GARMENT PRODUCTION

Level-I

Based on March, 2022, Curriculum Version 1





Module Title: - Performing Hand Embroidery

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I. Acknowledgment

Ministry of Labor and Skills wish to extend thanks and appreciation to the many representatives of TVET instructors and respective industry experts who donated their time and expertise to the development of this Teaching, Training and Learning Materials (TTLM).

II. Acronym

OHS _ Occupational Health safety.

TTLM- Training Teaching Learning Materials.

LAP _Learning Activity Performance.

III. Introduction to This Module

Embroidery is done for making a fabric beautiful with colorful designs with the help of needle and threads. It may be used to embellish almost everything, from the smallest handkerchief to big home furnishing like even curtains or bedcovers. Different types of garments including that of children, furnishings, such as bed sheets, pillow covers, table cloth, wall hangings, etc. are embroidered to give a rich look. It is an art to express the creativity using different types of techniques, like beadwork, metal thread work, appliqué work, decorative thread work, cutwork, patchwork, zardozi work, etc. Embroidery is also known as 'a painting with needle in garment technology Hand embroidery is any type of needlework that is done without a machine. Hand embroidered pieces are usually made on a piece of material with a pattern outlined on it. Some people may embroider freestyle, using material that doesn't have a printed pattern. Hand embroidery involves stitching embroidery designs by hand onto the fabric. This process is time-consuming and particular, but produces amazing results Hand embroidery is the craft of decorating fabric or other materials using a needle to apply thread or yarn. Embroidery may also incorporate other materials such as pearls, beads, quills, and sequins. In modern days, embroidery is usually seen on caps, hats, coats, blankets, dress shirts, denim, dresses, stockings, and golf shirts. Embroidery is available with a wide variety of thread or yarn color. Some of the basic techniques or stitches of the earliest embroidery are chain stitch, buttonhole or blanket stitch, running stitch, satin stitch, cross stitch. Those stitches remain the fundamental techniques of hand embroidery today. This Module is about perform various hand embroidery and decorative design on fabric or a given material as per the design specifications

- **This module covers the units**:-
- Embroidery design or specifications
- work pieces and workstation
- Embroidery garment/article or piece
- completed work
- **Complete work Learning Objective of the Module**

1. Interpret design brief or specifications
2. Prepare work pieces and workstation

3. Embroider garment/article or piece
4. Dispatch completed work

❖ Module Instruction

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. Perform Operation Sheets which were provided at the end of units
4. Do the “LAP test” giver at the end of each unit and
5. Read the identified reference book for Examples and exercise

Unit one: Embroidery design

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- embroidery design
- specifications
- garment consideration
- embroidery methods.
- criteria for selection of threads

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

1.1 Identify type of embroidery required.

1.2 Embroidery ***specifications*** are determined.

1.3 ***Garment considerations*** are identified.

1.4 Methods of embroidery by hand are identified.

1.5 ***Criteria for selection of threads*** are identified.

1.1 Identifying type of embroidery required.

Introduction to embroidery: -

Hand embroidery is any type of needlework that is done without a machine. Hand embroidered pieces are usually made on a piece of material with a pattern outlined on it. Some people may embroider freestyle, using material that doesn't have a printed pattern. Hand embroidery involves stitching embroidery designs by hand onto the fabric. This process is time-consuming and particular, but produces amazing results. Hand embroidery is the craft of decorating fabric or other materials using a needle to apply thread or yarn. Embroidery may also incorporate other

materials such as pearls, beads, quills, and sequins. In modern days, embroidery is usually seen on caps, hats, coats, blankets, dress shirts, denim, dresses, stockings, and golf shirts. Embroidery is available with a wide variety of thread or yarn color. Some of the basic techniques or stitches of the earliest embroidery are chain stitch, buttonhole or blanket stitch, running stitch, satin stitch, cross stitch. Those stitches remain the fundamental techniques of hand embroidery today.

1.1.1 Embroidery design

Hand embroidery is any type of needlework that is done without a machine. Hand embroidered pieces are usually made on a piece of material with a pattern outlined on it. Some people may embroider freestyle, using material that doesn't have a printed pattern.

Hand embroidery involves stitching embroidery designs by hand onto the fabric. This process is time-consuming and particular, but produces amazing results.

What Can Be Embroidered?

Any type of fabric can be embroidered, from silk to canvas. For beginners, small, woven cotton pieces, such as handkerchiefs or dish towels, are the best materials for learning.

Look for fabric with a weave that's easy to see, as you will need to do some precise stitching to get the best results.

Classification of Embroidery

Embroidery can be classified according to whether the design is stitched on top of or through the foundation fabric, and by the relationship of stitch placement to the fabric.

In **free embroidery**, designs are applied without regard to the weave of the underlying fabric. Examples include crewel and traditional Chinese and Japanese embroidery.Japanese free embroidery in silk and metal threads, contemporary



Figure 1.2.1 free embroidery

Counted-thread embroidery patterns are created by making stitches over a predetermined number of threads in the foundation fabric. Counted-thread embroidery is more easily worked on an even-weave foundation fabric such as embroidery canvas, aid cloth, or specially woven cotton and linen fabrics although non-even weave linen is used as well. Examples include needlepoint and some forms of black work embroidery.

counted-thread embroidery. Tea-cloth, Hungary, mid-20th century



Figure 1.2.2 Counted-thread embroidery

In Canvas work threads are stitched through a fabric mesh to create a dense pattern that completely covers the foundation fabric. Traditional canvas work such as bordello is a counted-thread technique. Since the 19th century, printed and hand painted canvases where the painted or printed image serves as color-guide have eliminated the need for counting threads. These are particularly suited to pictorial rather than geometric designs deriving from the Berlin wool work craze of the early 19th century. It is another type of hand embroidery is which stitches would be done on a canvas.

Canvas work is done on two types of canvas, either mono canvas or Penelope canvas.

Different kinds of thick threads are used to create the canvas works. You can find threads with different texture available which can be suitable for your work. These threads can come in pure silk,





Figure 1.2.3 Canvas embroidery

In drawn thread work and cutwork, the foundation fabric is deformed or cut away to create holes that are then embellished with embroidery, often with thread in the same color as the foundation fabric. These techniques are the progenitors of needle lace. When created in white thread on white linen or cotton, this work is collectively referred to as white work.

Cross-stitch Embroidery

It is one of the more popular types of hand embroidery. Today, its popularity is still increasing as compared to the other types. Images or designs are simply created in cross-stitch by forming X-shaped stitches on a colored fabric.

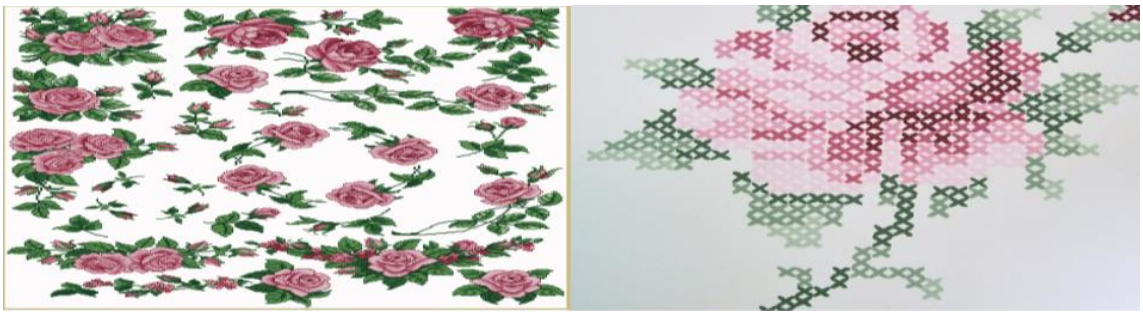


Figure 1.2.4 Cross-stitch embroidery

Ribbon embroidery

It is not a modern method as it has been around for many years. Ribbon, purl cotton, and embroidery floss are used in ribbon embroidery to form a stitch pattern or design that can be quite

