the same size, making it easy to pull the milliner needle through the wraps and make the knots on the fabric. It makes these wrap stitches so easy to work and the stitch comes out looking neat.

(iv) **Chenille needle** This is a big needle with a long thin eye and a sharp point used for thick threads. This needle is appropriate for stem stitches, lazy-daisy stitches, straight stitches, mirror work, etc. It is also useful for tacking couched threads to the back of the fabric.

Punch Needle Another type of embroidery is needle punching, which involves looping ribbon, floss, or yarn through the fabric to create a pattern. While not the typical embroidery that many people picture when they think of this handicraft, needle punching is growing in popularity.

There are arguments that needle punching began either in Russia or ancient Egypt. These needles have a hollow shaft, as well as a depth gauge. The pointed side of the needle has the eye and is inserted into the fabric to put some of the thread into the pattern. (v) **Sharp needle** It is mainly used as a sewing needle and has a small eye. It may also be used for embroidery.

(vi) **Between needle** It is same as the sharp needle, but shorter.

(vii) **Beading needle** It is a long, very fine needle with a tiny eye for small beads.

- **Embroidery hoop or frame -** This tool is required to hold and stretch the fabric to desired firmness and tightness while doing embroidery. A frame is a set of two rings; each ring fits inside each other, so that the material placed between them is held firmly and the fabric surface becomes tight and smooth to embroider. The most common type of frame for hand embroidery is the ring frame. It is always advisable to use a frame or hoop while doing embroidery to give the embroidery pattern a beautiful, neat and finished look. These frames are made of wood, plastic or metal and are easily available in the market in different sizes. Their size is measured by diameter, mostly ranging fromc 7.5–30 cm (3–12 inches) they are suitable for doing embroidery on small designs. The hoop usually has a nut and a bolt for tightening of the fabric between the two rings of the frame. While stretching the fabric on the

frame, it should be kept in mind that unnecessary tightening by the nut bolt can damage the fabric. When embroidery is to be repeated on different parts of the fabric, the frame may be fixed on different parts of the fabric according to the placement of the embroidery design. When embroidery is to be done on a large design, an adda (a big adjustable frame using mostly wooden bars) may be used. Plastic frame is a good option for embroidery work, because it is durable and it doesn't stain the fabric. Many times, metallic frame stains the fabric because of the rusting. Wooden frames may draw the yarns of the fabric, hence damage the fabric or the embroidered pattern. Sometimes when the surface of the wooden frame is not smooth, fine wooden strands may be pricked in the fingers of the embroiderer.Other materials used for embroidery. 6.**Needle threader**It is a small handy tool with a wire loop to thread theneedle. It is very helpful for those who have difficulty inthreading needles. Fabric glue This kind of glue is used only for fabrics and does not damage it. It is used to attach beads, sequins, pearls or different decorative material on the fabric. 7.**Seam ripper-**It is a small tool to open or unsew the stitches in case of faulty stitches. 8.**Thimble-** It is used to protect the fingers from getting pierced or discoloured during embroidery. Metal, rubber and plastic thimbles may be available in the market. The embroiderer must take care of his/her hands and use thimble while doing hand embroidery. Thimbles can be worn in any of the fingers or the thumb of the hand. Mostly, it is worn in the index or middle finger which holds the needle. It must be comfortable and should be light in weight. It is used to push the needle to the fabric painlessly without harming the finger.

9.Ruler-A simple ruler of 6 or 12 inches may be used to measure the accuracy of embroidery as per the motif and design whenever it is required. Wooden, plastic and metallic rulers are available in the market. 10.**Trimming materials-**These are used to decorate the embroidered patterns made on any fabric, sample or garment. They may be selected according to the embroidery design, type of fabric, end use of the product or material, liking of the user, etc. Different variety of trimming materials such as stones, mirrors, gotapatti, beads, dori, etc., are available in the market. The embroiderer can select them according to his/her requirement.

