

Participant Handbook

Sector
Apparel

Sub-Sector
Apparel, Made-Ups & Home Furnishing

Occupation
Cutting

Reference ID: **AMH/Q1510, Version 4.0**
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Fabric Cutter

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Shri Narendra Modi
Prime Minister of India

“

Skill development of the new generation is a national need and is the foundation of Aatmnirbhar Bharat

”



Certificate
COMPLIANCE TO
QUALIFICATION PACK – NATIONAL OCCUPATIONAL
STANDARDS

is hereby issued by the

APPAREL, MADE-UPS & HOME FURNISHING SECTOR SKILL COUNCIL

for

SKILLING CONTENT: PARTICIPANT HANDBOOK

Complying to National Occupational Standards of

Job Role/ Qualification Pack: '**Fabric Cutter**'

QP No. '**AMH/Q1510, NSQF Level 2.5**'

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The preparation of this handbook would not have been possible without the Fashion Industry’s support. Industry feedback has been extremely encouraging from inception to conclusion and it is with their input that we have tried to bridge the skill gaps existing today in the industry.

This participant handbook is dedicated to the aspiring youth who desire to achieve special skills which will be a lifelong asset for their future endeavours.

About this book

Welcome to the “Fabric Cutter” training programme. This PHB is designed to provide participants with comprehensive knowledge about the principles and practices of maintaining security, ensuring vigilance, and safeguarding premises. It also focuses on planning, executing, and managing routine security tasks, conducting inspections, and verifying the integrity of individuals and documents as part of field operations.

This Participant Handbook is designed based on the Qualification Pack (QP) under the National Skill Qualification framework (NSQF) and it comprises of the following National Occupational Standards (NOS)/ topics and additional topics.

1. AMH/N1510: Plan and Prepare for process of cutting fabrics as per the job card received.
2. AMH/N1511: Cut fabrics as per plan received from production planning
3. AMH/N1512: Maintain health, safety and security in the cutting workplace with Gender and PwD Sensitization
4. AMH/N0102: Maintain work area, tools and machines
5. AMH/N0104: Comply with industry, regulatory, organizational requirements and Greening of Job Roles
6. DGT/VSQ/N0101: Employability Skills (30 Hours)

Symbols Used



Key Learning
Outcomes



Unit
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1. Introduction and Orientation to Fabric Cutter



Unit 1.1 - Introduction to Fabric Cutting



Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Describe the size and scope of the apparel industry.
2. Describe various employment opportunities for a Fabric Cutter in the apparel industry.
3. Describe the apparel production process and the role that the Fabric Cutter plays in the process.
4. Explain the roles and responsibilities of a Fabric Cutter.

UNIT 1.1: Introduction to Fabric Cutting

Unit Objectives

By the end of this unit, the participants will be able to:

1. Elaborate on the size and scope of the apparel industry to highlight its global significance.
2. Discuss various employment opportunities available for a Fabric Cutter in the apparel industry.
3. Describe the apparel production process and illustrate the role that the 'Fabric Cutter' performs within it.
4. Explain the roles and responsibilities that a Fabric Cutter is expected to fulfil.

1.1.1 Size and Scope of the Apparel Sector

India's apparel manufacturing sector is one of the largest industries in the country. It involves producing a wide range of clothing, including shirts, trousers, dresses, school uniforms, and traditional outfits. The industry also manufactures household textile products like bed linens, towels, curtains, cushion covers, and tablecloths. Numerous factories and small-scale units across India make these products for both the domestic market and international exports.

This industry employs millions of people, especially women and rural workers. It offers various types of jobs such as fabric cutting, stitching, embroidery, ironing, quality checking, and packaging. Indian apparel is highly valued across the globe due to the skill of its workers and the beauty of its designs.

The sector continues to expand each year. With growing demand for clothing both within India and abroad, there is a rising need for skilled workers and improved training. Advancements in machinery, better workforce development, and strong government backing are helping the industry grow rapidly. It plays a major role in India's economy and provides strong career prospects for trained workers.

Market Size and Growth

- **Current Market Value:** As of 2024, the Indian apparel industry was worth approximately USD 115.70 billion, while the overall textile and apparel sector stood at USD 222.08 billion.
- **Future Projections:** The Indian apparel market is expected to reach around USD 171.60 billion by 2034, growing at a compound annual growth rate (CAGR) of 4% from 2025 to 2034.

(Source: textileinsights.in)



Fig. 1.1.1: Fabric cutter personnel

India is widely recognised for its intricate embroidery, traditional patterns, and expert craftsmanship. This reputation has created strong international demand for Indian garments and home textiles in many parts of the world.

Both manual and machine work are involved in this industry, requiring workers to be precise, talented, and dedicated. Roles such as Fabric Cutters are essential for ensuring high-quality products with beautiful designs.

This industry supports the livelihoods of countless families and significantly contributes to the nation's economic development.

Key Strengths and Growth Drivers of India's Apparel Industry

India's garment and textile sector is strong and expanding rapidly. Below are the main reasons behind this growth:

- **Abundant Raw Materials:** India is the world's largest producer of cotton and a leading producer of jute and jute-based items. It also ranks second in silk production. Additionally, the country manufactures and exports many types of blended and synthetic yarns.



Fig. 1.1.2: Cotton tree and pre-processed jute plant

- **Large Consumer Market:** With a vast population, India has a strong demand for clothing. As people's incomes grow and fashion awareness increases, there is a continuous need for new and trendy garments in the domestic market.



Fig. 1.1.3: Apparel manufacturing unit

- **Government Initiatives:** The Indian government supports the industry through schemes like PLI (Production Linked Incentive) and PM MITRA Parks. These initiatives aim to improve infrastructure, support workers, and attract investment in the textile sector.
- **Robust Export Industry:** India exports textiles and apparel to numerous countries, including major markets like the USA and Europe. It is currently the sixth-largest exporter of garments and textiles globally.

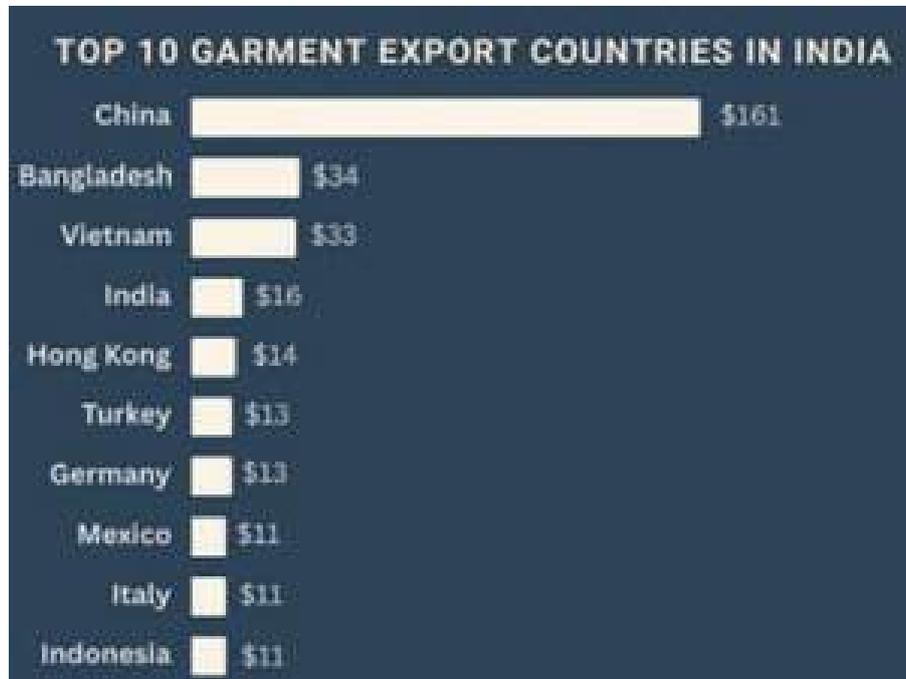


Fig. 1.1.4: Indian export of garments in FY 23-24 (\$16 billion)

(Source: <https://www.exportimportdata.in/blogs/garment-exports-from-india.aspx>)

- **Adoption of Advanced Technology:** Many textile factories now use advanced machines and computer-based systems. This improves the speed, efficiency, and precision of manufacturing processes.



Fig. 1.1.5: Fabric cutter machine

- **Emphasis on Sustainability:** A growing number of companies are adopting environmentally friendly practices. These include using organic cotton and reducing production waste, which supports long-term environmental health and benefits future generations.

Apparel, Made-Ups and Home Furnishing Sector Skill Council (AMHSSC)

The Apparel, Made-Ups, and Home Furnishing Sector Skill Council (AMHSSC) is a key organisation that supports skill development for those seeking careers in the clothing and home furnishing sector.

AMHSSC designs and offers specialised training programs for a wide range of job roles such as tailors, fashion designers, Fabric Cutters, and pressmen. These courses help learners gain the technical knowledge and practical abilities to work efficiently, safely, and accurately in real industry environments.

To ensure the training is relevant and job-oriented, AMHSSC works closely with factories and industry employers to understand their workforce needs. As a result, the training is aligned with actual job requirements in garment production units, export houses, and home furnishing companies.

Once trained, individuals can secure employment in manufacturing units or even explore self-employment opportunities. The aim is to equip them with industry-ready skills that enhance product quality, increase income, and boost self-confidence. AMHSSC plays a vital role in connecting skilled workers to better job opportunities and helping them build a stronger future.



APPAREL MADE-UPS HOME FURNISHING SECTOR SKILL COUNCIL

Fig. 1.1.6: AMHSSC logo

Total Number of People Working in the Indian Apparel Industry

The Indian textile and apparel sector is one of the largest employers in the country, directly providing jobs to approximately 45 million people as of 2024. (Source: <https://asiagarmenthub.net/agh-countries/india>).

Here is a breakdown:

- The 45 million figure includes roles across textile processing, apparel manufacturing, handlooms, handicrafts, and garment production. (Source: <https://asiagarmenthub.net/agh-countries/india>).
- Women make up 39.7% of the workforce in this sector (as of 2023), highlighting its role in promoting gender inclusivity. (Source: <https://asiagarmenthub.net/agh-countries/india>).



Fig. 1.1.7: A part of the apparel sector of India

Significance of the Apparel Industry in India

India's apparel industry plays a critical role in the country's economic and social development. Its importance includes the following points:

- **Major Source of Employment:** The sector creates vast employment opportunities across urban and rural regions, especially benefiting women and helping them achieve financial independence.
- **Foreign Revenue Generator:** By exporting garments to global markets, India earns valuable foreign exchange and strengthens its international reputation for quality textiles and clothing.
- **Preserves Cultural Heritage:** Traditional crafts like weaving, handloom, and embroidery are kept alive through continued support to artisans and local craftspeople, helping preserve India's rich cultural legacy.
- **Supports Small and Medium Enterprises (SMEs):** Many SMEs operate within this sector, fostering entrepreneurship and contributing to local and regional development.
- **Opens Doors for Entry-Level Workers:** The industry welcomes workers with minimal formal education or experience, providing opportunities for new entrants and unskilled individuals to earn and grow.
- **Boosts Related Industries:** It indirectly supports industries like textiles, dye manufacturing, button production, and packaging, creating a ripple effect across the economy.
- **Adopts Modern Technologies:** Indian apparel manufacturers are increasingly using advanced machinery and digital systems to enhance productivity and compete in global markets, making the industry more efficient and globally relevant.



Fig. 1.1.8: Fabric cutting in an apparel manufacturing unit of India

1.1.2 Various Employment Opportunities Available for a Fabric Cutter

A fabric cutter is a trained worker in the clothing or textile industry who carefully cuts fabric based on given patterns and instructions. This job includes using different tools and methods to make sure the fabric pieces are the right shape and size for making clothes or other textile items.

Furthermore, a Fabric Cutter works in the apparel industry to cut cloth into the correct shapes and sizes before clothes are stitched. This job is very important because it helps in making clothes fit well and look nice. There are many types of jobs and areas where a fabric cutter can work, from small tailoring shops to large factories. This work also gives a chance to learn new skills and grow in the industry.



Fig. 1.1.9: Fabric cutter

Different jobs and work areas that are available for a fabric cutter in India are mentioned below:

- **Cutting Room Assistant:** Works in the cutting section of a factory to help in laying and cutting fabric.
- **Manual Fabric Cutter:** Uses scissors or simple tools to cut fabric pieces by hand.
- **Machine Fabric Cutter:** Uses special cutting machines to cut many layers of cloth at once.
- **Spreader:** Helps in spreading fabric layers neatly before cutting.
- **Marker Maker:** Helps in placing pattern templates on fabric to reduce waste before cutting.
- **Tailoring Unit Worker:** Works in small tailoring shops to cut fabric for shirts, dresses, and other clothes.
- **Sampling Department Worker:** Cuts cloth pieces for new design samples in export or fashion units.
- **Home-Based Cutter:** Works from home to cut fabric for small garment businesses or local tailors.
- **Garment Factory Worker:** Works in big garment factories to cut fabric for the mass production of clothes.
- **Boutique Assistant:** Helps in cutting special fabric designs in designer shops and boutiques.



Fig. 1.1.10: Fabric cutting

1.1.3 Apparel Production Process and the Role of the Fabric Cutter

The apparel production process involves a series of interconnected stages that transform raw materials into finished garments. It begins with product development, followed by sourcing, pattern making, fabric cutting, sewing, finishing, and quality checks before final packaging and shipment.

Each stage demands accuracy and coordination to ensure that garments meet buyer specifications, cost targets, and delivery timelines. Within this workflow, the fabric cutter holds a critical position by ensuring that garment pieces are cut accurately to optimise fabric usage, maintain quality, and prevent delays in sewing operations.

The apparel production process is discussed as follows:

1. **Product Development:** Designs are created, patterns are prepared, and pre-production samples are made for buyer approval.



Fig. 1.1.10: Product development

2. **Material Sourcing:** Fabrics, trims, and accessories are sourced from approved vendors based on quality and cost requirements.



Fig. 1.1.11: Material sourcing

- 3. Pattern Making and Grading:** Standard patterns are developed, graded for different sizes, and checked for accuracy before cutting.

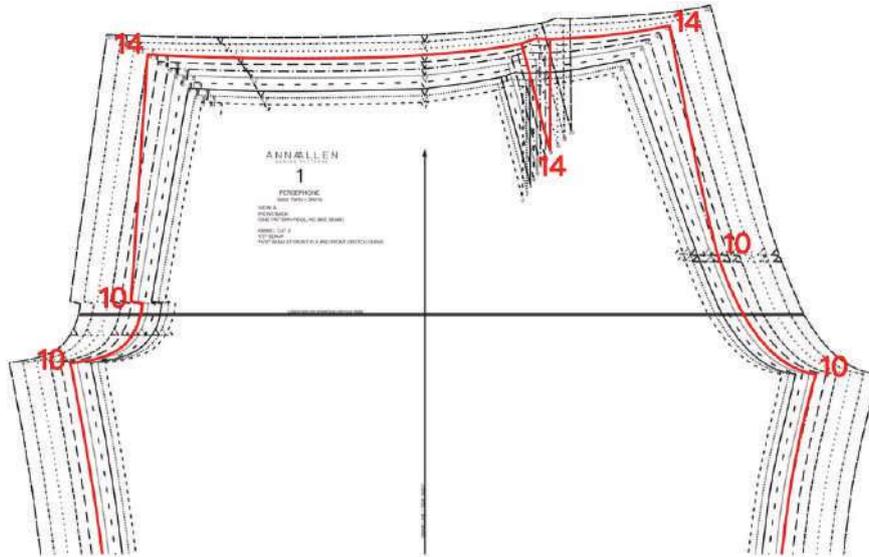


Fig. 1.1.12: Pattern making and grading

- 4. Fabric Inspection and Spreading:** Fabric rolls are inspected for defects and laid out on cutting tables using manual or automated methods.



Fig. 1.1.13: Fabric inspection and spreading

- 5. Fabric Cutting:** Fabric layers are cut according to the marker plan to ensure minimum wastage and the precise shape of garment components.



Fig. 1.1.14: Fabric cutting

- 6. Sewing and Assembly:** Cut pieces are stitched together in production lines, following quality and efficiency standards.



Fig. 1.1.15: Sewing a garment

- 7. Finishing and Quality Control:** Garments are pressed, labelled, and inspected for defects before packing.



Fig. 1.1.16: Checking the quality of the garment

- 8. Packaging and Shipment:** Finished products are packed according to buyer requirements and shipped within committed timelines.



Fig. 1.1.17: Packing the finished products

The role of the fabric cutter in the apparel production process is mentioned as follows:

- **Understanding the Marker Plan:** Interprets marker layouts to ensure fabric is cut efficiently with minimal wastage.
- **Preparing the Fabric:** Ensures fabric is defect-free, aligned correctly, and laid without wrinkles or distortions before cutting.
- **Accurate Cutting:** Cuts fabric layers using appropriate tools (manual scissors, straight knife, band knife, or automated cutters) while maintaining precision.

Manual Scissors	Straight Knife	Band Knife	Automated Cutters
			

- **Bundling and Numbering:** Groups and numbers cut garment parts systematically to prevent mix-ups during sewing operations.
- **Maintaining Cutting Records:** Documents fabric consumption, wastage, and deviations to provide accurate reports for production planning.
- **Ensuring Safety and Quality:** Follows safety standards when handling sharp tools and maintains cutting quality to avoid defective components.
- **Coordinating with Other Departments:** Communicates with pattern makers, supervisors, and production teams to resolve cutting-related issues quickly.
- **Supporting Productivity:** Ensures that sewing lines receive cut components on time to maintain smooth workflow and avoid delays.

1.1.4 Roles, Responsibilities and Personal Attributes of a Fabric Cutter

The main role of a fabric cutter is to cut fabric precisely based on specific patterns and measurements, making it ready for clothing or textile production. This task requires the use of different tools and methods, both by hand and with machines, to ensure accuracy and minimise fabric waste. The key duty of a Cutter 1 is to support cutting activities such as exact yardage cutting, slitting, and pattern cutting, along with completing other assigned tasks.

Fabric Cutter	Fabric Cutting Tool
	

Table 1.1.1: Fabric cutter and tools used in fabric cutting

A fabric cutter prepares and cuts fabric based on set specifications to produce items like garments or upholstery. This role includes using both hand tools and machines to cut, mark, and check fabric pieces for accuracy and quality. Fabric cutters also take care of their tools, follow safety rules, work closely with the production team, and help keep the process running smoothly.

Core Responsibilities of a Fabric Cutter:

- **Cutting Fabric:** Use hand tools (like scissors or rotary cutters) or cutting machines to cut fabric accurately based on patterns and measurements.



Fig. 1.1.18: Fabric cutting

- **Placing and Marking Patterns:** Carefully place pattern pieces on fabric and mark important guidelines like cut lines and notches.

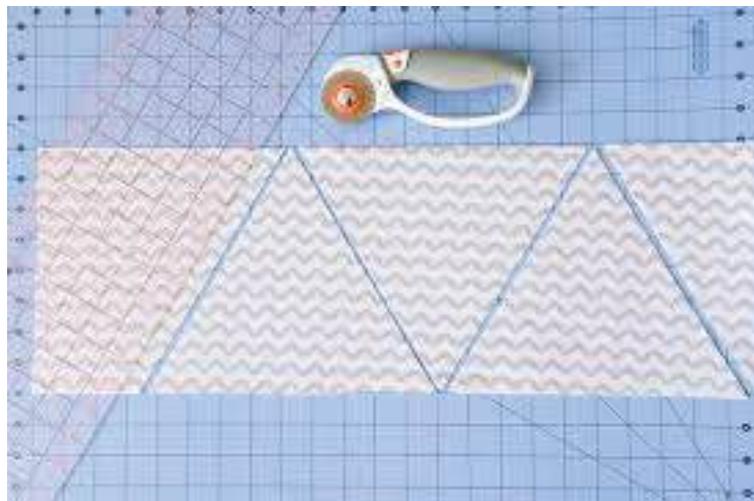


Fig. 1.1.19: Placing the cut fabrics

- **Checking Quality:** Look over cut pieces to make sure they match the required size and shape and are free from any defects.



Fig. 1.1.20: Quality checking of cut fabric

- **Operating and Maintaining Machines:** Set up, adjust, and run fabric cutting machines; also, clean and fix them when needed.



Fig. 1.1.21: Fabric cutting machine

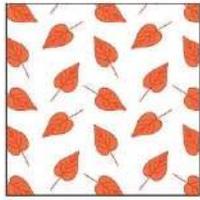
- **Handling Materials:** Receive, move, and prepare fabric rolls or bundles for cutting.



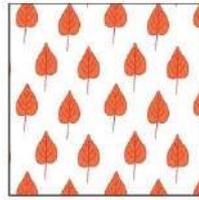
Fig. 1.1.22: Fabric rolls

- **Reading Instructions:** Understand and follow pattern layouts, blueprints, or written instructions to cut fabric correctly.

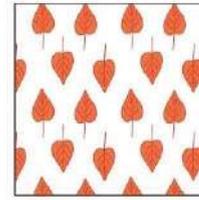
SURFACE PATTERN LAYOUTS



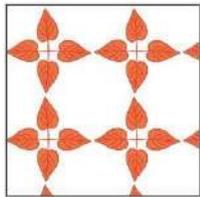
ALL OVER



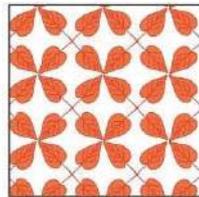
ONE WAY / DIRECTIONAL



TWO DIRECTIONAL



MULTI-DIRECTIONAL



MULTI-DIRECTIONAL



PLACEMENT

Fig. 1.1.23: Pattern layouts

- **Keeping Records:** Track how much fabric is used, pieces cut, and other production details.
- **Teamwork:** Work with tailors, designers, or machine operators to keep production running smoothly.
- **Following Safety Rules:** Always follow safety procedures to avoid accidents and keep the workspace safe.

Specific Job Tasks:

- **Cutting Fabric Pieces:** The Main task of cutting fabric is to use the correct method based on fabric type and design needs.



Fig. 1.1.24: Fabric cutting

- **Marking Seam Lines:** Clearly draw lines to show where seams should be sewn.



Fig. 1.1.25: Marking seam line

- **Marking Notches:** Add notches to fabric edges to guide the joining of pieces.

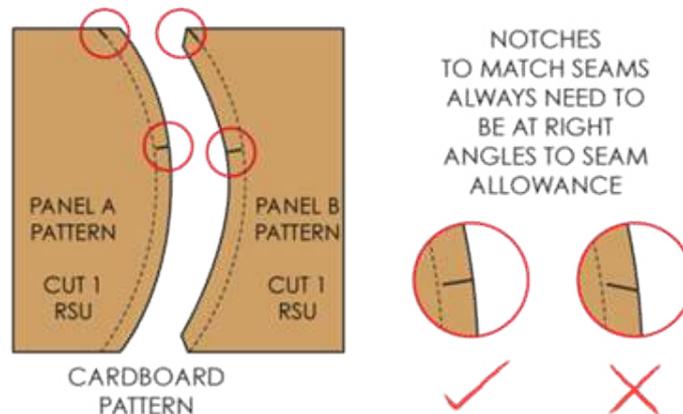


Fig. 1.1.26: Marking notches

- **Inspecting for Flaws:** Check each piece for any damage or mistakes and correct them if needed.

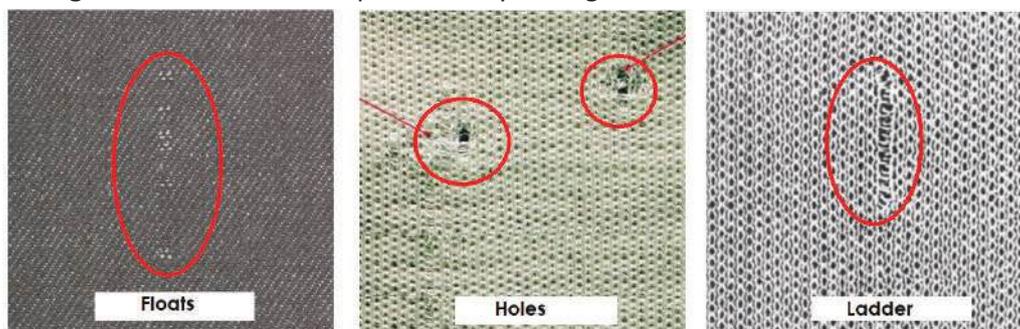


Fig. 1.1.27: Flaws in fabrics

- **Organising Cut Parts:** Sort and arrange the cut fabric pieces according to the plan so they are ready for the next steps.



Fig. 1.1.28: Organising fabric cut parts

Personal Attributes required for a Fabric Cutter

A fabric cutter must be careful, accurate, and have strong hand-eye coordination. It is important to be detail-focused, follow instructions well, and understand the different types of fabrics and how they behave. Good math skills, physical strength, and the ability to stay calm and focused under pressure are also useful in this job. The role combines physical work with attention to fine details, requiring both mental focus and manual skill.



Fig. 1.1.29: Fabric cutting with straight knife

Personal Attributes required for a Fabric Cutter

A fabric cutter must be careful, accurate, and have strong hand-eye coordination. It is important to be detail-focused, follow instructions well, and understand the different types of fabrics and how they behave. Good math skills, physical strength, and the ability to stay calm and focused under pressure are also useful in this job. The role combines physical work with attention to fine details, requiring both mental focus and manual skill.



Fig. 1.1.30 : Fabric cutting mechanism

Important Qualities for a Fabric Cutter:

- **Precision and Detail Focus:** Cutting fabric must be done very accurately so the pieces fit together properly, especially in clothing or upholstery.
- **Clear Vision and Hand Control:** Being able to see patterns up close and match them with cutting tools is key, along with steady hands and proper coordination.
- **Patience and Concentration:** Since the work can be repetitive, it's important to stay focused for long periods.
- **Following Instructions:** Understanding and following pattern layouts and guides ensures correct cutting and good final products.
- **Basic Math Skills:** Measurements and simple calculations are part of the job, especially when using design software.
- **Manual Skill and Ability:** Good control of the hands and fingers helps with using scissors, knives, and other cutting tools effectively.
- **Physical Strength and Stability:** The work may involve lifting fabric rolls and standing for long hours.
- **Handling Pressure:** Meeting deadlines and production goals means working quickly while still being careful.

