



## Elements of Garment Making

### 4.1 ELEMENTS OF GARMENT MAKING

This part of the course introduces the student to the skills required for converting fabrics into a stitched garment. It is a very important skill that gives hands-on experience in assembling a garment. 'Elements of Garment Making' is an introduction to the basic skill of sewing which is essential to convert the design on paper into a garment.

Sewing can be defined as a craft of attaching or fastening fabrics or other materials with help of needle and thread. In the Stone Age people used bone or ivory needles to sew skin and fur of animals for clothing using the thread that was also from animal body parts. Garments continued to be sewn by hand nearly till the mid of 19th century when first sewing machine was patented by Elias Howe, Jr. in 1858. Isaac Singer designed a machine with a foot treadle.

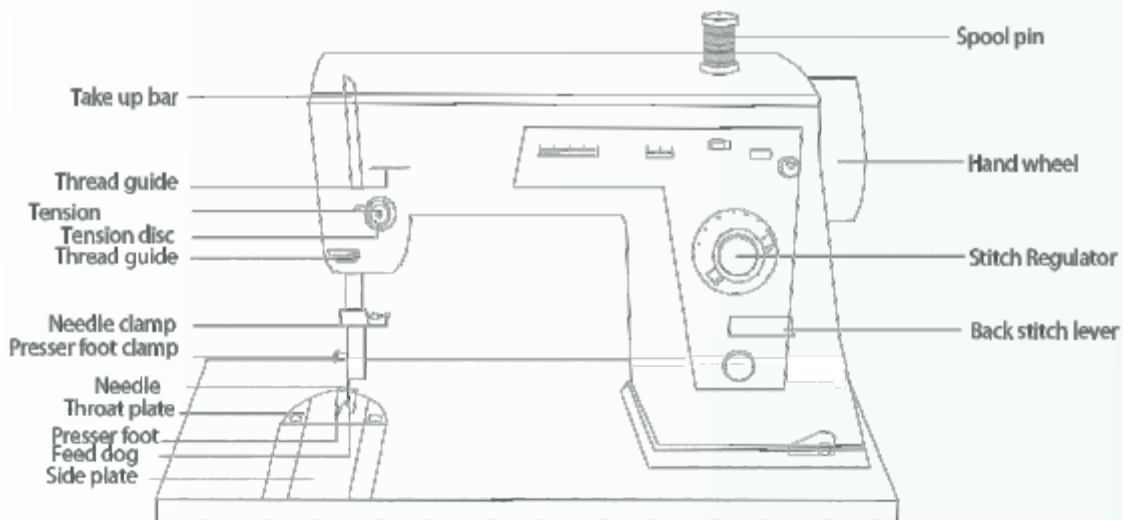
#### 4.1.1 Sewing Machine

Sewing Machine is an important tool of sewing equipment. There are several machines in the market, each with its own desirable features and advantages. Machines range from most basic, which have only simple lock stitch to the electronic machines which use advanced computer technology, and have various advanced functions for attachment of piping, binding, ruffles, pleating, darning, hemming and can even makes button holes and attach fasteners. A basic requirement of any sewing machine is a precisely timed movement of the needle and shuttle to manipulate thread from top and bottom to form a stitch. The presser foot in the machine holds the fabric in place and pushes it in front for formation of seam.

#### 4.1.2 Lockstitch Machine

The single needle lock stitch is the most used machine in the industry globally. The chain stitch machines and over edge machines are generally used for knits.

A basic understanding of how the machine operates will enable you to use any machine efficiently and correct stitching defects. The simple lockstitch machine is also called a flat bed machine and it makes only straight stitches. The stitch looks same from both the sides; it is absolutely flat, most supple, completely secure and is the least conspicuous stitch. If it breaks during use, it does not open up because the two threads are locked together. This is the reason why it is also called a lockstitch.



The lockstitch is formed with the needle thread that feeds from a spool at the top and a bobbin thread that feeds from a bobbin at the bottom. When formed correctly, the amount of thread used from the top and bottom is equal and the threads lock in the centre of the fabric.

#### 4.1.3 Types of Lockstitch Machines

If we broadly classify there are two types of lockstitch machines. The lockstitch power machine is similar to lockstitch home sewing machine. However, there are some important differences:

1. The power machine is much faster. It stitches an average of 5000 stitches per minute. Whereas an average home machine stitches no more than 800 stitches and a hand sewing machine would stitch a maximum of 300 stitches per minute.
2. The presser foot in a power machine is controlled with a knee lift but in a home sewing machine it is operated manually using a lever at the back of needle bar.
3. The throat plate in a home sewing machine is often marked with seam guides, which is not there on industry machines.
4. In the industrial sewing machine or power machine the presser foot has a narrow opening between the two toes and it holds fabric more securely and firmly.
5. The industrial sewing machine or power machine has a small and round needle hole on the throat plate than the home sewing machine, which is large and oval. This reduces stitching problems.



### 4.1.4 Parts of Sewing Machine:

It is important for the beginner to know and recognize the different parts of the sewing machine.

**Arm:** The horizontal upper part of the head which has the mechanism for handling upper thread and driving the needle.

**Back Stitch Lever:** A lever located at the lower right hand side of the machine and its basic function is to form the stitches in reverse direction.

**Bed:** The lower portion of the machine, i.e. stand under which the mechanism for handling lower thread including the shuttle and feed are mounted.

**Bobbin:** A small metal spool that holds the lower thread supply.

**Bobbin case:** The metal case that holds the bobbin. It has tension springs that control the pressure on the bobbin thread.

**Bobbin Winder:** It is a simple mechanism for winding the thread on the bobbin and is located at the right hand side near the wheel.

**Feed Dog:** A small metal device under the presser foot that has teeth which carries the material along as it is stitched. It moves the material forward, by one stitch length, after each stitch has been drawn.

**Handwheel:** Handwheel is located on the right side of the machine. It is driven by hand or belt in the domestic machine and with the help of belt in the industrial machine. It controls the movement of the needle bar and drives the machine.

**Hand Lifter:** To lift the presser foot by hand.

**Head:** The upper part of the machine above the stand. It is a complete sewing machine without the bed.

**Knee Lifter:** To lift the presser foot by knee.

**Needle Bar:** A bar at the end of which the needle is attached.

**Pan:** It is the metal pan under the head that catches oil, lint, broken threads.

**Presser Foot:** A foot which is used to hold the fabric while stitching. It is detachable and different types of foot are available for different functions e.g. zipper foot, plastic foot.





**Presser Foot Lifter:** A lever attached to the presser bar to lift up & down the presser foot.

**Shuttle:** A device that carries the needle thread around the bobbin and forms the lock on the lock stitch.

**Stitch Regulator:** The length of the stitches is determined by graduation marks on the stitch regulating screw. As you increase the numbers on regulator the number of stitches per inch increases i.e. the size of the stitches decreases and vice versa.

**Tension Regulator:** It is a mechanism which controls the tension of upper thread and the quality of stitches. The tension of the thread is adjusted with the help of spring and nut which controls the pressure on the disc.

**Thread stand or Spool Pin:** It is a metal rod fitted either on top or on side of the stand to hold the thread spool.

**Thread take up lever:** A bar/lever which is located above the tension regulator. It moves up and down. It has a hole through which the thread passes. It feeds thread to the needle and it also tightens loop formed and locks it.

**Throat Plate:** A semicircular disc with a hole to allow needle to pass through it and also has marking in some cases which are used as guidelines while stitching.

#### 4.1.5 Threading The Machine

##### Upper threading

Unless a machine is threaded in right sequence correctly, it won't work properly. Every machine has a slightly different sequence, but overall it is basically the same. The thread is fed from the spool through the tension discs, then through the 'take up lever' before it is threaded through the needle.

Before threading the machine,

- (1) Raise the presser foot
- (2) Always have the 'take-up lever' to its highest point before threading

##### Steps

1. Place spool of thread on spool pin. Be sure nick on spool will not catch thread as it is reeled off spool. Take hold of thread end.



2. Pass thread end through first thread guide.
3. Bring thread down toward the tension assembly.
4. Pass thread under and around tension discs, taking care that it falls between two of the discs.
5. Pull thread upward and then let it go slack. This allows thread to be caught by the hook and thread check spring, which together hold thread in position between tension discs (see single-unit tension assembly below).
6. Bring thread up and behind next thread guide.
7. Pass thread into the take-up lever.
8. Bring thread down and through thread guides.
9. Pass thread end through eye of needle, being sure that it goes in proper direction for machine. Pull at least 3" of thread through needle.

#### 4.1.6 Filling In The Bobbin/bobbin Winding

The lower thread supply for any sewing machine is stored in the bobbin area.

The thread should be wound evenly onto the bobbin. Unevenly wound bobbin may cause trouble in stitching.

