GENERAL INSTRUCTIONS FOR CHAPTER 4

*Exercises 13 - 16 are based on Chapter 4: Elements of Garment Making

Objective

1. To develop basic skills for converting design on paper into a stitched garment
2. To understand the requirement of hands-on experience of working on a power machine asan essential and integral part of these practical exercises.

Procedure (General instructions)

1. Undertake prior planning and clarity for the performance of the exercises. This includes reading of handouts, appropriate lab manuals and textbooks before performing the practical.
2. Follow all precautions and regulations while working in the lab.
3. Listen carefully to any introductory remarks and experimental procedure given by the teacher.
4. Ensure that your working space is clean and organized and all the required stocks and materials are kept ready.
5. Record Practical Result sin the recommended record/file neatly and legibly with care. under the following headings:

1 Introduction/Aim

State the purpose and objectives of the experiment precisely in two or three sentences.

2. Materials and methods

The requirement like equipment, materials, etc. should be given here. Methods should also be described along with principles of the techniques used.

3. Sample / Results

The sample should be attached.

4. Discussion and Conclusions

Results should be interpreted and conclusions drawn.

5. References

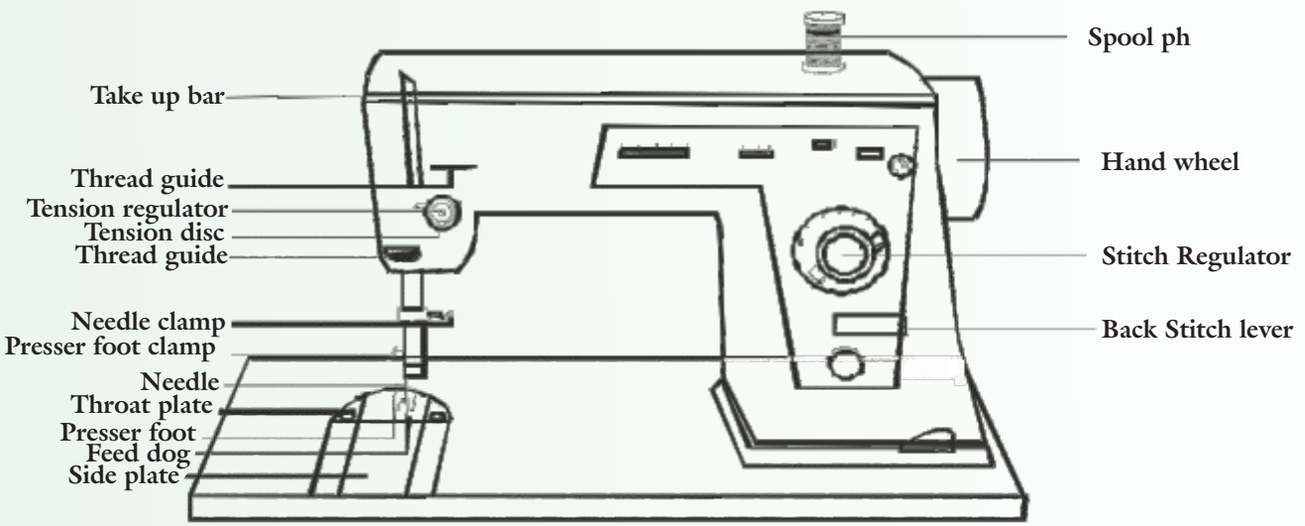
Reading materials which were consulted for the experiment be given as reference (e.g. your lab manual) along with the name of the author and the book, pages referred and year of publication.

Safety rules in the laboratory

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.

- When operating the machine, do not be careless.
- 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.
- When in doubt, ask the teacher.
- Report any injuries or accidents immediately to the teacher.
- Wipe up any oil spilled on the floor immediately to prevent anyone from slipping.
- Operate machines only with permission.
- 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.
- Do not tilt your chair forward or backward while operating the machine.
- Use both hands to raise and lower the machine head.
- Always keep your head above the table.
- Keep your feet off the treadle when you are not operating the machine.
- Keep your feet off the treadle when you are setting or threading the needle.
- Turn the motor off when you are not stitching.
- Turn the motor off before cleaning, oiling or adjusting the machine.
- Turn the motor off before removing or replacing the pulley belt and run the machine out. Wait until all motion has stopped.
- Turn the motor off in case of an emergency or when in doubt.
- Turn the motor off before unplugging the machine.
- Do not use your hand to stop and start the hand wheel.