4. Bargello embroidery Distinctive patterns are built up from rows of straight stitches, arranged in a zigzag line, and repeated in varying shades or colors. It is originated in medieval Italy is another method in hand embroidery. Traditionally, a piece of wool canvas is being crafted with vertical and upright flat stitches which measured in different lengths and sizes. It is usually done for carpets, pillows, and upholstery. Brazilian embroidery It is a type of surface embroidery that uses rayon thread instead of cotton or wool. It is called "Brazilian" embroidery because the use of high-sheen rayon thread in embroidery was first popularized in Brazil, where rayon was widely manufactured. Brazilian embroidery patterns usually include flowers formed using both knotted and cast on stitches. Black work embroidery It is another well-known method. Black thread stitched is formed on a white fabric in this type of work. The craft made using this method looks thicker and appealing because of its even weave. To make an embroidery, it is important to know different embroidery stitches. The variety of hand stitches enhances creativity by offering different presentation of the design. In addition, the selection of the colour, the design motif and the embroidery position are important factors which affects the embroidery design creation.



Figure 1.2.5 Ribbon embroidery

How to create embroidery design Supplies

1. A sketch (Use something you've either sketched or created in Illustrator for your project

2. Pencil

3. Tracing paper

4. Embroidery Floss

5. Pins

6. Needle

7. Fabric

Step 1



Figure 1.1.6 tracing the design

Trace the design onto tracing paper. Make sure to be as neat as possible to make embroidering later easy. Once trace can choose to cut the paper down as small as need. Make sure to leave enough paper on the edges for pins to pin it to the fabric.

Step 2



Figure 1.1.7 Sketching

Poke holes into the design along the traced lines. Here can play with stitch length, by either keeping the holes evenly spaced, or spreading them out in places and scrunching them up in

others. Since used backstitch for design evenly spaced holes along straight lines but made them closer together along curves. This will help to get more definition in end result if you use this type of stitch as well.

Step 3



Figure 1.1.8 tracing the design on paper

With holes all punched, center your image over piece of fabric and pin down.

Step 4

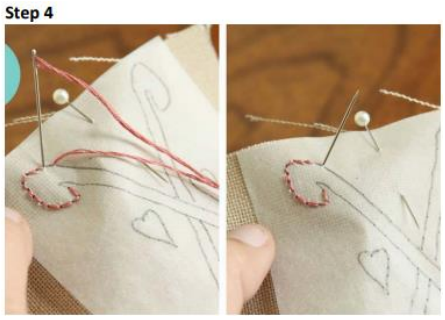


Figure 1.1.9 pinning

Begin stitching. Use for example backstitch. It takes a little getting used to finding the holes

When coming from the backside! There is nothing wrong with poking through the tracing paper

a few times till find the hole you made. Keep floss taut but don't pull too hard or finished piece will not lay flat.

Step 5



Figure 1.1.10 pinning

When to finish make sure to tie off then it is on to the final step!

Step 6



Figure 1.1.11 tracing

Tear off the tracing paper. Be careful when working this step. Keep a finger pressed on the stitches and rip along the perforated edges so that the floss is not stretched out. Sometimes a needle helps to get the paper out of tight detail sections.

Step 7 Finish



Fig. 1.1.12. Finish

Now piece is ready to be sewn onto your project or hung as art. There really is no limit on what can do with this technique.

1.2. Determining embroidery specifications

1.2.1. Content

A Hand Embroiderer embroiders decorative designs on fabric & other materials by hand, using needle & thread. The hand embroiderer uses a variety of sewing techniques to create different kinds of embroidery stitches & effects such as Cross stitch, French knot stitch, Bullion knot stitch, Shade work, Applique work, English Smocking etc. The job requires the hand embroiderer to have the skills to stitch a variety of Flat stitches, Loop stitches and Knotted stitches.

1.2.2. Color of thread

Typically we use multiple layers of thread colors to create a blend. By sewing one color and then another on top of it, we can start the process of getting those two or more colors to “mix” in the viewer's’ eye





In embroidery, it is often the case that the length of the stitch contributes to the loft of the stitch. The longer a stitch is, the more it stays up out of the fabric. Because of this, longer stitches are harder to blend with. Longer stitches have more loft than shorter stitches. Shorter stitches can tend to burrow down into the fabric or stitches underneath. We digitizers can use this to create better blends. Using slightly longer stitches on the first layer of stitching and shorter stitches on subsequent layers will cause the thread colors to sink into each other and more easily optically blend. For example, when layering two fills, try using a stitch length of 40 points for the first fill and a stitch length of 30 points for the second. This will cause the second fill to sink into the first one and further the effect.

1.2.3. Stitch type and size

Satin Stitches - Satin stitches typically have a good amount of loft and resist blending. If you need to blend with a satin stitch, mimicking a traditional hand embroidery short and long technique can help keep the length and loft while allowing you to transition colors. It is usually more digitizing work and less successful than using other stitch types.

Fill Stitches - Fill stitches work well for layering colors. The multiple stitches and repetitive lines of stitching lend themselves to recreating effects like those in the etching shown.

Walk Stitches - Walk stitches on their own don’t lend much to blending, but they can be used to great effect when layered over a fill.

Different types of hand embroidery techniques & associated stitch type

Flat Stitches

- Running Stitch

- Back Stitch
- Stem Stitch
- Satin Stitch
- Kashmiri Stitch
- Couching Stitch
- Cross Stitch
- Herringbone Stitch

Loop Stitches

- Chain Stitch
- Lazy-daisy Stitch
- Button hole Stitch
- Blanket Stitch
- Fishbone Stitch
- Feather Stitch
- fly Stitch

Knotted Stitches

- French knot Stitch
- Double knot Stitch
- Bullion knot Stitch

1.2.3.1basic stitches

In this lesson we are going to learn the different embroidery basic stitches, most commonly used stitches of embroidery. These stitches have been used for many centuries all over the world. However, the changing fashion scene influences the way in which they are used.

Back Stitch: It is a very strong stitch. It is worked from right to left on the wrong side of the embroidery. Thread a needle. Insert the needle from where the embroidery is to begin, pick a few threads of the fabric and pull the needle and thread through. Repeat this process again at the same place picking a few extra threads.

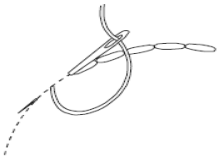


Figure 1.2.4.1 bach stitch

Stem Stitch:-Stem stitch is basically an outline stitch. This stitch makes a fine line and is used around edges and for making veins in leaves, stems etc. In this, the needle is inserted to the right of the line and brought up to the left of the line, making a thick outline. The stitch may be used as a filling by working rows alongside each other.



Figure 1.2.4.2 stem stitch

Satin Stitch: It is basically a filling stitch. The thread is taken out in front and back equally. It gives a very smooth finish to the embroidery. These are straight stitches worked slantwise. For straight areas, work slantwise from top to bottom; for a small circle, work long stitches vertically, Centre first, then fill each side; for leaf shapes, work diagonally, starting from the left edge.

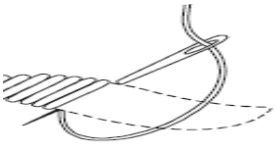


Figure 1.2.4.3 satin stitch

Long and Short Stitch: This is used to fill areas in solid and shaded colors'. The first row is alternating long and short stitches. The following rows are stitches of equal length worked at ends of short and long stitches. Regularity of the following rows depends on the shape to be filled. Plan the stitches in an area so they fill it naturally and gracefully. It is helpful to mark with pencil the direction of some of the stitches. Here also, the needle works equally in the front and back of the fabric.