Fill the bobbin using the bobbin-winding mechanism on the machine. There are different bobbin filling mechanisms. The needle must be unthreaded / disengaged before winding. Click the bobbin-winding mechanism into place. The bobbin will fill automatically to the correct level.

#### 4.1.7 Lower Threading

Threading the lower portion of the machine involves threading the bobbin and fitting the bobbin into its case.

Insert the filled bobbin into the bobbin case so that the thread is pulled back on itself through the spring.

Fit the bobbin case into the machine, holding the case by the lever on the back. The open lever locks the bobbin into the case.

Push the case into the socket until it clicks then release the lever, close the cover. If it does not click, the mechanism inside is not aligned.





#### 4.1.8 Raising The Bobbin Thread

To raise the bobbin thread, thread the needle, holding the top thread, turn the hand wheel with the other hand until the needle has gone down in the bobbin area.

Bring the needle up again to the highest point, still holding the thread and rotating the hand wheel. With the needle, a loop of bobbin thread will also come up.

Pull the upper thread to bring the bobbin thread out. Take both threads through the pressure foot and bring them toward the back. The thread ends should be at least 2" - 3" long.

#### 4.1.9 Stitch Tension

Tension controls increase or decrease in the pressure on the threads as they are fed through the machine.

When pressure is correct in both threads, the tension is balanced; the threads interlock in the middle of the material to make a perfect or balanced stitch. The seam is flat and elastic without being loose and there is no seam grin when the seam is stressed.

If there is too much pressure on the tension discs, not enough thread is fed into the stitching and the tension is tight. The material puckers, the seam is strained and the stitches break. If there is too little pressure, too much thread is fed, the tension is too loose and the seam is loose and weak. The link position is a good indicator of which thread tension is incorrect.

When the tension on the top or needle thread is too tight or the tension on the bottom or bobbin thread is too loose, the top thread lies along the surface of the material and the bobbin thread forms loops on the top.

When the tension of the top or needle thread is too loose or the bottom or bobbin thread is too tight, the bottom thread lies along the underside of the material and the top thread forms loops on the underside.

#### Adjusting the tension

**The top thread tension regulator**, situated on the front of the machine adjusts the tension discs. To decrease tension, turn dial to lower number. To increase tension, turn dial to a higher number.

**Bobbin thread tension** is controlled by a screw on the bobbin. Clockwise turning increases the tension whereas anti-clockwise turning decreases tension.





## 4.1.10 Pressure and Feed

Pressure means the downward force exerted on the fabric by the presser foot, to hold the layers so that they move together evenly during stitching. The feed exerts upward force that moves the fabric to the back of the machine. The two forces pressure and feed, work together to produce properly stitched seam. Pressure has several functions. It holds the fabric layers in such a way that they move evenly with one another. It holds the material taut to prevent flagging and it helps to assure that the stitches are properly set in the material and that an even stitch tension, and stitch length are maintained. Pressure also prevents the fabric from being pulled down into the bobbin area and hugging the needle, which can cause skipped stitches.

The primary function of feed is to move the fabric into position for each stitch. Feed also helps in holding the fabric layers taut during stitch formation. Feed is controlled by the stitch length regulator. The smaller the stitch length setting, the shorter the distance the feed moves the fabric for each successive stitch.

The amount of pressure needed depends on the weight and thickness of the material. Lighter and thinner the fabric weight, the lighter the pressure needed and vice versa.

### ACTIVITY

1. Visit the market and identify various sewing machines from different brands and note their prices. Co-relate the prices with functions that a machine can perform. Prepare a short report of about 5-6 pages.
2. List differences between industrial sewing machine and domestic sewing machine based on your survey of the market.

#### Fill in the blanks:

- a. Sewing can be defined as a \_\_\_\_\_ of \_\_\_\_\_ or \_\_\_\_\_ fabrics or other materials with help of \_\_\_\_\_ and \_\_\_\_\_.
- b. \_\_\_\_\_ designed a machine with a foot treadle.
- c. The lockstitch is formed with the \_\_\_\_\_ thread that feeds from a \_\_\_\_\_ at the top and a \_\_\_\_\_ thread that feeds from a \_\_\_\_\_ at the bottom.





- d. Feed Dog is a small \_\_\_\_\_ under the \_\_\_\_\_ that has teeth which carries the material \_\_\_\_\_ as it is stitched.
- e. \_\_\_\_\_ is a semicircular disc with a hole to allow needle to pass through it.
- f. The amount of pressure needed depends on the \_\_\_\_\_ and \_\_\_\_\_ of the material.

#### Review Questions

1. Differentiate between Lockstitch power machine and home sewing machine.
2. List the steps to be followed in sequence for Upper Threading of a sewing machine.
3. Explain the purpose of any 5 parts of the sewing machine.

## 4.2 SEWING TOOLS AND SAFETY RULES

### 4.2.1 Needles

Machine needles are selected according to the weight and other characteristics of the fabric, as well as the thread type being used for construction. Generally, a needle should be fine enough to penetrate the fabric without damaging it and yet have an eye, which is big enough so that the thread does not fray or break. Needles come in various sizes, from very fine (**size 7**) for lightweight fabrics to thick (**size 18**) for very heavy weight and dense fabrics.

Needles also come in three different tips/ points:

- ★ **Regular sharp needle:** this is ideal for mostly all woven fabrics because it helps produce even stitching with minimum puckering.
- ★ **Ball -point needle:** the slightly rounded tip is recommended for all knit fabrics and elastic fabrics as the needle pushes between the fabric yarns instead of piercing them. Available in **sizes 7-16** where the point is rounded to, in proportion to the needle size, points of larger sizes being more rounded than finer ones.
- ★ **Wedge point needle:** this needle has been specially designed for leather and vinyl, as it easily pierces these fabrics to make hole that closes back upon itself. This avoids unattractive holes in the garment and also reduces the risk of stitches tearing the fabric. Available in **sizes 11-18**, size 11 is used for soft and supple leather and size 18 being used for heavy or multiple layers of leather.





Needles should be chosen carefully for different fabrics. If a needle is of the wrong size, the machine stitch formation is affected. If it is too fine the thread might fray. If it is too coarse it may damage the fabric and the stitches will look imbalanced.

**Care** should also be taken to ensure that the needle is neither damaged nor dirty. A needle that has a burr on the point, eye, or the groove may cause the thread to break or fray or even the fabric might get damaged. A blunt or bent needle can cause a thumping noise in the sewing machine as it penetrates the fabric and may also result in pulling the fabric or in skipped stitches in the seam lines.

### 4.2.2 Thread

With the wide and ever increasing range of fabrics available in the market, it is important to know the right **sewing thread** for the various types of fabrics. The right kind of thread is important in sewing as the both the thread and the garment should share the same characteristic, as they have to be laundered and ironed together, they should shrink and stretch together.

**Types of threads:** The **natural fibre threads** available in the market are cotton and silk. Cotton thread comes in two varieties mercerised and non-mercerised. Mercerised cotton is stronger and has lustre. Silk thread is an all-purpose thread and combines strength with elasticity, but is not easily available in India in small spools. It is generally used for over- lock machines in the industry. The **synthetics threads** are usually made from polyester and Terylene thread. This thread is stronger than the natural thread and has an important feature of being elastic, which is particularly important while stitching knits or lycra based fabrics. There is tremendous amount of strain on seams in active sports wear, swimwear or during movement, use of this thread minimises the chance of broken stitching. Synthetic thread is also useful in stitching of leather as it has a good deal of stretch in it. But **cottons or linens** should not be stitched with synthetic thread, as the thread will not be able to withstand the heat while being ironed. **Wool and silk** should preferably be stitched either with mercerised cotton or silk threads only. **Blended fabrics** may be stitched with synthetic thread suitable to the dominant fibre in its content.

Threads, whether natural or synthetic, are produced in **various thickness:** higher the number finer is the thread and smaller the number coarser is the thread. The threads are available in sizes 30-60. It is important to remember that the same thread should be used for the bobbin and top spool.

**Threads for decorative stitching:** For decorative stitching such as saddle stitching, topstitching a special thread called buttonhole twist (it is also sold in the market as no. 20/30 thread) is used, to





emphasis stitching. It may only be used in spool or bobbin, this is an exception to the rule. Use a 40 size mercerised cotton thread as a companion to it. The yellow coloured top stitching thread used on denim jeans is a commonly used buttonhole twist thread.

Always choose a thread a shade or two darker than the fabric as in the long run; it will look the same as the fabric colour. Buy good quality and branded thread even if it is expensive, as it will last longer and be cost effective. Before one starts sewing, a test of the seam strength should be done on a double scrap of the same fabric, to check if it has right appearance, correct tension and if it is a pucker-less seam. Puckering will mean that either the needle is not correct or there are too many stitches per inch. Adjust the tension of the machine and test till one is satisfied. It will be worth an effort.