- Use your hand only to set the hand wheel.
- Before operating the machine, close the slide bed cover. When operating the machine, keep your hands, scissors and other sharp objects away from the belt.
- Keep the machine and work station clean with all tools in the side drawer.
- Unplug the machine at the end of the day.
- Know the location of the main power switch, outlets and fuses in case of an emergency.
- Do not remove any safety devices from the machines.
- Turn off the iron at the end of the class.
- Always place the iron on the iron pad to avoid burning the ironing board cover.
- When trimming or cutting, put all trimmings in the wastebasket.
- Scissors should be handed to another person with the handles toward the person.
- Never toss or throw scissors or equipment.
- Do not eat or drink in the work area.
- Keep your machine covered when not in use.



PRACTICAL EXERCISE 13

Objective

1. To develop familiarity with the machine
2. To learn how to thread the machine

Principles

The sewing machine is an important piece of sewing equipment. A basic understanding of how the machine operates will enable the student to use any machine efficiently and correct stitching defects. The stitch looks same from both the sides and is absolutely flat. It is important for a beginner to learn to thread the machine correctly as a lot of problems in stitching and final seams occur due to incorrect threading. The machine will not work properly until it is threaded in the right sequence. The student should be able to control the sewing machine to make straight line, curved lines and shapes on fabric.

Requirements

1. Machine, thread and sewing kit (as given in Annexure I)
2. Nine pieces of muslin of 7"x 7"

Pre Lab Preparation

Student should be familiar with the safety rules.

Procedure

1. Identification of the following machine parts:
   - Arm
   - Back Stitch Lever
   - Bed
   - Bobbin
   - Bobbin case
   - Bobbin Winder
   - Feed Dog
   - Hand -wheel

- Hand Lifter
- Head
- Knee Lifter
- Needle Bar
- Pan
- Presser Foot
- Presser Foot Lifter
- Shuttle
- Stitch Regulator
- Tension Regulator
- Thread stand or Spool Pin
- Thread take up lever
- Throat Plate

2. **Learn to operate treadle**
3. **Turn the hand wheel**
4. **Switch on the machine**
5. **THREADING**

a. **UPPER THREADING**

The thread is fed from the spool through the tension discs and then to the take-up lever before it is threaded through the needle.

Before threading the machine

1. Raise the pressure foot
2. Always have the take-up lever to its highest point before threading

The following steps need to be followed in exact sequence-

- 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.
- Pass thread end through first thread guide.

- Bring thread down toward the tension assembly.
- Pass thread under and around tension discs, taking care that it falls between two of the discs.
- 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.
- Bring thread up and behind next thread guide.
- Pass thread into the take-up lever.
- Bring thread down and through thread guides.
- 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.

b. LOWER THREADING

- Threading the lower portion of the machine involves threading 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.

c. 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.

6. Machine Practice

All the exercises are to be done on fabric - first on single layer of muslin and then on double layer. Stitch the following:

a) Parallel lines

b) Corners

c) Curved lines

Observations

The student should be able to identify all parts of the machine and understand the importance of each part. If the machine is threaded properly it will run smoothly.

Take care while stitching to ensure the following:

I. All lines are parallel

ii. Corners are at 90 degrees

iii. Curves are smooth

iv. There are no puckers and seam slippage

Viva Questions

1. What all does bed of sewing machine contain?
2. What are the different parts required for threading the machine?
3. What problems are you likely to face when the upper thread is not in right place?
4. If bobbin thread is not pulling up, what may be the cause for it?
5. How do you ensure that your corner is perfect?
6. How do you ensure parallel lines?

PRACTICAL EXERCISE 14

Objective

1. Prepare samples of seams

Principles

Seams are result of joining together two or more pieces of fabric by means of stitching. The basic function of a seam is to hold pieces of fabric together. In order to perform its function correctly, the seam should have properties or characteristics closely allied to those of the fabric being sewn.

i. 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. To get better control, use a shorter stitch length (15 per stitch) and slower machine speed.

ii. 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 accurately.

iii. A seam finish in which a line of machine stitching is made ¼" from the raw cut edge before pinking. It is done to prevent the pinked edge from raveling, to prevent the seam from curling & on fabrics which ravel slightly. It is a quick and easy finish suitable for firmly woven fabrics.