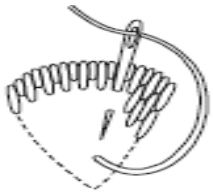


Figure 1.2.4.4 long and short stitch

Chain Stitch: This stitch appears like a chain on the face of the fabric. It is worked from top down. Bring the needle up through the fabric; hold the loop with your thumb and insert the needle again at the same point. Bring the needle up a short distance away, with the thread looped under needle; repeat. It is used for heavy outlines or as a filling, making rows of chain following the outline of the shape being filled.

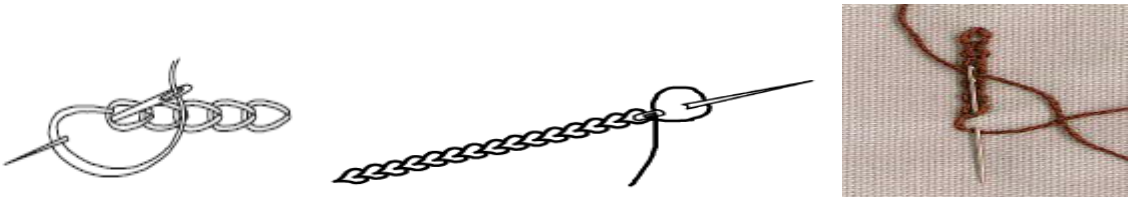


Figure 1.2.4 .5 chain stitch

French knot: For making a French knot bring the thread up through the fabric, wrap the thread over and under the needle, crossing the beginning thread, insert the needle into the fabric close to where it came up. A double thread may be used to make larger knots if desired.

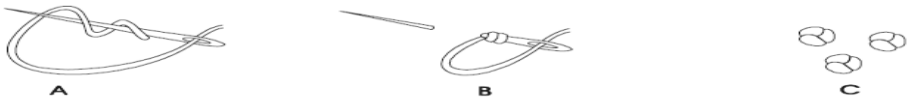


Figure 1.2.4 .6 french stitch

Cross-stitch tack: a decorative as well as a functional stitch. The stitch provides a degree of flexibility yet security to an area. It is often used when tailoring a jacket or coat lining to secure the center back ease pleat and any dart tucks.

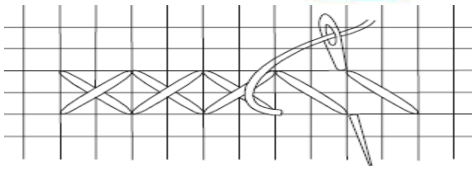


Figure 1.2.4.7 cross stitch tack

Herring Bone Stitch: It is worked between the lines. Bring the thread up through the lower line, insert the needle in the upper line, a little to the right and take a short stitch to the left. Insert the needle on lower line a little to the right and take a short stitch to the left. May be used for thick seams or to connect two solid areas for softening the effect. It finally seems that the lower and upper threads are interlacing with each other.

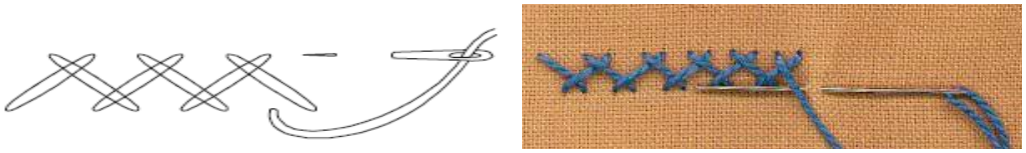


Figure 1.2.4.8 Herring Bone Stitch

Darning Stitch: It is also a filling stitch where the stitch is visible only on the face of the fabric. The needle is taken out in front, one float is taken then the needle goes down and is taken out from the back through the very next yarn in the same row unlike in the satin stitch where floats of thread are the same in front and back. Here only the front has floats.

Couching stitch: Medieval embroiderers made full use of couching to be economical with expensive threads, such as goldthread, on the surface of the work. It is used, to this day, to attach threads which are too thick, or textured to pass through the foundation fabric.

The term is from the French word 'coacher', which means to lay down. Couching is extremely simple to work. Work with the fabric stretched in an embroidery hoop or frame. To commence bring the heavy thread up from the back of the fabric with a large eyed needle. The surface thread is laid on the fabric, and then anchored by a second finer thread.

Small, straight stitches are taken over the thick thread and back through the fabric. Work along the thick thread until you have completed the line. Take the heavy thread to the back of the fabric

with a large needle and secure both ends of the heavy thread by using a few small stitches. Do not clip the heavy thread too close, otherwise it will pop up to the surface of the embroidery.

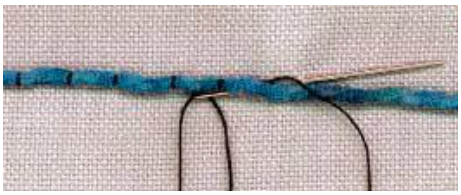


Figure 1.2.4.9 Couching stitch

Button Hole Stitch: The most common identification of this stitch is the opening into which the button of a shirt is closed. The edge of that opening is finished using a stitch known as the button whole stitch. It is worked from left to right. Bring the needle up through the fabric. Holding the thread under the left thumb, form a loop; then pass the needle through the fabric and over the looped thread; repeat. These stitches are made very close to each other. This stitch may be used for filling an area or finishing edges and specially the edges in a patch work.

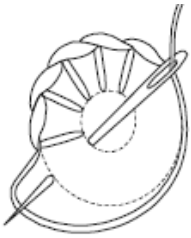


Figure 1.2.10 Button Whole Stitch

Blanket Stitch: This stitch is very similar to the button hole. The only difference is that the stitches are a little distance apart. The edges of blankets carpets, etc., are finished by this stitch.

An embroidered patch needs to be enclosed within a shape layout. We can use regular shapes such as square, circle, rectangle, or oval. We can also make the patches in its contour irregular shape if needed to. For irregular shapes, please ask for consultation.

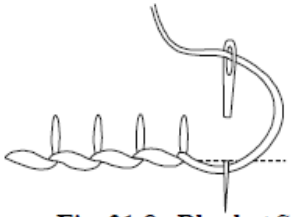


Figure 1.2.11 Button Whole Stitch

1.3. Identifying garment considerations

1.3.1Type of fabric

The possibilities are seemingly endless when it comes to sewing. If you're looking for a place to start, try a fabric that's pure cotton. Make sure that it doesn't have stretch (like you might find in cotton blends) and that its weave isn't too loose. Cotton makes great hand embroidery floss - it's been the standard for a lot of embroidery for a long time. That said, yes, you can probably use regular cotton sewing thread to do embroidery on a sewing machine.

1.3.2. Color of fabric

Different fabric types other than cotton twill are available as well. Greater than 99% of custom patch orders use the standard cotton twill. If you do not have knowledge of different types of fabrics and you are looking for a standard embroidered patch, or this is your first patch order, go with cotton twill. In fact, cotton twill is what you will be given by default even if you make no mention of twill type at the time of ordering.

Additional Twill Options

Polyester: Polyester fabric is a common choice that is available in a wide range of colors.

Velveteen: Velveteen is a fabric that is made in imitation of velvet.

Felt: Felt is a non-woven fabric that is produced by matting, pressing, and condensing woolen fibers together.

Camouflage: Camouflage twills are extremely popular for military patches and are colored in a variety of camouflaged patterns.

Denim: Denim is rugged twill made of cotton.

Reflective: Reflective twills add visibility to the patch when light comes in contact with it.

A popular option for those who work in poor visibility environments and motorcycle groups.

Flame Resistant: Flame resistant twills are coated with a chemical that protects the patch from ignition. When we combine certain colors in embroidery, our poor eyes end up strained and fatigued. And while we might like the color combination – or we might think the color combination is fun and exciting – actually embroidering the color combination may be a different story.