#### 4.2.3 Stitch Per Inch (SPI)

Perfect machine stitching is easy to achieve if you thread the machine properly and use the correct needle and thread suitable for the fabric used. A perfect stitch depends on the delicate balance of pressure on fabric action of the feed and tension on the stitch formation. The correct SPI or stitch per inch gives you a seam, which is neither too tight nor too loose.

#### 4.2.4 Safety Rules

Safety Rules to be observed while working on the machine: Safety is important to everyone and it is ones responsibility to maintain a safe working place.

1. When operating the machine, do not be careless.
2. Always inspect the machine before starting the work. Be sure it is clean and threaded correctly, with no loose threads on the pulley belt and all guards in place.
3. When in doubt, ask the teacher.
4. Report any injuries or accidents immediately to the teacher.
5. Wipe up any oil spilled on the floor immediately to prevent anyone from slipping.
6. Operate machines only with permission.
7. When sewing on a power machine, wear low shoes and close-fitting clothing. Avoid loose-fitting sleeves, sweaters, jewellery, ties and ribbons when operating the machine. If your hair is long, tie it at the back.



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8. Do not tilt your chair forward or backward while operating the machine.
9. Use both hands to raise and lower the machine head.
10. Always keep your head above the table.
11. Keep your feet off the treadle when you are not operating the machine.
12. Keep your feet off the treadle when you are setting or threading the needle.
13. Turn the motor off when you are not stitching.
14. Turn the motor off before cleaning, oiling or adjusting the machine.
15. Turn the motor off before removing or replacing the pulley belt and run the machine out. Wait until all motion has stopped.
16. Turn the motor off in case of an emergency or when in doubt.
17. Turn the motor off before unplugging the machine.
18. Do not use your hand to stop and start the handwheel.
19. Use your hand only to set the handwheel.
20. Before operating the machine, close the slide bed cover.
21. When operating the machine, keep your hands, scissors and other sharp objects away from the belt.
22. Keep the machine and work station clean with all tools in the side drawer.
23. Unplug the machine at the end of the day.
24. Know the location of the main power switch, outlets and fuses in case of an emergency.
25. Do not remove any safety devices from the machines.
26. Turn off the iron at the end of the class.
27. Always place the iron on the iron pad to avoid burning the ironing board cover.
28. When trimming or cutting, put all trimmings in the wastebasket.
29. Scissors should be handed to another person with the handles toward the person.
30. Never toss or throw scissors or equipment.
31. Do not eat or drink in the work area.





#### 4.2.5 Sewing Aids

**All pins:** All pins are fine, long, rust proof pins. These are used for the following:

- ★ For attaching muslin pieces together.
- ★ For draping.
- ★ To fasten parts and pieces of pattern paper.

**Magnetic pin holder / pin cushion:** This is used for holding pins.

**Muslin:** A plain weave fabric made from bleached or unbleached yarns which vary in weight and in texture. Muslin is used to experiment and develop design concepts.

**Push pins:** Drum shaped 1/2" long pin. These are used for pivoting and transferring points, and to hold pattern pieces and fabric on table.

**Tracing wheel:** An instrument with small serrated or needle point wheel mounted on one end of a handle. This is used for transferring markings from paper patterns on the muslin.

**Tailor chalk:** 1½" X 1½" square of white or coloured chalk of wax. This is used for marking on fabric.

**Notcher:** It cuts a narrow U shape on paper pattern indicating seam allowance, centerlines, ease and dart intake.

**12" / 24" scale:** Long ruler 12" / 24" in metal or plastic to measure or mark straight lines.

**Measuring tape:** Metal tipped narrow, firmly woven double tape of cloth or plastic usually 60" long (150 cm) marked with both inches and centimeters.

**Grading scale:** A transparent straight plastic ruler of size 2" X 18" with grid in inches and fraction of inches (or millimeters).

**Pencil:** Used to mark lines in developing the muslin, pattern or sloper.

**L-square:** Plastic or metal ruler with two arms at right angles of varying lengths usually 12" and 24". It is used to square off corners and establish perpendicular lines, reference points and lines.

**Dress form:** A standardized duplication of a human torso, cotton padded and canvas covered, set on a movable, light adjustable stand and has compressible shoulders. It is used to take



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measurements, develop pattern, fit garment samples, to alter garments, and to establish style lines for the garment.

**Pattern paper:** Strong white paper available in variety of weights and widths.

**Newsprint paper:** Thin and light weight paper used for rough drafts.

**Thick brown paper:** Strong brown papers used for finished patterns. It may be also used for preliminary patterns drafting and development of the final pattern.

**Sloper/master/block/basic pattern making:** A pattern of a garment, without style lines, or seam allowance developed from specific measurements of a given size, dress forms. Used as tool from which other patterns may be developed, to facilitate the development of original styles and to develop various bodice, skirt, dress, pants, sleeve designs.

**Carbon paper:** Coated paper on one side with white or coloured wax, used to transfer marking on fabric or paper.

**Transparent tape:** A clear plastic narrow continuous stripes with an adhesive surface on one side, available in roll. It is used to hold paper pieces and mend tears.

**Paper shears/scissors:** a cutting instrument, ranging in size from 8" to 12", with two sharply pointed straight blades. It is used to cut paper patterns.

**Tailor's shears:** A cutting instrument ranging in size from 12" to 16" with two wide blades. It is used to cut fabric and muslin.

**Magnet:** a high carbon alloy steel that has a property of attracting iron and steel can be of any shape. It is used to pick up pins and needles.

**Pin cushion:** A small firmly stuffed pillow made in a variety of shapes and sizes. It is used to hold pins, needles for easy accessibility and storage.

## ACTIVITY

Prepare a safety chart for your Machine Room. Use pictures or drawings to highlight the important safety rules.

**Fill in the blanks:**

- a. Three different types of tips in needles are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.





- b. Needles size 7 is used for \_\_\_\_\_ fabrics and size 18 is used for very \_\_\_\_\_ and \_\_\_\_\_ fabrics.
- c. Higher the number, \_\_\_\_\_ is the thread and smaller the number, \_\_\_\_\_ is the thread.
- d. \_\_\_\_\_ is a standardized duplication of a human torso, padded with cotton and covered with canvas.
- e. As a safety measure, \_\_\_\_\_ the machine at the end of the day.
- f. SPI stands for \_\_\_\_\_.

#### Review Questions

1. What type of thread is used to stitch knit and lycra-based fabrics?
2. What are the different types of needles used in a sewing machine?

### 4.3 COMMON MACHINE PROBLEMS

The student needs to understand the common problems that may be there while sewing and should be able to rectify these as they are common and irritating and slow down the sewing process. A person operating the machine should be able to rectify these and solve the problems.

#### 4.3.1 Bobbin

##### 1. Does not wind :

- ★ Make sure the thread is wrapped around the bobbin in proper direction.
- ★ Check to see if bobbin has been placed properly in the winder.
- ★ The rubber ring might be worn out and needs to be replaced.

##### 2. Winds unevenly :

- ★ The thread may not be inserted in the thread guide.
- ★ You may be running the machine too fast.
- ★ The tension spring may need adjustment.





### 3. The Needle moves up and down during winding

- ★ Needle has not been disengaged.

#### 4.3.2 Fabric

##### 1. Layers feed unevenly

- ★ Presser foot pressure incorrect.
- ★ May need to stitch slowly.
- ★ The fabric may be very light weight, use tissue paper while stitching.

##### 2. Does not feed in straight line

- ★ Presser foot may be loose or bent.
- ★ Pressure of the presser foot may be incorrect.
- ★ Needle may be bent.
- ★ There may be a defect in the machine feed.
- ★ You may be pushing or pulling the fabric.

##### 3. Puckers when stitched

- ★ Many fabrics pucker when stitched in a single layer.
- ★ The stitch length may not be in a correct relation to the fabric type.
- ★ If the fabric is sheer or light weight, the presser foot tension may need to be regulated.
- ★ Thread may be too thick.
- ★ Needle may be coarse.
- ★ Bobbin thread may be uneven.
- ★ Stitch tension may be unbalanced.
- ★ Feed dog may be worn out.

##### 4. Shows feed mark on the underside

- ★ Presser foot pressure may be too heavy. You may need to put tissue paper between the fabric and the feed.
- ★ The feed may be damaged or set too high.





## 5. Fabric is damaged or holes around the stitches

- ★ Needle may be blunt or too coarse or wrong type for the fabric.
- ★ Check for the nick in the throat plate, foot or feed.

### 4.3.3 Machine

#### 1. Motor does not run

- ★ Cord is not plugged in.
- ★ Power switch may be turned off.
- ★ Knee or foot accelerator may be jammed or improperly attached to power source.

#### 2 Motor runs but handwheel does not turn

- ★ Thread or lint may be caught or tangled in the bobbin case area.

