LEARNING UNIT 3
STITCHES AND SEAMS

CONTENTS

3.1 STITCHES 25
  3.1.1 Characteristics of each stitch class 25

3.2 SEAM CLASSIFICATION 26

3.3 SEAM TYPES 27
  3.3.1 Plain seams (open or closed) 27
    3.3.1.1 Seam finishes for open and closed single seams 27
  3.3.2 Enclosed seams 28
  3.3.3 Self-finished seams (self-enclosed seams) 28
  3.3.4 Seams with a decorative effect 29

3.4 SEAM TECHNIQUES 29
  3.4.1 Stay stitching 29
  3.4.2 Blunting a corner 29
  3.4.3 Trimming corners 29
  3.4.4 Trimming seam allowances 29
  3.4.5 Grading seam allowances 30
  3.4.6 Notching outward (convex) curves 30
  3.4.7 Clipping inward (concave) curves 30
  3.4.8 Understitching facings or under collars 30

Learning outcomes
After studying this learning unit, you should be able to:

- identify different stitches from 100 to 600 classifications
- identify the different seam types in different categories
- explain the different stitches and seams based on end-use of garments
- identify the seams, seam finishes and techniques
- discuss the function and use of the seam, seam finish or technique
- discuss apparel quality issues related to stitches and seam types

This learning unit refers to the following chapters in your prescribed book:
INTRODUCTION

In this learning unit you will learn to distinguish between the different stitch and seam classifications in clothing construction. The diagram below provides an overview of the content of this learning unit:

FIGURE 3.1
Overview of learning unit 3

3.1 STITCHES

Stitches are used to hold a garment together. Therefore, stitch quality is a critical component of overall apparel quality. Performance and cost of apparel products can be affected by manipulating the physical features of stitches, such as stitch type; stitch length and width; needle type, size and condition; thread type and size; tension and other sewing machine adjustments; and operator accuracy.

3.1.1 Characteristics of each stitch class

Read Box 4: Stitch Classifications on pp13–15 in the prescribed textbook.

The table below presents an overview of the characteristics of each stitch class:

<table>
<thead>
<tr>
<th>Stitch Class Number</th>
<th>Name</th>
<th>Characteristics</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Simple chainstitch</td>
<td>Single thread</td>
<td>Stitch formed by chaining, with no underthread.</td>
</tr>
<tr>
<td>200</td>
<td>Hand stitches and their machine simulations</td>
<td>Rarely seen in ready-to-wear; not used for general seaming due to lack of durability; used for decorative purposes in ready-to-wear.</td>
<td>Single thread and hand needle. Refer to page 501–510 of the prescribed textbook for hand sewing basics.</td>
</tr>
</tbody>
</table>
The number of stitches per inch (SPI) is an important quality indicator for sewn apparel products. The appropriate SPI is important for seam quality, strength, stitch appearance, cost, and seam elasticity on stretch fabrics. More SPI will lead to stronger, more elastic seams but it also means longer production time resulting in higher labour costs. A very lightweight or sheer fabric, as well as leather products, can be weakened by too many stitches.

### 3.2 SEAM CLASSIFICATION

Read pp114–168 in the prescribed textbook.

A seam is the stitched joint between two or more pieces of fabric. In the construction of garments, the cut panels (pattern pieces) are joined into seams. A seam may be defined as the application of a series of stitches or stitch types to one or several thicknesses of fabric. The best seam is the one that yields the desired performance and appearance at the lowest cost.

The cut edge is also known as the raw edge. The distance from the stitching line to the raw edge of the pattern piece is the seam allowance. Higher quality garments often have wider seam allowances to provide fabric for alteration, and this is considered a quality indicator. The standard width of seam allowances for commercial patterns is 1.5 cm or 15 mm. In the industry the seam allowance is 1 cm or 10 mm wide.

There are **four major seam classes** in the industry: superimposed seams (SS), lapped seams (LS), flat seams (FS), and bound seams (BS). Within each major seam class there are several seam types. Two other seam classes are ornamental stitching (OS) and edge finishes (EF).

a) **Superimposed seams (SS)** – the most used seam class, formed by stacking plies of fabric on top of one another and stitching them together near the edge.
b) **Lapped seams (LS)** – formed by overlapping the seam allowances of two or more plies of fabric and sewing them together. With more than 100 variations, this is the largest seam class.

c) **Bound seam (BS)** – made by encasing the raw edges of a seam with fabric strips.

d) **Flat seams (FB)** – join fabric plies by butting the raw edges together and securing them with a 600-class cover stitch or a zigzag stitch.

### 3.3 SEAM TYPES

Different stitches can be used to construct a certain seam type, but the seam type remains the same regardless of the stitch used to sew it. Make sure that you are able to identify each of these seams from an illustration.