Working on an intense red background (this isn't an orange-red – it's a true red-red) with blues, greens and yellows that are also intense is an example of color choices that can weary the eyes while working with them. Color choices like this can "trick" the eyes. When we focus for a while on a particularly intense color especially under the bright lights of a needlework lamp (or in the bright sunlight), the muscles in the eyes get tired. All the thousands of little "color decoder cones" in the eye that decode that particular color become fatigued, and to make up for the fatigue, all the other color-decoding cones for opposing colors get busy, decoding. What happens? When you look away from the color, or move your focus slightly away from the color, you'll see "ghost colors" or an after image in an opposing color to the color you were looking at.

These after images – which can look like a shadow or a different color, altogether – can be irritating when you're concentrating closely on a piece of embroidery.

An element of art made up of three properties: hue, value, and intensity.

Hue refers to the name of a color

Value refers to a hue's lightness and darkness (a color's value changes when white or black is added)

Intensity refers to the quality of brightness and purity (high intensity= colour is strong and bright; low intensity=colour is faint and dull)

1.3.3. Positioning of design

A basic understanding of the elements and principles of design can help in the process of choosing a design that is pleasing to the eye. What are the elements and principles of design? Elements are the tools used to create a design. Principles are guidelines for deciding how these tools will be used to create the design.

1.3.4. Suitability of size, design, color

After choosing your design the next step in creating successful embroidery is the purchase of materials. One of the first things to remember is that you will get what you pay for! Many hours are spent stitching our projects; it would be senseless to use inferior materials that will not hold up. For lasting quality, purchase the best materials that you can afford.

Do not purchase ground materials that have an obvious crease in them. These creases tend to pick up dirt marks and are very difficult to remove. It would be a shame to have a permanent crease running down the middle of carefully stitched embroidery. Also be wary of dirt marks anywhere on the ground material, maybe it will wash out, but maybe it won't.

1.4 Identifying methods of embroidery by hand

1, 4, 1 Methods of embroidery:-

- **Beads:** A bead is a small, decorative object that is formed in a variety of shapes and sizes of a material such as glass, plastic, or wood, and that is pierced for threading or stringing.
- **Sequins:** Sequins are disk-shaped beads used for decorative purposes. In earlier centuries they were made from shiny metals. Today, sequins are most often made from plastic. They are available in a wide variety of colors and geometrical shapes. Sequins are commonly used on clothing, jewelry, bags, shoes and lots of other accessories
- **Buttons:** have widely been used as garment closure from the middle Ages. Most buttons have dual functions in the garment of being functional closure and a decorative detail. However, some buttons inside a concealed placket, or inside a double-breasted garment are completely functional. But, buttons on the side of jacket sleeve are completely decorative. There are several other examples of decorative button usage in kids wear, and women's wear.
- **Polyester Buttons** are resistant to heat and dry-cleaning. They are produced in large quantities for all kinds of clothing.

- **Nylon Buttons** are made in large number of shapes and in a wide variety of colours.
- **Metal buttons** are made in brass, nickel and aluminum with an engraved or stamped face. Used for blazers, jeans and jackets etc.
- **Leather or leather** like buttons is sensitive to moisture and abrasion. Used mostly in apparel made of leather and sports jackets.

Pearls is a small white round object that is formed inside the shell of an OYSTER (a small ocean animal that has a shell and can produce a jewel called a PEARL) , and is considered valuable and used in jewellery, etc are usually added to enhance, add colour and texture, catch the light and give weight to products. The components are hand sewn, glued, heat transferred or machined to the fabric in patterns or all over. Hand beading is very time consuming and makes garments very expensive.

1.4.2 Smocking

This is an attractive method of distributing fullness at necklines, yoke lines and sleeves of children's dresses. The amount of material required for smocking is two to three times the width of the finished article. To do smocking, the first step is to mark on the fabric several rows of evenly spaced dots about ¼". The dots in the different rows should come directly under each other. This can be done by the use of transfers with dots available in shops or by using a home-made cardboard gauge pricked with small holes at the intervals required. The card can be moved along on the fabric until all the dots are marked by inserting a pencil point through the holes. To gather or pleat the material, work basting stitches picking up a few threads of the fabrics under each dot. On finishing the basting of each row cut the thread, leaving a loose end. On dotted or checked materials, this basting stitch can be worked without the pleats. Gathering threads are removed after smocking is done. The commonly used smocking stitches are: Out-line stitch, cable stitch, wave stitch, diamond or chevron stitch and honey-comb stitch. Types of embroidery include every sort of ornamental work done with a sewing needle of any kind. Embroidery may be done on any number of fabrics from satin to canvas. Embroiderers, known for their resourcefulness, experiment and learn from others which kind of stitch and thread works best and proceed to produce wonderful works of art, many times mixing types of embroidery. Often embroidery types were named after the predominate stitch that was used, such as cross-stitch. Others were named after the place they were first introduced, such as Berlin Wool Work

embroidery. What can make finding a "type" of embroidery confusing is that many times there is more than one name for a particular kind of embroidery. For example, pulled thread, drawn thread and hard anger are often classified as the same embroidery style. Embroidery techniques can produce a wide range of effects. Some produce a flat surface while others produce a relief effect. Almost any effect wanted can be produced in embroidery there are various definitions for embroidery, and not surprisingly these have changed over time. Some definitions are very precise and concentrate on the notion that embroidery is the art of creating patterns using decorative stitches with a sewing needle and thread.

1.5. Identifying criteria of threads selection

The higher the thread-weight number, the finer and thinner the thread. Alternately, a low thread-weight number means a thicker, heavier thread. Standard embroidery threads are somewhat finer, most often 40 wt., although 30 wt. is not uncommon. Embroidery floss or stranded cotton is a loosely twisted, 6-strand thread, usually of cotton but also made from metallic, silk, linen, and rayon. Cotton floss is most common, comes in a gazillion colors (including variegated) and is available in any fine thread shop or craft store. Matte embroidery cotton or French cottons à border is a matte-finish (not glossy) twisted 5-ply thread. Parle cotton, pearl cotton, or French cotton parley is an S-twisted, 2-ply thread with high sheen, sold in five sizes or weights, 3, 5, 8, 12 and 16. 3 are the heaviest and 16 is the finest. Crewel yarn is a fine 2-ply yarn of wool or, less often, a wool-like acrylic. Persian yarn is a loosely twisted 3-strand yarn of wool or acrylic, often used for needlepoint. Tapestry yarn or tapestry wool is a tightly twisted 4-ply yarn.

Self-Check -1	**Written Test**

Part one: - multiple choose

I. Choose the correct answers from the given alternative.

1. Which of the following is hand embroidery methods? A/ bead B/ thread C/ weight D/ color

2. One is the garment consideration for embroidery work A/ fabric B/ color C/ Hue C/ all

3. from the following is types of stitch worked between the lines A/ Herring Bone Stitch B/ size C/ design D/color

Part two: - Short answers

II. Give short answers for the following questions

1. List out basic embroidery stitches

A/_____ B/ _____C/ _____

D/ _____E/_____F/_____

2. Write Classification of Embroidery

A/_____ B/ _____C/ _____

D/ _____E/_____F/_____

Part three explanations

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is embroidery mean? (5%)
2. List classification of embroidery (5%)
3. Write and explain embroidery types. (5%)

Note: **Satisfactory rating - 60 points** **Unsatisfactory - below 60 points**

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Operation Sheet 1	backstitch

Purpose:

The backstitch is great for outlining when you have a lot to do, but since the stitches tend to be longer than others, it's not quite as good around tight corners.

Conditions/Situations:

The embroidery thread inserted on the needle should only be elbow-length to maximum. This is to avoid entangling.