#### 3. Motor runs, handwheel turns, but needle does not move

- ★ The needle may have been disengaged for bobbin winding and not tightened back to sewing position
- ★ If needle has been tightened but still does not move, the motor belt is slipping because it is loose or worn.

#### 4. Motor, handwheel and needle moves but fabric does not feed

- ★ Make sure the presser foot is down
- ★ Check the stitch length regulator
- ★ The pressure regulator may be at the least/ light pressure. If fabric is heavy, more pressure may be necessary for fabric to feed.
- ★ The feed dog may be in the lowered or "down" position

#### 5. Motor, handwheel, needle and fabric moves but no stitch is formed

- ★ Thread may have come out of the needle.
- ★ Needle may be threaded in the wrong direction.
- ★ Needle may be inserted backward or may not be pushed all the way up into the clamp.



- ★ Needle may be the wrong length for the machine.
- ★ Machine may be threaded incorrectly
- ★ Bobbin may be empty
- ★ Bobbin and / or case may be inserted incorrectly
- ★ The timing of the machine might be off

### 6. Machine runs sluggishly

- ★ Bobbin winder may still be engaged
- ★ Knee or foot control might be improperly positioned
- ★ Machine may be in need of oiling and / or cleaning

### 7. Machine runs noisily

- ★ Machine probably needs oiling and / or cleaning
- ★ The needle could be bent and hitting against foot or throat plate
- ★ Bobbin and / or case may not be tight enough
- ★ Bobbin may be almost out of thread.

### 8. Machine will not stitch in reverse

- ★ If machine is very old, it may not have this capability
- ★ If it is a recent model, check the stitch control. It may be set for "stretch stitch" or "buttonhole", sometimes these stitches cannot be reversed manually.

## 4.3.4 Needle

### 1. Unthreads

- ★ Insufficient thread may have been pulled through the needle before the seam was started
- ★ Machine may be out of top thread

### 2. Breaks

- ★ You may be using the incorrect presser foot





- ★ Presser foot and / or throat plate may be loose or improperly fastened.
- ★ Needle might have become bent and hit the presser foot and /or throat plate
- ★ Needle may be incorrectly inserted
- ★ Needle might be too fine for the fabric being sewed and for the job being done
- ★ You may have pulled too hard on fabric while stitching
- ★ Check machine settings.
- ★ Needle may be defective

#### 4.3.5 Stitches

##### 1. Are uneven lengths

- ★ You might be pushing or pulling the fabric too much
- ★ Pressure on the presser foot could be either too light or too heavy for the fabric
- ★ There could be lint or other clog between the teeth of the feed dog

##### 2. Have loops between them

- ★ If the loops are large, the machine is improperly threaded
- ★ If loops are small tensions are unbalanced
- ★ Bobbin may be wound unevenly
- ★ There may not be enough pressure to hold the fabric taut during stitch formation

##### 3. Skip here and there

- ★ Needle may be blunt or bent
- ★ Needle may be inserted backward or it might not be all the way up into the clamp
- ★ There may be insufficient pressure on the presser foot
- ★ Throat plate may be wrong for the purpose
- ★ You may be stitching at an uneven speed
- ★ While stitching, you may be pulling too hard on the fabric



### 4.3.6 Thread

#### 1. Needle thread breaks

- ★ Usually this is caused by the needle being inserted backward or threaded backward
- ★ Thread may be caught in the spool notch or it could be wrapped around the spindle
- ★ There may be a rough or burred place on a thread guide
- ★ The needle may be blunt
- ★ Needle may not be all the way up into the clamp
- ★ Needle may be too fine for the thread, causing it to fray-often the case with silk buttonhole twist

#### 2. Bobbin thread breaks

- ★ Bobbin case may not be threaded properly and /or the case not inserted properly
- ★ Bobbin may be too full
- ★ Check for dirt or clog in the bobbin case
- ★ Bobbin tension may be too tight

#### 3. Bobbin thread cannot be raised through hole in throat plate

- ★ Bobbin case may be improperly threaded.
- ★ It may not have been properly inserted

### ACTIVITY

Interview three people in your family/friends who use sewing machine and identify the common machine problems they face. List ways by which you can help them resolve those problems.

#### Fill in the blanks:

- a. Bobbin may wind unevenly if the \_\_\_\_\_ is not properly \_\_\_\_\_ in the thread guide.
- b. Stitches may skip here and there if the needle is \_\_\_\_\_ or \_\_\_\_\_.
- c. Needle may break if it is \_\_\_\_\_ incorrectly.





- d. Machine runs noisily if it probably needs \_\_\_\_\_ and / or \_\_\_\_\_.
- e. Motor does not run if \_\_\_\_\_ is not plugged in.

### Review Questions

1. Explain why the bobbin winds unevenly.
2. What are the reasons for the machine needle to break?

## 4.4 OPERATING POWER MACHINES

The hands-on experience of working on a power machine is an essential and integrated part of this module. Each student should start with the first exercise as given below:

### 4.4.1 Activity 1

**Objective:** To familiarize with the machine

- ★ Sit and adjust yourself
- ★ Learn to operate treadle
- ★ Turn handwheel
- ★ Turn machine on

After familiarization with the machine, the students should practice the given exercises, first on paper, in order to achieve proficiency of the control of machine as explained below. They should then do all the exercises on single layer of muslin and later on double layer of muslin. Each sample should be of 10" X 10".

### 4.4.2 Activity 2

**Objective:** To stitch on paper

Practice on the paper the given exercise till you are able to control the machine by learning to control the treadle, brake and knee lift.

You must be in a position to stitch at an even speed whether stitching on fast or slow speed.

- a) **Stitch Parallel lines:** This will help you develop coordination, skill, accuracy and confidence.



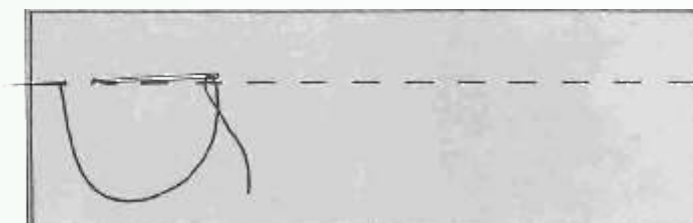


- b) **Stitching corners:** This is done by stopping the stitch with the needle down at the point of the corner and turning the fabric. This will enable you to turn corners precisely without dropping a stitch.
- c) **Stitching curved lines:** This will help you improve the control on the machine.

## 4.5 HAND STITCHES

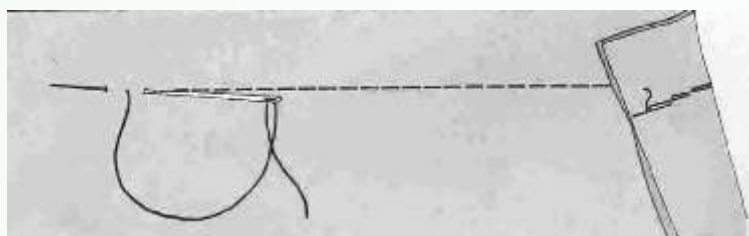
Before learning to make seams on the machine you must learn the basic hand stitches which are used in garment making. They will enable you to be proficient and neat in your work.

### 4.5.1 Backstitch



The backstitch is used to secure hand stitching, repairing and to sew lengths that are difficult to reach by machine. It is used for top stitching, hand picking zippers and under stitching. It is one of the strongest, elastic and versatile stitches used in hand sewing.

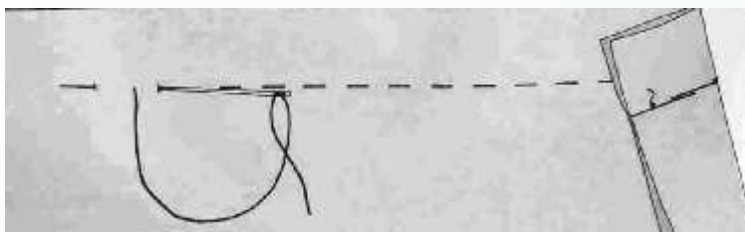
#### Even backstitch



Even backstitch is strongest, looks like machine stitching, even in length with very little space between them. Secure thread and pull needle out of fabric. Insert needle into fabric to right of the thread and pull out an equal distance to left of the thread. Repeat by taking just next to the previous stitch and continue.



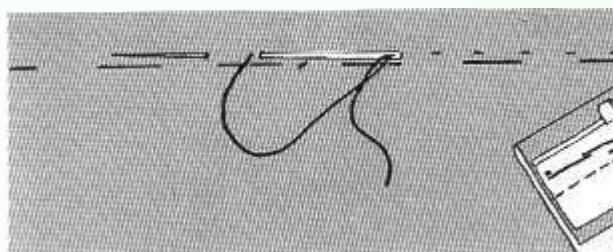
### Half backstitch



Half backstitch is not as strong as even backstitch. It is similar to the even backstitch but has some space between the stitches.