11.**Scissors for hand embroidery- Small scissors** of a 3–5 inch length, are mostly used by the hand embroiderer to cut the threads, edges of the fabric, etc. Mostly, scissors with metallic or plastic handles are available in the market. The embroiderer can use it according to his/her comfort or requirement. It is advisable to use sharp scissors of stainless steel. Handle the scissors carefully to avoid any accident. 13.**Micro-tip scissors -**It is a sharp tip pointed small scissor, mainly used to cut fine threads very near to the embroidery pattern.

14.**Pinking shears -**These have blades which give a zigzag edge to the fabric. It is used to cut the fabric to prevent fabric edges from unravelling.

15Applique scissors Also sometimes called “duckbill scissors” because of their shape and the way t that they look, these scissors have a very specific job of removing extra fabric. If you are going to be cutting around your work when you are finished, then you will want a pair of these scissors, as they push the fabric away from the cutting edge so that you do not accidentally clip your work and make a mistake. You will have a very clear cutting path when you use these scissors and you will be able to cut incredibly close to your stitches without having to worry about whether or not you are going to make a mistake. Embroidery designs The embroiderer can select the design according to his/her requirement. Designs may be taken from the catalogue, Internet, magazines, etc.

16.**NEEDLE THREADER -**A needle threader is a very useful gadget for threading difficult threads through the eye of a needle. These often come free in packs of assorted sharps needles so check your sewing supplies before you go out and purchase one. Needle threaders have silver round heads that look like a coin. These simple cheap ones work just as well as more expensive versions.If you have never used a needle threader before you are in for a treat! Read my article on how to use a needle HYPERLINK "https://blog.treasurie.com/how-to-use-a-needle-threader/"threader. 17. **TRACING**- There are many options to trace or transfer the pattern onto your fabric. Tracing paper, tracing wheels, transfers, lightboxes, water-soluble pens and iron-on transfers are different options to try out and find the one best suited to you. If you are looking for a free option, use a brightly

lit window. Hold the paper with the pattern up or tape it in place on the glass. Then hold the fabric over the paper and start tracing.

18 **PENS** - Water-soluble pencils, tailor's chalk, pens and fabric drawing inks are different options for the drawing of the pattern. **19.**- Pressing your work regularly is an important part of keeping the stitching flat and not puckering. Many fabrics become wrinkled from the over handling during embroidery or from the edges of the embroidery hoop.Be careful with using steam in case any of the colors of the threads run on the fabric. Red always seems to be the one color most likely to run 20.**INTERFACING** - Softer delicate fabrics are easier to work with if they have a backing. Thin interfacing or special soluble interfacing is often used with embroidery. **21.PINS** - Top-quality stainless steel pins with no rust are important and of course a pin cushion to store them.

22. **Light tablets** are my preferred method of transferring embroidery patterns. They allow for much more accurate drawing than you get from a sunny window or homemade light box.

23.**Pin Cushions** Chances are very good that you will have a number of different needles that you will be using when working on an embroidery project, and to keep them all safe and in one location you will want to have a pin cushion. Needles are rather small and if they fall on the floor or in between the couch cushions they can be very difficult to retrieve, so it's a good idea to take steps to ensure that you always know where your needles are.Pin cushions come with a number of different types of fillings, so you need to make sure that you do your research to find the material that is right for you. If you opt for wool or cotton, then your pin cushion will be a little heavier, and the lanolin in the wool may help to keep your needles shiny and smooth. polyester is another option, but the pin cushion will be very light and easy to knock off of your table. Some companies make pin cushions that are filled with sand or a powder, and while these are nice and heavy, if they are damaged they can make a real mess.

Important tips for good embroidery work-

- Before starting embroidery work, wash hands with soap so that the fabric or the material used remains as clean as new.
- Ensure that the embroidery hoop (ring or frame) is fitted properly before starting the embroidery work. For holding the fabric tight and stretched, wrap a ribbon around the inner ring, if the outer ring is loose.
- The thread should not be very long (i.e. not more than 17 inches). A very long thread pulled too often through the fabric tends to coil or fray towards the end.