Summary

- The apparel industry is a globally significant sector providing large-scale employment.
- Fabric cutting is an essential stage in garment manufacturing that affects quality and productivity.
- Various employment opportunities exist for Fabric Cutters in garment factories, export houses, and design units.
- The apparel production process includes fabric cutting as a crucial step before stitching and finishing.
- Fabric Cutters play a key role in preparing accurate fabric components as per design requirements.
- They are responsible for precision, quality checks, and efficient use of fabric resources.
- Understanding their roles and responsibilities ensures smooth workflow and timely production.

Exercise

Multiple-choice Question:

1. What is the global significance of the apparel industry?
 - a. It provides entertainment only
 - b. It is a major source of employment and trade
 - c. It is limited to local markets only
 - d. It manufactures only household items
2. Which of the following is an employment opportunity for a Fabric Cutter?
 - a. Bank cashier
 - b. Export house worker
 - c. Software engineer
 - d. Bus driver
3. What is the main role of a Fabric Cutter in apparel production?
 - a. To stitch garments
 - b. To pack finished products
 - c. To prepare accurate fabric parts for stitching
 - d. To design marketing posters
4. Which step comes before stitching in the apparel production process?
 - a. Retail display
 - b. Fabric cutting
 - c. Customer feedback
 - d. Shipping garments
5. What responsibility is expected from a Fabric Cutter?
 - a. Writing advertisements
 - b. Ensuring precise and efficient cutting
 - c. Driving delivery vehicles
 - d. Selling clothes in stores

Descriptive Questions:

1. Elaborate on the size and scope of the apparel industry and explain why it is globally significant.
2. Describe various employment opportunities available for a Fabric Cutter.
3. Explain the apparel production process and highlight where fabric cutting fits in.
4. Discuss the main roles and responsibilities of a Fabric Cutter in ensuring quality production.
5. Illustrate how the work of a Fabric Cutter affects overall garment production efficiency.



2. Plan and Prepare for Process of Cutting Fabrics as per the Job Card Received



Unit 2.1 - Fabric Preparation and Marking Methods



Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Identify the different types of fabrics.
2. Identify the types of trims and accessories.
3. Explain the properties of types of fabrics and their trade names.

UNIT 2.1: Fabric Preparation and Marking Methods

Unit Objectives

By the end of this unit, the participants will be able to:

1. Describe basic textile terminology, types of fabrics, and their trade names, such as chiffon, georgette, and poly-cotton.
2. Explain fabric characteristics, including feel, structure, construction, and grain line.
3. Outline the different types of fabric defects, such as holes, stains, and slubs.
4. Discuss common layering and spreading defects, such as faulty prints and incorrect methods used.
5. State the methods to utilise the information detailed in specifications and instructions effectively.
6. Interpret equipment operating procedures or manufacturer's instructions for correct application.
7. State the importance of following organisational rules, codes, and guidelines, including timekeeping.
8. Mention how various layering and spreading processes are carried out in practice.
9. Demonstrate how to make various types of patterns, markers, tools and methods required for marking.
10. Calculate the quantity of fabric needed against the job card received.

2.1.1 Basic Textile Terminology, Types of Fabrics, and their Trade Names

Textile words are used to explain how cloth is made, what it feels like, and how it is used. Fabrics are made from different kinds of fibres such as cotton, silk, or polyester, and each type has its own features. Some fabrics are soft and light, like chiffon, while others are stronger and thicker, like poly-cotton. Knowing the names and types of fabrics helps a fabric cutter select the right material for making clothes and cut it properly without wasting cloth. This knowledge also helps in planning how to handle, fold, and cut each fabric neatly for better quality garments.

Topic	Images	Description	Significance
Textile Terminology		Words used to talk about cloth, yarn, and fibres.	Understanding terms like "weave," "knit," or "blend" helps when cutting cloth.

Topic	Images	Description	Significance
Natural Fabrics		Cloth made from plants or animals.	Cotton is soft and easy to cut for shirts.
Man-made Fabrics		Cloth made by humans using chemicals or machines.	Polyester is smooth and strong, good for uniforms.
Blended Fabrics		Cloth made by mixing natural and man-made fibres.	Poly-cotton is soft like cotton but strong like polyester.
Chiffon		A very light, see-through fabric.	Needs careful cutting so it does not slip on the table.
Georgette		A soft, slightly rough fabric that drapes well.	Needs sharp cutting tools to keep edges clean.
Poly-cotton		A fabric made by mixing polyester and cotton.	Easy to cut and does not wrinkle too much.

Table 2.1.1: Basic textile terminology, types of fabrics, and their trade names

2.1.2 Fabric Characteristics

Fabric has special features that help in deciding how to cut and sew it. The way a fabric feels, its structure, how it is made, and the direction of its threads are all important.

A fabric cutter studies these features to make sure the cloth is cut correctly and used without waste. Knowing these details helps to make clothes that fit well and look neat.

Fabric Characteristic	Meaning	Importance of a Fabric Cutter	Example
Feel (Texture)	How the fabric feels to touch – soft, smooth, rough, or silky.	Helps choose the right clothes for comfort and design.	Cotton feels soft, denim feels rough.
Structure	How the fabric holds its shape – stiff, stretchy, or flowing.	Guides how to lay and cut the fabric without mistakes.	Silk flows easily, canvas is stiff.
Construction	How the fabric is made – woven, knitted, or non-woven.	Tells how the fabric behaves while cutting and sewing.	T-shirt fabric is knitted, bedsheets are woven.
Grain Line	The direction of threads running in the fabric.	Ensures cutting is straight so clothes do not twist or lose shape.	Straight grain in pants helps them hang well.
Weight	How light or heavy the fabric feels.	Decides if the fabric is good for summer or winter clothes.	Chiffon is light, wool is heavy.
Stretch	How much the fabric can expand when pulled.	Helps in making fitted or flexible garments.	Lycra stretches; cotton does not stretch much.
Durability	How strong and long-lasting the fabric is.	Helps decide where to use the fabric – for daily wear or special wear.	Polyester lasts long, and silk is delicate.

Table 2.1.2: Fabric characteristics

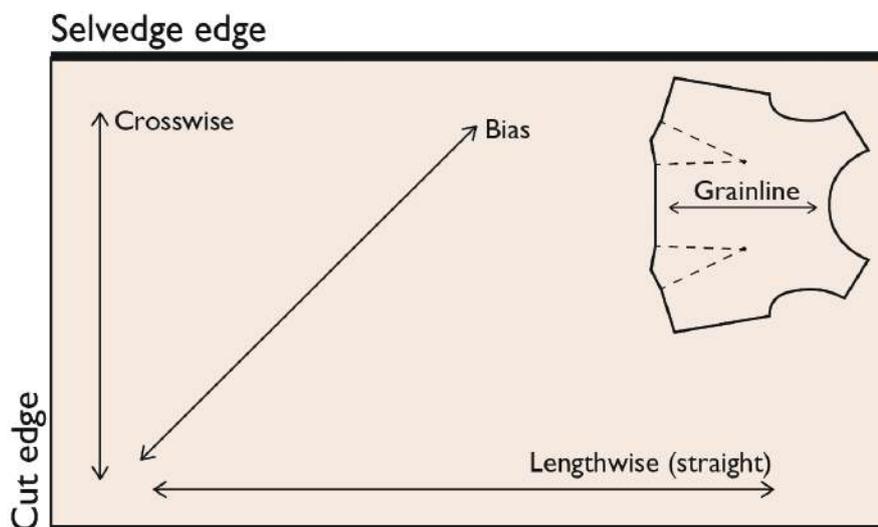
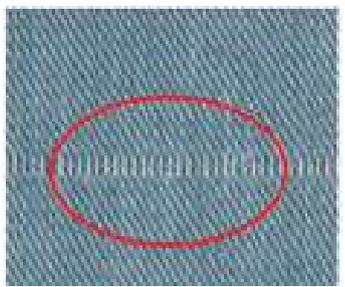
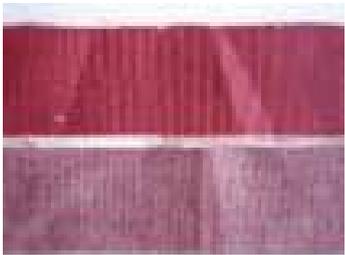


Fig. 2.1.1: Grainline

2.1.3 Different Types of Fabric Defects

A fabric cutter checks the fabric carefully before cutting. Sometimes the fabric has defects like holes, stains, or thick threads. These problems must be found early to avoid using bad fabric. The cutter must also see how big or how many defects there are to decide whether to use or reject the fabric.

Defect Name	Images	What It Looks Like	How Serious Is It	What Cutter Does
Holes		Small or big gaps in the fabric	Very serious – the fabric is weak there	Marks the area, does not cut that part
Stains		Dirty spots or marks (like oil or ink)	Medium to serious – depends on size & place	Avoids the area or tells the supervisor
Slubs		Thick lumps or uneven threads in fabric	Sometimes okay – if small and not many	Cuts around it or uses if not very visible
Missing Picks		Lines are missing in the fabric weaving	Serious – makes the fabric weak or loose	Marks and avoids using that piece of fabric
Colour Fading		The patch looks lighter or duller than other parts	Medium – looks bad on finished item	Avoids or reports it

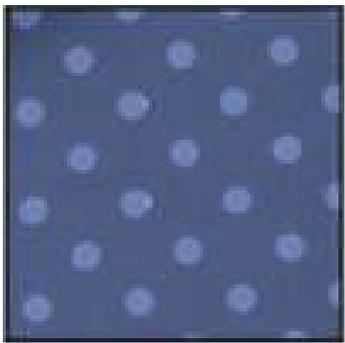
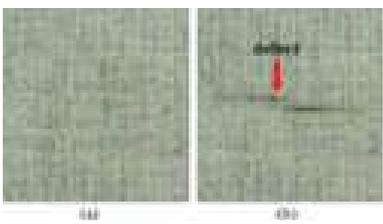
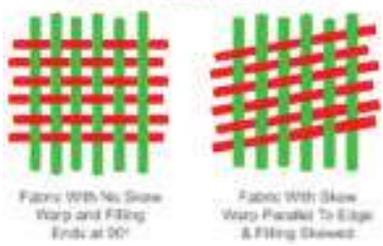
Defect Name	Images	What It Looks Like	How Serious Is It	What Cutter Does
Printing Errors		The design looks wrong or incomplete	Serious – affects the final look	Reports and does not cut that area
Snags		Threads pulled out and hanging	Medium – may tear easily	Cuts carefully around or reports it

Table 2.1.3: Common fabric defects, their severity and remedial action

2.1.4 Common Layering and Spreading Defects

Fabric cutters must carefully check fabrics before cutting to make sure there are no mistakes. Some common problems happen during the spreading process when the fabric is laid out for cutting. These problems include things like uneven layers, wrinkles, or prints that do not match. If these defects are not fixed, the final product may not look good or fit correctly.

Defect Type	Images	Description
Faulty Prints		Designs or patterns do not match or are printed in the wrong place.
Incorrect Layering (for example, seam puckering)		Fabric layers are not stacked evenly, causing size differences in cut pieces.

Defect Type	Images	Description
Skewed Fabric	<p style="text-align: center;">Woven Fabric Skewness</p> 	Fabric is placed at an angle, leading to incorrectly shaped cuts.
Wrinkles or Creases		Folds or lines in fabric during spreading affect cutting and appearance.
Tension Issues		Fabric is stretched too tightly or loosely, resulting in uneven cutting.
Misaligned Selvedge	<p style="text-align: center;">SELVAGE</p> 	Fabric edges are not aligned properly, leading to wastage and wrong cuts.
Fabric Overlap or Gaps		Layers overlap or have gaps, causing cutting errors.
Shading Variation		Different fabric rolls with varying colour shades cause mismatched parts.

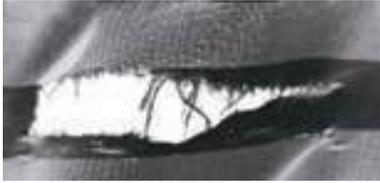
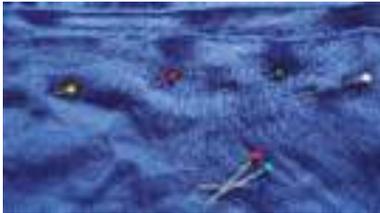
Defect Type	Images	Description
Loose Threads or Lint		Extra threads or dust affect the machine's cutting and the product's look.
Foreign Objects		Items like pins or labels in fabric can damage cutting blades and accuracy.

Table 2.1.4: Types of fabric and spreading defects

2.1.5 Methods to Utilise the Information Detailed in Specifications and Instructions

Job Card Instructions and Other Written Communications

A fabric cutter uses job cards to understand what work to do each day. The job card tells what kind of fabric to cut, how many pieces to cut, and what shape or pattern to follow. These instructions may be written in English or in the local language. Reading and following these written instructions properly helps finish the work correctly and on time.

STYLE DETAILS :-		DATE :- 06/05/2021					
BRAND	HERE&NOW						
STYLE NO.	RWJA 1131						
FIT	REGULAR TRUCKER						
FABRIC NO	57065						
COLOUR	INDIGO						
ORDER QTY.	950 PCS						
BODY AVERAGE							
POCKETING AVERAGE							
	SIZES						
	XS	S	M	L	XL	XXL	TOTAL
RWJA-1131	86	228	266	352	428	50	950
EXTRA CUT QTY							
CUTTING RATIO							
ZIPPER SIZE							

COMMENTS :-	STYLING AS PER ORIGINAL.
	FOLLOW TECH PACK

TOTAL FABRIC RECEIVED :-

Prepared By	Received By

Fig. 2.1.2: Job card used by fabric cutters

The detailed instructions and written communication that are required for a fabric cutter are stated as follows:

- Read the job card before starting any cutting work.
- Find the name of the fabric written on the card (like cotton, polyester, etc.) and check if the correct fabric is ready.
- Check the length and width of fabric needed for the job.
- Count the number of pieces to be cut and see their sizes on the job card.
- Look for pictures or drawings that show the pattern or shape to cut.
- Some job cards show cutting layouts – follow them to place the patterns correctly on the fabric.
- Follow any colour matching or print alignment instructions mentioned.
- Understand the fabric grain direction if marked on the job card.
- Look for symbols or marks, like arrows or numbers, to guide the cutting process.
- If anything is written in the local language (e.g., Hindi, Tamil, Bengali), read it carefully or ask someone to explain.
- Safety instructions may be written, such as wearing gloves or keeping fingers away from the blade – follow them always.
- After cutting, check if all pieces match the given sizes and shapes.
- Tick off or mark the completed items on the job card.
- If something is missing or unclear, report to the supervisor before cutting.
- Keep the job card safe and clean, and return it after completing the work.



Fig. 2.1.3: Wearing gloves

Fabric Quantity and Number of Components required for a Specific Style using the Job Card

A job card is like an instruction paper that tells what is needed to make a garment. It shows the amount of fabric and the number of parts needed for one style. The fabric cutter uses the job card to cut pieces in the right size, colour, and quantity. This helps save fabric and ensures that no part is missing.

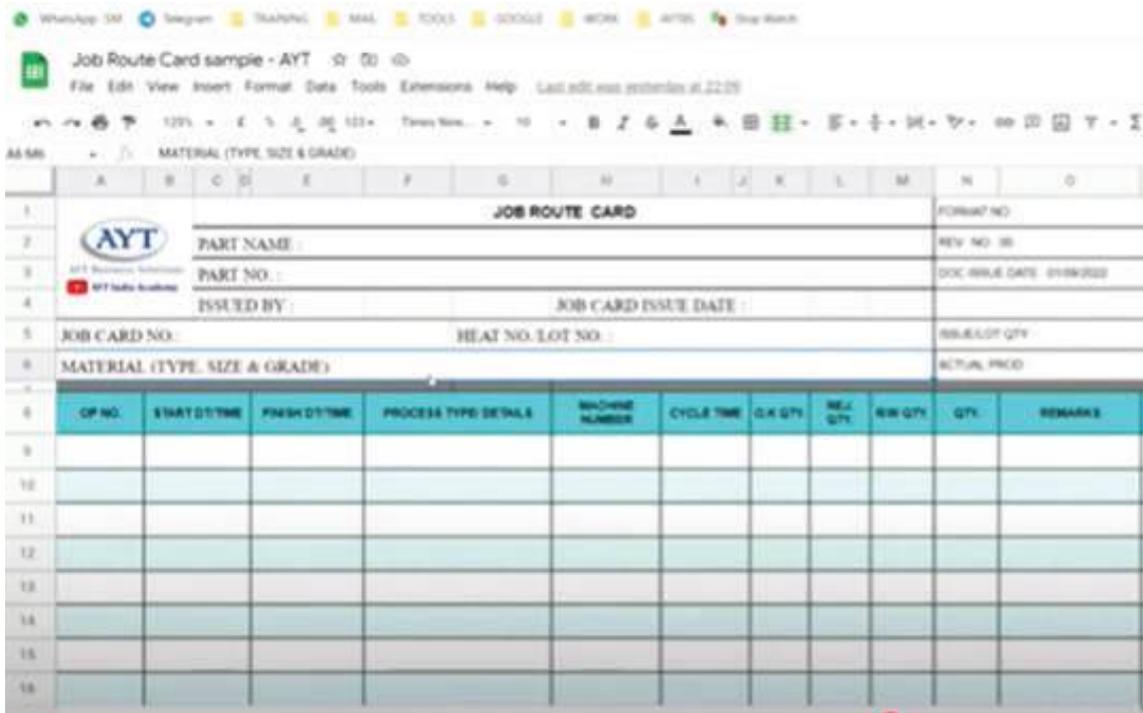


Fig. 2.1.4: Job card

In textiles, the term “fabric quantity” can describe two main factors: fabric count and fabric length or area. Fabric count, measured as ends per inch (EPI) and picks per inch (PPI), shows how tightly the yarns are woven in the fabric. Fabric length or area, given in yards, meters, or square meters, refers to the physical size of fabric required for a particular garment, project, or per-yard purchase. Together, these measurements help determine both the quality and the amount of fabric needed.

On the other hand, Fabric count is the measurement of how many warp yarns (running lengthwise) and weft yarns (running widthwise) are present in each inch or centimetre of a woven fabric.

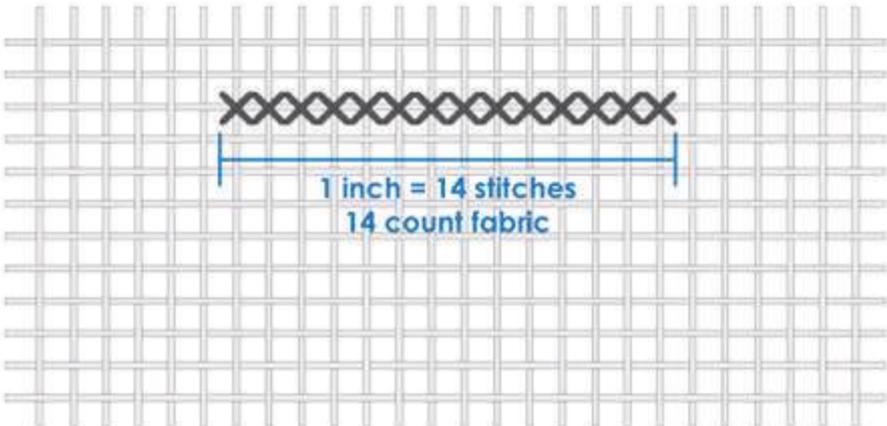


Fig. 2.1.5: Fabric count

EPI (Ends per Inch) indicates the number of warp yarns in one inch of fabric, whereas **PPI (Picks per Inch)** shows the number of weft yarns in one inch of fabric.

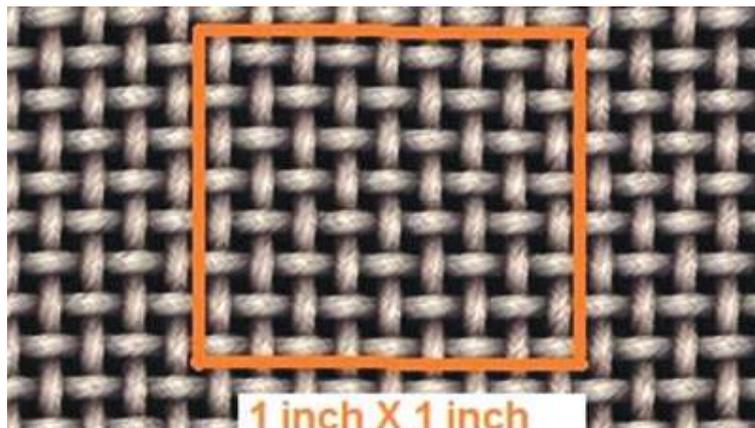


Fig. 2.1.6: EPI and PPI

Fabric Length/Area helps to describe the total amount of fabric required for a specific garment or project, measured in yards, meters, or square meters.

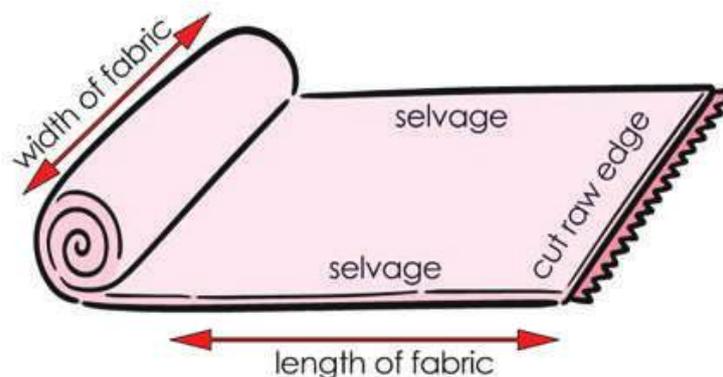


Fig. 2.1.7: Fabric length

Fabric Width is the measurement across the fabric roll, which plays an important role in calculating the total fabric needed for the work.

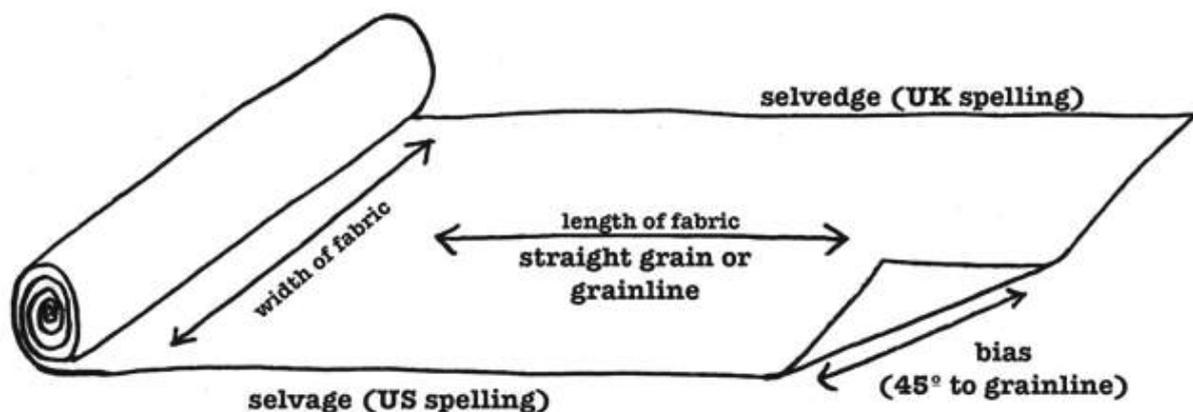


Fig. 2.1.8: Fabric width

The fabric quantity and the number of components required for a specific style using the job card are mentioned as follows:

- The job card shows the style name or number so the cutter knows which design is being made.
- It lists the total fabric quantity needed for that style, usually given in metres or yards.
- It mentions fabric width so the cutter can plan the marker length correctly.
- The card tells the number of components (parts) to cut for one garment.
- Components can include:
 - Front body piece
 - Back body piece
 - Sleeves
 - Collar
 - Cuffs
 - Pockets
- Waistband or other parts as per style
- The job card mentions how many garments are to be made, so the cutter multiplies the component count accordingly.
- It also states colour and fabric type to avoid mixing with other orders.
- The cutter checks the fabric roll length before starting to make sure it matches the job card details.
- If the fabric quantity is less than required, the cutter informs the supervisor before cutting.
- Using the job card helps avoid over-cutting or missing components.
- It also helps keep proper records for production tracking.

Appropriate Actions for Fabric Planning and Preparation based on the Job Requirements

Fabric planning and preparation make sure that the right material is ready before cutting starts. This process avoids delays, mistakes, and wastage during production. It includes checking fabric type, quality, and measurements, and matching them with the job card requirements. Proper preparation also keeps the workflow smooth and helps in making garments correctly.

The appropriate actions for fabric planning and preparation based on the job requirements are mentioned as follows:

The fabric cutter begins by studying the job card to know the exact style, fabric type, colour, size breakdown, and quantity required. Fabric rolls are taken from the store and measured to confirm they match the needed length and width.



Fig. 2.1.9: Ongoing fabric cutting

Each roll is inspected under proper light to find and mark any stains, holes, weaving faults, or colour shade variations. The fabric is then relaxed for several hours or overnight to reduce tension and avoid shrinkage after cutting. Markers are prepared according to the style and size ratio, making sure to use fabric efficiently.



Fig. 2.1.10: An electric fabric cutter

Tools such as cutting blades, weights, scales, and measuring tapes are checked and placed near the cutting table. The spreading process is planned to ensure correct ply height, grainline alignment, and fabric face direction. Any shortage or defect is reported immediately to the supervisor so it can be replaced or adjusted before cutting. This careful planning and preparation help in achieving accurate cuts and high-quality garment production.

2.1.6 Equipment Operating Procedures or Manufacturer's Instructions for Correct Application

Required Tools and Equipment for Fabric Cutting

The right tools and equipment are important for cutting fabric quickly and correctly. Each tool has a special use to make the job easier and safer. A fabric cutter keeps all tools clean, sharp, and ready for work.