#### 3.3.1 Plain seams (open or closed)

This is the most versatile, most widely used superimposed seams (SS) that is the least costly to sew. Plain seams are formed when the fabric is placed with right sides of the fabric facing and then sewn with a single row of stitching parallel to the raw or cut edge. Because it has only a single row of stitching, it is not designed for strength; however, plain seams work well for high-quality tailored garments. Plain open seams or plain closed seams are appropriate for any garment where the seams do not take a lot of stress, in the way that workwear or active sportswear may.

The raw edges of the seam allowances have to be finished to prevent them from fraying. When the two seam allowances are finished separately and pressed open, it is called an open seam (code is SSa, or ISO classification 1.01). If the two seam allowances are finished together, it is called a closed seam (SSa). Closed seams on knit fabrics are sewn with an overlocker only, stitch classification: 514 or 515.

#### 3.3.1.1 Seam finishes for open and closed single seams

These finishes prevent the fabric from fraying. It can also be applied to any raw edge in a garment, such as hems or facing edges. Read chapter 9 in the prescribed textbook.

**a. Edge stitching**

Edge stitching is also called a turned-and-stitched finish or a clean finish.

Edge stitching is used if you do not have access to an overlocker, your machine cannot do a zigzag stitch and only if the fabric is not thick. It is also used as the finish on a plain hem — that is, a hem with two folds or turnings as used on a thin fabric like polycotton. The raw edge or the seam allowance or hem is folded to the inside and stitched 1 to 2 mm from the folded edge.

**b. Overcasting**

The second method is overcasting. The raw edges can be overcast by hand or by machine. Machine overcasting includes finishes such as zigzagging (Stitch classification: 304), any of the overcasting stitches found on the more modern machines, or overcasting with an overlocker (Stitch classification 504 or 505).

**c. Pinking**

The third method of finishing is pinking. Pinking is appropriate for fabrics of different weights that do not fray or fray very little. You need a pair of pinking scissors, which can
be quite expensive, to cut the seam allowance in the zigzag pattern. In industry it is done with an electric or manual pinking machine (refer to figure 7 on p154 in the prescribed textbook).

d. Binding
The fourth method to finish raw edges is binding. This method is mostly used on unlined coats and jackets and on trousers. It is suitable for heavy fabrics and fabrics that fray, but it is not suitable for lightweight fabrics.

Binding can be done in two ways. One is by using normal bias binding (ISO class 3.03.07) and the other is by using the Hong Kong finish (SS or ISO class 3.05.03).

3.3.2 Enclosed seams
Read pp127 and 128 in the prescribed textbook.

Enclosed seams (SSe or ISO class 1.06.02) are the second most common seam type after the plain seam type. This usually requires two separate stitchings – the joining and then topstitching or understitching. It is called an enclosed seam because seam allowances end up sandwiched between the two layers of fabric. These seams are found at the edges: neckline, collars, cuffs, waistlines, waistbands, and facings. It is not necessary to overlock the edges of enclosed seams. These seams can be bulky, and needs accurate trimming and/or grading to reduce bulk. Techniques to reduce bulk are discussed in section 3.4 (Seam techniques).

3.3.3 Self-finished seams (self-enclosed seams)
Chapter 10 in the prescribed textbook describes self-finished seams. In self-finished or self-enclosed seams the seam allowances are hidden within the seam. These seams are very strong and neat. They are more costly than other seams because they require more operator skill, more time and additional fabric to complete. You should be familiar with the French seam and the flat-felled seam. The first row of stitching for French and flat-felled seams is done with the wrong sides of the fabrics facing, whereas plain seams are sewn with right sides facing.

a. French seam
Seam classification SSae or ISO class 1.06.03. A 301 stitch is mainly used to create this kind of seam. In the case of a French seam, no line of stitching is seen on the right side, only the ditch of the seam can be seen. The French seam is appropriate for thin, lightweight or sheer fabrics that may fray and for lingerie or underwear. It adds more bulk to the seams and is not suitable for thick fabric. It is labour intensive because it requires multiple sewing steps and is therefore costly to make. This is a good seam for straight seamlines but is challenging on curved seams like armholes, where a bias seam finish could be a good match.

b. Flat-felled seam
Seam classification LSr or ISO class 2.06.02. The 301 or 401 stitches are used to create this seam type. LSc or Class 2.04.03 is a flat-felled seam as made with a folder and a two-needle machine, stitched in one step. Class 2.06.02 is a flat-felled seam as done with a home sewing machine in two steps. In CLO1602 you will do the single needle flat-felled seam as described on p165 in the prescribed textbook (figure 6).
The flat-felled seam has a more sporty look and is used on jeans, sports clothing, children’s wear, and men’s tailored shirts. The flat-felled seam is sometimes called a machine-and-fell seam. You should know both names. As in the case of the French seam, the flat-felled seam is also a self-enclosed seam, no seam finishing is required because the raw edges will not be exposed. The flat-felled seam is very sturdy but is used on firmer fabrics than the French seam. Two lines of stitching can be seen on the right side.