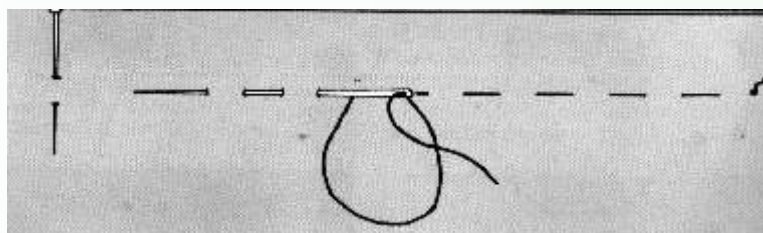
Work this stitch in the same way as even backstitch but take only a half stitch back and a whole stitch forward. This would create space between stitches.

### Prick stitch



Prick stitch is almost an invisible stitch. It is decorative stitch, used to insert zippers in fine or sheer fabrics, and to sew layers of fabrics together where a row of machine stitching is not required. It is worked in the same way as half back stitch, with very short stitch on top with long spaces between them.

### 4.5.2 Basting



Hand basting is used to temporarily hold together two or more fabric layers during fitting and

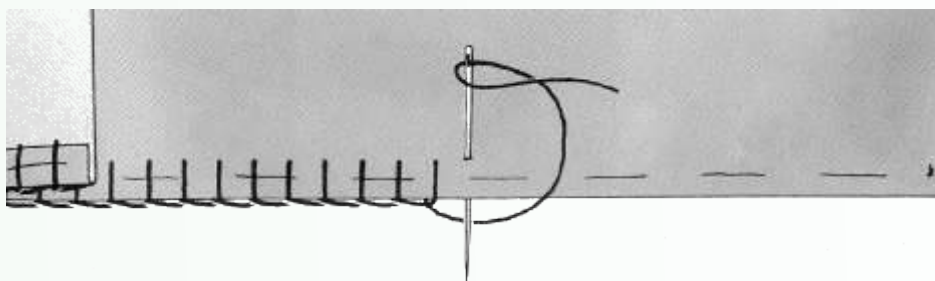


construction. Even basting is used to smooth the fabric in areas that require close control, such as curved seams, seams with ease and set in sleeves.

Uneven basting is used for general basting for edges that require less control during permanent stitching and for marking.

Method: Secure thread. Pick up short stitch, insert needle back into fabric same distance ahead. Repeat several times and pull the needle through.

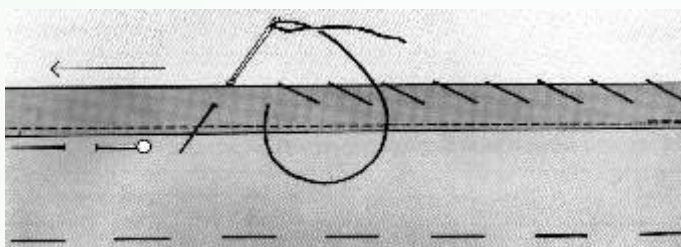
### 4.5.3 Blanket Stitch



Traditionally, an embroidery stitch, it was used to neaten the raw edges for preventing fabric from fraying. It is now used as a decorative stitch and also for applique work. It is also used to make button holes to secure hooks, eyes and snaps.

Method: Secure thread. Insert needle horizontally right to left required amount from fabric edge. Loop thread under needlepoint and pull thread through. Make next stitch parallel to it and keep repeating.

### 4.5.4 Hemming Stitch



This is used to secure a hem edge to a garment. These stitches pass over the hem edge to the garment.





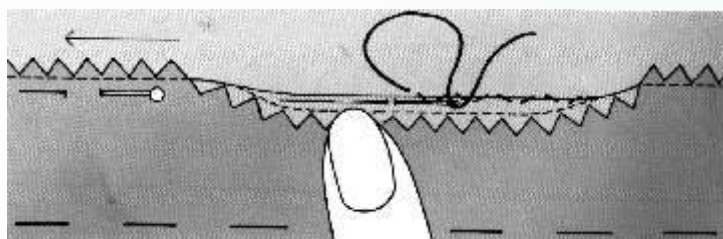
**Slant hemming stitch:** Quickest but least durable because much thread is exposed and subject to abrasion.

Method: Secure thread in hem. Pick up single thread on garment, bring the needle up through edge of the hem on the left side and diagonally up through the edge of the fold at the same time. Repeat.

**Blind hem or tailor's hem:** This is the most common hemming stitch. These stitches are taken inside between the hem and the garment. In the finished hem, no stitches are visible. It is quick and easy stitch that can be used on any blind hem.

Method: Secure thread in hem. Fold back the hem edge. Take a very small stitch to the left in the garment and then next stitch to the left in the hem. Continue alternative stitches from garment to hem, taking care to keep stitches very small on the garment.

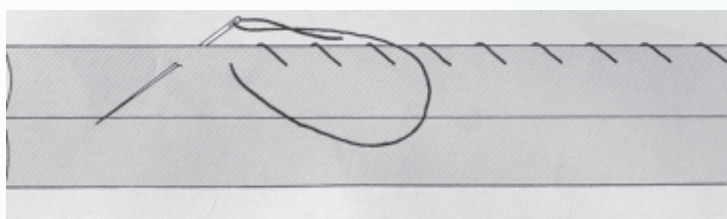
#### 4.5.5 Catch Stitch



Catch stitch is a strong hemming stitch. Threads form a row of X's on upper layer with 2 parallel rows of dashes on back. Stitches are worked from left to right with needle pointing left.

Method: Secure thread in hem. Insert needle horizontally right to left to pick up short stitch on garment and pull thread through. Make next stitch to right and above the previous stitch. Make next stitch to right and in line with first stitch. The stitches should be alternated to make a series of X's.

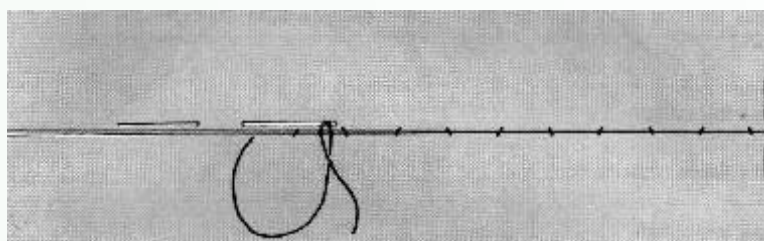
#### 4.5.6 Overcast Stitch





This is the hand stitch for finishing the new edges of fabric to prevent them from raveling. Work from either direction, take diagonal stitches over the edge, spacing them at an even distance apart at a uniform depth.

### 4.5.7 Slip Stitch



This is a nearly an invisible stitch formed by slipping the thread under a fold of fabric. It can be used to join the folded edges or one folded edge to a flat surface.

Work from right to left. Fasten thread and bring a needle to thread out through one folded edge. For stitch slip needle through fold of opposite edge for about 1/4", bring needle out and draw the thread through.

### 4.5.8 Tacks

Stitches used to join areas that must be held together without a seam, or as reinforcement at points of strain.

#### Arrowhead

Arrowhead tack is a triangular reinforcement tack done from the right side at such points of strain as the ends of a pocket.

### ACTIVITY

Make five samples of different hand stitches on muslin or poplin fabric.

#### Fill in the blanks:

- \_\_\_\_\_ stitch is traditionally used in embroidery.
- Hand \_\_\_\_\_ is used to temporarily hold together two or more fabric layers during fitting and construction.
- Slip stitch is an \_\_\_\_\_ stitch formed by slipping the thread under a fold of fabric.







## 4.6 SEAMS

Seams are result of joining together two or more pieces of fabric by means of stitching or fusing, but the basic function of a seam is to hold pieces of fabric together. To perform its function correctly the seam should have properties or characteristics closely allied to those of the fabric being sewn. The careful selection of the most appropriate seam, a suitable stitch type together with the correct thread and machine settings for the fabric and end product is therefore of paramount importance.

In addition to holding a garment together, seams can be used as a design element. Seams placed in unusual locations or top stitched with contrasting thread add interest to a garment. Whereas puckered, crooked or uneven seams spoil the fit as well as the look of the garment.

Most seams are constructed on inside or wrong side of the garment, but there are some seams which are constructed from right side of the garment.

A "seam line" is designated line along which the seam is to be joined.

A "seam allowance" is the distance from the fabric edge to the stitching line, farthest from the edge. Seam allowance is planned according to the width needed for the type of seam, seam finish or garment design.

There are only a few fundamental seams but by using a wide variety of finishes it is possible to adapt seams to materials of different weight and texture. The type of seam selected depends on:

- ★ The type of fabric i.e. the firmness, weight & texture of the fabric;
- ★ The use of garment;
- ★ Placement or position of seam on garment;
- ★ Care of the garment.