Tool/Equipment	Images	Purpose
Fabric cutting table		Gives a flat and steady surface for spreading and cutting fabric
Fabric scissors		Cuts fabric smoothly without fraying the edges

Tool/Equipment	Images	Purpose
<p>Rotary cutter</p>		<p>Cuts many layers of fabric neatly with less effort</p>
<p>Measuring tape</p>		<p>Measures fabric length and width accurately</p>
<p>Fabric marker/ chalk</p>		<p>Marks lines, notches, or points for cutting without damaging the fabric</p>
<p>Pins and clips</p>		<p>Holds fabric layers together before and during cutting</p>

Tool/Equipment	Images	Purpose
Pattern paper		Shows the shapes and sizes for cutting pieces
Weighing scale		Checks fabric weight for records and consumption calculation
Safety gloves		Protects hands from cuts and injuries
Electric fabric cutter		Cuts multiple layers faster for bulk production
Vacuum cleaner/brush		Cleans fabric dust and scraps from the table

Table 2.1.5: Tools and equipment for fabric cutting

Various Cutting Methods

Different cutting methods are used in fabric work to suit different needs. Some methods save more time, while others save more fabric. Choosing the right method helps in finishing the job faster and with less waste. A fabric cutter compares each method to find the best one for the work.

Cutting Method	Images	Description	Time Efficiency	Material Usage Efficiency	Best Use Case
Manual scissor cutting		Uses large fabric scissors to cut pieces one by one	Low	Medium	Small batches, detailed work
Rotary cutter cutting		Uses a round blade to cut through layers smoothly	Medium	High	Quilting, layered fabric cutting
Electric straight knife		Uses a powered blade to cut many layers at once	High	High	Bulk garment production
Band knife cutting		Uses a continuous loop blade for accurate curves and shapes	High	High	Cutting complex shapes in large quantities

Cutting Method	Images	Description	Time Efficiency	Material Usage Efficiency	Best Use Case
Die cutting		Uses a shaped die and a press to cut pieces quickly	Very High	Very High	Repeated identical shapes for mass production
Laser cutting		Uses laser beams for very precise cuts without touching the fabric	Medium	Very High	Technical fabrics, detailed designs, no fraying edges

Table 2.1.6: Different cutting methods

2.1.7 Importance of Following Organisational Rules, Codes, and Guidelines

Every workplace has rules, codes, and guidelines to make sure work is safe, correct, and on time. A fabric cutter must follow these instructions to avoid wasting cloth, tools, and time. Timekeeping is also very important because it keeps production on schedule. Following rules and being on time builds trust and helps the whole team finish work without problems.

A fabric cutter needs to follow company rules to keep the work area safe and organised. These rules include wearing safety gear, handling cutting tools properly, checking measurements carefully, and keeping the workplace clean. Safety codes protect the cutter from accidents like cuts or injuries and stop damage to fabric and machines. Company guidelines help decide how to cut fabric pieces correctly to avoid wastage and to make sure the designs match the customer's order.

Being on time every day is very important because the fabric cutting work is the first step in making clothes or home furnishings, if cutting is late, stitching and packing will also be delayed. Timekeeping shows that the cutter is serious about work, helps managers plan daily tasks, and makes sure deliveries are made on time. When all workers follow these rules, the team can finish work faster, use resources properly, and keep customers happy.

2.1.8 Various Layering and Spreading Processes

Layering is the process of placing fabric one on top of another in a neat and even way before cutting. It helps in cutting many pieces at once, saving time and effort. Special machines are used to make this process fast and accurate. A fabric cutter uses different methods and tools to ensure the fabric is smooth, aligned, and ready for cutting.

Process of Laying Fabrics

Laying fabric properly is an important step before cutting. If the fabric is laid efficiently, it helps save material and avoid waste. A fabric cutter must follow the correct method to spread the fabric neatly and in order. This helps to keep fabric wastage within the allowed limit and improves work quality.



Fig. 2.1.11: Laying of fabric

The process of laying fabrics efficiently to ensure wastage remains within defined tolerance limits is given below:

- **Check the fabric roll before spreading:** Make sure the fabric is clean and has no defects.
- **Align the fabric edges properly:** Keep the selvedge (edge of the fabric) straight to avoid wrong cuts.
- **Spread fabric in smooth layers:** Avoid wrinkles, folds, or loose threads while laying each layer.
- **Use the correct lay type:** Choose single lay or multi-ply lay based on the fabric and order size.
- **Match fabric direction and grain:** Keep the same direction for all layers to avoid mismatched parts.
- **Use markers correctly:** Place the marker on top of the lay to guide cutting and reduce waste.
- **Avoid extra fabric usage:** Spread only the amount of fabric needed as per the cutting plan.
- **Measure the lay height:** Keep the number of layers within the machine's capacity for safety and accuracy.
- **Cut edges cleanly after laying:** Trim the lay ends neatly to avoid loose pieces and fabric loss.
- **Record fabric usage and leftover:** Note how much fabric is used and how much is saved or left to avoid overuse.

Various Spreading Processes

On the other hand, the spreading process involves laying fabric in many layers on a long table before cutting the garment parts. It must be done neatly so the fabric stays smooth and straight.

A fabric cutter makes sure the grain line is correct, defects are marked, and the fabric does not stretch.

This helps to save fabric, keep garment sizes correct, and avoid mistakes during cutting.

Layering and Spreading Process	What Happens in This Process	Machine or Tool Used	Images
Manual Spreading	Fabric is spread by hand on the table, layer by layer.	Spreading table, fabric weights	
Semi-Automatic Spreading	A machine helps to pull and lay the fabric, but the cutter controls the speed.	Semi-automatic spreading machine	
Automatic Spreading	The machine spreads the fabric by itself with even tension and alignment.	Fully automatic spreading machine	
Block or Step Spreading	Fabric is spread in steps for cutting thick or slippery material.	Spreading machine with tension control	
Zig-Zag spreading	Fabric is laid forward and backward in a zig-zag way without cutting.	Face-to-face spreading machine	
One-Way Spreading	Fabric is spread in one direction only, cutting each end before returning.	Manual or automatic spreading machine	

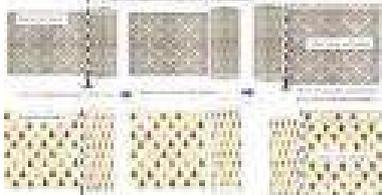
Layering and Spreading Process	What Happens in This Process	Machine or Tool Used	Images
Flat Table Spreading	Fabric is laid flat with no folds to keep edges straight.	Flat spreading table	
Layer Counting	Each layer is counted to make sure the correct quantity is spread.	Digital counter or manual counting tool	
Single Ply Spreading	Fabric is laid in one flat layer on the table.	Manual spreading table, fabric weights.	
Multiple Ply Spreading	Many layers are spread evenly, one on top of another.	Manual spreading or an automatic spreader	
Face-to-Face Spreading	Two layers are laid with their faces touching each other.	Manual spreading table, fabric guides	
Nap-One-Way Spreading	Fabric is laid in the same direction for every layer.	Manual spreading table or automatic spreader	

Table 2.1.7: Key layering processes and the associated machinery used in fabric cutting

2.1.9 Different Types of Patterns, Markers, Tools, and Marking Methods

Patterns are fundamental components in garment production, providing the template or blueprint for the design and construction of clothing. They dictate the shape, size, and structure of the garment and are essential for ensuring uniformity, accuracy, and a smooth manufacturing process. The types of patterns used in the apparel industry vary based on the method of creation, the garment type, and the complexity of the design.

Understanding the different types of patterns and their applications helps manufacturers and designers select the most appropriate method for each project, optimising efficiency and ensuring a quality final product. According to the Fashion Institute of Technology (2023), the accuracy of patterns significantly affects the fit and comfort of a garment, making them one of the most critical steps in the garment production process.



Fig. 2.1.12: Pattern making

Types of Patterns in Garment Production

There are several types of patterns, each used for different purposes and varying in complexity and design. These patterns can be broadly classified into four primary types:

1. **Block Patterns (Basic Patterns):** Block patterns, also known as basic patterns, are foundational templates that represent the core structure of a garment. These patterns are used as starting points for creating more complex designs. Block patterns are typically standardised and are drafted based on generic body measurements.

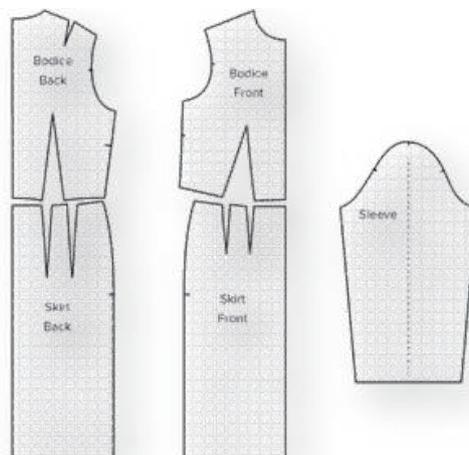


Fig. 2.1.13: Block patterns

- **Application:** Block patterns are used to create a variety of garments by modifying them to fit different styles, sizes, and design requirements. For example, a basic dress block can be adapted to create various dress styles, such as A-line, sheath, or empire waist dresses.
 - **Advantages:** They provide a stable foundation for all garment designs, ensuring consistency in measurements and proportions.
2. **Sloper Patterns:** Sloper patterns are very similar to block patterns but are designed to be more tailored and are typically made to fit a specific body shape or figure. They are custom-fitted to an individual or a specific size range and are used as a basis for pattern drafting.

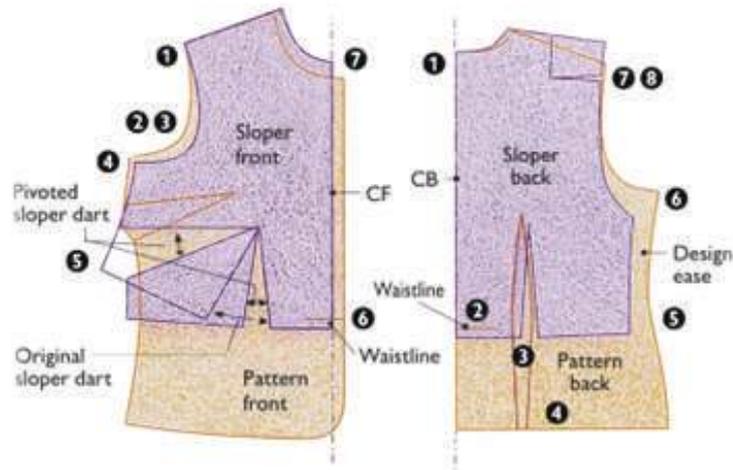


Fig. 2.1.14: Sloper pattern

- **Application:** Sloper patterns are often used for high-fashion or custom-made garments. Designers modify the sloper to create unique designs while ensuring the fit remains perfect. For example, a sloper for a jacket can be adapted to create different types of outerwear with varying styles.
 - **Advantages:** They provide a closer fit to the body and are ideal for designing garments for individual clients or specific body types.
3. **Graded Patterns:** Grading is the process of creating variations of different sizes of a base pattern. Graded patterns are used to produce garments in a range of sizes, from small to large, ensuring that designs can be mass-produced for diverse markets.



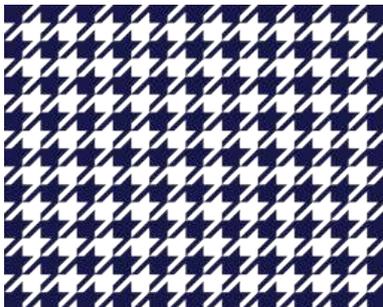
Fig. 2.1.15: Graded patterns

- **Application:** Graded patterns are essential for ready-to-wear clothing and mass production. For example, a base pattern for a shirt can be graded into sizes ranging from XS to XL, allowing manufacturers to produce garments in a variety of sizes without needing to redesign the pattern for each size.
- **Advantages:** Grading ensures consistency in fit across different sizes, making it possible to cater to a broader customer base.

4. **Fashion Patterns:** Fashion patterns are used to create garments that are designed according to specific seasonal trends, customer preferences, or designer concepts. These patterns are often more intricate and complex, incorporating style lines, pleats, and decorative elements.

- **Application:** Fashion patterns are used in high-street fashion and designer collections. For example, a pattern for a trendy blouse may include additional elements such as ruffles, embroidery, or a special collar design that reflects current fashion trends.
- **Advantages:** Fashion patterns offer flexibility in design, enabling designers to create garments that align with contemporary trends while maintaining their unique style.

Types of Fabric Patterns

Fabric Pattern	Description	Common Applications
 <p data-bbox="379 1182 443 1214">Plaid</p>	<p data-bbox="651 1016 954 1115">Crossed horizontal and vertical bands in multiple colours</p>	<p data-bbox="1043 1055 1362 1086">Shirts, skirts, suits, scarves</p>
 <p data-bbox="331 1570 491 1601">Houndstooth</p>	<p data-bbox="651 1384 954 1451">Broken check pattern, typically black and white</p>	<p data-bbox="1043 1384 1362 1451">Coats, blazers, dresses, and accessories</p>
 <p data-bbox="368 2024 454 2056">Paisley</p>	<p data-bbox="651 1809 959 1877">Intricate teardrop-shaped motifs</p>	<p data-bbox="1043 1809 1347 1877">Shawls, dresses, ties, and luxury fabrics</p>

Fabric Pattern	Description	Common Applications
 <p data-bbox="376 701 448 730">Floral</p>	<p data-bbox="651 483 1011 546">Designs featuring flowers and foliage</p>	<p data-bbox="1043 483 1326 546">Dresses, blouses, home textiles</p>
 <p data-bbox="368 1155 458 1184">Stripes</p>	<p data-bbox="651 938 932 1001">Parallel lines of varying thickness and spacing</p>	<p data-bbox="1043 938 1374 1001">T-shirts, formal shirts, suits, and dresses</p>
 <p data-bbox="347 1520 491 1550">Polka Dots</p>	<p data-bbox="651 1348 1011 1411">Evenly spaced circular dots on fabric</p>	<p data-bbox="1043 1348 1335 1411">Dresses, tops, children's wear, accessories</p>
 <p data-bbox="339 1975 501 2004">Camouflage</p>	<p data-bbox="651 1758 959 1821">Military-inspired abstract patterns</p>	<p data-bbox="1043 1776 1385 1805">Jackets, trousers, streetwear</p>

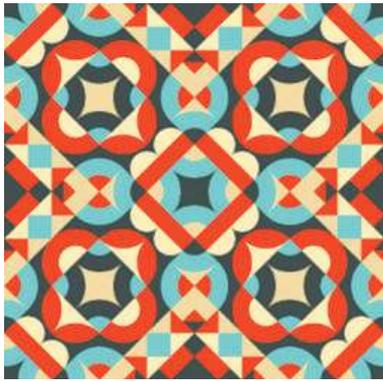
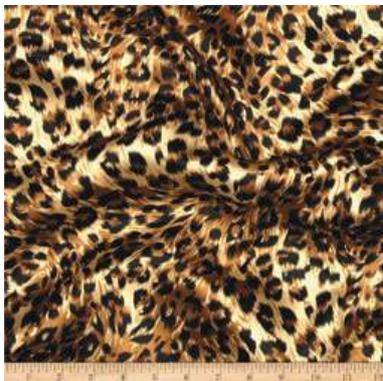
Fabric Pattern	Description	Common Applications
 <p data-bbox="347 701 480 730">Geometric</p>	<p data-bbox="651 465 986 566">Repeated geometric shapes like triangles, squares, and circles</p>	<p data-bbox="1043 488 1385 544">Modern dresses, activewear, and home décor</p>
 <p data-bbox="336 1155 491 1184">Animal Print</p>	<p data-bbox="651 943 948 999">Imitation of animal skins (leopard, zebra, snake)</p>	<p data-bbox="1043 954 1362 987">Dresses, coats, bags, shoes</p>
 <p data-bbox="360 1520 469 1550">Chevron</p>	<p data-bbox="651 1330 975 1431">The zig-zag pattern is often used in bold or subtle variations</p>	<p data-bbox="1043 1352 1337 1408">Dresses, knitwear, home furnishings</p>

Table 2.1.8: Types of fabric patterns

Various Types of Markers

A fabric cutter uses markers to plan how fabric pieces will be cut. Different fabric lay forms need different types of markers to match the fabric direction, pattern, and number of layers. Using the right marker helps to avoid mistakes and reduce fabric waste. It also helps in cutting the fabric quickly and correctly.

The marker types based on different fabric lay forms are mentioned as follows:

- **Single-Ply Marker:** Used when cutting only one layer of fabric. Helpful for special or expensive fabric where careful cutting is needed.

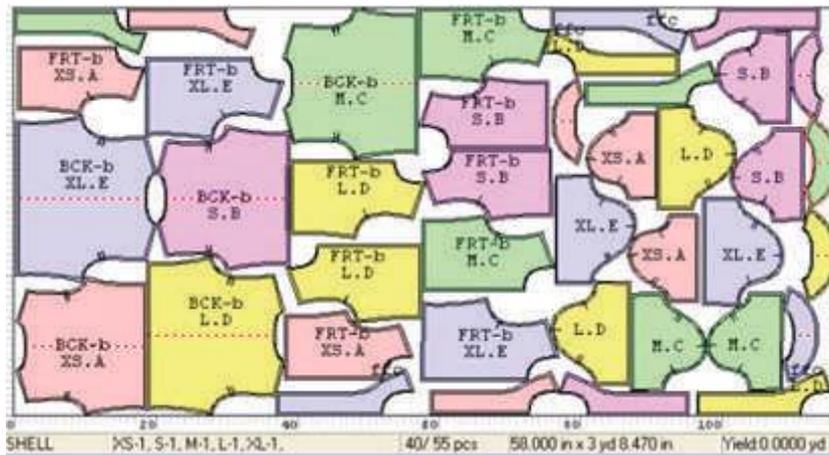


Fig. 2.1.16: Single-ply marker

- **Multi-Ply Marker:** Used when many layers of fabric are spread together. This marker saves time and fabric during large production.



Fig. 2.1.17: Multi-Ply marker

- **Half Garment Marker:** Used when fabric is folded, and the marker shows only half the pattern. Helps when cutting symmetrical pieces like shirts or trousers.

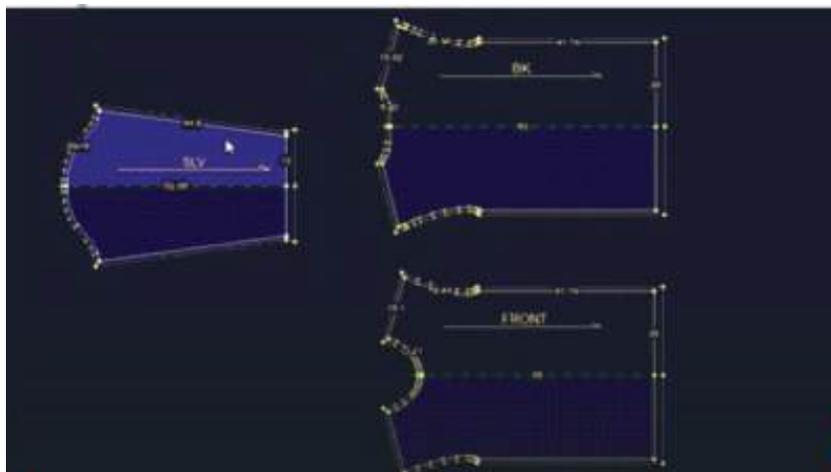


Fig. 2.1.18: Half garment marker

- **Full Garment Marker:** Used when the full pattern of the garment is shown. Good for fabrics that cannot be folded or have one-way designs.

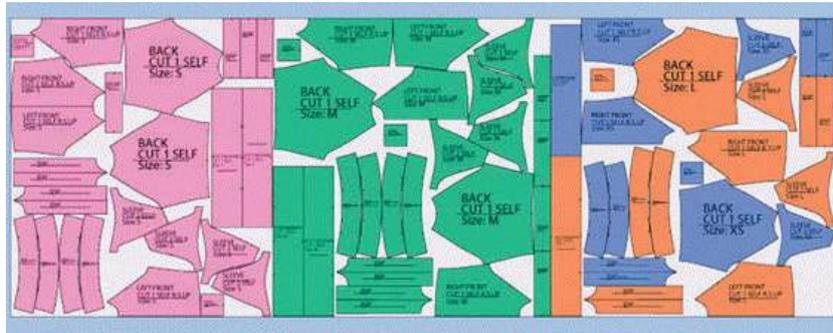


Fig. 2.1.19: Full garment marker

- **Face-to-Face Marker:** Used when the fabric is spread with the right sides facing each other. Useful for cutting mirrored pieces like left and right sleeves.
- **Face-Up-One-Way Marker:** Used when the fabric has a one-way design or nap (like velvet). All pieces face the same direction in the marker.
- **Double Fold Marker:** Used when the fabric is folded from both sides toward the middle. Useful when cutting smaller parts like collars and cuffs.



Fig. 2.1.20: Sewing Double folded cloth

Correct Methods to Spread Markers

Spreading the marker accurately is key to ensuring the fabric is cut correctly. If the marker is not aligned properly, it can cause errors in the cutting process, leading to fabric wastage. Properly placing the marker helps save time and improves the overall quality of the product. A fabric cutter must follow a precise method to spread markers effectively on the fabric lay.



Fig. 2.1.21: Spreading markers over the fabric lay

The correct methods to spread markers accurately over the fabric lay are mentioned as follows:

- **Use of Proper Tools:**

- **Fabric Marking Tools:** Fabric chalk, fabric markers, or special pens can be used to mark the fabric for cutting. These should be chosen based on the fabric type to avoid staining or bleeding.
- **Cutting Tools:** A rotary cutter or fabric scissors should be used for cutting along the marked lines. The cutting tool should also be sharp to ensure clean cuts without fraying the fabric edges.



Rotary Cutter



Fabric Scissor

Fig. 2.1.22.: Cutting tools used in fabric cutting

- **Spacing Between Markers**

- **Correct Spacing for Patterns:** Markers should be spaced appropriately according to the pattern, ensuring no pieces are too close together. This helps in minimising fabric waste and ensures that the pieces will be cut with the correct measurements.
- **Pattern Repetition:** When patterns are repeated, make sure the markers are aligned consistently to avoid mismatched pieces.

- **Layered Fabric Considerations**

- When spreading multiple layers of fabric, it's important to ensure that each layer is even and not shifted. The marker should be checked after each layer is added to make sure it hasn't moved or distorted.

- **Use of Marker Paper**

- **Marker Paper for Complex Patterns:** For larger patterns or complicated layouts, marker paper can be used as a template. This paper can help maintain accurate measurements and alignment when transferring the pattern onto fabric.

- **Adjustments for Fabric Type**

- **Stretch Fabrics:** For fabrics that stretch, like jersey or spandex, it's important to lay the fabric flat without pulling it too tight, as this will distort the marker lines and affect the cutting.
- **Heavy Fabrics:** For thicker materials like denim or canvas, additional pins or weights may be needed to prevent the fabric from shifting during the marking process.



Stretch Fabric



Heavy Fabric

Fig. 2.1.23: Stretch fabric and Heavy fabric Handling Fabric Movement

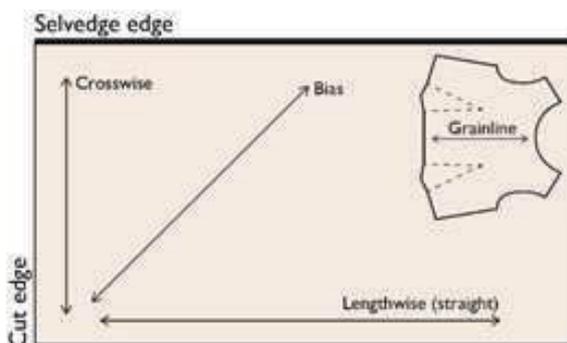
- **Handling Fabric Movement**

- **Preventing Fabric Shifting:** Once the marker is placed, avoid any unnecessary movement of the fabric or marker. Ensure the fabric is spread evenly and securely before cutting.

- **Aligning Patterns for Best Utilisation of Fabric**

- **Grain Line Matching:** Markers should follow the grain lines of the fabric to ensure proper draping and garment fit. This also helps in maintaining fabric strength and minimising distortion after the garment is made.
- **Cross-grain Placement:** In some cases, cross-grain placement is used for specific effects like stretch or texture. Always ensure that the cross-grain is properly aligned when necessary.

Grain line matching



Cross-grain placement

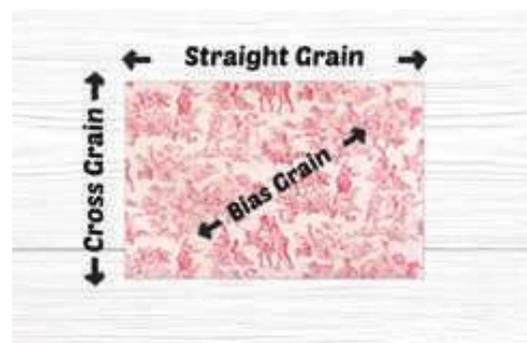


Fig. 2.1.24: Grain line matching and Grain line matching

- **Final Review Before Cutting**

- **Inspect the Marker Placement:** Before cutting, double-check the entire layout to ensure the markers are aligned correctly. Look for any misalignment, overlaps, or wasted space that could result in fabric waste.
- **Review Cutting Instructions:** Ensure that all seam allowances, notches, and other pattern markings are included and correct.

Seam allowances	Notches
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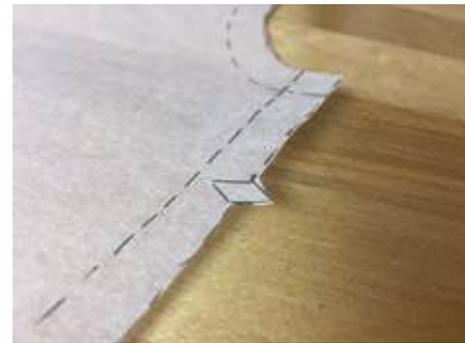


Fig. 2.1.25: Cutting instructions

Tools and Marking Methods

In the apparel industry, tools and marking methods help to cut fabric accurately. A Fabric Cutter prepares these tools before work to ensure smooth cutting and proper alignment. Marking shows where to cut, sew, or fold the fabric without damaging it. Good preparation of tools and correct marking methods saves time, reduces fabric waste, and improves garment quality.