Tools and Materials:

Fabric with outline of the design

Crewel needle

Embroidery scissors

Embroidery thread

Hoop

Procedure:



1. Make a knot at the end of the thread.
2. From the back of your fabric pull your needle up at (1).
3. Insert it back at (2) according to the desired length of stitch.
4. Bring it back up at (3) about a stitch length away from the first entry point.
5. Push your needle down again at (4).
6. Bring it up at (5), and so on.

Safety Precaution: Use thimble to prevent pricking your fingers.

Quality Criteria:

1. Backstitches are of the same length following the outline.
2. Stitches are relaxed not too tight.
3. No puckering on the fabric

LAP Test 1	**Practical Demonstration**

Name: _____ Date: _____

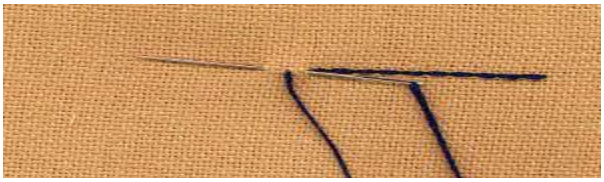
Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within -1-- hour.

Hand Stitching/Practical Demonstration/

PROJECT TITLE:- back stitch







Do properly hand work steam stitch & back stitch

Task 1. Ironing the fabric

Task 2.Assume the steam stitch& back stitch space

Task 3.Cut properly

Task 4.Pass the needle through the fabric several times so steam stitch & back stitch appeared.

Task 5.Pass the needle through the fabric several times to have equal space stitch.

Task 6. Tie & remaining the end

Task 7. Ironing

Quality control:

- Neatness
- Sharpness
- Sleep ag -
- Sharp Ironing

Safety precautions

- Keep your hands, fingers & feet always Clean& dry
- Avoid excessive oil on your hair
- Protect your hand from seizer, needle

Unit: Two work pieces and workstation

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- work pieces
- OHS practices
- Equipment and materials.
- problems

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

2.1 Laying out work pieces

2.2 Setting up work area according to OHS practices

2.3 Setting up and adjusting equipment and materials.

2.4 Recording and reporting problems.

2.1. Laying out work pieces

Once you have put together a complete embroidery kit, decided on the fabric, design and colors' for the embroidery threads, you are ready to begin. Before starting the embroidery, remember to wash and wipe your hands. This would help in keeping your embroidery clean and fresh. If your hands have a tendency to perspire, you may wash your hands repeatedly. While working on the embroidery you may notice that the thread twists and knots. In this case you can turn the needle in the opposite direction till the thread is smooth. In case the thread does not run smoothly, it will be better to use a fresh length of thread. Always start embroidery with a back stitch. Never start your work with a knot.

2.2. OHS practices

OHS practice in hand embroidery my included the following

- Prevent the thread from twisting while you stitch by turning your needle a slight quarter to half turn with each stitch.
- If your thread gets twisted while stitching, drop the threaded needle and let it hang freely until it “unwinds.”
- Avoid running the thread across the back of the fabric to go to a new stitching area. Instead, start and stop in each section to assure that running threads don’t show through on the front side of the fabric.
- Keep your hands clean and avoid handling food and drinks when you stitch.
- Mark dots for uniform stitch size; to achieve uniform stitch size, use a ruler or tape measure to mark tiny evenly spaced dots along the stitching line. You will learn to gauge stitch distances with experience.
- Stab “up and down.” When working with your fabric in a hoop it is preferable to stab the needle vertically up and down through the fabric when making each stitch.
- Keep your tension even. To create smooth uniform stitches, pull each stitch with the same amount of tension.
- If the stitch is too loose the stitch will appear limp and if the stitch is pulled too tightly the fabric will pucker and cause the design to become distorted.
- Learn how to use both hands when stitching. Learning how to manipulate the needle takes practice and learning how to hold a hoop while stitching takes time.

2.3 Setting-up work area

An embroidery hoop seems like a pretty basic piece of equipment doesn't it. Something that doesn't necessarily require explanation. But setting up an embroidery hoop correctly is often the key to better end results in your embroidery, so it's worth covering. Often see beginning stitches using hoops without a clear understanding of what the hoop is supposed to do for them. The hoop is not simply there to give us something to hold onto. Its purpose is to supply tension on the fabric. But how much tension is enough tension and how careful are we to ensure that the tension does not change significantly through the course of an embroidery session. So let's look at how to set up a hoop, and talk about some different aspects of using a hoop for hand embroidery. Before placing fabric in an embroidery hoop, the fabric needs to be prepared. Most embroiderers have their own favorite method of preparing fabric for the embroidery process, so if already have go-to method, then don't worry about this. This step is to prevent unfinished fabric edge from fraying while holding work. On every embroidery project undertake even if it's just free-style surface embroidery with no pattern, or even if it's just for working up photo samples for the website – the first thing do after cutting the fabric is run the edges through sewing machine, using an over lock stitch (which requires an over lock foot). If have a sewing machine but not an over lock foot, you can set your machine on a zigzags stitch and stitch right next to the edge. If don't have a sewing machine, can do this by hand, by working a quick whipstitch around the outside edge of the fabric using regular sewing thread. Some stitches will tape the edges of their fabric with masking tape or similar low-tack tapes. This technique of binding the edge is often used for needlepoint, on the edge of stiff canvas, but it can be done on fabric as well. It's not a method prefer. The tape stiffens things up on the edges, while sewing the edges keeps the fabric supple and easier to hold. Exposed sticky parts of the tape can be a magnet for dirt and thread snippets, too. Now, here's where we could discuss the best types of hoops to use for hand embroidery, but since have already done that here on the website, just refer you to the article, which is called The Embroidery Hoop, and in it, I discuss what to look for in a good embroidery hoop and where to find them. Once you have a good hoop, you should bind at least the inner ring of the embroidery hoop. It seems like a pain in the neck to bother with this, but it makes such a humungous difference in the way the hoop works, that definitely want to do it! And if do it right and do it well, only have to do it once. With your fabric ready and your hoop ready, lay the inner ring of the embroidery hoop on the table. Place your fabric over it. If fabric has a design on it

(this piece is for free-style embroidery, with no design), if possible, center the design in the middle of the ring. If not possible (if the design is much bigger than the hoop), center the part of the design you want to work on. Note: Generally, your hoop should be small enough that the fingers on the hand you are holding it with can reach to the middle of the work in the hoop. Larger hoops work best when they are mounted on some sort of stand, leaving both hands free for stitching. This is what the hardware on a good hoop looks like – it's sturdy, brass hardware that isn't going to bend and warp when the screw is tightened. For right handed stitches, the screw head should be pointing to the right, and for lefties, to the left. Lay the hoop face down on the table, and using your thumb on the outside of your fabric and your other fingers on the inside of the fabric, go around the hoop, tightening up the fabric. While you circle the hoop, pulling the fabric taut, your fingers will be pushing down on the inner ring, while your thumb and fingers are pulling on the fabric. Make sure that, as pull, are pulling evenly all the way around the ring. Don't want to warp the direction of the threads of the fabric towards one side of the hoop or the other. Once have gone all around the ring, pulling the fabric, tighten the screw as much as possibly can with fingers. Will get to the point where think the screw is completely tight, because fingers can't tighten it any more

2.3.1. Setting up and adjusting equipment and materials.

- Setting-up equipment and materials
  - Embroidery Tools



Crewel or tapestry needles

A pointed tip works for sewing any fabric. A blunt tip needle is good for using on cross stitch fabric. I like size 20 or larger.

Figure 2.3.1.1 tapestry needles



Embroidery scissors

A small scissors makes for easier and more detailed snipping and cutting.

Figure 2.3.1.2 Embroidery scissors

Floss bobbins



These are inexpensive cardboard or plastic holders for floss or thread. If work from the hanks buy, will find that your thread will tangle easily. The ends will be floating all over storage container and become a tangled mess. By winding thread on a bobbin right away, can keep your threads at the ready and organized.