  Avoid using a knot when starting or ending an embroidery thread. Bring the needle straight up and start the embroidery, holding the thread onthe wrong side of the fabric and hiding it under the working stitches. Remember that it should not be pulled so as to avoid damaging the stitches. The finished embroidery work should be neat and even, on the wrong as well as the right side. Students in the learning stage can make knots while doing embroidery.
- Make the embroidery in a way that the shape of the design is maintained properly. It should be done gently and the working thread should not be pulled too much. Use small scissors to cut the threads.
- Avoid putting pressure over the fabric, otherwise it may become loose.

The main principles that influence embroidery work

- Design of the embroidery
- Placement and purpose of the embroidered project
- Materials and equipment used for embroidery
- Fabric selection
- Colour scheme
- Finishes
- Neatness

All Embroidery starts with a design. Either as a freehand drawing of a design or transferring a copy of the design you want from a sheet of paper to the fabric by

a variety of means (learn more about the different methods used to transfer embroidery designs to fabric here). You can plan the design on paper and then develop on it on the fabric or start the design from the fabric itself. Find some inspirations to make your own embroidery design HYPERLINK "https://sewguide.com/design-embroidery/"here . You can copy designs from easily available embroidery design works but developing your own design is wonderful. Imagine having a work of art which no one else has conceived and conceptualised other than you. The most popular subjects for embroidery are from nature- plants and flowers, fruit, vegetables, sceneries of nature . Learn more details on designing embroidery- 10 sources of inspiration; how you can convert a favourite photo into an embroidery work here. Simple geometrical forms like circles squares can also form easy to do designs. Border designs are also very popular. They can be designed on their own or along with other motifs. You can draw inspiration from traditional embroidery patterns and adapt them to suit your style with simple changes and make it your own. This way, those long forgotten work stays alive

1. Design (as product)-

Design refers to any article of creative art; formed by the assembly of elements as per the guidelines given by different principles. The product may be two dimensional or three dimensional; creating impression, expression or symbolism. Thus the aims fulfilled through the creation of design (as product) are as follows:

- **order**; resulting in arrangement and creating a structure
- **beauty**; resulting in improved appearance and interpretation of idea characteristics Design as product is thus creation of man i.e., is manmade in nature. It can be classified into two types depending of the type of stimulation it produces. The stimulation produced by the design as product can be:
- **Behavioral**; include those that affect the perceived behavior of the person rather than the physical self. The garments as behavioral products are political, economic, social, religious, communication and cultural in nature where instead of stimulation of the physical .

- **Sensory**; include those that are perceived or felt by the body senses like sight, sound, taste, touch and smell. The products, garments and accessories, create sensation by stimulation of senses during use and when it is observed . The garments are worn next to the skin so they experienced from inside by the wearer himself and from the exterior by both the wearer as well as the observer. The first and foremost stimulation in garments is visual created by the colour followed by line, shape and texture; touch sensation is perceived from the texture of almost all textiles; sound is also experienced in case of certain fabrics during movement (as soft swoop of satin, the rustle of taffeta, the rubbing of corduroy, the crackling of leather, or the clatter of beads) and the smell in few like the fragrance of sandalwood beads but the sense of taste is not inflicted by the garments at all.

- **senses,** the psychological components are affected. The garments serve as a media to communicate ones personality, to symbolize ones affiliation to an institution, to convey ones social and economic status and to convey religious thoughts and political inclination .

  Thus the garments and accessories worn by the individuals have the features of both, the sensory and behavioral designs i.e., are perceived through the senses and behavior of the person.