Tool / Marking Method	Images	How It Is Prepared	How It Is Applied in Cutting
Chalk or Tailor's Chalk		Chalk pieces are shaped for easy grip and kept clean.	Marks cutting lines and sewing points on fabric.
Tracing Wheel and Paper		The tracing wheel is checked for sharp points; paper is placed under patterns.	Transfers pattern lines onto fabric with dotted marks.
Markers or Felt Pens		Markers are tested to ensure the ink does not bleed.	Used to mark thick fabrics or areas where chalk is not clear.

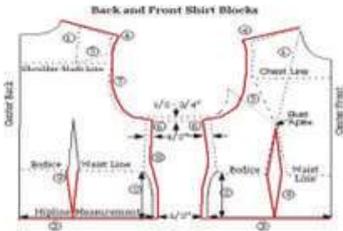
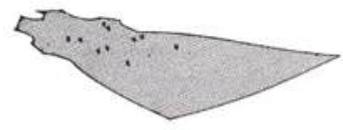
Tool / Marking Method	Images	How It Is Prepared	How It Is Applied in Cutting
Scissors and Shears		Blades are sharpened and handles are checked.	Cuts fabric along marked lines neatly.
Rotary Cutters		Blades are replaced or cleaned before cutting.	Cuts multiple layers smoothly with less effort.
Measuring Tape or Scale		Tape is checked for correct measurements and no stretching.	Ensures patterns are placed accurately on fabric.
Templates or Pattern Blocks		Patterns are trimmed and edges kept firm.	Used to trace shapes and outlines directly on fabric.
Pins and Weights		Pins are kept rust-free and weights clean.	Holds fabric and patterns in place during marking.
Notchers or Punch Tools		Blades are cleaned and aligned.	Makes small notches or holes to show matching points.
Thread Marking (Tailor's Tacks)		Threads are prepared in contrasting colours.	Small stitches mark key points without leaving permanent marks.

Table 2.1.9: Various tools and marking methods

2.1.10 Calculating the required Fabric Consumption

Recording the correct amount of fabric used is an important part of the garment-making process. It makes sure that the company knows exactly how much fabric is needed for each style. This helps in reducing waste, saving money, and planning for future orders. Using the company's approved forms keeps the records neat, accurate, and easy to check.

Measurements of a Full Sleeve Formal Shirt [Size - 39]				
Sq. No.	Point of measures	Measurement (cm)	Allowances (cm)	Total (cm)
1	Back length from centre yoke	63	3	66
2	Front length from HPS (at shoulder drop)	69	3	72
3	Body chest (1/2)	56	2	58
4	Sleeve length (w/o cuff)	56	3	59
5	Bicep at armhole point	23	2	25
6	Collar width	38	2	40
7	Collar height	6	2	8
8	Collar band width	40	2	42
9	Collar band height	3	2	5
10	Cuff length	25	2	27
11	Cuff width	6	2	8
12	Chest pocket height	13	6	19
13	Chest pocket width	12	1	13
14	Back yoke width	45	2	47
15	Back yoke height	13	2	15
16	Front centre placket length	65	3	68
17	Front centre placket width	6	1	7

Fig. 2.1.26: Fabric Measurements

The recording mechanism of calculated fabric consumption correctly in the company's prescribed formats is stated below:

- The fabric cutter starts by checking the job card to see the style number, size range, and fabric details.
- The total length or area of fabric taken from the store is measured using a measuring tape or fabric meter.
- The consumption is calculated by dividing the total fabric used by the number of garments produced.
- All details are written in the company's standard fabric consumption format, which may include columns for:
 - Date of cutting
 - Style name and number
 - Fabric type, colour, and width
 - Quantity of fabric used (in meters or yards)
 - Number of pieces cut
 - Fabric wastage or leftover balance

- Any special notes, such as fabric defects or quality issues, are added in the remarks section.
- The completed form is signed by the fabric cutter and verified by the supervisor or quality checker.
- The record is filed and stored in the cutting department for tracking and future reference.
- These records are later used by the planning department to estimate fabric needs for new production runs.

Summary

- Basic textile terms, fabric types, and trade names like chiffon, georgette, and poly-cotton must be understood.
- Fabric characteristics such as feel, structure, construction, and grain line help in proper handling.
- Defects in fabrics, layering, and spreading, like holes, stains, and faulty prints, must be identified and corrected.
- Specifications, instructions, and equipment manuals guide accurate processes and proper machine use.
- Organisational rules, codes, and timekeeping are essential for discipline and smooth workflow.
- Layering, spreading, and marking processes use patterns, markers, tools, and methods for precision.
- Correct calculation of fabric quantity against the job card ensures efficiency and avoids wastage.

Exercise

Multiple-choice Question:

1. Which of the following is a trade name of a fabric?
 - a. Hammer
 - b. Georgette
 - c. Paint
 - d. Needle
2. What does the grain line of fabric indicate?
 - a. The price of the fabric
 - b. The direction of threads in the fabric
 - c. The colour of the fabric
 - d. The weight of the garment
3. Which is an example of a fabric defect?
 - a. Proper stitching
 - b. Holes and stains
 - c. Accurate cutting
 - d. Correct labelling
4. Why is it important to follow the manufacturer's instructions for equipment?
 - a. To increase personal salary
 - b. To ensure correct and safe application
 - c. To decorate the workplace
 - d. To reduce fabric cost
5. What helps in calculating fabric quantity for a job?
 - a. Random guessing
 - b. Personal opinion
 - c. Job card details
 - d. Designer's mood

Descriptive Questions:

1. Describe different types of fabrics and give examples of their trade names.
2. Explain fabric characteristics like feel, structure, construction, and grain line.
3. Discuss common fabric, layering, and spreading defects and how they affect quality.
4. State why following organisational rules, codes, and timekeeping is important in fabric preparation.
5. Explain how patterns, markers, and tools are used for marking and cutting fabrics accurately.

3. Basic Calculations Related to Layering and Fabric Consumption



Unit 3.1 - Fabric Laying and Cutting Essentials



Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain different types of fabric laying techniques, such as straight lay and stepped lay.
2. Identify the best fabric laying technique to reduce wastage.
3. Select the correct marker type according to the fabric lay.
4. Describe how to lay fabrics so that wastage stays within limits.
5. Mention how to spread the marker sheet on the laid fabric.

UNIT 3.1: Fabric Laying and Cutting Essentials

Unit Objectives

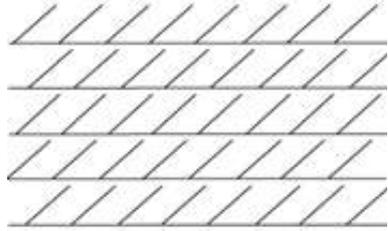
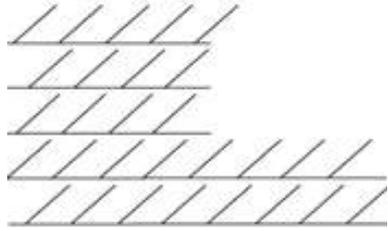
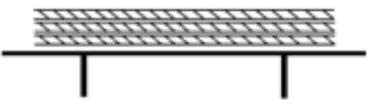
By the end of this unit, the participants will be able to:

1. Explain different types of fabric laying techniques, such as straight lay and stepped lay.
2. Describe the type of cutting machine that gives better work speed with less waste of material and time.
3. State the best fabric laying technique to reduce wastage.
4. Mention how to choose the right marker type for different fabric lays.

3.1.1 Different Types of Fabric Laying Techniques

Laying techniques help arrange the fabric neatly before cutting. Using correct laying methods like straight lay and stepped lay can reduce wastage and save fabric. These methods also help in cutting more pieces at one time. A fabric cutter follows the best technique depending on fabric type and design to do work fast and tidily.

In garment making, fabric must be laid properly before cutting to save material and avoid mistakes. A Fabric Cutter uses different laying techniques depending on the type of fabric and design. Straight lay is used when all fabric layers are placed evenly, while stepped lay is used when layers are placed at different lengths. Correct laying methods help to reduce waste, improve cutting accuracy, and make the work faster.

Laying Technique	Images	How It Works	Why It Helps
Straight Lay		Fabric is laid flat in layers, one over the other in the same direction.	Keeps fabric even, helps in neat cutting and saves fabric.
Stepped Lay		Each layer is placed shorter than the layer below, like steps.	Good for thick or slippery fabrics, reduces waste by avoiding shifting.
Face-to-Face Lay		Fabric is laid in a zig-zag way, one layer facing up, the next one facing down.	Saves time, reduces movement, and cuts many pieces fast.
One-Way Lay		Fabric is laid in only one direction for each layer.	Used for fabrics with one-way prints, prevents mismatches.

Laying Technique	Images	How It Works	Why It Helps
Block Lay		Small blocks of fabric are laid out and cut separately.	Reduces fabric movement and gives accurate cuts, saving fabric.

Table 3.1.1: Usage of laying techniques to minimise fabric wastage

3.1.2 Type of Cutting Machine

A Fabric Cutter always wants a machine that works fast and saves cloth. Some machines can cut many layers of fabric quickly with clean edges. These machines help reduce cloth waste and save a lot of time. They are useful in factories where many clothes are made every day.

Machine Type	Images	What Happens in This Process	Why It Is Better
Automatic Cutting Machine		A machine cuts many layers of fabric using a computer-controlled blade or laser.	Works very fast, cuts with high accuracy, and saves fabric.
Straight Knife Cutting Machine		A moving straight blade cuts through stacked fabric layers.	Cuts quickly and is good for a large number of clothes.
Band Knife Cutting Machine		Fabric is guided over a fixed blade running on a band.	Cuts curves smoothly and reduces fabric waste.

Machine Type	Images	What Happens in This Process	Why It Is Better
Die Cutting Machine		Sharp metal dies press into fabric to cut fixed shapes.	Makes identical shapes very fast with no errors.

Table 3.1.2: Types of fabric cutting machines

3.1.3 Best Fabric Laying Technique

A Fabric Cutter always tries to save as much fabric as possible. When cloth is laid carefully on the table, fewer scraps are left behind. Choosing the right laying method helps to cut many garment parts with little waste. This also saves money and makes cutting work faster.

The best fabric laying technique to reduce wastage is zigzag spreading. In this process, the fabric is laid back and forth on the cutting table in continuous folds, without cutting at the ends after each layer. This method works well for fabrics that do not have a nap, pile, or one-way design because the direction of the fabric does not matter. By laying the fabric in a zigzag manner, the pieces can be placed close together in the marker plan, leaving very little empty space.



Fig. 3.1.1: Zigzag Automatic Spreading

Moreover, this technique saves a lot of material compared to one-way spreading and reduces the number of times fabric rolls need to be changed. A Fabric Cutter uses spreading machines or manual spreading tools to make sure the layers are even and smooth, which also reduces cutting errors. Using zigzag spreading not only cuts costs but also improves cutting speed and gives uniform garment pieces.

3.1.4 Choosing Right Marker Type for Different Fabric Lays

A fabric cutter uses markers to draw the shapes of garment parts on the fabric before cutting. The marker type must match how the fabric is laid on the table. Choosing the right marker helps save fabric, reduce mistakes, and cut pieces quickly. When the correct marker is used, all garment parts fit well, and fabric waste becomes very low.

The process of choosing the right marker type for different fabric lays is stated below:

- **Single Ply Lay**
 - Use full-size paper markers directly on the fabric.
 - This gives very high accuracy and is best for expensive fabrics where even a small mistake costs more.
- **Multiple Ply Lay**
 - Use thin marker paper with outlines or transparent markers.
 - These make sure all layers are cut the same way, saving time when cutting many pieces at once.
- **Face-to-Face Lay**
 - Use symmetrical markers because the layers face each other.
 - This helps cut the left and right garment parts together without confusion.
- **Nap-One-Way Lay**
 - Use one-direction markers so that fabric patterns, stripes, or pile face the same way.
 - This avoids mismatched patterns on the garment.
- **Zigzag Lay**
 - Use markers with no direction requirement since the fabric moves back and forth.
 - This is good for fabrics without nap or design direction, reducing waste.
- **Stepped Lay**
 - Use graded markers to cut different garment sizes in one lay.
 - This saves fabric by placing smaller pieces where there would be unused fabric.

Summary

- Different fabric laying techniques, like straight lay and stepped lay, are used in garment cutting.
- The choice of laying method affects material usage and production efficiency.
- Cutting machines with high speed and precision reduce time and fabric wastage.
- Straight lay and stepped lay are important for achieving accurate cutting results.
- Selecting the correct marker type is essential for different fabric lays.
- Efficient fabric laying helps optimise workflow and maintain quality standards.
- Proper planning of cutting methods supports better material utilisation and productivity.

Exercise

Multiple-choice Question:

1. Which is a commonly used fabric laying technique?
 - a. Circular lay
 - b. Straight lay
 - c. Diagonal lay
 - d. Random lay
2. Why is it important to choose the right cutting machine?
 - a. To reduce worker attendance
 - b. To save material and time
 - c. To increase fabric weight
 - d. To change fabric colour
3. Which fabric laying technique helps in reducing wastage?
 - a. Random lay
 - b. Stepped lay
 - c. Wrinkled lay
 - d. Loose lay
4. What is the purpose of selecting the right marker type?
 - a. To decorate the workplace
 - b. To ensure accurate cutting for specific fabric lays
 - c. To change the design colour
 - d. To increase the garment price
5. Which type of cutting machine is preferred for better speed and less wastage?
 - a. Hand scissors
 - b. Manual knife
 - c. High-speed automatic cutting machine
 - d. Wooden cutter

Descriptive Questions:

1. Explain straight lay and stepped lay fabric laying techniques with examples.
2. Describe the features of a cutting machine that improve work speed and reduce fabric wastage.
3. State the advantages of using the best fabric laying technique for production efficiency.
4. Explain how to select the correct marker type based on the fabric lay.
5. Discuss how proper fabric laying and cutting methods help in saving material and time.

4. Cut Fabrics as per Plan Received from Production Planning



Unit 4.1 - Fabric Cutting Safety and Standards



Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Describe how to identify fabrics needed as per the cutting plan and delivery priority.
2. Explain the need to ensure that the correct machine guards are in place.
3. Discuss how to handle materials, machinery, equipment and tools safely and correctly.
4. State the protocol and format for reporting work or machine-related risks and problems.

UNIT 4.1: Fabric Cutting Safety and Standards

Unit Objectives

By the end of this unit, the participants will be able to:

1. Mention different specifications mentioned on a pattern and on bundle tickets, like style number, pattern name, and size.
2. State the organisation's policies and procedures related to fabric cutting.
3. Explain how to check fabrics for defects such as holes, stains, slubs, and missing picks.
4. Describe how to identify fabrics as per the cutting plan and delivery priority.
5. Mention the need to ensure that the correct machine guards are in place.
6. Illustrate how to handle materials, machinery, equipment, and tools safely and correctly.
7. Discuss the protocol and format for reporting work or machine-related risks and problems.

4.1.1 Different Specifications Mentioned on a Pattern and on Bundle Tickets

A fabric cutter always checks patterns and bundle tickets before starting work. These papers tell exactly what style, size, and fabric to cut. They help organise pieces so nothing is missed or mixed up. With correct information, the work becomes faster and mistakes are avoided.

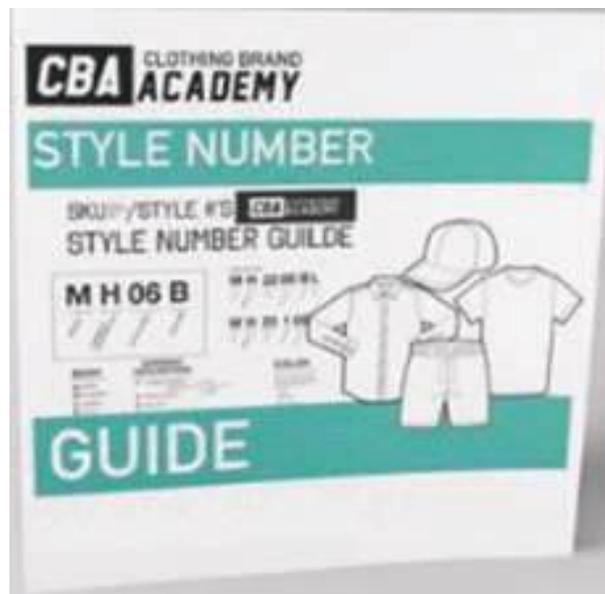


Fig. 4.1.1: Style number provided in a pattern ticket

Specification	Where It Appears	Purpose
Style Number	Pattern and Bundle Ticket	To match the garment design with the cutting order
Pattern Name or Number	Pattern	To identify each garment part, such as the front, back, or sleeve

Specification	Where It Appears	Purpose
Size	Pattern and Bundle Ticket	To know whether to cut small, medium, or large sizes
Piece Name	Pattern	To label which part of the garment is being cut
Cut Number	Bundle Ticket	To show which batch of pieces belongs together
Quantity per Bundle	Bundle Ticket	To know how many pieces of each type must be cut
Fabric Type	Bundle Ticket	To select the correct fabric roll for cutting
Marker Number	Pattern and Bundle Ticket	To follow the correct cutting plan or marker
Order Number	Bundle Ticket	To link cut pieces to the right customer order
Shade Number	Bundle Ticket	To ensure the fabric colour is uniform for all pieces
Grain Line Direction	Pattern	To guide fabric placement so the garment keeps its shape
Special Instructions	Pattern and Bundle Ticket	To show notes like "cut on fold" or "leave seam allowance"
Bundle Ticket Code	Bundle Ticket	To track each group of cut pieces during handling
Fabric Width and Length Used	Bundle Ticket	To measure fabric consumption accurately

Table 4.1.1: Different specifications mentioned on a pattern and on bundle tickets



Fig. 4.1.2: A bundle ticket

4.1.2 Policies and Procedures related to Fabric Cutting

Organisational policies and procedures in fabric cutting are clear rules and step-by-step instructions that guide how to cut fabric in a safe, accurate, and efficient way. These rules make sure the work meets customer requirements and maintains high product quality. They also help in using materials in the best way, avoiding waste and keeping costs low. Following these guidelines ensures smooth teamwork, timely delivery, and a safe workplace.



Fig. 4.1.3: Fabric cutting in India

From the viewpoint of a Fabric Cutter, organisational policies in fabric cutting include using approved cutting plans, following safety instructions like wearing protective gear, and handling all cutting tools carefully. The policies also require following the exact size, shape, and layout mentioned in the cutting plan to match the customer's needs. Waste control is important, so fabric placement must be planned to get the most use out of the material. The policies also guide the keeping of records of materials used and cut pieces made.



Fig. 4.1.4: Cutting fabric by handling the cutting tool carefully

The organisational procedures involve preparing the fabric by checking for defects, laying it correctly on the cutting table, and marking it according to the given pattern. The cutter must then cut the fabric using the right tools and follow the cutting sequence mentioned in the plan. All cut pieces must be checked for accuracy before sending them to the next process. Any damaged tools or machines must be reported immediately to the supervisor. The work area must be kept neat, unused fabric should be stored properly, and safety measures must be followed at all times. These procedures help in producing quality products, keeping the workplace safe, and meeting production targets on time.

4.1.3 Process of Checking Fabrics for Defects

A fabric cutter checks every roll of fabric to make sure it is free from damage. Common problems include holes, stains, slubs, and missing picks. Checking fabric carefully helps prevent defective garments and saves both time and material. Marking or removing bad areas ensures only perfect fabric is cut.

The process of checking fabrics for defects is discussed as follows:

Step 1: Prepare the fabric roll

- Properly place the fabric roll on an inspection table or fabric checking machine with a bright light, usually a backlight, to see through the fabric.
- Unroll the fabric slowly while keeping it flat and smooth to make defects visible.

Step 2: Check for holes

- Hold the fabric against the light to find any tiny or big openings.
- Holes are caused by broken threads or damage during weaving.



Fig. 4.1.5: Hole in fabric

Step 4: Check for stains

- Look for oil spots, dirt marks, colour patches, or water stains on the fabric surface.
- Stains may come from poor storage, handling, or finishing problems.



Fig. 4.1.6: Stain mark on fabric

Step 5. Check for slubs (thick yarn lumps)

- Feel the fabric by hand to detect uneven thick spots.
- Slubs make the surface rough and spoil the garment's appearance.



Fig. 4.1.7: Fabric slubs

Step 6. Check for missing picks (missing cross threads)

- Look carefully at the weave pattern to see if some filling threads are absent.
- Missing picks make weak fabric areas that may tear easily.

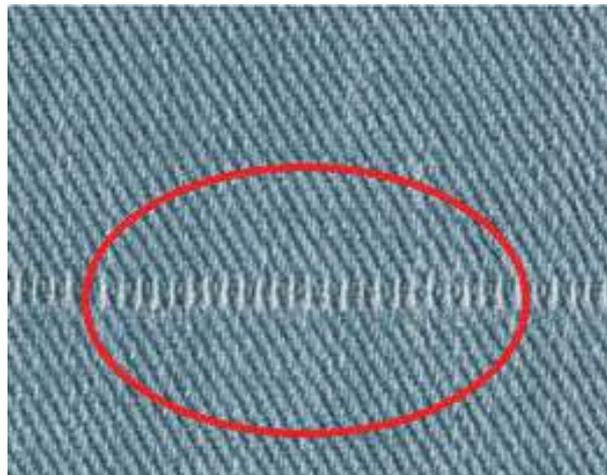


Fig. 4.1.8: Missing cross threads

Step 7: Mark defect locations

- Use chalk, stickers, or coloured tags to identify faulty parts.
- Keep these markings clear so cutters can avoid them.

Step 8: Record defects in an inspection sheet

- Note down the type, location, and size of each defect for future reference.

Step 9: Separate faulty fabric rolls

- Inform the supervisor if there are too many to use.
- If defects are small, remove only the bad portion before laying.

Step 10: Ensure quality fabric for spreading and cutting

- Only defect-free portions are passed for marker planning and cutting.

4.1.4 Process of Identifying Fabrics as per the Cutting Plan and Delivery Priority

A fabric cutter always chooses fabric according to the cutting plan and delivery schedule. The cutting plan gives details about the style number, fabric type, colour, and how much to cut. Delivery priority decides which fabric to cut first to meet urgent orders. Following this process saves time, avoids errors, and keeps production smooth.

The process of identifying fabrics as per the cutting plan and delivery priority is discussed below:

- **Read the cutting plan carefully**
 - Note style number, garment type, fabric type, colour, size ratio, and quantity.
 - Understand if the order is urgent or part of a regular batch.
- **Match fabric roll details with the cutting plan**
 - Check roll labels for fabric name, width, shade number, lot or batch number, and length.
 - Make sure all rolls have the same shade if they are for one style.
- **Verify fabric quality before spreading**
 - Inspect rolls to confirm there are no holes, stains, or major defects.
 - Ensure fabric shrinkage or finishing matches production requirements.
- **Arrange rolls in cutting order:**
 - Place urgent delivery rolls at the front of the line.
 - Keep less urgent rolls aside for later cutting.
- **Mark fabric clearly for easy identification**
 - Use tags, stickers, or chalk to write the style number, lot number, and cutting sequence.
 - Group rolls by order, so no roll gets mixed with another style.
- **Cross-check with production or dispatch schedule**
 - Ensure that the correct style fabric is cut on time to meet shipping dates.
 - Inform the supervisor if any fabric roll is short, missing, or incorrect.
- **Separate similar-looking fabrics**
 - Avoid confusion by storing fabrics for different styles in separate racks or areas.
 - Double-check labels if fabrics have close shades.
- **Pass only correct rolls for spreading and cutting**
 - Confirm once again with the cutting plan before spreading starts.
 - Never cut fabric that does not match the order or priority.

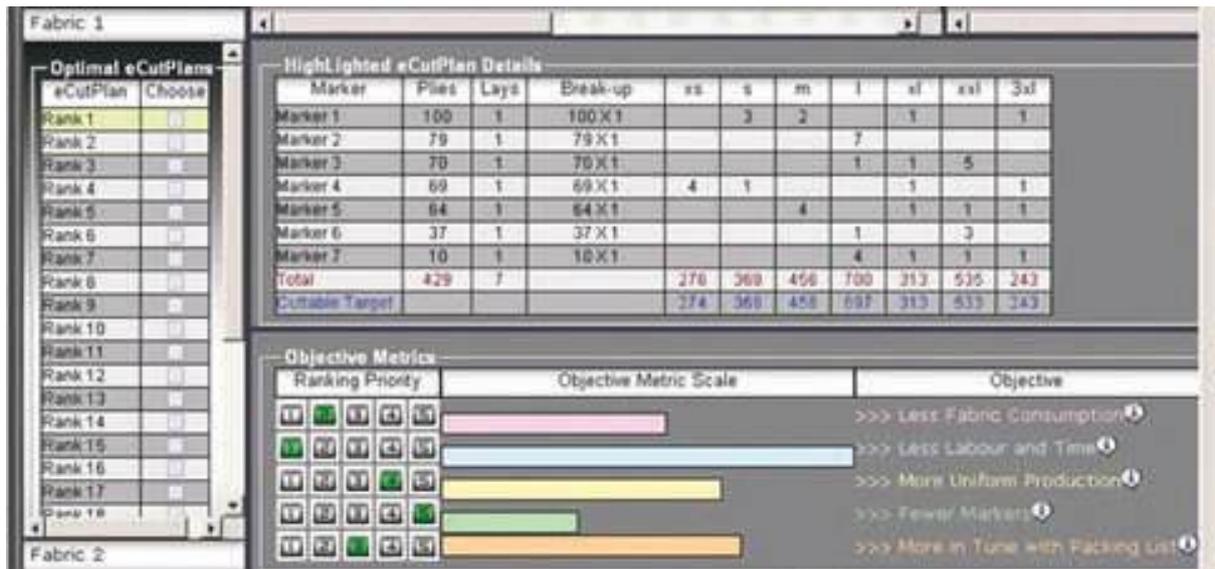


Fig. 4.1.9: Fabric cutting plan

4.1.5 Need to Ensure Placing the Correct Machine Guards

Machine guards and safety devices protect workers from accidents. It is important to check them before and during machine use to keep everyone safe. A fabric cutter should never use a machine if any guard is loose or missing. Proper checks help avoid injuries and keep the machine working well.