Requirements

1. Machine & sewing kit (as given in Annexure I)

Pre Lab Preparation

1. Eight pieces of muslin of 6"x 6" each

Procedure

a. Straight Seam

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.

b. Curved seam

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 sample. If not pressed to required curves, seam lines become distorted and look pulled out of the shape.

c. Cornered Seam

1. To join an inward corner with an outward corner or straight edge, first reinforce the inward angle stitching just inside the seam line 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 seam line pivoting at the corner

d. Stitched & pinked seam

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 ¼" away from the edge of the seam allowance. On the 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 flat seam allowance.

Observations

Check if the seam line is straight and there are no puckers or pulls. Ensure that the corners are at perfect right angle. Ensure that the fabric does not ravel after pinking.

Viva questions

1. What are the qualities of a straight seam?
2. How many stitches per inch should be used for cotton fabric?
3. Where all do you use the straight seam?
4. What are the qualities of a curved seam?
5. How many stitches per inch should be used for cotton fabric?
6. Give two uses of curved seam.

7. Where all do you use the cornered seam?
8. Why do we need to reinforce the corner seam?
9. How does pinking help in finishing the sample?
10. Give names of fabric for which Pinked seam is most suitable for.

PRACTICAL EXERCISE 15

Objective

1. To prepare samples of seam finishes

Principals

A seam finish in which the raw edge of the seam allowance is turned under stitched and concealed. This is a neat tailored finish for light to medium weight fabrics of cotton, linen and viscose. A seam which has been pressed open and stitched parallel to and on both sides of the seam line, through garment and seam plies.

Requirements

Machine & sewing kit (as given in Annexure I)

Pre Lab Preparation

1. Eight pieces of muslin of 6"x 4" each
2. Two pieces of light weight muslin on bias grain of 1" x 6"(Hong Kong seam)

Procedure

a. Turned and stitched seam

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 ¼" stitch along the edge of the fold. Repeat the same step on the other edge of seam allowance.

b. Hong Kong seam

1. Place two layers of fabric right side facing right side. Stitch at a distance of 1" from the edge on wrong side. Press opens the allowance.
2. Using 1" wide bias strip, with right sides together stitch bias strip to seam allowance ¼" from edge on one side of the seam allowance.
3. Turn bias over edge to the underside and press. From the right side. Stitch in the crevice of the first stitching (stitch in ditch) trim unfinished edge of bias.
4. Finish the other side similarly.

French seam

1. Lay two layers of material together, wrong side facing wrong side. The first stitch is 1/8"or ¼"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 ¼" 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

Double Top Stitched Seam

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, (1/4" away from seam line on both sides) catching seam allowances into stitching.

Observations

1. Check if the seam line is straight and that there are no puckers or pulls.
2. The edges should be neatly concealed in the bias strip.
3. The seam should not be too broad and bulky.
4. The edges should be neatly enclosed in the seam.
5. The stitch line should be uniform on the both sides of the seam.
6. The under layers should be flat and pressed open.

Viva questions

1. Where is the Turned and Stitched seam used?
2. How is this seam different from the Stitched and Pinked seam?
3. Where is the Hong Kong seam used?
4. How is this seam different from the Turned and Stitched seam?
5. What are the advantages of a French seam?
6. Where is the French seam used and why?
7. Give other names of this seam?
8. Give two uses of the seam and where it can be used as a decorative seam.
9. Can variations of these seams be created?

PRACTICAL EXERCISE 16

Objective

1. To prepare samples of gathers, pleats and tucks.

Principles

Gathering is the process of drawing fullness into a much smaller area by means of two rows of machine basting.

Requirements

Machine & sewing kit (as given in Annexure I)

Pre Lab Preparation

a. Gathers
   Two pieces of muslin of 6"x 4" and 18"x4"

b. Pleats
   One pieces of muslin of 6"x 18" each

c. Tucks
   One pieces of muslin of 6"x 12" each

Procedure

1. The stitch length for gathering is longer than for ordinary sewing. For medium weight fabrics use a stitch length of 6 to 8 stitches per inch. 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.
2. 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. Box pleats have the two folds turned away from each other. Inverted pleats, which have an underlay, have the two folds meeting at the centre.
3. 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.
4. To ensure perfection in stitching tucks, the markings must be exact. The pin tuck is an edge stitch evenly spaced 1/16" from the fold, for wider or more widely spaced tucks, increase the amount of fabric in each fold or the space between the tucks.

Gathers

1. Take a 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) ¼" away in the seam allowance.
3. Pin seam edges together at matching points, such as notches.
4. Draw up bobbin threads, distributing fullness evenly and with drawn threads wound around a pin on either side to secure gathers.
5. Pin baste and stitch seam with gathered side up.