Most plain seams require a **seam finish** to prevent ravelling. A seam finish is a way of treating or enclosing the raw edges of seam allowance so they are more durable and do not ravel.

Variations of the plain seam include bound encased, top stitched and eased seams. Some, such as the flat fell seam, add strength or shape. Others such as French or bound seams, improve the appearance of the garment or make it longer wearing.





### 4.6.1 Plain Seam

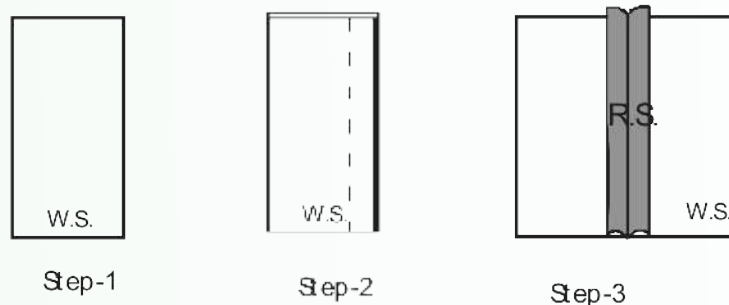
Of all the seams, a plain seam is the most basic and easiest to use. Its seam allowances are usually pressed open, although on lightweight fabric they can be trimmed and neatened together. In a well made plain seam, the stitching is exactly the same distance from seam edge till the entire length of the seam. To ensure absolutely straight seam, it is advisable to practise stitching while keeping the fabric edge aligned with seam guideline on the throat plate of needle, it is basically used on:

- ★ fabrics that will not ravel like fine to medium weight cottons, linens or fine wools.
- ★ On seams of garments that will be covered by a lining.

#### A Straight Seam

A straight seam is the one that occurs often in most cases, a plain straight stitch is used for stretchy fabrics. However a tiny zig-zag or special machine stretch stitch may be used instead of straight seam. It is rarely used for transparent fabrics such as voile, georgette, organdy etc. It is frequently chosen for side seams in blouses, kameez and frocks etc.

Straight Plain Seam

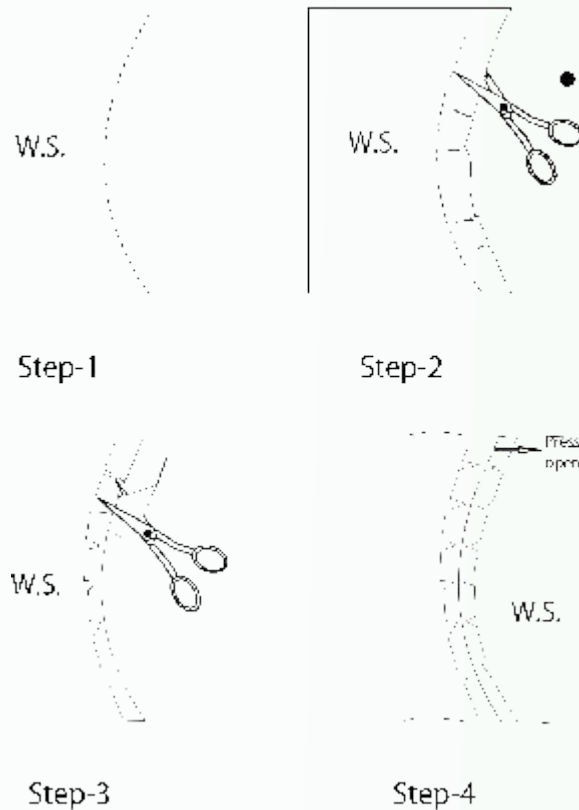


#### Steps of Construction

1. Lay two layers of material together, right side facing right side.
2. Machine stitch at edge leaving an allowance of 1". Start with backstitch and end with backstitch.
3. Press opens the seam, to avoid bulkiness and to make it smooth and flat.

#### 4.6.2 Curved Seam

##### Curved Plain Seam



A curved seam requires careful guiding as it passes under the needles so that the entire seam line will be the same even distance from the edge. The separate seam guide will help greatly. To get better control, use a shorter stitch length (15 per stitch) and slower machine speed.

##### Steps of Construction

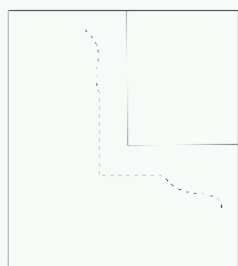
1. Stitch a line of reinforcement stitching just on seam line of the curve.
2. Clip into seam allowance all the way to the stitching line at intervals along the curve.
3. Cut out wedge-shaped notches in the Seam Allowance of outer curve by making small folds in Seam Allowance and cutting at slight angle. Be careful not to cut into stitching line.



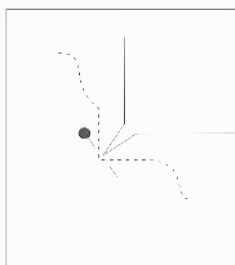
4. Press seam open over the curve, using tip of iron only. Do not press into body of the garment. If not press to contour, seam lines become distorted and look pulled out of the shape.

### 4.6.3 Cornered Seam

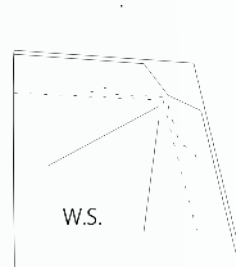
Cornered Plain Stream



Step-1



Step-2



Step-3

A cornered seam needs reinforcement at the angle to strengthen it. This is done by using small stitches (15 to 20 per inch) for 1" on either side of the corner. It is important to pivot with accuracy when cornered seams are enclosed, as in a collar where the corners should be blunted so that better point results are achieved when collar is turned.

#### Steps of Construction

1. To join an inward corner with an outward corner or straight edge, first reinforce the inward angle stitching just inside the seamline 1" on either side of corner.
2. Insert a pin diagonally across the point where stitching forms the angle clip exactly to this point, being careful not to cut past the stitches.
3. Spread the clipped section to fit the other edge; pin in position then with clipped side up, stitch on the seamline pivoting at the corner.

### 4.6.4 Seam Finishes

A seam finish is any technique used to make a seam edge look neater and or prevent it from ravelling out. Though not essential to completion of the garment, it can add measurably to its life. Less tangibly, finished seams add a professional touch, in which you can take pardonable pride.





Three considerations determine the seam finish decision.

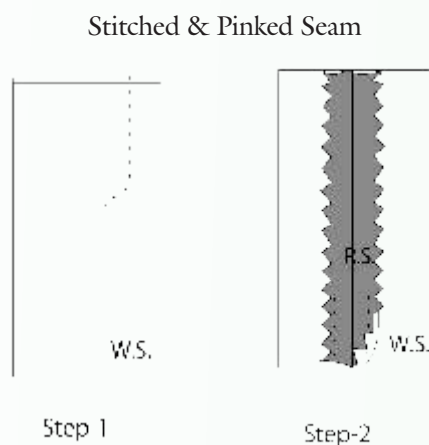
- 1) The type & weight of fabric. Does it ravel excessively, a little, or not at all?
- 2) The amount & kind of wear and care the garment will receive. If a garment is worn often then tossed into washer, the seams need a durable finish. On the other hand, if the style is a passing fad, or will be worn infrequently, you may select not to finish the seam edges.
- 3) Whether or not seams will be seen. An unlined jacket warrants the more elaborate bias binding finish. A lined garment requires no finishing at all, unless the fabric has a tendency to ravel a great deal.

Plain straight seams are finished after they have been pressed open. Plain, curved or cornered seams are seams finished right after stitching, next clipped or notched, then pressed open.

In this category we have the following seams:

- (i) Stitched & pinked seam
- (ii) Turned & stitched seam

#### 4.6.4.1 Stitched & Pinked Seam



A seam finish in which a line of machine stitching is made  $\frac{1}{4}$ " from the raw cut edge before pinking. It is done to prevent the pinked edge from ravelling, to prevent the seam from curling & on fabrics which ravel slightly.

It is a quick and easy finish suitable for firmly woven fabrics.

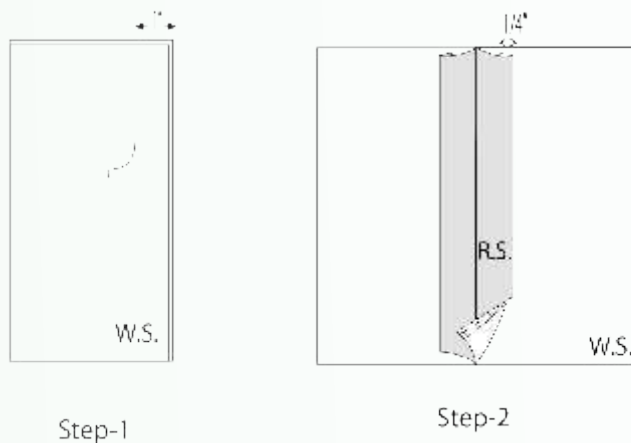


### Steps of Construction

1. Take two layers of fabric, right side facing right side; stitch on wrong side, leaving a distance of 1" from edge. Press open the seam allowance. (straight plain seam)
2. Using a short stitch place a line of a stitching  $\frac{1}{4}$ " away from the edge of the seam allowance on one side of seam allowance. Repeat the same on the other end of seam allowance.
3. Then pink the outer edge of the seam allowance away from the seam you have just applied.
4. Press open the seam.