A fabric cutter must always make sure that the correct machine guards are fixed properly before starting work because safety comes first in any cutting process. Machine guards cover blades, belts, or fast-moving parts of the cutting machine that can cause injuries. These guards stop fabric, threads, or loose clothing from getting trapped inside the machine. They also keep the blade stable while cutting, which gives a clean and accurate cut with less fabric wastage. Regularly checking the guards ensures that they are not loose, broken, or missing. If the guards are not in place, the cutter must stop work and inform the supervisor immediately. This habit not only prevents accidents but also keeps the cutting machine in good condition for a longer time.



Fig. 4.1.10: A Machine Guard

Now the steps required for ensuring machine guards and safety devices work properly during operations are stated below:

1. **Check before starting:** Look carefully at the machine to make sure all guards and covers are present and fitted in the right place.
2. **Test for tight fitting:** Presses or moves guards gently to confirm they do not shake, rattle, or feel loose.
3. **Look for damage or wear:** Examine guards for cracks, bends, or missing parts that may make them unsafe.
4. **Listen for strange sounds:** Start the machine slowly and listen for any grinding, rubbing, or unusual noise that may mean a guard is loose.
5. **Follow safety instructions:** Use the machine only as explained by training, posters, or the supervisor to avoid damaging the safety devices.
6. **Do not remove or change guards:** Never take off or change any guard or cover, even if it feels inconvenient, because it keeps everyone safe.
7. **Report problems quickly:** Informs the supervisor right away if a guard is loose, damaged, or missing so it can be repaired or replaced.
8. **Stop if unsafe:** Stops using the machine immediately if a guard or safety device does not work properly.
9. **Clean without removing guards:** Use a brush, blower, or cloth to clean guards carefully, making sure no fabric scraps or dust block them, without taking them off.
10. **Regular checks during work:** Look at the guards from time to time, especially during breaks or after finishing a task, to ensure they remain in place and work well.



Fig. 4.1.11: Machine guard for an electric fabric cutter

4.1.6 Process of Handling Materials, Machinery, Equipment, and Tools

Safe handling of materials, tools, and equipment prevents accidents and keeps everything in good condition. Careful work also helps avoid damage to fabric or machines. Following safety steps makes the workplace organised and hazard-free. A fabric cutter must use the right method for each tool to stay safe and do good work.



Fig. 4.1.12: Handling a fabric cutter safely

The steps for handling materials, tools, and equipment safely to avoid injury and damage are discussed below:

- **Before Starting Work**

- A fabric cutter must always wear special gloves and closed-toe shoes to protect hands and feet.
- The work area should be clean and clear of anything that might cause a trip or a fall.
- The tools and machines must be checked to make sure they are in good condition and working properly.

- **Handling Materials**

- When moving big rolls of fabric, the fabric cutter should ask for help so the material does not fall and cause an injury.
- Sharp tools like scissors and cutting blades must be carried with the sharp part pointing down and away from the body.



Fig. 4.1.13: Using an electric fabric cutter safely

- **Using Tools and Equipment**
 - The fabric cutter should always be very focused when using a cutting machine or a sharp blade. No talking or playing around is allowed.
 - The hands must always be kept away from the moving parts of a machine.
 - When a tool is not being used, it should be put away in its correct place so nobody gets hurt.
- **After Finishing Work**
 - All tools and equipment should be cleaned and put back where they belong.
 - Any leftover fabric and trash should be cleaned up and thrown away properly.



Fig. 4.1.14: Keeping the cutting blade away from the body

4.1.7 Protocol and Format for Reporting Work or Machine-related Risks and Problems

Reporting machine or work-related issues in the right format is very important in a fabric cutting department. It helps the right person understand the problem without confusion. A clear report tells what happened, where it happened, and how urgent it is. This makes sure the issue is fixed quickly, and work does not stop.

A fabric cutter uses a set format to report a problem. First, the cutter writes the date and department name so the report is linked to the correct work area. Then, the cutter writes the machine number or name, like “Fabric Cutter Machine – FC-02.” Next, the cutter explains the issue in short, clear words, such as “Blade is blunt and cutting unevenly” or “Motor making unusual noise.” The cutter marks the level of urgency — for example, “Urgent” for a serious problem that stops work or “Normal” for a minor problem. If the format asks for actions already taken, the cutter mentions them, like “Blade cleaned but still blunt.” Finally, the cutter signs the report or puts an ID number on it and gives it to the supervisor or maintenance staff. This process keeps the record neat, clear, and quick to act on, saving both time and materials.

Moreover, the fabric cutter follows a proper step-by-step process to report any work or machine-related risk or problem. The first step is to stop the cutting machine immediately to avoid accidents or damage to the fabric. The cutter then observes carefully and writes down what is wrong, such as a loose wire, broken blade, overheating motor, or uneven fabric cutting. The cutter records the date, time, machine ID, and type of issue in a clear report format. If any quick safety steps are taken, like switching off the power or removing damaged fabric, these are also written in the report.

Now, the cutter gives this report to the supervisor or maintenance staff as soon as possible so repairs can be done quickly. The report is written neatly so that every detail is easy to understand and no mistakes are made during the repair. By following this protocol, the cutter keeps the machine safe, avoids damage to costly fabric, and prevents delays in delivery. This method also helps the organisation track problems and improve the cutting process in the future.

Summary

- Patterns and bundle tickets carry important details like style number, pattern name, and size for accurate fabric cutting.
- Organisations have defined policies and procedures that must be followed during fabric cutting operations.
- Fabrics must be checked carefully for defects such as holes, stains, slubs, and missing picks before cutting.
- Identifying fabrics as per the cutting plan and delivery priority helps maintain workflow accuracy.
- Machine guards must always be in place to ensure worker safety during cutting operations.
- Proper handling of materials, machinery, equipment, and tools prevents workplace accidents and ensures efficiency.
- Risks and machine-related problems should be reported promptly in the correct protocol and format.

Exercise

Multiple-choice Question:

1. What information is usually found on a pattern or bundle ticket?
 - a. Worker attendance
 - b. Style number, pattern name, and size
 - c. Packaging instructions
 - d. Store inventory list
2. Why should fabrics be checked before cutting?
 - a. To make them more colourful
 - b. To identify defects like holes or stains
 - c. To increase machine speed
 - d. To change their texture
3. What is the purpose of machine guards in fabric cutting?
 - a. To make machines lighter
 - b. To improve cutting design
 - c. To ensure worker safety
 - d. To decorate the machine
4. How should materials and tools be handled in fabric cutting?
 - a. Carelessly to save time
 - b. Safely and correctly to avoid accidents
 - c. Without following any instructions
 - d. By untrained workers only
5. What should workers do if they notice a risk or machine problem?
 - a. Ignore it to keep working
 - b. Fix it without telling anyone
 - c. Report it using proper protocol and format
 - d. Wait for someone else to notice

Descriptive Questions:

1. Mention the different specifications found on patterns and bundle tickets in fabric cutting.
2. Describe the organisation's key policies and procedures related to fabric cutting.
3. Explain how fabrics should be checked for defects before the cutting process.
4. Illustrate the correct way to handle fabric cutting materials, machinery, and tools safely.
5. Discuss the proper protocol for reporting work or machine-related risks in the workplace.



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5. Fabric Cutting Operation



Unit 5.1 - Fabric Cutting and Problem-Solving Skills



AMH/N1511

Key Learning Outcomes

By the end of this module, the participants will be able to:

1. Describe how to cut fabric layers manually and with electrically operated cutting machines, such as band knife and straight knife, as per the job card.
2. Explain how to identify cut parts, count tickets, and group them correctly before passing them on.
3. State why fabric lays should be clipped at proper points to stop layers from sliding during cutting.

Unit 5.1: Fabric Cutting and Problem-Solving Skills

Unit Objectives

By the end of this unit, the participants will be able to:

1. State why fabric lays should be clipped at proper points to stop sliding during cutting.
2. Explain the importance of taking correct action when problems are found.
3. Illustrate how to cut fabric layers manually and with cutting machines such as band knife and straight knife as per the job card.
4. Identify the cut parts, count the tickets and then group them well to pass on.
5. Discuss how to fix different faults that occur in cutting machines while cutting fabrics.
6. Mention the results of not finding and fixing problems.

5.1.1 Importance of Clipping Fabric Lays at Proper Points

As a fabric cutter, it's very important to keep the fabric still while cutting. If the fabric moves, the pieces you cut will not be the right size or shape. This can lead to mistakes and wasted material. Clipping the fabric in the right places is a simple way to make sure everything stays put.

A fabric cutter knows that clipping a fabric lay is important to stop the layers from sliding. When many layers of fabric are stacked on top of each other, they can easily slip and shift. This movement can happen even with a small bump or a little vibration from the cutting machine. By using clips at the proper points along the edges of the fabric lay, a cutter can hold all the layers together tightly. This keeps the lay flat and stable, making sure that every single piece cut is exactly the same size and shape as the pattern. A steady fabric lay means the finished clothes will fit right, and there will be less waste.

Clipping Techniques for Securing Fabric Lays

Now, it is important to know the clipping techniques to secure fabric lays. To keep fabric lays in place and prevent slipping during cutting, especially with slippery materials, several practical methods can be used. Techniques such as tissue paper layering, spray starch, rotary cutting, and pinning the selvages help stabilise the fabric and improve cutting accuracy. These methods reduce unwanted movement, make handling easier, and ensure cleaner, more precise cuts.



Fig. 5.1.1: Clipping the corner

- **Tissue Paper Sandwich:** Place tissue paper on the cutting mat, then the fabric, another tissue layer, and finally the pattern. This increases friction and keeps the fabric from shifting.



Fig. 5.1.2: Clipping technique using tissue paper sandwich

- **Spray Starch:** Adds stiffness to the fabric, making it easier to handle and cut. Always test on a scrap before use.



Fig. 5.1.3: Using the spray starch clipping technique

- **Rotary Cutter:** Gives a cleaner and more accurate cut compared to shears, particularly on slippery fabrics.



Fig. 5.1.4: Using a rotary cutter

- **Pinning Selvedges:** Fold the fabric lengthwise and pin along the selvedges to maintain proper alignment.



Fig. 5.1.5: Using pinning selvedge

- **Pattern Weights:** Hold patterns in place without pins to avoid making holes in the fabric.



Fig. 5.1.6: Using pattern weights

- **Interfacing:** Helps stabilise fabric, especially for small or detailed pattern pieces.



Fig. 5.1.7: Interfacing

- **Adequate Spacing:** Leave enough room between fabric layers to avoid slipping and achieve accurate cuts.
- **Cutting Surface:** Use a cutting mat along with a rotary cutter for a stable, smooth surface and precise cuts.



Fig. 5.1.8: Using the cutting surface

- **Zigzag Spreading Method:** Effective for knit fabrics, this method maintains stretch and reduces rolling edges.
- **Basting Tape:** Temporarily secures layers before sewing.



Fig. 5.1.9: Using basting tape

- **Straight Stitch Presser Foot:** Prevents creeping when sewing slippery fabrics.
- **French Seams:** For sheer fabrics, this seam technique gives a neat finish and helps prevent fraying.



Fig. 5.1.10: French seam

5.1.2 Importance of Taking Correct Action when Problems Are Found

Corrective measures in the cutting process are necessary to keep production smooth and reduce losses. Even small errors in cutting can affect garment fitting, design accuracy, and fabric usage. Detecting and fixing deviations early saves both time and materials. Regular checks, proper reporting, and immediate corrections help maintain high quality in the final product.



Fig. 5.1.11: Fabric checking step



Fig. 5.1.12: Fabric cutting mechanism

Reviewing and Analysing Defects and Taking Appropriate Action under Supervision

Reviewing and analysing defects and taking appropriate action under supervision is a crucial part of the fabric cutting process. A fabric cutter must be vigilant in identifying mistakes to ensure the final product is of high quality. When a defect is found, it's important to report it to a supervisor and follow the correct procedures to either fix the problem or manage the defective material.

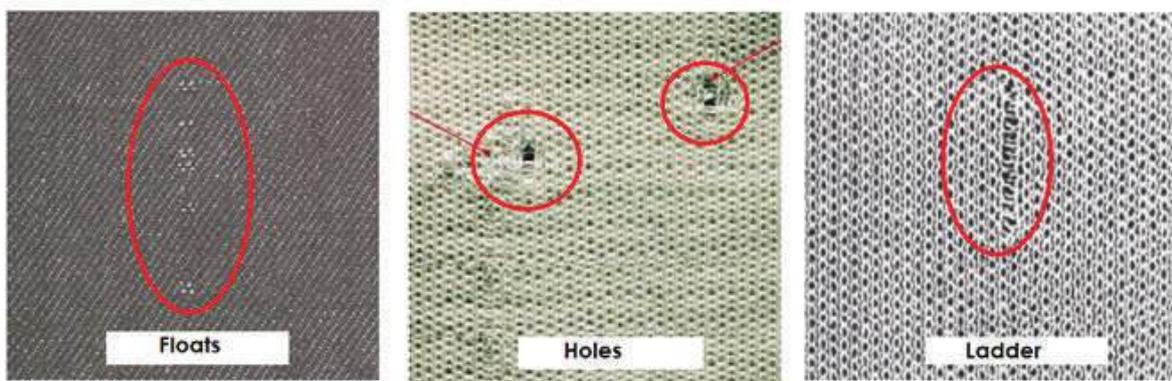


Fig. 5.1.13: Defects in fabric

The identification of the reviewing and analysing defects while cutting fabric is mentioned below:

- **Crooked or Misaligned Cuts:** The fabric piece is not cut straight, or the cut does not follow the pattern's outline correctly.
- **Missing Notches:** The small V-shaped or straight cuts that act as assembly guides are not present.
- **Incorrect Dimensions:** The cut fabric piece is either too long, too short, too wide, or too narrow compared to the pattern.
- **Damaged Fabric:** The fabric itself has holes, tears, or stains that were not noticed before cutting.
- **Fused or Unclean Edges:** The cut edge is frayed or has scorch marks from a heated cutting tool, which happens due to improper blade temperature.

On the other hand, taking appropriate action under supervision against the identified defects is stated as follows:

- **For Crooked or Misaligned Cuts:** The cutter shows the piece to the supervisor. The supervisor will decide if the part can be re-cut from the remaining fabric or if the entire piece must be discarded.
- **For Missing Notches:** The cutter points out the missing notches to the supervisor. The supervisor will then instruct the cutter to use a hand tool to add the notches carefully.
- **For Incorrect Dimensions:** The cutter measures the piece in front of the supervisor. If it's too large, it might be able to be re-cut. If it's too small, it's usually marked as waste and a new piece is cut.
- **For Damaged Fabric:** The cutter immediately shows the damage to the supervisor. The supervisor will decide if the flaw is in a non-critical area and can be used, or if the entire piece must be discarded.
- **For Fused or Unclean Edges:** The cutter alerts the supervisor, who then checks the cutting machine's blade temperature or sharpness. The supervisor will guide the cutter on how to adjust the machine or re-cut the affected piece if possible.

Rectification of Cutting Issues Under Supervision

Rectification of cutting issues like slippage or marker misalignment under supervision is a crucial part of quality control in fabric cutting. When these issues occur, a fabric cutter must immediately report them to their supervisor to prevent further errors and waste. The supervisor then guides the cutter on the appropriate corrective actions.

1. Rectification of Slippage

Slippage is when the layers of fabric shift during the cutting process, resulting in misaligned and incorrectly sized pieces.

- **Immediate Action:** The cutter must stop the cutting machine and inform the supervisor as soon as slippage is noticed.
- **Supervisor's Role:** The supervisor will inspect the stack of fabric to assess the extent of the slippage. They will then determine if the fabric can be realigned or if the affected layers need to be discarded.
- **Corrective Measures:** Under supervision, the cutter may be instructed to re-pin or re-clamp the fabric layers. If the slippage is significant, the supervisor might decide to remove the damaged layers, re-lay the fabric, and re-cut the affected parts.

2. Rectification of Marker Misalignment

Marker misalignment happens when the pattern marker (a template showing all the pattern pieces) is not laid straight or is positioned incorrectly on the fabric, leading to distorted cuts.

- **Immediate Action:** The cutter should stop cutting and alert the supervisor upon noticing the marker is not aligned properly with the fabric's grainline or edge.
- **Supervisor's Role:** The supervisor will examine the marker's position and the cutting path to understand the nature of the misalignment. They will then advise on the best course of action.
- **Corrective Measures:** The supervisor may instruct the cutter to carefully reposition the marker before continuing to cut. If some pieces have already been cut incorrectly due to the misalignment, the supervisor will decide whether those pieces can be salvaged or if they must be discarded and re-cut from fresh fabric.

3. Damaged or Dull Knife

- **Immediate Action:** Stop the machine immediately and inform the supervisor.
- **Supervisor's Role:** The supervisor will inspect the blade to see if it needs sharpening or needs to be replaced.
- **Corrective Measures:** The supervisor will guide the cutter on how to properly replace or sharpen the blade. The cutter should never attempt this on their own.

4. Incorrect Blade Speed or Feed Rate

- **Immediate Action:** Stop cutting and tell the supervisor about the issues, such as bunching or a burnt smell.
- **Supervisor's Role:** The supervisor will check the current machine settings.
- **Corrective Measures:** Under supervision, the cutter will adjust the machine's speed and feed rate to match the specific type and thickness of the fabric being cut.

5. Pattern or Template Inaccuracy

- **Immediate Action:** If the cut pieces look wrong, the cutter should measure them against the original pattern and inform the supervisor of any differences.
- **Supervisor's Role:** The supervisor will verify the accuracy of the pattern itself.
- **Corrective Measures:** The supervisor will provide the cutter with a new, accurate pattern or template to use. The old, flawed pattern will be discarded.

6. Improper Pinning or Weighting

- **Immediate Action:** Stop cutting as soon as the fabric starts to shift. Tell the supervisor about the problem.
- **Supervisor's Role:** The supervisor will check the placement of the pins and weights.
- **Corrective Measures:** The supervisor will instruct the cutter on how to properly pin and weigh the fabric, making sure it is secure before cutting continues.

7. Excessive Heat Generation

- **Immediate Action:** Stop the machine if the fabric is melting or burning. Let the supervisor know right away.
- **Supervisor's Role:** The supervisor will inspect the machine's cooling system and blade.
- **Corrective Measures:** The supervisor might instruct the cutter to use a slower blade speed or a lubricant to reduce friction and heat. In some cases, a different type of blade might be recommended.

8. Ply-to-Ply Fusion

- **Immediate Action:** Stop the machine as soon as you notice the fabric layers fusing together.
- **Supervisor's Role:** The supervisor will help check if the blade is dull. They will also determine the correct cutting speed for the fabric and ensure the machine settings are adjusted properly.
- **Corrective Measures:** Under supervision, the cutter should either sharpen or replace the blade. The cutting speed must be lowered, and if needed, the cutter can be guided to use wax paper between fabric layers or apply a special lubricating spray to the blade to reduce heat and friction.

9. Machine Vibration or Strange Noises

- **Immediate Action:** Stop the machine immediately to prevent any damage or injury.
- **Supervisor's Role:** The supervisor will inspect the machine with the cutter to find the source of the vibration or noise. They will check for loose parts like bolts or worn-out parts like belts.
- **Corrective Measures:** The supervisor will decide whether the problem is something that can be fixed on the spot, like tightening a bolt, or if a qualified technician is needed to repair the machine. The machine should not be used again until the issue is fully resolved.

Importance of Taking Correct Action

When problems are found, fixing them in the right way is important to avoid damage or delays. Quick and proper action stops mistakes from spreading and prevents waste. It also keeps the workplace safe and protects tools and machines from further harm. Good action ensures quality products and smooth production.

A Fabric Cutter understands that taking the correct action when a problem is found is necessary for smooth and safe work. If the fabric is not aligned, if the cutting blade becomes blunt, or if there is any defect in the material, continuing without solving it will create many faulty pieces. This leads to wasted fabric, extra costs, and a delay in completing orders.

By stopping the work immediately, checking what went wrong, and informing the supervisor or technician, the cutter makes sure the issue is fixed before more damage is done. Using the proper method to solve problems also keeps the cutting machines in good condition and prevents accidents. Correct action helps maintain accurate cutting, saves time, and keeps the quality of garments high from start to finish.

5.1.3 Process of Cutting Fabric Layers Manually and with Cutting Machines

Fabric cutting must strictly follow the job card to make sure every piece is the correct shape and size. Manual and machine cutting require accuracy, steady hands, and attention to safety. Scissors are used for small layers, while band knives and straight knife machines cut thick layers quickly. A Fabric Cutter follows clear steps to prevent fabric shifting and to get smooth, even cuts.

The process of cutting fabric layers manually and with cutting machines is stated as follows:

Cutting Method	Process Steps	Figure Reference
<p>Manual Cutting with Scissors</p>	<ul style="list-style-type: none"> • Spread the fabric layers on the cutting table neatly, just as mentioned in the job card. • Align the fabric edges and secure the layers with clips or weights to prevent sliding. • Place the paper pattern or template over the fabric and trace the outlines using a marking tool. • Cut slowly along the traced lines using sharp scissors to maintain smooth edges and correct shapes. • Double-check each piece against the job card to confirm size and shape accuracy. 	
<p>Cutting with a Band Knife Machine</p>	<ul style="list-style-type: none"> • Stack and align multiple fabric layers properly as instructed in the job card. • Use clamps or weights to hold the fabric stack steady before cutting. • Guide the fabric against the continuous vertical blade of the band knife while keeping fingers safely away. • Cut along the marked pattern lines with steady pressure to avoid uneven edges. • Inspect the cut layers to ensure there are no misaligned or rough edges before moving them to the next process. 	

Cutting Method	Process Steps	Figure Reference
<p>Cutting with a Straight Knife Machine</p>	<ul style="list-style-type: none"> • Lay out the fabric stack smoothly, following the alignment directions given in the job card. • Use weights or clips to keep layers firm and prevent movement during cutting. • Move the straight knife slowly and steadily along the marked outlines, keeping the blade upright. • Make sure the bottom layers are cut as accurately as the top ones by using controlled, even movements. • Recheck the cut pieces with the job card to ensure all parts are the right size, shape, and number. 	
<p>Cutting with a Round Knife Machine</p>	<ul style="list-style-type: none"> • Spread and align fabric layers neatly according to the job card. • Use a round knife to cut curves and smaller pieces quickly and neatly. • Keep the rotating blade steady and maintain a proper safety distance. • Check the cut parts to confirm they match the shape and size in the job card. 	
<p>Cutting with a Die Cutting Machine (Clicker Press)</p>	<ul style="list-style-type: none"> • Place the die (a sharp metal shape) on the fabric layers as shown in the job card. • Use the machine to press the die through the fabric, cutting out the piece perfectly. • This method is used for small shapes that must be cut exactly the same every time. • Verify that all cut pieces are uniform and meet the quality standards. 	
<p>Cutting with an Automatic Cutting Machine (CNC Cutter)</p>	<ul style="list-style-type: none"> • Load the fabric layers on the cutting bed and secure them firmly. • Input the pattern details from the job card into the machine's computer. • The machine automatically cuts the fabric with high accuracy using a programmed blade. • Ensure the cut pieces are arranged in the correct order for the next process. 	

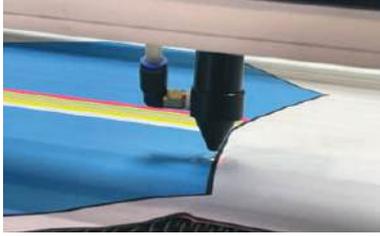
Cutting Method	Process Steps	Figure Reference
Cutting with a Laser Cutter (for special fabrics)	<ul style="list-style-type: none"> Place the single layer or stack of fabric on the laser cutting bed. The laser follows the exact shape given in the job card without touching the fabric directly. This method gives clean edges and prevents fraying on synthetic fabrics. Confirm that each piece is correctly cut and free from burn marks. 	
Cutting with a Hot Knife (for synthetic fabrics)	<ul style="list-style-type: none"> Heat the blade so it seals the fabric edges while cutting. Follow the pattern lines carefully to avoid wrong shapes. This method is useful for fabrics that fray easily. Make sure all edges are sealed and smooth as per the job card. 	

Table 5.1.1: Process of cutting fabric layers manually and with machines

5.1.4 Cut Parts, Count Tickets and Group Them

An efficient workflow for a fabric cutter requires proper planning and organisation of all cut parts. The process begins with receiving the cutting order and continues through fabric lay planning, marker preparation, fabric spreading, cutting, sorting and bundling, documentation, and finally issuing the cut parts to the sewing floor. Each stage is carried out in sequence to ensure smooth operations and prevent delays in production. Accurate work at every step supports the seamless movement of materials to the next stage of garment manufacturing.



Fig. 5.1.14: Cut parts of the fabric

- 1. Receiving and Analysing Cutting Orders:** The cutting order is received from the planning department, containing details such as garment style, size breakdown, and total quantity to be cut. This information is used to calculate fabric requirements and prepare a daily cutting schedule.
- 2. Fabric Lay Planning:** The number of fabric lays required is decided based on the cutting order and the width of the fabric. Considerations include fabric shrinkage, grain direction, and marker efficiency. The lay height is also determined for smooth fabric spreading and effective cutting.
- 3. Marker Making and Planning:** Markers, which act as templates for garment parts, are prepared manually or digitally. In manual marker making, marker paper is placed on the fabric, with proper alignment for maximum fabric use. Digital markers are produced using CAD/CAM systems for improved accuracy and efficiency. Marker planning aims to arrange pattern pieces to minimise fabric wastage.
- 4. Fabric Spreading:** Fabric is spread on the cutting table following the lay plan, maintaining correct tension and alignment. This can be done manually or with automated spreading machines. Fabric layers (plies) are spread according to the marker plan, creating a lay ready for cutting.
- 5. Fabric Cutting:** The fabric lay is cut along the marker outlines, using manual cutting tools or automated cutting machines. Automated machines are preferred in large-scale production for speed and precision. Accuracy during cutting ensures the garment pieces fit correctly during sewing.
- 6. Sorting and Bundling:** Once cut, the fabric pieces are sorted by style, size, and colour. Pieces are then bundled into complete garment sets. Bundling keeps cut parts organised and ready for transfer to the sewing department.