  The creation of clothing as design product is also affected by different factors as follows:

- **Purpose**; depends upon individuals' needs and preferences
- **Resources;** the materials that will compose the garment
- **Technology**; the methods or techniques that will be used to construct the garment
- **Approach;** the conformity of the garment to the conditions (social, cultural, and economic) and the individual (behavioral changes)

2. Placement and purpose of the embroidered project -First you embroider a design on a piece of fabric and then decide to use it for something – is that what you do?. That is a wrong way to go about it.. You should do the embroidery after deciding on the purpose of the project and where the embroidery unit will be placed. The design should be appropriate for the scale of the project. Simple designs may

work better in some projects than complicated intricate designs. The proportion of the design is very important and so are the placement of design units in relation to the other like the distance between units. For an upholstery fabric, you may want an elaborate intricate design but that may not look good on a garment. So this should be taken care of at the design stage. For sleeves you need 2 mirror image designs in exactly the same positions – this has to be planned after the pattern of the sleeve is marked but before the fabric is cut. Appropriate placement and distribution of the design is paramount in embroidery – imagine the embroidery in your tunic placed just over your bust level on both sides – I would not want that exactly placed there, however beautiful the design is. But I have seen it done and it can look really awkward

3. Materials and equipment used for embroidery-

The basic materials used for embroidery are the **fabric, a frame and thread** to do the work. But with more tools, you can do more. Embroidery hoop to hold the fabric, pencil and other marking tools different type of needles appropriate for the fabric and the embroidery concerned, cutting tools like scissors, rulers are all things you will need as you turn from a beginner to a seasoned embroider. Specialised equipment can make your job easier. To do complicated work like applique you can do a better job with the applique scissors; ari work needle can easily do chain stitch embroidery work far better and faster than the ordinary needle; you can make small holes with a stiletto for broderieanglaise work to make eyelets. Different kinds of threads are used to do embroidery stitches like the common embroidery thread with 6 strands or Perle cotton thread, or metallic thread or even wool thread. Ribbon embroidery work is a study on its own and requires ribbon in many colours. Each thread departs their own look and change the result of the work .

4..**Fabric selection -**The type of fabric used, it's surface texture, the prints on the fabric are all important aspects in the final look of the embroidery. For eg., A chequered fabric is used to do chicken scratch embroidery. That type of embroidery would not look as good on any other type of print. Cross stitch is done on more loosely woven fabric. You need an even weave fabric for counted satin stitch and other counted stitches like that of pattern darning or black work. The printed fabric like gingham,

striped fabrics or huckaback, are all popularly used in embroidery for their wonderful designs or weaves. Canvas work is done on plastic canvas with open holes – the thread fully covers the canvas in vibrant patterns. The shadow work is best when done on transparent sheer fabrics For some embroidery you need same thickness for the weft and warp threads so these may not be successful when done on some fabrics like polycotton or satin with different types of weft and warp thread . If you want embroidery on a garment which will be worn and washed at home it had better be a fabric with easy care instructions.Wearability and washability are important. Learn more about the best fabric used for embroidery here. Transparent fabrics or fabric with open weaves like net fabric call for a different treatment and embroidery technique than does fabric like linen. Looped, piled or flocked textured fabric all can be embroidered but they need special treatment and a careful analysis of what suits the fabric texture. 5.**Colour scheme -**Colour coordination is more important in embroidery than anywhere else. Contrasting colours, monotones, shades of the same colour, an ombre effect – all are popular. But colors are mostly personal. What appeals to you maynot appeal to me. What is popular in one society may not be used in another. A girl may want pink flowers but a boy may see it as childish. There are different theories on finding the right colour combinations – you can check out the popularly used colour combinations and how they are formulated according to the colour wheel here. You should know that colour value of a colour changes when they are placed with other colours – so keep the fabric and the colours you are going to use with the embroidery together and decide on the colour scheme you are going to choose for the embroidery project.

In my personal experience contrasting colours work best in embroidery – for eg a bright red flower amidst green leaves on a light colourd fabric can look striking when compared to the same work done on a black fabric. But then again, this depends on the effect you intend to create with the project. If you want a muted look, tone on tone embroidery can look very elegant (this is the same colour thread as that of the fabric used for embroidery). Another idea is to use three tones of a single colour—light, medium and dark on fabric with one of the shades of the colour.The number of coloursused can also be a personal choice but restricting the colours to three of four is more prudent for a unified look.