Figure 2.3.1.3 Embroidery scissors

Thimbles

this is an optional tool to protect your fingers from becoming calloused or poked. A small metal piece keeps the needle from passing through the skin.



Figure 2.3.1.4. Thimble

A small plier

when stitching with thick fabrics or when many stitches pass through the same area over and over, the needle just doesn't seem to want to glide through the fabric. Because the needle is small, it’s hard to get a good grip at times. Keep small needle nose pliers handy to grip the needle and pull it through.

Embroidery Hoop

This tool is required to hold and stretch the fabric to a 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.



Figure 2.3.1.4 Plastic and wooden hoop

A hoop keeps your fabric taut. This helps to keep your fabric from puckering, especially when satin stitching. A hoop is inexpensive. Simply place your fabric over the bottom hoop. Then take the top hoop and scotch it down over your fabric and the lower hoop. Tighten the screw or nut. To move the hoop, loosen the nut or screw and slide the fabric over and re-tighten. Some prefer not to use the hoop for a few reasons. When one tend to work on small pieces of fabric that would not fit onto a hoop securely. (If you want to hoop, you can baste small pieces of fabric to a larger piece.) At times tightening the hoop over embroidered stitches can skew them and create a fold or crease.

To keep the fabric from puckering, it is important to keep a tiny bit of slack in your stitches. Every now and again, give the fabric a tug and the stitches even out and the fabric become straight and flat.

Embroidery hoops are used to hold fabric taut while stitching. We use plastic ones for stitching and wooden ones for framing embroideries

Embroidery scissors are small and sharp, perfect for trimming floss cleanly and closely. They're essential. I like to make "necklaces" out of mine so I don't misplace them.

Pinking shears cut fabric so that it has a jagged edge. This keeps the edges of your fabric from unravelling as you work with it.

Embroidery needles

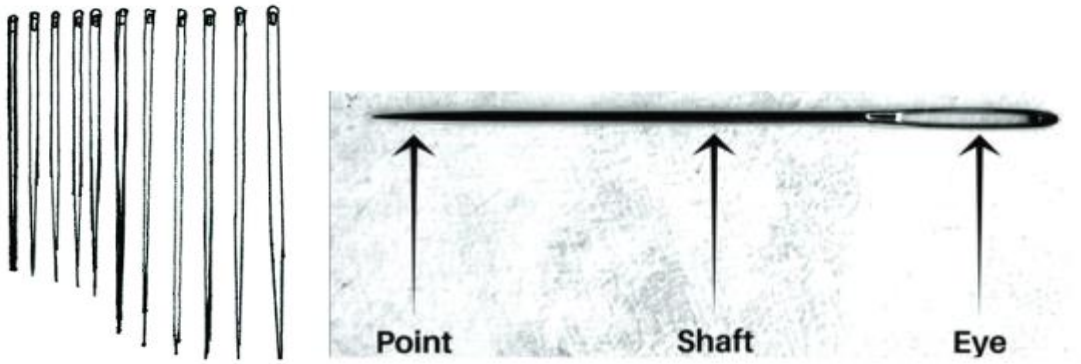


Figure 2.3.1.5 hand needle

The most essential tool without which hand embroidery is not possible is the needle. It has three parts, namely the eye, shaft and point. Needles are available 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 used on chiffon or silk-like soft material, a very fine and high numbered needle would be required.

Water soluble pens are my preferred method of embroidery transfer. They're easy to use, come in a variety of thicknesses, and wash out easily with cool water.

Fabric-Tac Glue is the only glue I trust to finish my embroideries! It adheres permanently to wood and fabric, and dries clear and fast. Also great for securing knots or loose thread ends.

Thread Heaven is a a thread conditioner. It will make your floss pull through the fabric much more easily, and can also help you thread a needle with stubborn floss. One container of this will last you a very long time!

Embroidery floss comes in a few flavors, but we'll be using six-stranded floss for this class. My favorite brand is DMC, which can be found at nearly any craft store.

Embroidery fabric can be almost any type of fabric! However - linen, quilting cotton and muslin are all great beginner embroidery fabrics because they're easy to work with. Linen is my favorite!

An iron and ironing board are extremely important to press fabric before you embroider. Any ironing board will do, but I recommend a steam iron with multiple temperature settings for best results.

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.

2.3.2 Embroidery Materials

The fabrics and thread used in traditional embroidery vary from place to place. Wool, linen, and silk have been in use for thousands of years for both fabric and yarn. Today, embroidery thread is manufactured in cotton, rayon, and novelty yarns as well as in traditional wool, linen, and silk. Ribbon embroidery uses narrow ribbon in silk or silk/organza blend ribbon, most commonly to create floral motifs.

Surface embroidery techniques such as chain stitch and couching or laid-work are the most economical of expensive yarns; couching is generally used for gold work. Canvas work techniques, in which large amounts of yarn are buried on the back of the work, use more materials but provide a sturdier and more substantial finished textile.

Embroidery Thread



Parle Cotton does not fray easily, creates a bold line, and comes in a wide variety of colors. Use size 5 for most work but use size 3 for detailed work or for light black outlines.

Embroidery Floss can be split into 6 strands. It has a nice sheen and comes in an infinite number of colors from matte to metallic

Figure 2.3.1.6 embroidery *threads*

Fabric

most woven fabrics with some body can be embroidered. Many are better than others. It is good to work on linen. Its open, flexible weave makes stitching a breeze. The needle slides in and out

like butter. If you make a mistake, the weave will correct itself and with a little manipulation, the hole created by the wrong stitch disappears.

Working on recycled, felted woven wool stitches like a charm, and the lanolin in the wool actually polishes your needle. Mistakes are hard to correct on some fabrics and you have to be careful not to pucker them.



Figure 2.3.1.7 fabrics

Interlining:-

Process of reinforce the specific parts of a garment by inserting a layer of fabric in garment by inserting a layer of fabric in between two layer of base fabric between two layer of base fabric

Cause of using interlining:

- To support, reinforce and control areas of o support, reinforce and control areas of garments and
- To retain actual shape of the garments and to retain actual shape of the garment component.
- To make the particular component beautiful,
- To make the particular component beautiful, strong and attractive. Strong and attractive.
- To get better hand feel and better
- To get better hand feel and better performance

Types of Interlining:

a. Sewn Interlining or non-fusible Interlining.

b. Fusible Interlining

Sewn Interlining or non-fusible Interlining: which could be fixed with a garment component by could be fixed with a garment component by sewing

Advantages of sewn interlining:

- Flame retardant garments can be made in this

- Simple and easy technique.
- No need of using special machine

2.4 Reporting and recording any problems

The recording (patient registration) and reporting system is used to systematically evaluate patient progress and treatment outcomes, as well as to monitor overall program performance (through cohort analysis). Knots are really not necessary in any embroidery project because you can secure the ends of the threads in other ways. What's more, knots can make the back side of a project untidy and bumpy and you can often feel them on the front side of the piece. Knots usually have a bit of a tail, which can show through on the front side of an embroidered project. Worse yet, knots can actually be harmful to a project, as they can unravel with use or laundering. As a result, precious stitches are lost over time.