Fig. 5.1.15: Bundled fabric

- 7. Documentation and Tracking:** Records are maintained for the quantity, style, and size of all cut fabric. This helps in inventory control and traceability. Bundles are labelled with stickers or tags showing garment part details and ply information.
- 8. Issuing to Sewing Floor:** Bundled cut parts are sent to the sewing floor for assembly. Proper organisation and documentation ensure a smooth and efficient transition from cutting to sewing.

5.1.5 Process of Fixing Different Faults Occurring in Cutting Machines while Cutting Fabrics

Cutting machines sometimes develop faults that can affect the quality of fabric cutting. Fixing these faults quickly keeps the work smooth and prevents wastage. Simple problems can be solved by the Fabric Cutter, while big faults must be reported to a technician. Correct action helps maintain sharp blades, accurate cuts, and safe operation.

The process of fixing different faults occurring in cutting machines while cutting fabrics is discussed below:

- If the blade becomes blunt or dull
 - Stop the cutting work immediately.
 - Replace the blade or sharpen it using the sharpening tool provided with the machine.
 - Test the blade on a small piece of fabric to make sure it cuts smoothly.
- If the machine makes an unusual noise or vibration
 - Switch off the power at once to avoid damage.
 - Check for loose screws, bolts, or parts and tighten them carefully.
 - If the noise continues, report it to the maintenance team.
- If the cutting lines are uneven or inaccurate
 - Inspect the machine alignment and adjust the guide to follow the pattern lines properly.
 - Make sure the fabric layers are clamped tightly to avoid sliding.
 - Confirm that the blade is sharp and set at the correct angle.
- If the machine motor overheats
 - Turn off the machine and allow it to cool before using it again.
 - Check if the machine is overloaded with too many fabric layers.
 - Inform the supervisor if overheating happens often for further inspection.
- If the safety guard is broken or missing
 - Stop using the machine immediately for safety reasons.
 - Replace the safety guard or call the technician to fix it.
 - Never operate the machine until all safety devices are working properly.
- If there is an electrical fault (sparks or burning smell)
 - Switch off the main power supply without delay.
 - Do not try to fix the wiring personally.
 - Report the problem to the electrician or maintenance department right away.

Steps of Reporting Faulty Equipment or Unsafe Conditions to the Right Personnel

In a fabric cutting workplace, it is important to act quickly when equipment is not working or when something is unsafe. Reporting problems early helps prevent accidents and keeps the work area safe. Following compliance procedures ensures the work is done properly, without mistakes, and matches the company's standards. A fabric cutter must stay alert, share problems with the right people, and work as per the factory rules.

The steps of reporting faulty equipment or unsafe conditions are stated below:

1. **Identify the problem clearly:** Notice strange noises, loose wires, sharp edges, or tools that do not work properly.
2. **Stop using faulty equipment:** Avoid touching or operating machines that are broken to prevent injury.

3. **Inform the supervisor or maintenance staff quickly:** Share details like what happened, where it happened, and what danger it may cause.
4. **Provide full information:** Tell whether the problem affects only one machine or the whole work area.
5. **Fill out a written or digital report if required:** Write down what is wrong, the date, and the time the problem was found so it can be tracked.
6. **Follow up until repaired:** Check that the damaged machine or unsafe area is repaired, replaced, or marked with a warning sign before starting work again.
7. **Warn nearby co-workers:** Make sure others are careful until the issue is fixed.



Fig. 5.1.16: Repairing a fabric cutter

5.1.6 Results of Not Finding and Fixing Problems

When issues in fabric cutting are overlooked, it harms both safety and product quality. Incorrect cuts cause material wastage, extra work, and delays in meeting delivery schedules. Machines can suffer serious damage, requiring costly repairs and extended downtime. Defective output disappoints customers and damages the company's image.

The results of not finding and fixing problems in fabric cutting are discussed as follows:

- **Wastage of fabric:** When cutting mistakes are not corrected, large portions of cloth cannot be used, which increases material costs.
- **Delay in production:** Extra time is needed to cut the fabric again or repair the damage, slowing down the entire order.
- **Poor-quality garments:** Pieces cut in the wrong shapes make garments look untidy and cause fitting problems, leading to customer complaints.
- **Higher repair costs:** Small faults in cutting machines become bigger if not fixed early, requiring expensive parts or complete replacement.
- **Unsafe working conditions:** Ignoring machine issues like loose parts or faulty blades can cause serious accidents to workers.

- **Loss of customer trust:** Delivering defective garments or late shipments can make buyers unhappy and reduce future business.
- **Increased workload for workers:** More energy and time are spent correcting mistakes, which causes stress and reduces productivity.
- **Machine breakdowns:** Running a faulty cutting machine without repair can stop it from working completely, halting production.
- **Lower team efficiency:** When problems are ignored, other workers also get delayed waiting for good fabric pieces to proceed with stitching.
- **Financial loss to the company:** Combining wasted fabric, delays, repairs, and rejected orders results in heavy losses for the factory.

Summary

- Fabric lays must be clipped properly to prevent sliding during cutting operations.
- Taking timely and correct action when problems are found is essential for quality and efficiency.
- Fabric can be cut manually or using machines like a band knife and a straight knife according to job card instructions.
- Cut parts must be identified, counted, and grouped accurately before passing them on.
- Cutting machine faults should be recognised and fixed promptly to avoid production delays.
- Failure to detect and resolve issues can lead to wastage, errors, and poor-quality garments.
- Good problem-solving skills ensure smooth workflow and consistent cutting performance.

Exercise

Multiple-choice Question:

1. Why should fabric lay be clipped at proper points?
 - a. To change fabric colour
 - b. To stop sliding during cutting
 - c. To make the fabric softer
 - d. To add new designs
2. Which cutting machines are commonly used in fabric cutting?
 - a. Embroidery machine and iron
 - b. Band knife and straight knife
 - c. Washing machine and dryer
 - d. Printing machine and heat press
3. What should be done after cutting fabric parts?
 - a. Throw them into storage randomly
 - b. Identify, count, and group them properly
 - c. Mix them with other styles
 - d. Leave them unattended
4. What happens if problems in cutting machines are not fixed?
 - a. Production improves automatically
 - b. Fabric wastage and errors increase
 - c. Garments become more stylish
 - d. Machines work faster
5. Why is it important to take corrective action when issues are found?
 - a. To delay production intentionally
 - b. To maintain quality and efficiency
 - c. To confuse workers
 - d. To reduce the number of employees

Descriptive Questions:

1. State why clipping fabric at the proper points is important during cutting.
2. Explain how fabric layers can be cut manually and with cutting machines as per the job card.
3. Describe the process of identifying, counting, and grouping cut parts correctly.
4. Discuss how to fix faults that occur in cutting machines during fabric cutting.
5. Mention the results of not detecting and correcting problems in the fabric cutting process.

6. Maintain Health, Safety and Security in the Cutting Workplace with Gender and PwD Sensitisation



Unit 6.1 - Workplace Safety Systems and Procedures

Unit 6.2 - Risk Management and Safe Operations

Unit 6.3 - Personal Health and Emergency Response



Key Learning Outcomes

By the end of this module, the participants will be able to:

1. Describe safe working practices for cleaning and maintenance of equipment.
2. Describe the effects of contamination on products, i.e. Machine oil, dirt, etc.
3. Identify different ways of minimising wastage.

UNIT 6.1: Workplace Safety Systems and Procedures

Unit Objectives

By the end of this unit, the participants will be able to:

1. Describe the layout of the plant and the locations of emergency exits.
2. Explain the escape routes and assembly points used during an emergency.
3. Outline the details and purpose of workplace emergency equipment.
4. Discuss basic environmental management system procedures at the workplace.
5. Describe possible accidents, emergencies, and how to respond to them.
6. Explain the meaning of health and safety signs in the workplace.
7. State the roles of personnel trained for first aid and emergencies.
8. Describe the actions to take during drills, fires, or emergencies.
9. Mention the need to report service malfunctions of machines promptly.
10. Describe how to report hazards and unsafe conditions to supervisors.
11. Discuss why seeking clarification on risks is important.
12. Explain reporting protocols and the documents required.
13. State the importance of participating in emergency response training.

6.1.1 Layout of the Plant and Details of Emergency Exits, Escape Routes, Emergency Equipment and Assembly Points

A plant layout in the apparel sector should allow easy movement, proper ventilation, and quick access to all work areas. Emergency exits must never be locked or blocked, and escape routes should have signs that are visible even in low light. Emergency equipment like alarms, fire extinguishers, and first-aid kits must be placed at regular intervals and maintained properly. An assembly point outside ensures everyone gathers safely during emergencies, helping supervisors check if anyone is missing.

Item	Description	Why It Is Important	Who Checks or Maintains It
Plant Layout	Cutting tables, machines, and fabric storage are kept in straight lines with a wide walking space between them.	Reduces accidents and helps workers move freely.	Line supervisor or floor in charge.
Emergency Exits	Clearly marked wide doors with glowing EXIT signs that remain unlocked and unblocked.	Allows everyone to escape quickly during a fire or hazard.	Safety officer checks daily.
Escape Routes	Paths marked with arrows and emergency lights lead directly to exits.	Guides everyone safely out of the plant even if power fails.	Maintenance staff ensure that signs and lights work.

Item	Description	Why It Is Important	Who Checks or Maintains It
Emergency Equipment	Fire extinguishers, sprinklers, alarms, and first-aid kits at visible spots every 15–20 meters.	Helps control fire and treat injuries immediately.	The safety team inspects every week.
Assembly Points	Large open area outside the building with a visible sign and space for all workers.	Ensures everyone is counted and safe during emergencies.	Floor manager checks during drills.

Table 6.1.1: Layout of the Plant and Details of Evacuation

6.1.2 Escape Routes and Assembly Points used During an Emergency

Escape routes are special walkways that lead directly to exits during emergencies like fire or a gas leak. These routes must always be clear, marked with glowing signs, and easy to follow. Assembly points are open, safe places where all workers meet after leaving the factory. Following these routes and gathering at assembly points helps make sure everyone is safe and no one is left behind.

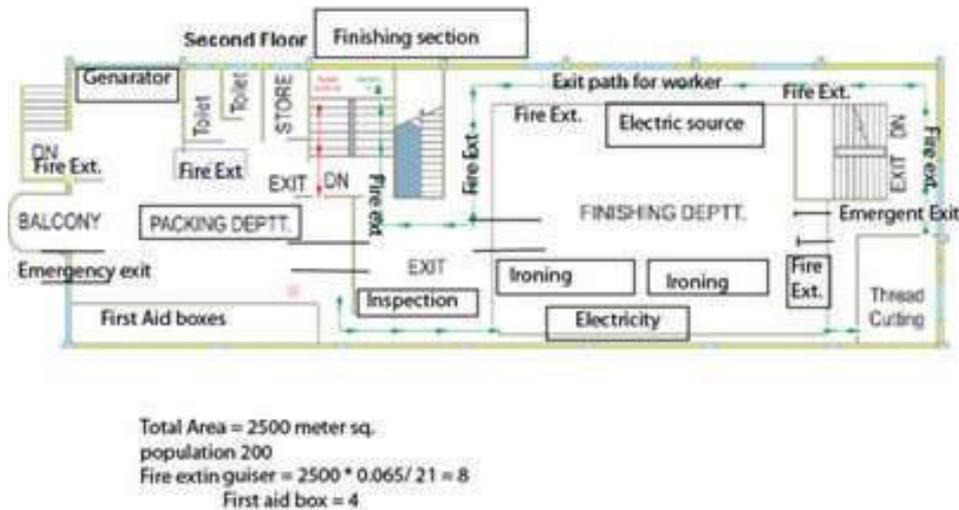


Fig. 6.1.1: An example of an escape route in the apparel sector

In an apparel factory, escape routes are carefully planned walkways that guide workers to safe exits. These paths are marked with bright arrows, signs, and sometimes lights so they can be seen even if there is smoke or a power failure. Workers must never place fabric rolls, cutting tables, tools, or waste bins on these routes because such obstacles can slow down evacuation. Doors on escape routes open easily and must never be locked or blocked during working hours.

After leaving the building through these exits, all workers move quickly to a clearly marked assembly point, which is an open area far away from the building and any danger. At the assembly point, supervisors take attendance to make sure everyone is safe, and no one is allowed to go back inside until the factory is declared secure. Regular drills help workers practice using these routes and reaching the assembly point calmly without panic.



Fig. 6.1.2: Fabric cutting area in the apparel sector

6.1.3 Workplace Emergency Equipment

Workplace emergency equipment is very important to keep everyone safe during accidents or emergencies. This equipment includes fire extinguishers, alarms, first aid boxes, emergency lights, sprinklers, and safety showers. Each tool helps control danger, guide workers to safety, or treat injuries quickly. Knowing where this equipment is kept and how to use it helps protect lives in an apparel factory.

Emergency Equipment	Where It Is Placed	Purpose in the Workplace
 <p data-bbox="292 1426 497 1456">Fire Extinguisher</p>	<p data-bbox="616 1256 948 1319">Near cutting tables, storage rooms, and exits</p>	<p data-bbox="976 1256 1355 1319">To put out small fires caused by fabric, thread, or machines</p>
 <p data-bbox="331 1883 458 1912">Fire Alarm</p>	<p data-bbox="616 1666 911 1729">At main entrances, exits, and work areas</p>	<p data-bbox="976 1666 1355 1729">To warn everyone quickly when there is a fire or smoke</p>

Emergency Equipment	Where It Is Placed	Purpose in the Workplace
 <p data-bbox="316 566 475 600">First Aid Box</p>	<p data-bbox="619 416 938 483">In the sewing, cutting, and finishing areas</p>	<p data-bbox="978 416 1369 483">To treat small cuts, burns, or injuries until a doctor is available</p>
 <p data-bbox="288 857 502 891">Emergency Lights</p>	<p data-bbox="619 723 938 790">Along exit routes and near stairways</p>	<p data-bbox="978 723 1385 790">To guide workers safely out of the factory when the power goes off</p>
 <p data-bbox="288 1238 497 1272">Sprinkler System</p>	<p data-bbox="619 1059 866 1126">On the ceiling of the production floor</p>	<p data-bbox="978 1059 1353 1126">To automatically spray water to stop the fire from spreading</p>
 <p data-bbox="220 1830 571 1897">Safety Shower and Eye Wash Station</p>	<p data-bbox="619 1552 874 1653">Near areas where chemicals or cleaning liquids are used</p>	<p data-bbox="978 1574 1353 1641">To wash off chemicals or dust from the body and eyes quickly</p>

Table 6.1.2: Details and purpose of workplace emergency equipment

6.1.4 Environmental Management System Procedures at Workplace

An Environmental Management System (EMS) is a set of rules to keep the factory clean, safe, and less harmful to nature. It helps reduce waste, control pollution, and use resources like water, electricity, and fabric properly. By following these steps, the workplace becomes safer for everyone and supports a healthy environment outside. Every worker, including a Fabric Cutter, plays an important part in making these rules work well.

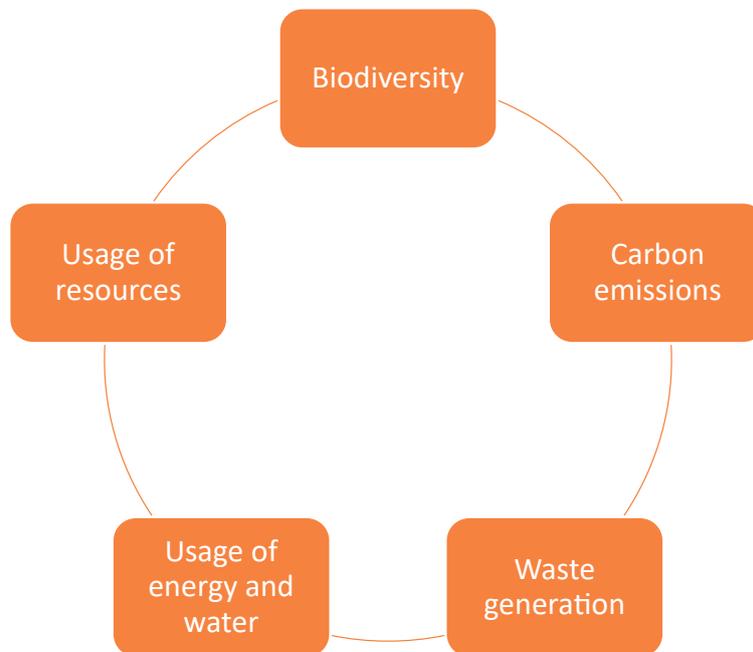


Fig. 6.1.3: Environmental Management System

The environmental management system-related procedures at the workplace in the apparel sector are discussed as follows:

- Sort waste carefully: keep fabric pieces, paper, and plastic in different bins for recycling.
- Use fabric wisely to avoid unnecessary cutting mistakes that create waste.
- Switch off machines, lights, and fans when not working to save electricity.
- Report any oil leaks or unusual smells from cutting machines immediately to prevent pollution.
- Use cutting tools in good condition to avoid damage to fabric and reduce wastage.
- Clean the floor and cutting table regularly to stop dust and cloth particles from spreading in the air.
- Dispose of used blades, broken tools, or oily rags in special containers marked for hazardous waste.
- Store chemicals, machine oil, and cleaning materials properly to stop spills and protect nature.
- Do not throw cloth pieces or waste water outside the factory area; always use proper disposal points.
- Wear a mask if dust is heavy in the cutting area to protect the lungs.
- Support green factory programs like planting trees or saving paper by reusing printed sheets.
- Share ideas with supervisors to improve waste control and reduce electricity use.
- Keep an eye on water taps and report leaks to save water.
- Make sure exhaust fans or air filters are clean so dust does not pollute the factory air.
- Follow safety signs about where to keep waste bins, cleaning tools, and machines for a smooth workflow.

6.1.5 Accidents and Emergencies Response

In an apparel factory, accidents and emergencies can happen suddenly. These may include cuts from sharp tools, fires, machine problems, or even fainting due to heat or tiredness.

It is important to stay calm, follow safety rules, and get help quickly. Knowing what to do can save lives, prevent injuries, and protect the workplace.

Type of Accident/ Emergency	What Happens	How to Respond
Cut from cutting tools or blades	Fabric Cutter may get a small or deep cut on the hand or finger while using scissors, a knife, or a straight knife machine.	Stop work, press the wound to stop bleeding, wash with clean water, apply a bandage, and inform the supervisor.
Fire in the fabric store or cutting area	Fire may start due to sparks, faulty wires, or hot machines near fabric waste.	Raise an alarm, switch off machines, use a fire extinguisher if safe, move to the emergency exit, and go to the assembly point.
Electric shock from the machine	Touching damaged wires or wet switches can give a shock.	Do not touch the person directly, switch off the power, call for help, and inform the maintenance team immediately.
Slipping or falling on the floor	Fabric pieces or oil spills on the floor may cause a fall.	Help the person stand or sit safely, check for injury, clean the floor right away, and report to the supervisor.
Fainting due to heat or tiredness	A worker may suddenly fall or feel dizzy.	Move the person to fresh air, loosen tight clothes, give water, and call first-aid staff.
Machine breakdown causing danger	A jammed or noisy cutting machine may spark or break suddenly.	Stop using the machine, switch off the main power, keep the area clear, and inform the maintenance team.
Chemical or oil spill	Oil or cleaning chemicals may leak on the floor or table.	Avoid touching, place a warning sign, clean with proper tools, and dispose of waste correctly.
Smoke or a strange smell in the factory	A burning smell may mean wire damage or fire risk.	Stop the machines, inform the supervisor quickly, and use the emergency exit if the smoke is heavy.

Table 6.1.3: Possible accidents, emergencies, and response procedure

6.1.6 Meaning of Health and Safety Signs in the Workplace

A fabric cutter must follow safety signs and written instructions to work safely. These signs help prevent accidents and keep tools, machines, and people safe. Instructions are often given in English and the local language so everyone can understand them. By following these, a fabric cutter can cut fabrics correctly without injury.

Type of Sign or Instruction	Image	Shape/ Colour	Meaning	Examples
Mandatory Signs		Blue circle with white symbol	Tell what must be done for safety.	Wear safety gloves to protect the hands from sharp blades. Wear safety glasses to protect the eyes from flying fabric pieces.
Prohibition Signs		Red circle with diagonal line through black symbol	Show what must not be done.	Do not touch the blade. Do not run in the work area.
Warning Signs		Yellow triangle with black border and symbol	Warn about possible dangers.	Be careful of sharp blades. Watch out for moving machine parts.
Emergency & First Aid Signs		Green square with white symbol	Show where to find help or safety exits.	First-aid kit location. Emergency exit route in case of an accident.
Fire Safety Signs		Red square with white symbol	Show the location of fire safety equipment.	Fire extinguisher location in case of fire.
Written Safety Instructions		Written rules in clear text	Explain how to use machines and stay safe.	Properly load fabric rolls without straining back. Report any cuts or injuries immediately.

Type of Sign or Instruction	Image	Shape/ Colour	Meaning	Examples
Local Language Instructions		All signs and rules are shown in English and the local language	Make sure every cutter understands safety messages.	Safety signs and written rules must also be in the local language, like Hindi or the regional script.

Table 6.1.4: Safety signs and written safety instructions

6.1.7 Personnel Trained in First Aid, Fire-Fighting and Emergency Response

In an apparel factory, special people are trained to give first aid, control fires, and guide workers during emergencies. They know where safety tools are kept and how to use them. A Fabric Cutter must know who these people are, where they sit, and how to reach them fast. These trained people make sure everyone stays safe and calm until full help arrives.

The details of personnel trained in first aid, fire-fighting, and emergency response are discussed as follows:

- **First Aid Personnel**

- Gives quick help for small injuries like cuts, needle pricks, and burns.
- Keeps records of accidents and reports serious ones to management.
- Checks the first aid box every day to refill medicines and bandages.
- Usually placed near cutting tables or sewing lines for quick access.
- Wears a green badge or armband to stay visible to all workers.



Fig. 6.1.4: First aid personnel

- **Fire-Fighting Personnel**

- Uses fire extinguishers to stop small fires from spreading.
- Knows locations of fire alarms, water hoses, and sand buckets.
- Guides workers calmly to emergency exits without pushing or panic.

- Checks every section to confirm no worker is left behind.
- Wears a red helmet or jacket for easy identification during drills or real fire.



Fig. 6.1.5: Fire-fighting personnel

- **Emergency Response Personnel**

- Plans the safest path to escape when there is smoke, a gas leak, or building danger.
- Call the fire brigade, ambulance, or police when needed.
- Make sure workers assemble at a safe, open area outside the factory.
- Conducts regular safety drills and explains escape routes to new workers.
- Wears a yellow safety vest with “Emergency Leader” written on it.



Fig. 6.1.6: Emergency response personnel

- **Role of Fabric Cutter with These Personnel**

- Learns the names and faces of these trained people on the first day of work.
- Obeys their orders at once without arguing during any emergency.
- Points out unsafe wires, loose machines, or fire hazards to them quickly.
- Joins in safety drills to practice running to assembly points with others.
- Stays close to them when carrying dangerous tools or cutting large fabric rolls.

6.1.8 Actions to Take During Drills, Fires and Emergencies

Safety drills and training programs help workers know what to do during emergencies like fire, accidents, or earthquakes. These drills give practice in using safety equipment, following escape routes, and helping others. Training programs teach workers about first aid, fire safety, and safe machine use. Regular practice makes everyone ready to act quickly and safely.



Fig. 6.1.7: Conducting safety drill

The process of safety drills and training programs to prepare for emergencies in the garment manufacturing sector is discussed as follows:

- **Understanding Dangers:** A fabric cutter attends training to learn about specific dangers. This includes the risk of cuts from sharp blades and scissors, and the dangers of frayed electrical cords on machines. The cutter learns to recognise these problems before they cause harm.
- **Using Fire Extinguisher:** The cutter learns how to use a fire extinguisher in a safe, practice session. The cutter is taught the P.A.S.S. method: Pull the pin, Aim the nozzle at the base of the fire, Squeeze the handle, and Sweep from side to side.
- **Basic First-Aid:** The cutter is taught simple first-aid skills. This includes how to stop bleeding from a small cut by applying pressure and how to treat a minor burn with cool water. The cutter also learns the location of the first-aid kit in the workplace.
- **Fire Drills:** The cutter takes part in fire drills to practice for a real fire. When the fire alarm sounds, the cutter immediately stops work and walks calmly to the nearest exit. The cutter follows the other workers to the designated safe meeting point outside the building.



Fig. 6.1.8: Fire drill

- **Emergency Exits:** The cutter learns the location of all the emergency exits and the correct path to the safe meeting point. This ensures that in a real emergency, the cutter does not get lost and can quickly get to safety.

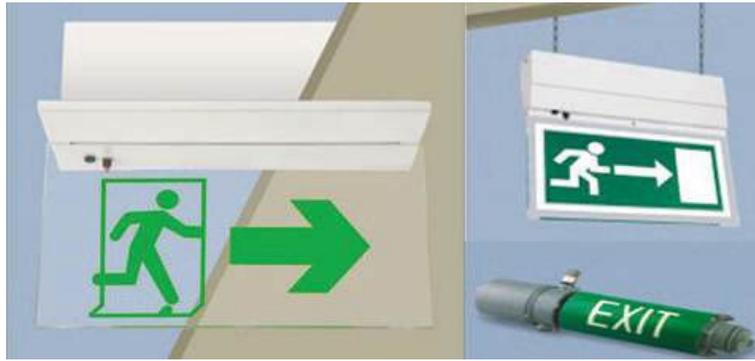


Fig. 6.1.9: Emergency exit

- **Emergency Stop:** The cutter learns where the big red emergency stop button is on every cutting machine. The cutter practices how to push this button to turn off the machine instantly if there is a problem.



Fig. 6.1.10: Emergency stop button

- **Building Confidence:** All these drills and training help a cutter feel prepared and confident. The cutter knows exactly what to do in an emergency, which helps protect not only themselves but also everyone else in the factory.

6.1.8 Actions to Take During Drills, Fires, or Emergencies

Safety drills and training programs help workers know what to do during emergencies like fire, accidents, or earthquakes. These drills give practice in using safety equipment, following escape routes, and helping others. Training programs teach workers about first aid, fire safety, and safe machine use. Regular practice makes everyone ready to act quickly and safely.