3.3.4 Seams with a decorative effect
There are four topstitched seams, namely the double-topstitched seam, the slot seam, the welt seam and the tucked seam. These seams are very suitable when working with slightly thicker fabrics and create a tailored appearance.

The fagoted seam is a decorative open seam that can be made by hand or by machine. Some books refer to this as a “Spanish seam”.

3.4 SEAM TECHNIQUES
The following seam techniques are very important and could mean the difference between a home-made and a professional appearance. Make sure that you know very well how, where and why each technique is used. Read pp125–132 in the prescribed textbook.

3.4.1 Stay stitching
Although the prescribed textbook doesn’t refer to stay stitching, you need to know that it is a row of normal-sized stitching placed just inside the seamline to prevent the seamline from stretching out of shape. Stay stitching is done on a single layer of fabric. If seam allowances are to be clipped, such as at the concave neck edge, it is also staystitc hed as reinforcement.

3.4.2 Blunting a corner
Blunting a corner is done by sewing one, two or three stitches diagonally across the corner of an enclosed seam, such as at the point of a collar or cuff. This provides space for the seam allowances and ensures a better and neater point once the collar is turned. See pp128–129 in the prescribed textbook (Application: Outward Corners) and pay special attention to figures 30–32.

3.4.3 Trimming corners
The seam allowances at the corner of an enclosed seam should be trimmed. This ensures that there is no overlapping of seam allowances resulting in bulk once the point is trimmed. Refer to figure 32 on p129 in the prescribed textbook for an illustration and description of trimming corners.

3.4.4 Trimming seam allowances
Although the prescribed textbook doesn’t refer to trimming seam allowances, you need to know that trimming a seam allowance means to cut away some of it. This is usually applied to both seam allowances. Seam allowances are usually trimmed before they are graded, notched, or clipped. Never trim or grade the fashion fabric right up to the stitching.
3.4.5 Grading seam allowances

Although the prescribed textbook doesn’t refer to grading seam allowances, you need to know that grading means cutting seam allowances of enclosed seams to different widths. The seam allowance that will fall against or nearest to the garment exterior should be left the longest. This “protects” the outer fabric and prevents the edges of the seam allowances from showing through as a ridge on the outside surface of the garment's fabric.

3.4.6 Notching outward (convex) curves

Outward or convex curves are notched, that is, wedges are cut from the seam allowances. This prevents the seam allowances from overlapping and forming bulky parts once turned. See figures 22 and 23 on p126 in the prescribed textbook for pictures on notching a convex curve.

3.4.7 Clipping inward (concave) curves

Cutting straight into the seam allowance of an inward curve allows the seam allowance to open up and lie flat when turned over to the inside of the garment. The curve will form a smooth shape without pulling. See figures 20 and 21 on page 126 in the prescribed textbook for pictures on clipping a concave curve.

3.4.8 Understitching facings or under collars

Understitching is done through the facing and both the seam allowances, close to the seamline, after trimming, grading, clipping and notching have been done. It prevents the facing and the seamline from rolling to the right side of the garment. Refer to Box 5: Understitching, on p110 in the prescribed textbook.

ACTIVITY 3.1

3.1.1 Compare the advantages and disadvantages of closed and open seams.
3.1.2 Explain the differences between shirred seams and eased seams.
3.1.3 Discuss the characteristics of the different seam classifications.
3.1.4 Identify and differentiate between the four major seam classifications.
3.1.5 Describe the causes of puckered seams.
3.1.6 Explain why it is necessary to notch the seam allowance on a convex seam.
3.1.7 Use any example of a garment in your wardrobe. Answer the following questions:
  3.1.7.1 List fabric content.
  3.1.7.2 Identify and list the types of stitches and seams used on the garment.
  3.1.7.3 Explain the reasons for selecting the stitches and the seams on each part of the garment (shoulder seam, armhole, side seam, bottom hem, cuff, neckband).
  3.1.7.4 Suggest other alternative types of stitches and seams that can be used for each part of the garment (shoulder seam, side seam, bottom hem, cuff, neckband) and give reasons for your choice.
  3.1.7.5 List the step-by-step logical order of constructing the garment you have selected.
3.1.8 Select two similar tops from your wardrobe that represent two different price ranges, high and low.

3.1.8.1 Note the price range for each top.

3.1.8.2 Think through the various factors that caused the difference in set price ranges for the two products, such as construction, fabric used, et cetera.

3.1.8.3 If you are a designer who wants to make a knock-off of the high-price range product for the mass market, how could you construct the product for your low-cost product line?

3.1.9 Take pictures of garments in your cupboard that illustrate the following types of seams:

3.1.9.1 Open single seam finished with overlocking
3.1.9.2 Open single seam finished with edge stitch
3.1.9.3 Open single seam finished with pinking
3.1.9.4 Closed single seam finished with overlocking
3.1.9.5 French seam
3.1.9.6 Flat felled seam