Self-Check -2	**Written Test**

Part one: - multiple choose

I. Choose the correct answers from the given alternative.

1. Which of the following is hand embroidery tools? A/ Crewel or tapestry needles

B/ Embroidery scissors C/ Thread D/ weight

2. One is the types of interlining? A/ Sewn interlining B/ Cotton C/ Hue C/ Yarn

3. From the following one is types of embroidery hook A/ plastic hook

B/ wooden hook C/ paper hook D/A&B

Part two: - Short answers

II. Give short answers for the following questions

3. List out six embroidery tools and materials

A/_____ B/ _____C/ _____

D/ _____E/_____F/_____

4. Write two types embroidery hooks

A/_____ B/ _____

Part three explanations

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

4. What is embroidery mean? (5%)
5. List classification of embroidery (5%)
6. Write and explain embroidery types. (5%)

Note: **Satisfactory rating - 60 points** **Unsatisfactory - below 60 points**

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Unit Three: Embroidery garment/article or piece

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Completing hand embroidery
- Assessing work

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

3.1 Completing hand embroidery in accordance with job order

3.2 Assessing work for compliance with quality standards

3.1 Completing hand embroidery in accordance with job order

Hand embroidery is any type of needlework that is done without a machine. Hand embroidered pieces are usually made on a piece of material with a pattern outlined on it. Some people may embroider freestyle, using material that doesn't have a printed pattern. To end a thread without making a knot, use this method:

Take your threaded needle to the back of your fabric with your last stitch. Run your needle under the last couple of stitches.

For extra security, you might weave through the last few stitches, going under the first, over the second, under the third. General, a matter that should be taken seriously. This is where we secure our thread in the beginning and end of our projects, so for the work to withstand the test of time, to not get disarranged and for stitches to not come loose, we need to ensure that the stitches are secured properly. Hand embroidery is hard work; we put a lot of effort and emotions into our project, that’s why it's better to pay special attention to the backside.

At the same time, we need to take into account if our backside is proper enough for any finishing work you might be planning to do: mounting, framing your embroidery or using it as an embellishment for garments/accessories. Will the dark threads show through the fine fabric Even the most beautiful embroidery can actually be spoiled by messy backside?

Let's take a look at two most common situations when you need to finish your thread. The first one would be finishing thread on a line or few stitches situated quote closely. The second situation would be when there is a whole area filled with long & short stitch or satin stitch.

3.2. Assessing work for compliance with quality standards

The process of collecting, reviewing and using data, for the purpose of improvement in the current performance, is called assessment. Where threads are left on the embroidery pattern between images or lettering. Thread trims are digitized when changing colors and when moving from one location to other using “jump” stitches.

What to assess in hand embroidery is:-

- Design Size. How big is the design?
- Stitch Count. Does the stitch count seem reasonable for a design of this size?
- Colour Count and Colour Change Count.
- Trims and Jumps.
- Sewing Efficiency.
- Measure Stitch Length.
- Measure Stitch Density.
- Evaluate Compensation.

Generally, can be corrected by:

1) Digitizing properly (Using appropriate number of trims, using appropriate tie off stitches, or replacing trimming knives when necessary); and

2) Hand trimming missed trims using trimming snips.

- ✓ Where the corners of lettering or shapes are not sharp and crisp but are bunched up or distorted. Usually caused by too much thread in the corners due to poor digitizing.

This includes:

1) Not using appropriate stitch selection,

2) Not using “Short” stitches in corner, and

3) Poor stitch balance – thread too loose.

Generally, can be corrected by digitizing properly:

1) Using appropriate stitch selection.

2) Using “short” stitch cornering.

3) Correcting stitch balance.

- ✓ Where the fabric is damaged around the corners of the embroidery. Caused by:

  1) Not using the correct type and size of needle;

  2) Putting too many stitches in the same location; and

  3) Not tearing tear away backing properly, allowing the fabric to be damaged as the stitches are pulled out.

Generally, can be corrected by:

1) Digitizing properly;

2) Reducing the stitch count in the corners;

3) Using the correct type and size of needle; and

4) Using a ball point needle as small as possible.

Self-Check -3	**Multiple choices**

Directions: Chose the best answer from the alternatives. **(2 point each)**

1. Assessment in hand embroidery design helps _____? (2 pt)

   A. To make quality stitch C. To design Size

   B. To reduce stitch puckering D. All

2. How to correct before fault crated in hand embroidery (2 pt)

   A. Using appropriate stitch selection C. Take enough practice before

   B. Using "Short" stitches in corner D. All

Part two: - Give short answers for the following questions

1. What to assess in hand embroidery

A/ _____B._____

C._____D._____

E._____F._____

G._____H._____

Note: **Satisfactory rating - 60points** **Unsatisfactory - below 60 point**

Score = _____

Rating: _____

Name: _____ Date: _____

Operation Sheet 3	Hand embroidery

PURPOSE: To perform Hand embroider on garment

TOOLS AND MATERIALS: -

TOOLS

- Hook
- Embroidery scissors.
- fabrics
- hand needle
- thimble
- embroidery design

CONDITIONS OR SITUTATIONS FOR THE OPERATION: - given necessary tools & equipment's.

You are required to perform the following within30 minutes

PROCEDURE:-

- Set up work station
- Prepare all materials and tools
- Threading
- Trace the design on the garment
- Perform hand embroidery based on traced design
- Finishing
- Quality checking
- Packing

LAP Test 3	**Practical Demonstration**

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 30 minute.

Perform the following tasks by taking time study for each operation repeatedly, according to the time set and obtain the following result.

Tasks. Perform Hand Embroidery

Unit-3 Hand stitch

Reading: TTLM- unit-3

Objectives: At the end of the job the trainee will able to perform hand stitch

Work shop Materials, tools and equipment required:

Unit four: Complete work

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Quality standards
- faults
- Garments
- documentation

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

4.1 Checking garment /articles against quality standards.

4.2 Recording and reporting iidentified faults.

4.3 Directing completed garments/ articles to next operation.

4.4 Completing work documentation

4.1 Checking garment /articles against quality standards.

Here are five fundamental steps which QC inspectors should take during their garment inspection procedure:

1. Measuring Garment Dimensions

Ensuring that the dimensions of garments comply with their specified sizes is especially important when a part or the entire garment manufacturing process is done by hand, which can result in large margins of error compared to the precision of machined cutting and sewing.

Nevertheless, no matter how precise the manufacturing process, there will always be discrepancies in dimensions. If these are not spotted before the garments leave the factory, you risk customer complaints or entire batches being recalled, and ultimately demise in brand loyalty.

Specifying tolerances for garment dimensions

Quality control inspectors and your supplier should be well informed of acceptable tolerances for garment dimensions, which determine an acceptable margin of error for any defects or discrepancies found to 'pass' or 'fail' garments.

Tolerances for acceptable margins of error can vary for different parts of the garment, depending on their significance to the entire garment. For example, a sleeve being too long or short by ⅛ inch may be an acceptable margin of error and **still pass**, but ½ an inch difference would be marked as a fail. The acceptable tolerances for margins of error should be clearly specified on the QC inspectors' checklist.

2. Physical tests of buttons, zippers and other accessories

A zip that comes off after little use could indicate that the manufacturer is using inferior accessories, or a button coming loose could identify weak stitching. These are defects which QC inspectors should look for with physical testing methods such as 'pull tests' and 'fatigue tests' on

garment accessories such as zippers, snaps, ribbons and elastic. The tests are performed on a designated number of garments in each batch.

Pull test: - Predominantly used to test zippers, a QC inspector uses a gauge to pull the accessory with a predetermined amount of force for 10 seconds.

Fatigue test:-This test determines whether the accessory will last as long as intended under normal use by the consumer. A typical test on a snaps or buttons would be to repeatedly button and unbutton the accessory 50 times and check for any damage to the garment after testing.

Stretch test:- Testing elastic bands and straps for proper elasticity and to check whether the elastic or stitching stands up to being pulled or stretched. Stretch tests only need to be carried out on a small selection of finished garments.

3. Fabric Density & Composition Tests

Testing the density or thickness of fabrics used in garment production determines whether the fabric meets the correct quality standards. A fabric that's too thin or not dense enough could mean your manufacturer isn't using fabric of the quality you have specified to ensure the garment has a significant lifetime under normal wearing and washing. There are three fabric density and composition tests which QC inspectors can carry out on site:

Fabric GSM check:-QC inspectors use an electronic balance to measure the grams per square meter (GSM) of a sample of the fabric and compare that measurement with the customer's specifications.