Fig. 6.1.11: Safety drills conducted in an Indian industry

The process of safety drills and training programs to prepare for emergencies in the garment manufacturing sector is discussed as follows:

1. **Understanding Dangers:** A fabric cutter attends training to learn about specific dangers. This includes the risk of cuts from sharp blades and scissors, and the dangers of frayed electrical cords on machines. The cutter learns to recognise these problems before they cause harm.



Fig. 6.1.12: Blades of a fabric cutter

2. **Using Fire Extinguisher:** The cutter learns how to use a fire extinguisher in a safe, practice session. The cutter is taught the P.A.S.S. method: Pull the pin, Aim the nozzle at the base of the fire, Squeeze the handle, and Sweep from side to side.



Fig. 6.1.13: Fire extinguisher

3. **Basic First-Aid:** The cutter is taught simple first-aid skills. This includes how to stop bleeding from a small cut by applying pressure and how to treat a minor burn with cool water. The cutter also learns the location of the first-aid kit in the workplace.



Fig. 6.1.14: First aid tool kit

4. **Fire Drills:** The cutter takes part in fire drills to practice for a real fire. When the fire alarm sounds, the cutter immediately stops work and walks calmly to the nearest exit. The cutter follows the other workers to the designated safe meeting point outside the building.



Fig. 6.1.15: Fire drill

5. **Emergency Exits:** The cutter learns the location of all the emergency exits and the correct path to the safe meeting point. This ensures that in a real emergency, the cutter does not get lost and can quickly get to safety.

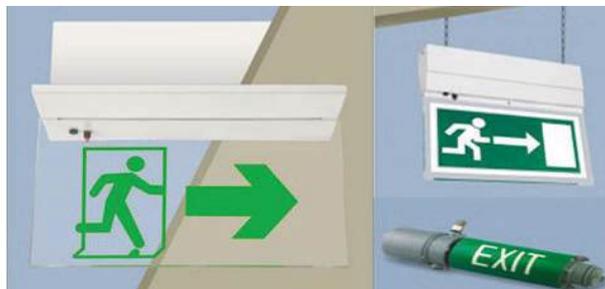


Fig. 6.1.16: Emergency exit

6. **Emergency Stop:** The cutter learns where the big red emergency stop button is on every cutting machine. The cutter practices how to push this button to turn off the machine instantly if there is a problem.



Fig. 6.1.17: Emergency stop button

- 7. Building Confidence:** All these drills and training help a cutter feel prepared and confident. The cutter knows exactly what to do in an emergency, which helps protect not only themselves but also everyone else in the factory.

6.1.9 Need for Reporting Service Malfunctions of Machines

Machines in an apparel factory are important for cutting and sewing fabric accurately. If a machine does not work well, it can harm workers, spoil fabric, or stop production. A Fabric Cutter must always inform the supervisor quickly if any machine is faulty. Reporting early helps fix the problem, keeps everyone safe, and saves time and money.

Machine Problem	Possible Danger	Why Reporting Fast Helps
The blade of the cutting machine becomes blunt	Can tear or snag fabric, causing wastage	A technician can sharpen or replace the blade to avoid losses
The motor is making a strange noise	May lead to a sudden machine stop or fire risk	Quick check prevents serious damage or breakdown
The needle breaks repeatedly	Can injure workers or damage fabric layers	Maintenance staff can replace a needle or fix alignment fast
Loose machine belt	Can slip, causing inaccurate cutting or injury	The belt can be tightened early before it snaps completely
Overheating of the motor	Risk of fire or electric shock	Allows repair before the machine becomes unsafe
Oil leakage from the machine	A slippery floor may cause workers to fall	Leakage can be sealed to keep the area clean and safe
Electrical sparks	Can start a fire or give a shock to workers	An electrician can check wiring before a major accident occurs
Unusual vibration	Can damage internal parts or reduce accuracy	The machine can be serviced early to prevent costly repairs

Machine Problem	Possible Danger	Why Reporting Fast Helps
Stuck fabric in the machine	Can tear material and waste production time	The machine can be cleaned to restore smooth operation
Machine not starting	Can delay the delivery schedule	Fast reporting ensures production continues without delay

Table 6.1.5: Need for reporting service malfunctions of machines

6.1.10 Process of Reporting Hazards and Unsafe Conditions to Supervisors

In an apparel factory, reporting hazards quickly keeps everyone safe. A Fabric Cutter must watch for unsafe conditions such as loose wires, slippery floors, or broken cutting tools. Reporting problems to the supervisor helps to stop accidents before they happen. This also makes sure that the machines and workplace stay in good condition, and work does not stop.

The process of reporting hazards and unsafe conditions to supervisors is stated below:

1. Look around while working to see if there is anything dangerous like sharp edges, loose parts, or spilled oil.
2. Do not touch or try to fix something risky without proper training.
3. Stop using a machine immediately if it makes strange sounds, vibrates too much, or has loose parts.
4. Inform the supervisor as soon as the hazard is noticed and explain clearly what the problem is.
5. Tell the exact location of the hazard so the supervisor can reach it quickly.
6. Use warning signs or barriers if possible so others stay away from the danger.
7. Record the hazard in the logbook or reporting system if the factory uses one.
8. Give details about how the hazard was found (for example: "The cutting table was shaking while in use").
9. Follow any instructions given by the supervisor or safety officer to help make the area safe again.
10. After reporting, check later if the hazard has been repaired or removed properly.
11. Learn from safety meetings about what kind of hazards are common and how to report them faster.
12. Encourage co-workers to also report hazards immediately to prevent accidents.

6.1.11 Importance of Seeking Clarification on Risks

In an apparel factory, a clear understanding of risks ensures safety and smooth work. A Fabric Cutter may face dangers like sharp cutting tools, hot presses, moving belts, and loose wires. Asking questions about anything that seems unsafe helps to avoid mistakes and injuries. Clarification makes work faster, safer, and builds confidence to handle tasks correctly.

A Fabric Cutter should always ask for full explanations whenever there is any doubt about a task, machine, or safety procedure. If the cutting machine makes strange noises, if wires are loose near the table, or if a new safety rule is not understood, asking the supervisor quickly prevents accidents. Clear information helps in knowing which protective gear to use, how to move heavy fabric rolls without injury, and how to stop the machine during an emergency. It also explains why rules like keeping the workstation clean, not blocking walkways, and following lockout procedures are important. When the risks are well understood, the Fabric Cutter works more carefully, avoids damage to fabric and machines, and stays prepared to act safely even in unexpected situations.

6.1.12 Reporting Protocols and the Required Documents

In an apparel factory, proper reporting ensures safety and smooth work without delays. A Fabric Cutter must always share correct information about hazards, machine faults, or accidents as soon as they occur. Reporting protocols guide how to inform supervisors step by step to avoid confusion. Using proper documents helps to record every detail, track problems, and take timely action.

The reporting protocols required in the apparel sector are mentioned as follows:

- Inform the supervisor immediately about any unsafe condition, such as slippery floors, loose wires, or faulty cutting machines.
- Clearly describe what the problem is, where it is happening, and how it was noticed.
- Use the official method of reporting, such as writing on a form, calling the safety officer, or using a logbook.
- If there is danger to people, stop work at once and move to a safe location after informing the supervisor.
- Follow up to check whether the problem has been solved and if further reporting is needed.
- Always keep calm and provide honest details so supervisors can take quick and correct action.
- Cooperate during any inspection and answer questions clearly to help fix the issue faster.

On the other hand, the documents required for reporting protocols are stated below:

- **Incident Report Form:** Records details of accidents, near-misses, or unsafe acts.
- **Machine Breakdown Log:** Tracks repeated problems in machines to prevent major damage.
- **Maintenance Request Form:** Asks for repair services when a machine shows warning signs.
- **Safety Checklist:** Ensures that all safety points are checked daily before starting work.
- **Attendance Register:** Notes which workers were present during the incident for reference.
- **Inspection Report:** Prepared by the safety officer or supervisor to confirm what was checked and corrected.
- **Root Cause Analysis Sheet (if available):** Used to study why the problem happened to prevent it in future.
- **Training Records:** Confirm whether workers involved have received safety training or need more guidance.

6.1.13 Importance of Participating in Emergency Response Training

Emergency response training helps a Fabric Cutter stay calm and act correctly when something goes wrong. It teaches how to protect oneself, co-workers, and the workplace during fires, injuries, or chemical spills. Such training also explains how to use safety equipment and follow escape plans. Being prepared keeps everyone safe and avoids bigger damage to machines and materials.

The importance of participating in emergency response training in the apparel sector is discussed as follows:

- **Improves awareness of dangers:** explains common factory risks like fire, cuts, and electric shock.
- **Develops correct reaction skills:** Trains workers to respond quickly without panic.
- **Teaches safe evacuation methods:** Explains how to leave the workplace using clear exit routes.
- **Explains how to handle injured persons:** Shows how to give first aid or call for help.

- **Provides knowledge of safety equipment:** Teaches correct use of fire extinguishers, alarms, and emergency kits.
- **Helps reduce machine damage:** Shows how to switch off machines safely before leaving.
- **Ensures clear communication:** Trains workers to report emergencies properly to supervisors.
- **Improves teamwork in emergencies:** Workers learn to help each other instead of acting alone.
- **Prepares for real drills:** Practice sessions make emergency actions faster and smoother.
- **Meets factory safety laws:** Following training keeps the workplace compliant with safety rules.
- **Avoids loss of production:** Quick control of emergencies reduces downtime and material waste.
- **Protects life and health:** The main goal is to prevent harm to workers and others inside the factory.

Unit 6.2: Risk Management and Safe Operations

Unit Objectives

By the end of this unit, the participants will be able to:

1. Describe how to identify, handle and store hazardous substances safely.
2. Explain the proper disposal of waste materials at work.
3. Discuss ways to minimise health and safety risks to self and others.
4. Describe how to detect faults in machinery and equipment.
5. Outline how to monitor the workplace to find risks.
6. Explain the proper storage of materials as per requirements.
7. Describe how to handle and move waste and debris safely.
8. Identify common hazards, risks, and threats at work.
9. Discuss occupational health risks and methods to control them.
10. Describe how to keep the work area clean and hazard-free.
11. Illustrate the correct way to use personal protective equipment.

6.2.1 Identification, Handling and Storing Hazardous Substances

Hazardous substances are materials that can harm people, machines, or the workplace if not used carefully. A Fabric Cutter must know how to identify these substances, handle them safely, and store them properly. This prevents accidents, injuries, and damage to fabric or equipment. Safe practices also protect co-workers and keep the factory environment healthy.

Hazardous Substance	Images	Handling Process	Storage Process
Fabric cleaning chemicals (like stain removers)		Wear gloves and a mask while using; avoid inhaling fumes; use only the required amount as per instructions.	Keep containers sealed tightly; store in a cool, dry area away from fabric rolls.
Adhesives and solvents		Do not touch directly with bare hands; use them in a well-ventilated space; clean any spills immediately.	Store in original containers with labels intact; place away from heat or fire sources.
Machine oils and lubricants		Wipe off excess oil carefully; wear an apron to prevent stains on clothes; avoid contact with skin.	Keep bottles capped properly; store separately in marked racks away from cutting tables.

Hazardous Substance	Images	Handling Process	Storage Process
Fabric dyes or colouring agents		Use gloves to prevent skin contact; avoid mixing with other substances; follow the supervisor's guidance.	Store in closed jars or drums; keep away from sunlight and moisture.
Strong cleaning agents (like bleach)		Use only in small amounts; avoid breathing fumes; wash hands properly after use.	Keep in a secure cabinet; ensure child-proof and worker-safe access only.

Table 6.2.1: Identification, handling and storing hazardous substances in the apparel sector

6.2.2 Proper Disposal of Waste Materials at Work

A proper disposal system keeps the cutting section clean and organised. It helps in separating waste and by-products so they do not mix or create health problems. Correct waste disposal avoids accidents, reduces pollution, and saves space. A Fabric Cutter must follow the rules so that waste does not disturb work or damage materials.

The elements of a proper disposal system for waste and by-products are stated below:

- **Separate all waste types properly:** Keep fabric scraps, paper patterns, and plastic packaging in different containers.
- **Use safe bins for sharp objects:** Put broken needles, blades, and pins in a hard container with a warning label to prevent injuries.
- **Dispose of liquid waste correctly:** Store machine oil, grease, or cleaning liquids in sealed bottles to avoid spills on the floor.
- **Keep covered bins:** Use bins with lids to stop dust, insects, and bad smells from spreading in the workplace.
- **Empty bins daily:** Make sure the containers are cleared out every day to keep the area clean and free from waste build-up.
- **Send materials for recycling:** Pass recyclable scraps like cotton or paper to recycling units instead of throwing them away.
- **Handle hazardous waste carefully:** Follow instructions for discarding chemical-soaked cloth pieces, glue containers, or cleaning agents so they do not harm workers or tools.
- **Label all waste bins clearly:** Use colour codes or tags to show which bin is for fabric, sharp objects, or liquids.
- **Keep waste storage area neat:** Arrange bins properly to avoid blocking walkways or causing tripping hazards.

- **Report damaged waste containers:** Inform the supervisor if any bin is cracked, overflowing, or leaking so it can be replaced quickly.
- **Avoid throwing waste on the floor:** Keep the cutting area clear to prevent slips, trips, or fire risks.
- **Follow the company waste disposal policy:** Stick to the workplace rules for handling, storing, and sending waste out of the unit.



Fig. 6.2.1: Waste bins and wastes of the apparel sector

6.2.3 Minimising Health and Safety Risks to Self and Others

Every person in the workplace must act safely to protect themselves and their co-workers. Unsafe actions like leaving sharp tools open, running near machines, or not wearing gloves can hurt someone. By working neatly, following safety rules, and staying alert, risks can be controlled. A Fabric Cutter can help create a safe workplace by being careful with every action taken during cutting work.

The process of minimising health and safety risks to oneself and others due to one's own actions is given below:

1. **Always wear safety gear properly:** Gloves prevent hand injuries, masks protect from fabric dust, and shoes stop slipping.
2. **Keep sharp tools in secure places:** Scissors, knives, and cutting blades must be placed in holders when not used.



Fig. 6.2.2: Scissors used in the apparel sector



Fig. 6.2.3: Cutting blade

3. **Turn off machines when not in use:** A running cutting machine left alone can injure someone passing by.
4. **Clear scraps and pins immediately:** A clean table and floor prevent cuts, slips, or falls.

5. **Move carefully in the workplace:** Avoid running or carrying heavy bundles in a hurry to prevent collisions.
6. **Inform the supervisor about dangers:** Loose wires, damaged tools, or unsafe floors must be reported quickly.
7. **Inspect tools and machines first:** Make sure blades are sharp but not broken, and machines are working properly.
8. **Work without rushing:** Speed increases the chances of mistakes like wrong cuts or accidents.
9. **Store chemicals and liquids safely:** Oils such as sewing machine oils, cleaning liquids, or adhesives should be closed tightly and kept away from cutting areas.



Fig. 6.2.4: Sewing machine oil

10. **Keep walking areas free of obstacles:** Remove bundles, bins, or tools from aisles to prevent tripping.
11. **Dispose of waste correctly:** Sharp objects must go in proper bins, and fabric scraps should not pile up on tables or floors.
12. **Stay focused while working:** Avoid distractions like chatting or looking at phones while handling blades or machines.
13. **Use both hands correctly when cutting:** This gives better control and prevents slips that can cause injuries.
14. **Lift bundles with correct posture:** Bend knees, not the back, to avoid sprains or injuries.



Fig. 6.2.5: Package Lifting technique

15. **Follow emergency instructions:** Learn where first aid kits, fire extinguishers, and emergency exits are kept.

6.2.4 Process of Detecting Faults in Machinery and Equipment

Machines and tools must work properly to keep cutting work safe and smooth. Faults in machines can cause bad cuts, waste fabric, or lead to accidents. A Fabric Cutter should check machines daily and look for signs of trouble before starting work. Detecting problems early saves time, prevents injuries, and avoids damage to materials.

The process of detecting faults in machinery and equipment is discussed as follows:

- **Listen for unusual sounds:** Grinding, squeaking, or rattling noises show that parts may be loose or damaged.
- **Check the cutting blade:** Look for cracks, dull edges, or uneven sharpness that can spoil cutting quality.
- **Watch the machine speed:** If the machine runs slower or faster than normal, it may have an internal issue.
- **Feel for vibrations:** Strong shaking during operation shows that the machine may be unstable or misaligned.
- **Inspect wires and plugs:** Loose or broken wires can cause power failure or electrical shocks.
- **Observe the fabric cutting:** If cuts are uneven or edges are frayed, the blade may need fixing.
- **Check for overheating:** If a motor or blade feels too hot, it may be overworked or need oiling.
- **Look for oil leaks:** Dripping or missing lubrication means the machine may get damaged soon.
- **Watch the switches and buttons:** If they stick, spark, or do not respond, they must be repaired quickly.
- **Test emergency stops:** Make sure safety buttons stop the machine instantly.
- **Monitor machine smell:** Burning smells may mean electrical faults or friction problems.
- **Inspect guards and covers:** Loose or broken guards must be tightened to prevent injury.
- **Note any sudden stops:** Machines stopping without reason may have wiring or motor faults.
- **Keep a daily checklist:** Mark any change in sound, speed, or performance for the supervisor.
- **Report problems immediately:** Never try to repair major faults alone; call the maintenance team.

Machine Faults

Machines can stop working well if they have faults. Knowing common problems helps to fix them quickly before they become serious. Basic troubleshooting and regular maintenance keep machines safe and ready for work. This also saves time, avoids damage to fabric, and makes the cutting job smooth.

Common Machine Faults

Some common problems a fabric cutter might see with a cutting machine are mentioned below:

- **The machine does not turn on:** The machine might not have power.
- **Blade is not cutting well:** The blade might be dull or have a small piece of fabric stuck on it.
- **The machine makes a strange noise:** A part inside might be loose or need some oil.
- **Fabric is getting stuck:** There might be too much dust or lint on the machine parts that move the fabric.

Basic Troubleshooting and Maintenance

The basic troubleshooting and maintenance steps a fabric cutter can take to fix simple machine problems are stated as follows:

1. For a machine that doesn't turn on:

- The fabric cutter should first check if the machine is plugged into the wall socket.
- Next, the person can check if the power cord is broken or loose.

2. For a blade that is not cutting well:

- The fabric cutter can carefully remove the blade and check if it is dull. If it is, the person should replace it with a new, sharp blade.
- The fabric cutter can also gently clean any fabric bits off the blade with a small brush.

3. For a strange noise:

- The fabric cutter should turn off the machine right away.
- The person can then look for any loose screws or parts and carefully tighten them.
- If a part needs oil, the fabric cutter can add a small amount of oil to the right spot, but only after getting permission from the boss.

4. For fabric getting stuck:

- The fabric cutter can use a small vacuum or a brush to clean off dust and fabric lint from the machine's moving parts.
- The person should make sure the work area is clean so no new dust gets in the machine.

6.2.5 Process of Monitoring the Workplace to find Risks

A workplace must be monitored regularly to keep it safe for workers and machines. Small hazards, if ignored, can lead to accidents, injuries, or material damage. A Fabric Cutter should carefully observe all areas and equipment to identify risks before work starts. Regular monitoring ensures timely action to fix problems and maintain a safe, productive environment.

The process of monitoring the workplace to find risks in the apparel sector is stated below:

- **Walk around the entire cutting area:** Look for loose wires, slippery floors, or uneven surfaces that may cause falls.
- **Inspect machines carefully:** Check blades, motors, belts, and switches for wear, unusual noise, or overheating.
- **Check tools and equipment:** Ensure scissors, knives, rulers, and pins are in good condition and stored safely.
- **Observe lighting and ventilation:** Confirm all lights work and fresh air circulates to prevent eye strain and breathing problems.
- **Inspect work tables, racks, and shelves:** Look for sharp edges, unstable stacks of fabric, or tools left on the floor.
- **Monitor dust, lint, and scraps:** Excess dust or threads near machines can create fire hazards or health problems.
- **Listen for unusual sounds:** Squeaks, rattles, or sudden stops in machines may indicate a malfunction.
- **Check emergency exits and fire safety equipment:** Ensure doors are clear, fire extinguishers are accessible, and alarms work.
- **Observe co-workers' practices:** Notice unsafe habits such as not wearing gloves, masks, or safety shoes, and guide them.
- **Inspect chemical storage:** Make sure adhesives, oils, or cleaning liquids are sealed, labelled, and kept in safe areas.
- **Review waste disposal points:** Ensure fabric scraps, needles, pins, and sharp objects are placed in the correct bins.

- **Check walkways and aisles:** Keep paths clear of bundles, boxes, or tools to prevent trips and collisions.
- **Maintain a risk logbook:** Record any hazards found, note corrective action, and inform the supervisor.
- **Follow safety signs and instructions:** Make sure warning signs, posters, and instructions are visible, clear, and easy to understand.
- **Repeat checks at intervals:** Monitor the workplace multiple times during the day to catch new hazards early.
- **Encourage team awareness:** Discuss risks with co-workers so everyone stays alert and follows safety rules.

6.2.6 Proper Storage of Materials as per Requirements

Proper storage of materials keeps the workplace organised, safe, and efficient. It prevents fabric, tools, and chemicals from getting damaged or lost. A Fabric Cutter must store all materials carefully according to their type and requirements. Correct storage also reduces accidents and helps complete work faster and more accurately.



Fig. 6.2.6: Cut fabric parts

The proper storage of materials as per requirements is given as follows:

- **Store fabric rolls upright or flat:** Arrange them on racks or shelves to prevent bending, creasing, or tearing.
- **Keep small cut pieces in labelled bins:** Separate by size, colour, or style to make them easy to find.
- **Store tools safely:** Place scissors, knives, and measuring tapes in holders or drawers to avoid injury and damage.
- **Keep adhesives and chemicals sealed:** Store in cool, dry, and ventilated areas, away from heat or flames.
- **Separate hazardous materials:** Keep oils, solvents, and cleaning agents in clearly marked containers in restricted areas.
- **Use pallets or shelves for heavy items:** Avoid placing heavy bundles directly on the floor to prevent damage and improve safety.
- **Label all storage areas:** Clearly mark shelves, bins, and containers for easy identification and proper handling.
- **Maintain a clean storage area:** Remove dust, threads, and scraps to prevent accidents and protect materials.

- **Follow stacking rules:** Stack materials safely, not too high, to prevent falling or crushing lower items.
- **Check storage regularly:** Inspect racks, shelves, and containers for damage or spills and correct issues immediately.
- **Keep walkways clear:** Do not block paths with materials to avoid tripping hazards and ensure smooth movement.
- **Use the FIFO (First In, First Out) method:** Store new materials behind older stock to use older materials first and prevent waste.



Fig. 6.2.7: Fabric rolls

6.2.7 Process of Handling and Moving Waste and Debris Safely

Handling and moving waste safely keeps the workplace clean and prevents accidents. Sharp objects, liquid spills, and heavy debris can hurt workers if not handled carefully. A Fabric Cutter must follow correct methods to lift, carry, and dispose of waste. Safe waste handling protects both people and materials in the workplace.

The process or steps of handling and moving waste and debris safely are mentioned as follows:

- **Wear protective gear:** Use gloves, masks, and proper shoes to avoid cuts, dust, or slips.
- **Separate waste types:** Keep fabric scraps, sharp objects, liquids, and hazardous materials in different containers.
- **Use correct lifting methods:** Bend knees, keep the back straight, and lift with strength from the legs, not the back.
- **Use containers or trolleys:** Carry heavy or large waste in bins or trolleys instead of holding it with hands.
- **Keep sharp objects safe:** Place needles, pins, and broken blades in hard, labelled containers before moving.
- **Avoid overfilling bins:** Do not stack waste too high to prevent spills or falling debris.
- **Move slowly and carefully:** Walk steadily and avoid running while carrying waste to prevent accidents.
- **Clean up spills immediately:** Wipe liquids or slippery substances from floors to prevent slipping.

- **Dispose of hazardous waste properly:** Follow workplace rules for chemicals, adhesives, or oils.
- **Check pathways:** Ensure aisles and walkways are clear before moving waste.
- **Wash hands after handling waste:** Keep hands clean to avoid infections or contamination.
- **Report broken or damaged bins:** Inform the supervisor to replace or repair containers to maintain safety.

6.2.8 Common Hazards, Risks, and Threats at Work

The apparel workplace has many hazards and risks that can cause accidents or injuries. A Fabric Cutter must know about these dangers to work safely. Identifying hazards early helps prevent accidents and keeps machines and fabric safe. Awareness of risks also protects co-workers and improves overall workplace efficiency.

Type	Images	Examples
Physical Hazards		Sharp scissors and knives, moving cutting machines, heavy fabric rolls, hot irons, uneven floors, and poor lighting.
Chemical Hazards		Fabric dyes, adhesives, cleaning agents, machine oil, bleach, and solvents can cause burns, allergies, or poisoning.
Ergonomic Hazards		Repetitive cutting actions, standing or bending for long hours, poor posture, and lifting heavy bundles incorrectly.
Electrical Hazards		Exposed wires, faulty machines, water near electrical equipment, malfunctioning switches or plugs.
Fire Hazards		Flammable fabrics, chemicals, oily rags, overloaded electrical circuits, sparks from machines.

Type	Images	Examples
Slips, Trips, and Falls		Wet floors, scattered fabric scraps, threads, tools, or bundles left in walkways.
Workplace Behaviour Risks		Not wearing safety gear, rushing tasks, improper use of machines, ignoring safety rules, and distracting co-workers.
Environmental Hazards		Poor ventilation, high temperatures, inadequate lighting, and crowded workspaces are causing accidents.

Table 6.2.2: Common hazards, risks, and threats at work

6.2.9 Occupational Health Risks and Methods of Controlling

The fabric cutting area has many possible dangers that can cause accidents or injuries if not handled properly. These include sharp tools, moving blades, heavy fabric rolls, and electrical parts. Slippery floors, poor lighting, and clutter also make the workplace unsafe. Knowing the hazards or occupational health risks and using correct safety methods helps keep everyone safe.