6.**Finishing -**Embroidery work involves materials and methods which can determine the quality of the final product. Base materials, different raw materials, various techniques to carry out stitches and many other finishing aspects in the end products are important from the point of view of quality. Finishing of the embroidered products is one of the very important aspects of the quality of embroidered finishing process.

Embroidery finishing process- After the embroiderer has completed the embroidery work, the finishing needs to be done to improve the quality of their work and give high quality services to the clients.. The finishing process is much more than just folding up the embroidered product or garment, and removing the backing. Following are the main issues which should be sorted and rectified during the finishing process:

(a) Thread tails Trim off the thread remains as near to the article as possible, and take care not to cut any locked knots

(b) Missing stitches When some stitches are skipped and are found missing,they should be modified. The simplest way for this isto thread a hand-sewing needle with a double strandof embroidery thread matching the base fabric and doa hand satin stitch to fill in the areas, in **which the stitches are missing.**

(c) Stray threads They are the threads that often get trapped duringthe processing of the stitches on the product orgarments. Do not cut the locked knots; thesethreads should be trimmed as closely to the stitchesas possible.

(d) Thread loops -If one observes thread loops in the same direction as of the stitches, they should not be trimmed. Instead, the embroiderer can use fingernails to pull the loops to the wrong side or backside of the garment. However, if thread loops are in an opposite direction of the stitches, it is safe to trim them. They should be trimmed as closely to the stitches as possible.

(e) Crooked logo or embroidered product Firstly, spread the garment evenly on the trimming table, then if the embroidery appears slightly twisted and wrinkled, steam iron well on the embroidered area. When the embroidery is hot (because of the effect of ironing), twist and turn your hand and stretch the fabric a bit softly. Repeat this process a number of times. Finally, check the embroidery again.

(f) Stains on embroidered product While doing embroidery, the fabric might acquiresome stains like oil, dust, etc. There are many waysof removing stains depending on the type of fabric andtype of stains. Most of the stains can be removed with adrop of dish soap and water. If this does not work, oncethe product is dry, you can spray the area with acetoneor bleaching agent in case of white fabrics dependingupon the type of stains. **(g) Damaged embroidered product** The damage caused to the product while doingembroidery or hooping should be removed properly. Onemust not finalise and deliver the product to the clientwith damages as it might will be unfair to both the clientand the worker, besides damaging the reputation of theorganisation or the business handling the project. Thebest way to deal with it would be to bring the situationto the attention of the customer and let themdecide what they wish to do. They could askfor a replacement, the cost of which could beborne by the organisation or the business. **(h) Ironing and packaging** After finishing the embroidered product andchecking the above points, the product isfinally ironed to remove all the creases andwrinkles and folded properly.At the end, the packing is done accordingto the packing methods followed inthat organisation.

7. NEATNESS

a) Before you begin to stitch on a piece that has definite stitching paths, think about where you're going before you start stitching. Here, for example, we have an area with lots of stems and a few leaves. Once you know what colors and stitches you're using (in this case, different greens and stem stitch), look at the design carefully and decide a reasonable stitching path that will allow you to get the most out of the thread you're going to start stitching with. We have to stitch that element in the way that makes the most sense, wasting the least amount of thread on the back, and keeping things neat and tidy at the same time.Each time tackle an element, then, think before you start stitching! Work out a path that makes sense as you stitch it, that allows you to use your piece of floss to its best advantage, with the least amount of waste on the back, and no big jumps to other unconnected areas.

b) Pay Attention to Beginnings and Ends the beginning and the end of the thread that end up causing the biggest mess on the back. there are a couple tricks that can help you keep the starts and stops a little neater.For the beginning of your threads, the most obvious trick is to avoid a knot on the back of the embroidery.

So, consider beginning your threads without a knot on the back. One way to do this is to use a waste knot on the front of the work, followed by a few tiny backstitches towards the beginning of your line.