Stitches per inch (SPI) check: - QC inspectors simply count the number of stitches in a square inch of sample garments. The higher the SPI, the more durable the fabric and the less likely it will stretch or fall apart during normal wear and washing.

Material composition check: - Verifying the composition of fabrics used in garment production is important due to the legal requirements of correctly labeling garments, as well as ensuring that the manufacturer is not using inferior materials. If for example a garment label states that the garment is 100% wool or leather, this must be verified by qualified QC inspectors. If subsequent inspections by authorities reveal that the fabric is not as labeled, you could face fines and other

penalties. An experienced QC inspector can judge the composition of fabrics from a hands-on inspection carried out at the factory. However, most garment importers demand third-party lab tests with proper equipment and controls to ensure transparency.

4. Label Verification

As mentioned above, correct labeling is essential for complying with garment labeling requirements for destination markets in Europe and the US. Incorrect or missing labeling could mean fines for the importer as well as having the product rejected by Customs.

The US Textile Fiber Products Identification Act stipulates that garment labels must include the following information:

- Fiber content of the garment
- Country of origin
- Identity of manufacturer / importer / distributor
- Care instructions for washing and ironing

There are specific labeling requirements for wool, leather and fur garments, as well as for footwear, for which the materials used in each part of the footwear item must be specified.

5. Packaging inspection

One of the final on-site inspections for garments before shipping from the factory is to ensure the packaging is suitable for the garments so they'll reach their destination in good condition.

Inadequate storage and packaging can lead to damage from moisture and soiling. One way manufacturers may attempt to mitigate moisture damage is to include a desiccant sachets but there are strict regulations governing the chemicals used in these moisture-absorbing packets.

Testing for DMF is a chemical test which should be carried out in a lab. Silica gels are a safe desiccant sachet ingredient. However, some manufacturers may use Dimethyl Fumarate (DMF) instead, which is banned in most developed destination markets due to its high toxicity and the allergic reactions consumers can suffer from contaminated garments.

Packaging must also comply with destination market regulations such as clear labeling informing the consumer what the product is, what it's made from and where it came from, among other requirements which may be stipulated by consumer protection laws in different countries.

4.2 Recording and reporting identifying faults.

Knots are really not necessary in any embroidery project because you can secure the ends of the threads in other ways. What's more, knots can make the back side of a project untidy and bumpy and you can often feel them on the front side of the piece. Knots usually have a bit of a tail, which can show through on the front side of an embroidered project.

Worse yet, knots can actually be harmful to a project, as they can unravel with use or laundering. As a result, precious stitches are lost over time. Set down in writing or the like, as for the purpose of preserving evidence and transferring for responsible person to fix fault. During manufacturing process defects could occur like faulty zippers, irregular hemming, loose buttons, raw edges, improper button holes, uneven parts, inappropriate trimming, and difference in fabric colours.

4.2.1 Common Embroidery Quality Defects

Poor Registration: - Where the stitches and design elements do not line up correctly.

Suggested solutions: Generally can be corrected by:

1) Digitizing properly (using appropriate underlay stitches); and

2) Hooping properly (using correct backing to prevent excessive material flagging).

Fabric Grin Through or Gapping: - Where the fabric is seen through the embroidery design either in the middle of the pattern or on the edge.

Missed Trim: - Where threads are left on the embroidery pattern between images or lettering. Thread trims are digitized when changing colors and when moving from one location to another using "jump" stitches.

Suggested Solutions: Generally, can be corrected by:

1) Digitizing properly (Using appropriate underlay stitches, increasing stitch density, using different fill stitch pattern or direction, or compensating for "Pull" of thread by overlapping fill and satin border stitches); and

2) Using appropriate topping.

Bunching at Corners: - Where the corners of lettering or shapes are not sharp and crisp but are bunched up or distorted. Usually caused by too much thread in the corners due to poor digitizing.

Suggested Solutions: Generally, can be corrected by digitizing properly:

1) Using appropriate stitch selection, and

2) Using "short" stitch cornering, and 3) Correcting stitch balance.

This includes:

1) Not using appropriate stitch selection.

2) Not using "Short" stitches in corner.

3) Poor stitch balance – thread too loose.

Poor Stitch Balance: - where white bobbin thread shows on the topside of the embroidery. Ideally, the needle thread should be held on the underside of the seam, and not ever be pulled up to the topside. Proper stitch balance can be checked on the underneath or backing side of the embroidery by looking for 2/3 needle thread to 1/3 bobbin thread.

Suggested Solutions: Generally, can be corrected by:

1) Using quality embroidery needle thread,

2) Using quality pre-wound bobbins, and

3) Setting machine thread tensions correctly.

Fabric Damage – Needle Holes:

Where the fabric is damaged around the corners of the embroidery. Caused by:

1) Not using the correct type and size of needle;

2) Putting too many stitches in the same location; and

3) Not tearing tear away backing properly, allowing the fabric to be damaged as the stitches are pulled out.

SUGGESTED SOLUTIONS: Generally, can be corrected by:

1) Digitizing properly

2) Reducing the stitch count in the corners

3) Using the correct type and size of needle

3) Using a ball point needle as small as possible.

4.3 Directing completed garments/ articles to next operation.

Directing is said to be a process in which the managers instruct, guide and oversee the performance of the workers to achieve predetermined goals. Directing initiates action and from here the actual work starts. Direction is a managerial

function performed by the top level officers of management.

According to Koontz and O'Donnell, "Direction is the interpersonal aspect of managing by which subordinates are

led to understand and contribute effectively to the attainment of enterprise objective."

There are three techniques of direction as follows:

• Consultative direction

• Free-rein direction

• Autocratic direction

4.4 Completing work documentation

Documentation Complete Work means all embroidery work required to be undertaken or managed by operator to achieve the Subcontract Construction Documentation.

The four kinds of documentation are:

- Learning-oriented tutorials.
- Goal-oriented how-to guides.
- Understanding-oriented discussions.
- Information-oriented reference material.

Proper documentation helps delineate your role as an author by showing what portions of any work you submit are yours and what portion is the work of others. Proper documentation is both a testament to academic merit and an expression of your integrity.

Self-check 4	Multiples choice

Part one:-Choose the best answer

1. How to Identify any faults and Inspect sewn garment components(2 point each)

   A. Due to observation C. Re checking methods

   B. By inspection method E. All

2. One of the following is true about garment inspections

   A. Checking before doing C. using materials and check defect

   B. Looking during work D. all of the above

Part two Give short answers for the following questions?

1. What are five fundamental steps which quality control inspectors should take during their garment inspection

   A/_____B/_____C/_____

   D/_____E/_____

2. Write four kinds of documentation in work completion
3. A/_____B/_____
4. D/_____E/_____

Note: Satisfactory rating 60 points Unsatisfactory - below 60 points

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
2. _____
3. _____

Reference

1. Mascet Project Report, Ellis Developments Ltd, 1997
2. http://content.abt.com/documents/28966/DR5020_use.pdf
3. http://euratex.eu/fileadmin/user_upload/images/ongoing_
4. Basic hand embroider text.

Participants of this Module (training material) preparation

No	Name	Qualification (Level)	Field of Study	Organization/ Institution	Mobile number	E-mail
1	Fufa Diriba	A(MSC)	Garment technology	Adama PTC	0912006604	Fdiriba86@gmail.com
2	Lengamo Lenteta	B (BSc)	Garment technology	Hawasa PTC	0916055059	lengeapostoilc@gmail.com
3	Dawit Yenew	A (MSC)	Apparel technology management	Woldia PTC	0913802345	dawityenew@gmail.com
4	Tesfaye Abay	B (BSc)	Garment technology	DD PTC	0948591781	Tesfayeabay01@gmail.com