Pleats

1. Mark and fold the pleats as desired.
2. Stitch on the seam line ¼" away in the seam allowance.
3. Now stitch the pleats in place and finish as desired.

Tucks

1. Mark and fold the tucks as desired.
2. Stitch on the seam line of the tuck as shown.
3. Now finish the sample as desired.

Observations

The gathers should be distributed evenly and should not form pleats.

The pleats should be even and according to the design.

The tucks should be of even depth and equally distributed.

Ensure that the seam line is straight and that there are no puckers or pulls.

Viva questions

1. What stitch size should be used for gathering?
2. Why are two rows of stitch line needed to gather evenly?
3. How much extra fabric is required for 2 box pleat of 2" depth?
4. What is the best way to finish the pleats?
5. What is the ideal width of pin tucks?
6. Why are they called pin tucks?

ANNEXURE - I

Sewing Kit

All pins: Fine, long, rust proof pins.

Magnetic pin holder / pin cushion: to hold pins.

Muslin: Fabric used for experimentation and develop toiles

Push pins: Drum shaped ½" long pins to hold pattern pieces and fabric on table.

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

Tailors chalk: To mark on fabric

12" / 24" scale: To mark straight lines to measure.

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

Grading scale: Transparent plastic ruler with grid 2" X 18" in length indicating fraction of inches (or millimeters).

L-square: Plastic or metal ruler with two arms at right angles of varying lengths usually 12" and 24" to square off corners.

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

Transparent tape: To secure paper pieces together and mend tears

Paper shears/scissors: Cutting instrument, ranging in size from 8" to 12" with two sharply pointed straight blades, to cut paper patterns.

Tailors shears: Cutting instrument ranging from 12" to 16" with two wide blades, 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, to pick up pins and needles.

ANNEXURE - II

Common Machine Problems

1. The student needs to identify the common problems encountered while sewing.
2. The person operating the machine should be able to rectify these and solve the problems.

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

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 be not in 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
   - Check needle type suitable for fabric.
   - Needle may be blunt or too coarse.
   - Check for the nick in the throat plate, foot or feed

MACHINE

Motor does not run

1. Cord is not plugged in.
2. Power stitch off.
3. Knee or foot accelerator may be jammed or improperly attached to power source.

Motor runs but hand wheel does not turn

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

Motor runs, hand wheel turns, but needle does not move

1. The needle may have been disengaged for bobbin winding and not tightened back to sewing position

2. If needle has been tightened but still does not move, the motor belt is slipping because it is loose or worn.

Motor, hand wheel and needle moves but fabric does not feed

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

Motor, hand wheel, needle and fabric moves but no stitch is formed

1. Thread may have come out of the needle.
2. Needle may be threaded in the wrong direction.
3. Needle may be inserted backward or may not be pushed all the way up into the clamp.
4. Needle may be the wrong length for the machine.
5. Machine may be threaded incorrectly
6. Bobbin may be empty
7. Bobbin and / or case may be inserted incorrectly
8. The timing of the machine might be off

Runs sluggishly

1. Bobbin winder may still be engaged
2. Knee or foot control might be improperly positioned
3. Machine may be in need of oiling and / or cleaning

Runs noisily

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

Will not stitch in reverse

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

NEEDLE

Unthreads

1. Insufficient thread may have been pulled through the needle before the seam was started
2. Machine may be out of top thread

Breaks

1. You may be using the incorrect presser foot
2. Presser foot and / or throat plate may be loose or improperly fastened.
3. Needle might have bent and hit the presser foot and /or throat plate
4. Needle may be incorrectly inserted
5. Needle might be too fine for the fabric being sewed and for the job being done
6. You may have pulled too hard on fabric while stitching
7. Check machine settings.
8. Needle may be defective

STITCHES

Are uneven lengths

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

Have loops between them

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

Skip here and there

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

THREAD

Needle thread breaks

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

Bobbin thread breaks

1. Bobbin case may not be threaded properly and / or the case not inserted properly
2. Bobbin may be too full
3. Check for dirt or clog in the bobbin case
4. Bobbin tension may be too tight

Bobbin thread cannot be raised through hole in throat plate

1. Bobbin case may be improperly threaded.
2. It may not have been properly inserted


CBSE
CONTINUOUS AND COMPREHENSIVE EVALUATION
KNOW - AS YOU GROW