5.EMBROIDERY PATTERN

Design transferring techniques

Transferring the design to the fabric is the primary task in embroidery. Other than in free machine embroidery, i.e., stitched without designs, it is necessary to transfer the design selected for your stitch onto the fabric. There is a wide range of technique for this; each technique differs with its application. Select a design suitable for your work with respect to the fabric used, design selected, materials available, etc. The basic design transferring technique are traced method, Dress maker's carbon paper method, pricking and pouncing method and tacking/basting method.

Tracing method is most suitable when a light coloured, light weight fabric such as cotton lawn or a fine calico is used. When the design is drawn or printed in dark thick colors, it easily helps to see through it with light colored fabrics. The main advantages of this method are it is less time consuming and requires no other materials except a sharp pencil or a disappearing ink pen and a light box. The light box is used for transferring the design onto the dark fabric. But care must be taken as we may ignore any detail of thse design, resulting in an incomplete imperfect design.

TRACING METHOD

Dress maker's carbon paper method is an important method widely used for transferring the designs. It works in the same way as the stationary carbon, but it tends to be on heavier paper, less likely to tear when pinned. It is available in different colors like blue, white, yellow, etc., hence it is used with both dark and light fabrics.An important precaution to be followed is not to lean or rub the paper while drawing the design, as it may cause smudges of the carbon marking on the fabric.

Pricking and pouncing method is an ancient method of transferring the design onto the fabric. It is one of the methods followed widely throughout the medieval period and before. While now mostly suspended by other more convenient methods, it still works and is very useful for transferring large designs, where the previous methods not suitable. Use fine pouncing powder or similar, though for pale fabrics where this doesn't show up sufficiently, blue powder is available. Special pricking wheels are used for transferring complex designs. Though, it is time consuming it gives, good output and also it is less expensive. It is suitable for all kind of fabrics other than the slippery synthetic fabrics.

Tracking (basting) method is another important transferring technique. Most of the transferring methods require the fabric to be, worked to be marked up directly, whether with a pencil, or disappearing ink pen, carbon paper or pounce powder etc. in all these methods, there are chances to get marks, which we didn't intend on the fabric, whether smudges or lines. But, in basting method, the design is tacked and can be unpicked carefully, if it is still visible, when the embroidery is completed. The main drawback in this method is that it results in a mirror-image on the fabric

Transferring design with stencils A stencil is a cut-out of a design pattern to help make an identical copy of it on another surface, accurately. Stencils are extremely useful for repeat designs, mixing and matching for a unique style. It works on light and medium weight fabrics, like cotton, rayon, linen, silk, and many synthetic blends or mixed fabrics. First of all, select the stencil for the transfer of design and place it on the right side of fabric. Then, use a transfer pencil or pen to trace the design in the cut out areas of the stencil. Stencils of different designs and sizes are available in the market. They are made of different materials like metal, plastic, thick paper, etc. Stencils may be selected according to the requirement of the embroiderer.

Transferring design with heat A common way to transfer images is with heat using design transfer sheet or paper, found in almost any craft or sewing store in the market. A sheet of design, an iron and a pressing cloth is required for tracing the design. Designs can be traced directly if the design is printable on a transfer paper or sheet. To print the design on the fabric, place the fabric face down and tracing sheet on it then heat it with an iron for an appropriate time to transfer the design on the fabric. A transfer paper or sheet of printable design is available in the market with detailed instructions, including time period for heating, on how to transfer the design. The design will transfer to the fabric or garment perhaps in a few seconds.

Transferring design using lightor tracing table In this method, an embroidery pattern is transferred, by using light. It allows tracing each line of the design. Both daylight as well as a lightbox can be used. To use daylight, find a bright window that receives a good amount of sunlight. Now tape the design on to the glass of the window and tape the fabric over it as the sunlight shines through the fabric. Now the design can easily be copied by way of tracing on to the fabric. Or else, a lightbox can also be used. A lightbox is a box with a transparent glass on top and a light source (usually a bulb or small tubelight) attached under it. When using a lightbox, the design is put on the glass top of the lightbox and the fabric is taped over it. The light will expose the design and it can be traced and transferred to the fabric easily with the help of an appropriate light shaded pencil so the design is not smudged.

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