#### 4.6.4.2 Turned and Stitched Seam

Tailor Edge Seam



A seam finish, in which the raw edge of the seam allowance is turned under, stitched and concealed. Tailored edge, turned and stitched or clear finish all are the names of one seam. It may be helpful on difficult fabrics.

This is a neat tailored finish for light to medium weight fabrics of cotton, linen and viscose. It is done to

- ★ Prevent the seam edge from fraying
- ★ On straight edge seams.
- ★ On garments where seam allowance will not show on the face of the garment.





- ★ On plain weave fabrics.
- ★ On unlined coat, jacket or vests.

#### Steps of Construction

1. Take two layers of fabric, right side facing right side, stitch from wrong side at a distance of 1" from the edge. Press open the allowance. (straight plain seam)
2. Turn under the edge of the seam allowance  $\frac{1}{4}$ " and stitch along the edge of the fold. Repeat the same step on the other edge of seam allowance.

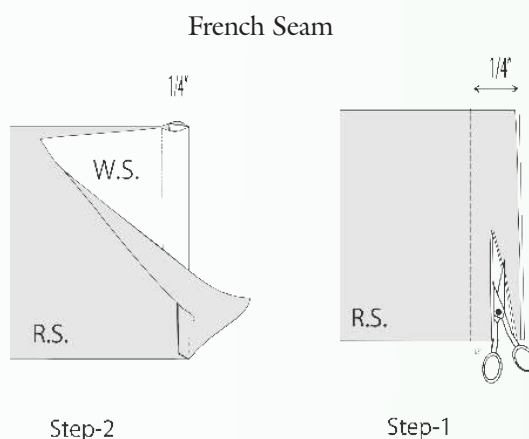
#### 4.6.5 Self Enclosed Seams

Self-enclosed seams are those in which all seam allowances are contained within the finished seam, thus avoiding the necessity of a separate seam finish. They are especially appropriate for visible seams, especially with sheer fabrics & in unlined jackets. Also they are ideally suited to garments that will receive rugged wear or much laundering. Proper trimming and pressing are important steps if the resulting seams are to be sharp and flat rather than lumpy and uneven. Precise stitching is essential, too.

This category includes following seams:

- (i) The French seam
- (ii) Fat felled seam
- (iii) Mock French seam

##### 4.6.5.1 French Seam







A seam constructed in a way so that a narrow seam is contained within a cage on producing a clear finish. This is a very secure and neat seam as the raw edges are not exposed. Since the finished seam consists of four layers of cloth, it is likely to be bulky. Hence it is suitable for thin/sheer fabric such as voile, organdy, georgette. It is also used for dainty garments and lingerie.

This is done to prevent fabrics from fraying.

- ★ Where the seam finish will show through garments made of sheer fabrics e.g. chiffon, organza, georgette, and organdy.
- ★ On children's & infants wear, underwear and outerwear.
- ★ On straight seams.
- ★ When a seam is to appear as a plain seam on the face of the garment and a clear finish is desired on the inside.

It is not used in couture industry but is suitable for garments that require frequent washing e.g. night wear.

This seam is also known as "lot pot silayee" and "gum silayee" in Hindi.

### Steps of Construction

1. Lay two layers of material together, wrong side facing wrong side. The first stitch is 1/8" or 1/4" outside the fitting line, depending on the desired finished width of the seam. Trim the edge so that it is less than desired finished width of the seam. It looks best when finished width is 1/4" or less.
2. Press the seam in one direction. Turn the fabric so that right side is facing right side. Fold on the line of stitching. Machine stitch on the seam line. Since the raw edges are enclosed, this seam requires no special finish.

### 4.6.5.2 Flat Fell Seam

Place two layers of fabric with wrong side facing wrong side, stitch from right side leaving an allowance of 1" and press open the seam.

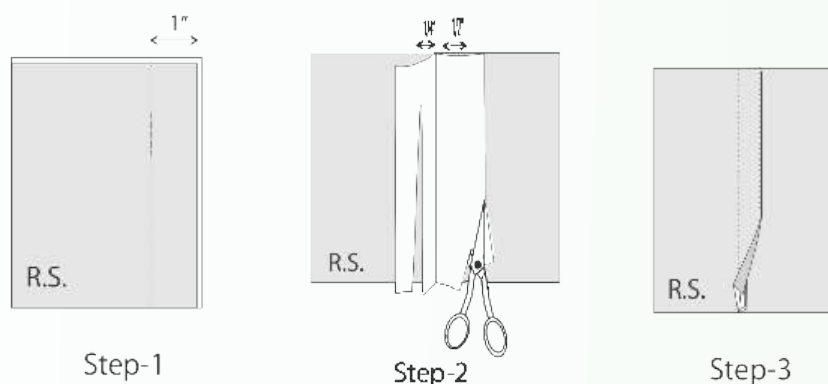
Trim inner seam allowance to 1/4". Press under the edge of the outer seam allowance which is trimmed to 1/2".





After pressing or folding outer seam allowance on inner one side, stitch this folded edge to the garment.

#### Flat Fell Seam



A flat felled seam is the result of enclosing both seam allowance by machining opposite folded edges beneath a row of machine stitches through all piles. The flat-felled seam is very sturdy and so often used for garment that are made to take hard wear e.g. sports clothing and children's wear. Since it is formed on the right side, it is also decorative and care must be taken to keep the widths uniform within a seam and from one seam to another. Be careful to press like seams in the same direction (e.g. both shoulder seams to the front). Other examples are men's shirts, boys trousers & women's tailored garment & unlined garments.

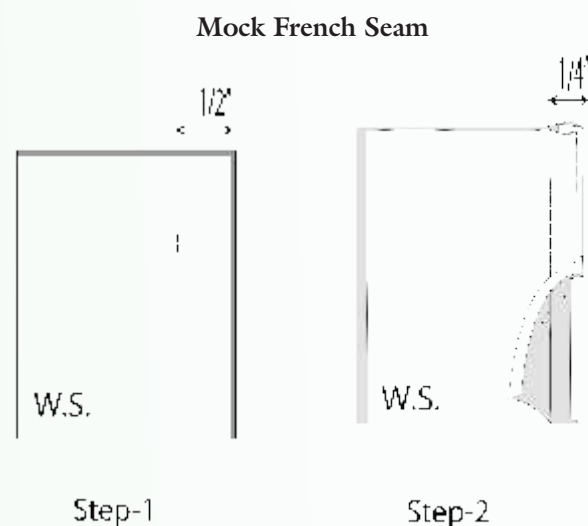
Flat felled seams may be produced in one operation with a felling foot attachment on an industrial machine. In non-industrial production, seam may be made in two or more steps.

#### Steps of Construction

1. Place two layers of fabric with the wrong side facing wrong side. Stitch from right side leaving an allowance of 1". Press open the seam (straight plain seam).
2. Trim the inner seam allowance to  $\frac{1}{4}$ ". Press under the edge of the outer seam allowance which is trimmed to  $\frac{1}{2}$ ".
3. After pressing or folding outer seam allowance on inner one, stitch this folded edge to the garment.



### 4.6.5.3 Mock French Seam



A plain seam made to resemble a French seam by the face-to-face enclosing of the folded seam edges. The mock French seam which is also known as False French or Imitation French seam can be used in place of the French seam, especially on curves of armholes and princess line garments, where a French seam is difficult to execute on transparent fabrics that ravel easily and where a strong finish is required. Basically used for fabrics where two turnings are difficult to make, as in matching plaids.

#### Steps of Construction

1. Take two layers of fabric, right side facing right side, stitch at a distance of  $\frac{1}{2}$ " from the edge on wrong side.
2. Turn in the seam edges  $\frac{1}{4}$ " and press, matching folds along the edge. Stitch these folded edges together. Press seam to one side.

### 4.6.6 Top Stitching Seams

Seams are top stitched from the right side with usually one or more seam allowances caught into the stitching. Top stitching is an excellent way to emphasize a construction detail, to hold seam allowances flat or to add interest to plain fabric.

There are two main considerations when top stitching. The first is that normal stitching guides will not, as a rule, be visible, so new ones have to be established. A row of hand basting or tape applied



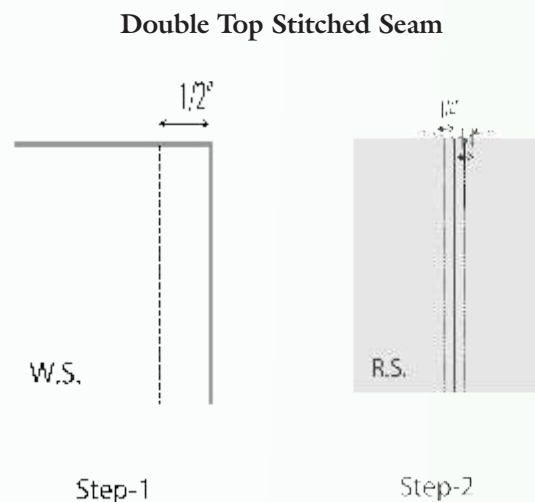
just next to the top stitching line can help. The presser foot is also a handy gauge.

The other consideration with top stitching is how to keep the under layers flat and secure even basting will hold pressed open seam allowances. Diagonal basting will hold those that are enclosed or pressed to one side. Grading and reducing seam bulk will contribute to smooth topside.

A long stitch is best when top stitching used buttonhole twist or single or double strands of regular thread. Adjust needle and tension accordingly.

- 1) Double top stitched seam
- 2) Mock flat seam

#### 4.6.7 Double Top Stitched Seam



A seam which has been pressed open and stitched parallel to and on both sides of the seam line, through garment and seam plies.

This is an excellent seam to emphasize a construction detail as decorative stitching to hold seam allowance flat and to add interest to plain fabric and also to strengthen seams.

##### Steps of Construction

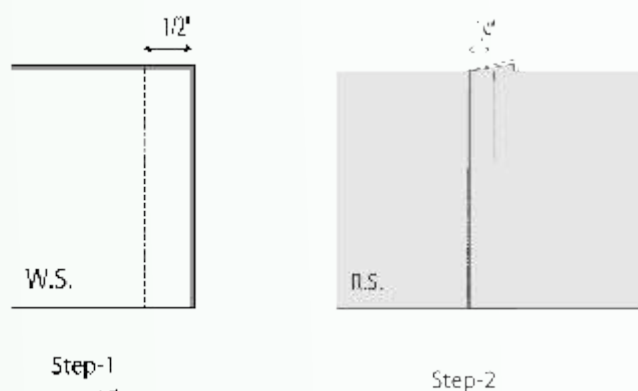
1. Take two layers of fabric, right side facing right side, stitch at a distance of 1" from the edge on wrong side. (straight plain seam)



2. Press plain seam open. Top stitch at equal distance from each side of seam line, ( $\frac{1}{4}$ " away from seam line on both sides) catching seam allowances into stitching.

## 4.6.8 Mock Flat Seam

Mock Flat Seam



This is a seam where seam allowance is about  $\frac{1}{2}$ " and the finished seam is  $\frac{1}{4}$ ". Stitch right side to right side flatten both allowances to one side and stitch on right side on the edge and one at a distance of  $\frac{1}{4}$ " (on the side where your allowance is i.e. at wrong side)

### Steps of Construction

1. Take two layers of fabric size 9" X 5  $\frac{1}{2}$ " (for sample) with right side facing right side. Stitch at an allowance of  $\frac{1}{2}$ ".
2. Turn the seam and stitch from right side one near edge and one at a distance of  $\frac{1}{4}$ ". There should be backstitch in the beginning and at end. The allowance of both the sides will be turned on one side on which you will apply seam.

## 4.6.9 Seam With Fullness

When two seams to be joined are uneven in length, the longer edge must be drawn in to fit the shorter. This is done, depending on the degree of adjustment, by easing or gathering: easing for slight to moderate fullness; gathering for a larger amount. It is important to recognise the difference between the two seams when finished. An eased seam has subtle shaping but is smooth and unpuckered. It may or may not call for control stitching.

This section includes the following seams.



1. Eased seam
2. Gathered seam

#### 4.6.10 Eased Seam

An eased seam entails the drawing in or easing of a longer section of a seam line on one ply to fit a corresponding but shorter section of a seam line in the second ply.

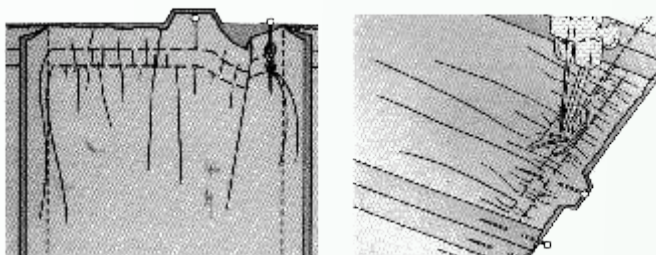
This seam is used to replace small darts in necklines, elbows, buntlines and waistlines, on the back sleeve seam at the elbow, on outward curved seam of the side front panel in princess line garment, on waistlines of skirts and bodice to distribute fullness and control fit and to match back shoulder to front.

##### Steps of Construction

1. Machine is run on the bigger side of the fabric piece without any thread in the needle. At the same time finger is kept behind (intact to) presser foot so that bigger material gets (kind of) gathers.
2. This piece is place on shorter piece, stretched to the required length and stitch in place.

[Note: - This method or seam is possible only when bigger piece is  $\frac{1}{2}$ " to 1" bigger otherwise other method has to be used to control ease]

#### 4.6.11 Gathered Seam



A gathered seam requires control stitching and retains more fullness. Gathering is the process of drawing fullness into a much smaller area by means of two rows of machine basting. This seam is possible when one fabric piece is much longer than the other one. Gather with two stitching lines on the longer piece of fabric, the stitching lines are then pulled at each end to draw up the fabric. Finally, the gathered piece is sewn to a shorter length of fabric.





The stitch length for gathering is longer than for ordinary sewing. Use a stitch length of 6 to 8 stitches per inch for medium weight fabrics. For soft or sheer fabrics, use 8 to 10 stitches per inch. A long stitch makes it easier to draw up the fabric but a shorter stitch gives more control when adjusting gathers.

Before you stitch loosen the upper thread tension. The bobbin stitching is pulled to draw up the gathers and a looser tension makes this easier.

If the fabric is heavy or stiff, use heavy-duty thread in the bobbin. A contrasting color in the bobbin also helps distinguish it from upper thread.

### Steps of Construction

1. Take the bigger fabric piece and from the right side stitch (8 to 10 per inch) one basting line just next the seam.
2. Stitch another line (on the same single piece of fabric)  $\frac{1}{4}$ " away in the seam allowance.
3. Pin seam edges together at matching points, such as notches.

Draw up bobbin threads, distributing fullness evenly and wind drawn threads around a pin to secure gathers.

Pin baste and stitch seam with gathered side up.

### 4.6.12 Pleats



Side Pleats



Box Pleat



Inverted pleat

Pleats are made by folding the fabric in various ways. Pleating may occur as a single pleat, as a cluster or around an entire garment section. **Side pleats** are all turned in the same direction. Side pleats are also called Knife pleats. **Box pleats** have the two folds turned away from each other. **Inverted pleats**, which have an underlay, have the two folds meeting at the common placement line.



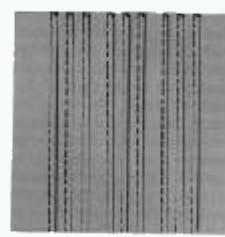
#### 4.6.13 Tucks



Blind Tucks



Spaced Tucks



Pin Tucks

Tucks are parallel folds of fabric used for a decorative effect on the right side of the fabric. The spacing can vary from the very narrow pin tucks to deeper, spaced tucks.

For perfection in stitching tucks, the markings must be exact. Tucks that are very narrow are called **Pin Tucks**. The pin tuck is an edge stitch evenly spaced 1/16" from the fold.

Tucks that are wider than pin tucks but are close to each other and meet at the stitch line are called **Blind Tucks**.

For wider or more widely spaced tucks, increase the amount of fabric in each fold or the space between the tucks. The tucks that have space between them are called **Spaced Tucks**.

#### ACTIVITY

Visit garment retail shops. Identify and list the 3 most commonly used seams each in menswear, womens wear and Kids wear garments.

##### Fill in the blanks:

- Tucks are \_\_\_\_\_ of fabric used for a decorative effect on the right side of the fabric.
- Three types of pleats are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
- \_\_\_\_\_ is the process of drawing fullness into a much smaller area by means of two rows of machine basting.
- \_\_\_\_\_ seam is suitable for thin/sheer fabric such as voile, organdy, georgette.



# Fashion Studies

04



- e. A \_\_\_\_\_ is the distance from the fabric edge to the stitching line, farthest from the edge.
- f. \_\_\_\_\_ seams are those in which all seam allowances are contained within the finished seam, thus avoiding the necessity of a separate seam finish.

## Review Questions

1. Identify key factors that determine seam selection in a garment
2. What is Seam Finish?