In a fabric cutting area, there are several occupational health risks that can cause harm to workers. They are mentioned as follows:

- **Cuts and Lacerations:** This is the most common hazard, caused by sharp cutting tools like rotary cutters, scissors, and machine blades.
- **Musculoskeletal Injuries:** Working for long hours in a static position or making repetitive movements can lead to back pain, joint strain, and other injuries.
- **Slips, Trips, and Falls:** The floor can become slippery from fabric scraps, spilled liquids, or dust, causing someone to fall.
- **Respiratory Problems:** Breathing in fine particles of fabric dust or fumes from certain adhesives can cause breathing issues and allergic reactions.
- **Electrical Shocks:** Damaged electrical cords on cutters and machines can lead to dangerous electric shocks.
- **Noise Exposure:** The noise from automated cutting machines can be loud, potentially leading to hearing damage over time.

To prevent these hazards, a fabric cutter must follow specific safety methods and use Personal Protective Equipment (PPE). They are:

- **For Cuts and Lacerations:** Always wear cut-resistant gloves. Keep all cutting tools in their proper holders when not in use. Ensure all machine blades have guards that are working correctly.



Fig. 6.2.8: Wearing cut-resistant gloves

- **For Musculoskeletal Injuries:** Use an ergonomic workstation and adjust the cutting table to a comfortable height. Take short breaks to stretch and change positions.



Fig. 6.2.9: Maintaining a comfortable position while cutting fabric

- **For Slips, Trips, and Falls:** Keep the work area clean and tidy. Regularly sweep up fabric scraps and immediately clean up any spills. Make sure walking paths are clear of clutter.



Fig. 6.2.10: Keeping the fabric cutting area clean

- **For Respiratory Problems:** Wear a face mask to avoid inhaling dust and fumes. The work area should have good ventilation to circulate fresh air.



Fig. 6.2.11: Wearing a face mask

- **For Electrical Shocks:** Regularly inspect all electrical cords for damage. Do not use any machine with a frayed or exposed wire. Make sure hands are dry when plugging or unplugging machines.
- **For Noise Exposure:** Use earplugs or earmuffs when working near loud machinery to protect your hearing.



Fig. 6.2.12: Earmuff

- **General Safety:** A cutter must also know where the emergency stop button is on all machines and how to use it. Proper training on all equipment is essential before beginning any task.



Fig. 6.1.13: Emergency button of the fabric cutting machine

Moreover, the steps for safely handling cutting tools like scissors and manual knives are discussed below:

1. **Wear Gloves:** Always wear cut-resistant safety gloves before touching any sharp tools. This protects hands from accidental cuts.
2. **Inspect Tools:** Before starting, check the tools for any damage. Make sure scissors are not loose and manual knives have a secure handle.
3. **Use Correctly:** When cutting, hold the tool firmly and cut away from the body. Never point the sharp end of the tool towards anyone.
4. **Store Safely:** When not using a tool, put it in its designated holder or case. Never leave sharp tools lying on the cutting table or workbench.

On the other hand, the steps for safely handling electrical cutters are mentioned as follows:

1. **Wear the Right PPE:** In addition to safety gloves, a cutter should wear closed-toe shoes and a face mask. The shoes protect from dropped tools, and the mask prevents breathing in fine fabric dust.



Fig. 6.2.14: A closed-toe shoe

2. **Inspect the Cutter:** Check the electrical cutter before plugging it in. Make sure the cord is not frayed and the blade guard is in place and working correctly.



Fig. 6.2.15: An electric cutter

3. **Check the Work Area:** Make sure the cutting table is clean, and there is enough room to move the cutter without hitting anything. The cutter must also make sure the floor is dry to avoid electric shocks.



Fig. 6.2.16: Keeping the fabric cutting area clean

- 4. Use the Cutter Properly:** A cutter should hold the machine firmly with both hands and move it slowly and steadily through the fabric. Never rush or force the cutter.



Fig. 6.2.17: Holding the fabric cutting machine firmly

- 5. Use the Guard:** The cutter must keep the blade guard in its correct position at all times while cutting. This guard is there to protect fingers from the moving blade.



Fig. 6.1.18: Blade used in fabric cutting

- 6. Unplug Safely:** When the work is done or if there is a problem, the cutter must turn off the machine and unplug it from the wall. They should never leave an electric cutter plugged in when not in use.

6.2.10 Process of Keeping the Work Area Clean and Hazard-Free

A clean and organised work area helps prevent accidents and keeps work moving smoothly. It is important to put tools, fabrics, and other items in the right place after use. Dust, scraps, and waste should be removed regularly to keep the space safe. Good organisation also helps in finding things quickly and working without problems.



Fig. 6.2.19: Clean fabric cutting area

The process of keeping the work area clean and organised to maintain a safe environment is stated below:

- **Daily Clean-Up**
 - Wipe down the cutting table to remove all fabric dust and scraps.
 - Sweep the floor to collect all small fabric pieces and place them in a waste bin.
 - Return all tools, like scissors and knives, to their proper storage place.
 - Ensure electrical cords are neatly stored and not left on the floor.
- **Regular Maintenance**
 - Sweep or vacuum the floor regularly to keep it free of dust and fabric scraps, which prevents slips.
 - Check all machine blades and tools for cleanliness and proper function. Report any problems to a supervisor.
 - Ensure all lights are working properly for good visibility.
- **Safe Work Habits**
 - Clean up small messes as you work.
 - Use the correct bins for all waste materials.
 - Never block walkways or emergency exits with fabric or equipment.

6.2.11 Correct Way of Using Personal Protective Equipment

Personal protective equipment (PPE) keeps a Fabric Cutter safe from cuts, dust, and other hazards. Using gloves, masks, safety shoes, and aprons prevents injuries and health problems. PPE must fit well and be worn properly to give full protection. Regular checks ensure that the equipment is clean and not damaged.

Type of PPE	Images	How to Use Correctly	Why It Is Important
Safety Gloves		Wear gloves that fit properly and cover the fingers fully.	Protects hands from cuts while using scissors, knives, or cutting machines.
Dust Mask		Place the mask over the nose and mouth and tie it snugly.	Stops fabric dust and tiny fibres from entering the lungs.
Safety Shoes		Wear closed shoes with a firm grip and steel toes if available.	Prevents injury if heavy fabric rolls or tools fall on the feet.
Apron or Overall		Use a clean apron that covers clothes completely.	Keeps clothes free from dust, oil, and sharp threads.
Safety Glasses		Wear glasses that fit well without sliding.	Protects eyes from flying fabric particles or thread ends.
Ear Protection (if noisy machines)		Use earplugs or earmuffs properly inserted or fitted.	Reduces harm from loud cutting machine noise over time.

Table 6.2.3: Ways of using PPE

Unit 6.3: Personal Health and Emergency Response

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain the bad effects of alcohol, tobacco and drugs on health.
2. Discuss how a healthy lifestyle and good habits help a person.
3. State the importance of personal hygiene at home and work.
4. Illustrate how to perform basic first aid for simple injuries.
5. Describe how to perform basic CPR procedures to help someone in need.
6. Explain workplace health and safety practices that everyone must follow.
7. Mention why first aid and fire-fighting training are important.

6.3.1 Bad Effects of Alcohol, Tobacco and Drugs on Health

Alcohol, tobacco, and drugs harm the body and reduce work performance. They make a person weak, tired, and careless while working. Using them for a long time can cause serious diseases. Staying away from these substances keeps the body healthy and the mind alert.

Substance	Images	Ill-effects on Health	Ill-effects on Work
Alcohol		Damages the liver, affects brain functions, weakens memory, causes poor balance, and increases the risk of high blood pressure and heart problems.	Slows cutting speed, causes hand shaking, increases mistakes while following patterns, and raises the chance of machine accidents
Tobacco		Causes lung diseases, breathing problems, yellow teeth, bad breath, and serious illnesses like mouth or lung cancer	Reduces energy levels, causes frequent coughing or breathlessness, and makes it harder to stay focused while cutting fabric
Drugs		Damages the brain and nervous system, weakens the heart, causes extreme weight loss, and can lead to death if misused	Creates drowsiness, confusion, and poor judgment, making it unsafe to operate sharp cutting tools or machines and increasing the risk of injuries

Table 6.3.1: Effects of alcohol, drugs and tobacco on health and work

6.3.2 Process of Maintaining a Healthy Lifestyle and Good Habits

A healthy lifestyle keeps the body strong, the mind sharp, and the work safe. Eating good food, exercising regularly, and sleeping well help a person stay active. Staying away from alcohol, tobacco, and drugs prevents diseases and protects work performance. Healthy choices lead to better energy, fewer mistakes, and a happier life.

The process of maintaining a healthy lifestyle and guarding against dependency on intoxicants is discussed as follows:

1. Eat a balanced diet with vegetables, fruits, grains, and proteins to maintain strength and stay alert while cutting fabric.
2. Drink plenty of clean water throughout the day to stay fresh and avoid tiredness.
3. Exercise daily or do simple stretches at home or work to prevent stiffness from long hours at the cutting table.
4. Take enough rest and 7–8 hours of sleep each night to keep the mind calm and focused.
5. Avoid alcohol, tobacco, and drugs completely, as these substances damage the body, slow reactions, and make machine handling unsafe.
6. Choose friends and co-workers who follow healthy habits to avoid pressure to use intoxicants.
7. If feeling stressed, talk to a supervisor, counsellor, or doctor instead of turning to harmful substances.
8. Learn about the harmful effects of intoxicants through awareness programs or safety training sessions at work.
9. Set personal goals to improve health, save money, and grow in the job, which motivates staying away from addictions.
10. Maintain discipline by following a fixed routine every day that includes work, exercise, healthy meals, and relaxation.
11. Keep the workplace neat and organised, which reduces stress and supports a positive lifestyle.
12. Celebrate success and small achievements without using harmful substances, showing pride in healthy living.

6.3.3 Importance of Personal Hygiene

Good health, cleanliness, and positive habits help a person work better and stay safe. Sound health gives strength and energy to finish tasks on time. Proper hygiene keeps the body clean and prevents sickness. Good habits create discipline and improve the quality of work and life.

A Fabric Cutter understands that sound health is essential to staying active throughout the day. A healthy body has the strength to lift, arrange, and cut heavy layers of fabric without feeling weak or tired. Good health also means better concentration, which is needed for cutting accurate shapes and avoiding errors. Staying healthy prevents frequent sick leaves, helping to complete orders on time and maintain a steady income. Regular exercise, a balanced diet, and enough rest make the body strong and protect against diseases that can disturb work.

Moreover, a Fabric Cutter knows that hygiene keeps both the worker and the workplace clean. Washing hands before handling fabric prevents dirt, sweat, and germs from spoiling the material. Wearing clean uniforms, using masks or gloves if required, and keeping cutting tools sanitised ensure that no contamination reaches the garments. A clean work table, proper waste disposal, and good ventilation make the workplace safe and pleasant. Personal hygiene, such as bathing regularly and trimming nails, also keeps the worker healthy and reduces the risk of spreading infections among co-workers.

Furthermore, a Fabric Cutter practices good habits like reporting to work on time, following safety rules, and eating healthy meals. Avoiding alcohol, tobacco, and drugs helps in staying alert while using sharp cutting tools and heavy machines. Good habits like maintaining focus, listening to instructions, and checking work carefully prevent costly mistakes and accidents. Regular routines build discipline and make work more organised, helping to meet production targets smoothly. Following positive habits at work also inspires co-workers and improves teamwork, creating a friendly and productive environment.



Fig. 6.3.1: Fabric cutting department

6.3.4 Basic First Aid for Workplace Injuries

Emergencies in a fabric cutting area can happen suddenly, like accidents, fires, or the need to leave the building quickly. Knowing first aid helps treat small injuries before medical help arrives. Here are few first aid techniques for workplace injuries.

Type of Injury	First-Aid Steps	Figure Reference
Minor Cuts	<ul style="list-style-type: none"> Wash the cut with clean water and mild soap. Apply gentle pressure with a clean cloth to stop any bleeding. Cover the wound with a bandage. 	
Small Bruises	<ul style="list-style-type: none"> Rest the injured part to prevent swelling. Press a cold cloth or ice pack wrapped in cloth on the bruise for a few minutes. Keep the area raised, if possible, to reduce swelling. 	
Burns	<ul style="list-style-type: none"> Cool the burn with cool (not cold) running water for several minutes. Cover the burn with a sterile bandage. Do not apply ice, butter, or ointments to the burn. 	

Type of Injury	First-Aid Steps	Figure Reference
Serious Bleeding	<ul style="list-style-type: none"> • Apply firm, direct pressure to the wound with a clean cloth or your hands. • Raise the injured body part above the heart, if possible. • Call for help immediately and inform a supervisor. 	
Electric Shock	<ul style="list-style-type: none"> • Switch off the power source immediately before touching the victim. • Do not touch the person with bare hands if they are still in contact with electricity. • Once safe, check for breathing and pulse. • If necessary, begin CPR and call for medical help immediately. • Keep the person lying down and calm until help arrives. 	
Eye Injury (Dust or Chemical Splash)	<ul style="list-style-type: none"> • Rinse the eye gently with clean, running water for at least 10–15 minutes. • Do not rub the eye or try to remove foreign particles with fingers or tools. • Cover the eye with a sterile eye pad or clean cloth. • Seek medical attention immediately, especially for chemical exposure. 	

Table 6.3.2: First-aid techniques for various workplace injuries

General Care

While giving first aid, it is essential to maintain cleanliness and hygiene to prevent infection. Always use clean materials, tools, and bandages when treating any wound or injury. If an injury occurs in the workplace, it must be reported immediately to a supervisor so that proper action and documentation can be taken. In cases where a wound does not heal properly or shows signs of infection such as redness, swelling, or pus, the injured person should visit a doctor without delay to receive professional medical treatment.

For All Injuries

Every worker should be aware of the location of the first-aid kit in their work area to respond quickly during an emergency. Knowing where it is kept saves valuable time and helps in providing prompt care. It is equally important to inform a supervisor about any injury, no matter how small it may seem. Reporting ensures that the injury is attended to properly, and necessary safety measures are implemented to prevent future accidents.

6.3.5 Process of Performing Basic CPR Procedures

CPR, or Cardiopulmonary Resuscitation, is a life-saving action used when a person is not breathing or their heart has stopped. It helps keep blood and oxygen flowing to the brain and body. Anyone with basic training can give simple CPR until medical help arrives. Doing CPR quickly increases the chance of saving the person's life. It is important to stay calm and follow the correct steps.

PRIMARY CARDIOPULMONARY RESUSCITATION

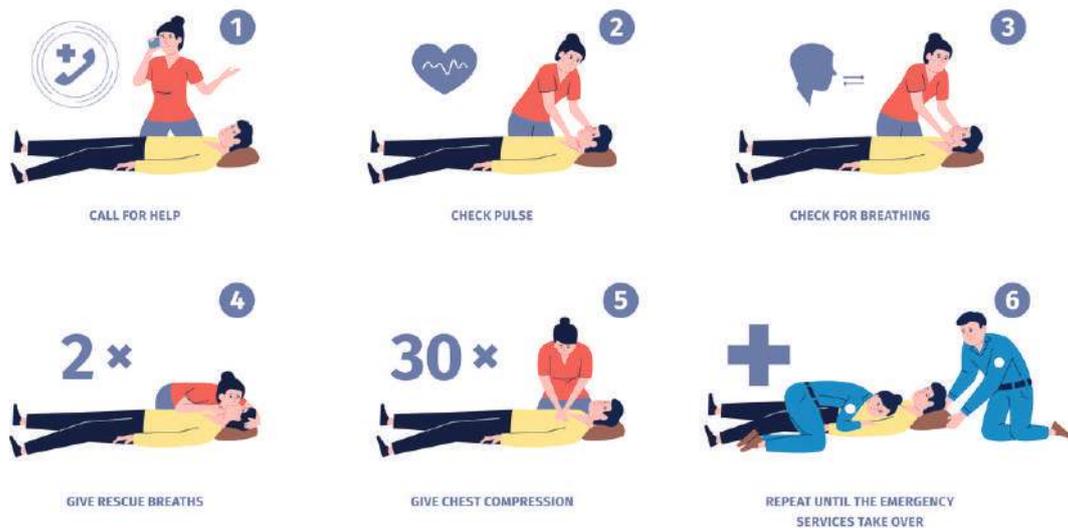


Fig. 6.3.2: Steps of performing CPR

The process of providing simple CPR when a person is not breathing properly is mentioned as follows:

1. **Check the Person's Response:** The person should gently tap the injured person and ask, "Are you okay?" If there is no response and the person is not breathing or breathing abnormally, CPR is needed.
2. **Call for Help Immediately:** The person should call emergency services or ask someone nearby to do it. Quick help from professionals is very important.
3. **Place the Person on a Flat Surface:** The person should gently lie the injured person on their back on a hard, flat surface. This helps give proper chest compressions.
4. **Begin Chest Compressions:** The person should place both hands, one on top of the other, in the centre of the chest. They should press down hard and fast (about 100–120 times per minute), letting the chest rise fully between pushes.
5. **Give Rescue Breaths (if trained):** If trained, the person can give two rescue breaths after every 30 compressions. They should tilt their head back, lift their chin, pinch their nose, and blow into the mouth until the chest rises.
6. **Continue Until Help Arrives:** The person should keep giving CPR—30 compressions and two breaths (if trained)—without stopping. They should only stop if the person starts breathing or medical help arrives. The health and safety practices that need to be followed at the apparel workplace are mentioned as follows:
7. **Wear safety gear:** Use gloves to avoid cuts, masks to prevent dust inhalation, and non-slip shoes to stay safe on wet or slippery floors.



Fig. 6.3.3: Giving CPR

6.3.6 Workplace Health and Safety Practices

Health and safety practices protect workers from injuries and make work smooth and organised. In the apparel workplace, many sharp tools, electrical machines, and heavy fabric bundles are used, so safety rules must be followed. Cleanliness and proper behaviour prevent accidents and keep garments in good condition. A Fabric Cutter must follow safety steps every day to stay healthy and avoid problems.



Fig. 6.3.4: Non-slip shoes and Gloves

- **Keep the workplace clean:** Remove fabric scraps from the floor to prevent slipping and keep the cutting table neat for smooth work.



Fig. 6.3.5: Clean workplace

- **Handle cutting tools carefully:** Use scissors, knives, and blades properly and never leave them lying around where others may get hurt.



Fig. 6.3.6: Using a knife carefully

- **Check machine safety:** Make sure all machine guards and safety switches are working before starting work to avoid accidents.
- **Follow the job card:** Cut only as per the job card instructions to prevent errors and reduce material waste.
- **Maintain good posture:** Stand or sit in the correct position to avoid pain in the back, neck, or shoulders during long hours of work.



Fig. 6.3.7: Right posture while spreading fabric

- **Keep hands safe:** Keep fingers away from sharp edges and moving blades while using band knife or straight knife machines.



Fig. 6.3.8: Keeping the fingers safe

- **Report problems immediately:** Inform the supervisor if a machine is damaged, a blade is blunt, or wires are loose to avoid hazards.
- **Avoid careless actions:** Never run or joke near machines, as it can cause serious accidents.
- **Follow hygiene rules:** Wash hands before and after work to keep fabrics clean and reduce infection risk.
- **Ensure proper environment:** Work in a well-lit and ventilated space for clear visibility and comfort.
- **Attend safety training:** Take part in regular training programs to learn how to handle fire, electric shock, or first aid emergencies.
- **Know emergency exits:** Be aware of the location of fire extinguishers and emergency doors for quick action during a fire.



Fig. 6.3.9: Emergency exit

- **Store chemicals safely:** If fabric treatment chemicals are used, keep them in proper containers and away from heat or open flames.



Fig. 6.3.10: Storing chemicals in the apparel sector

- **Take short breaks:** Avoid fatigue by taking short breaks during long shifts to stay alert and prevent mistakes.

6.3.7 Importance of First Aid and Firefighting Training

First aid and fire-fighting training prepare workers to handle emergencies with confidence. These trainings ensure that small problems do not become big accidents. A Fabric Cutter can respond quickly to injuries or fire hazards and protect people, machines, and fabric stock. Knowledge of safety skills also creates discipline and teamwork at the workplace.

The importance of first aid training is mentioned below:

- Treats small cuts, burns, or wounds on the spot to avoid serious health issues.
- Stops heavy bleeding quickly using simple methods like applying pressure or bandages.
- Prevents infection by cleaning and covering injuries immediately with clean materials.
- Teaches how to handle fainting, sprains, or shock until medical help arrives.
- Reduces fear and confusion during accidents because workers know the step-by-step actions.
- Makes it possible to save co-workers' lives while waiting for doctors or ambulances.
- Improves overall safety in the factory, keeping workers healthy and productive.



Fig. 6.3.11: CPR training

On the other hand, the importance of firefighting training is discussed as follows:

- Teaches the correct use of fire extinguishers, sand buckets, and fire blankets.
- Allows workers to stop small fires before they spread and cause major damage.
- Helps identify fire risks such as loose wires, sparks, or fabric scraps near machines.
- Guides workers on how to sound alarms and inform everyone quickly.
- Provides knowledge about safe exit routes during evacuation to avoid injury.
- Builds courage and quick-thinking during emergencies instead of panic or confusion.
- Protects expensive machines, finished garments, and raw fabric from being destroyed by fire.
- Creates a safer workplace by reducing the chances of fire accidents through awareness.



Fig. 6.3.12: Firefighting training

Summary

- Workplace safety involves knowing plant layout, emergency exits, escape routes, and proper use of emergency equipment.
- Reporting hazards, malfunctions, and unsafe conditions promptly helps prevent accidents and ensures safety.
- Risk management includes handling hazardous substances safely, disposing of waste properly, and minimising occupational health risks.
- Monitoring machines, detecting faults, and storing materials correctly reduce workplace hazards and threats.
- Personal health practices like avoiding alcohol, tobacco, and drugs, maintaining hygiene, and adopting good habits improve safety.
- First aid, CPR, and fire-fighting training prepare workers to respond effectively to injuries or emergencies.
- Using personal protective equipment (PPE) and keeping the workplace clean are essential for safe and efficient operations.

Exercise

Multiple-choice Question:

1. What is the purpose of emergency exits in a workplace?
 - a. To decorate the building
 - b. To allow quick evacuation during emergencies
 - c. To store extra materials
 - d. To control lighting inside the plant
2. Which is an important step in handling hazardous substances?
 - a. Leaving them open in the work area
 - b. Storing them safely as per instructions
 - c. Mixing them with waste
 - d. Ignoring the safety labels
3. Why should machine malfunctions be reported promptly?
 - a. To avoid paperwork
 - b. To prevent accidents and damage
 - c. To reduce the supervisor's workload
 - d. To make machines run faster
4. Which training prepares workers to respond to workplace injuries and fire emergencies?
 - a. Cooking training
 - b. First aid and fire-fighting training
 - c. Gardening training
 - d. Painting training
5. What is the benefit of using personal protective equipment (PPE)?
 - a. It makes work slower
 - b. It improves the decoration of the workplace
 - c. It protects workers from hazards
 - d. It reduces machine costs

Descriptive Questions:

1. Describe the layout of a plant and explain why it is important to know emergency exits and assembly points.
2. Explain how hazardous substances should be stored, handled, and disposed of safely.
3. Discuss the importance of personal hygiene and healthy lifestyle habits in maintaining workplace safety.
4. Illustrate how to perform basic first aid and CPR for someone in need.
5. Explain why emergency response training and fire-fighting drills are important for all workers.

7. Maintain Work Area, Tools and Machines



Unit 7.1 - Safe Working Practices and Equipment Maintenance

Unit 7.2 - Work Processes, Tools, and Quality Control

Unit 7.3 - Workplace Organisation and Communication



Key Learning Outcomes

By the end of this module, the participants will be able to:

1. Follow safe working practices for cleaning, maintenance, and handling of tools and equipment.
2. Identify and use appropriate cleaning equipment, substances, and methods to prevent contamination (e.g., machine oil, dirt).
3. Conduct regular maintenance of tools and equipment, including identifying faults and rectifying them within agreed schedules and responsibilities.
4. Use correct lifting, handling, and posture techniques to ensure workplace safety and efficiency.
5. Describe various machines used in layering, spreading, and cutting processes, including scissors, straight knives, band knives, and laser cutters.
6. Identify essential markers, tools, and materials required for accurate marking and cutting.
7. Minimise material wastage through proper handling, efficient processes, and adherence to company quality standards.
8. Maintain accurate records related to quality, production, and equipment maintenance as per organisational procedures.
9. Communicate effectively with colleagues and supervisors, following proper reporting procedures for quality and operational issues.
10. Safely dispose of waste and store cleaning equipment properly after use, ensuring a clean and organised work environment.

UNIT 7.1: Safe Working Practices and Equipment Maintenance

Unit Objectives

By the end of this unit, the participants will be able to:

1. Discuss safe procedures for cleaning, maintenance, and handling of tools and equipment.
2. List appropriate cleaning methods to prevent contamination and ensure machine efficiency.
3. Analyse regular maintenance, identify faults, and apply corrective measures within set responsibilities.

7.1.1 Safe Procedures for Cleaning, Maintenance, and Handling of Tools and Equipment

In the stitched apparel industry, fabric cutters work with equipment such as straight knife cutting machines, band knife cutters, round knives, die-cutting machines, and hand scissors. Ensuring these tools and machines are cleaned, maintained, and handled properly is critical for reducing workplace accidents, improving productivity, and preserving fabric quality. Following safety procedures minimises the risk of cuts, electrical hazards, and equipment breakdowns, thereby maintaining a safe and efficient cutting environment.

Cleaning and Handling Guidelines

Proper cleaning of cutting tools and equipment ensures longevity, efficiency, and workplace safety:

- **Power Off Equipment:** Switch off and unplug all electrically operated cutters before cleaning.
- **Use Appropriate Cleaning Materials:** Wiper blades and machine surfaces with lint-free cloths and mild detergents recommended by manufacturers.
- **Remove Fabric Dust and Lint:** Use brushes or compressed air to remove lint and threads from cutting tables, band knife machines, and motors.
- **Blade Cleaning:** Regularly clean blades to remove adhesive residues, fabric particles, and rust.
- **Cutting Mats and Tables:** Wipe surfaces after every shift to prevent contamination and fabric stains.
- **Proper Usage:** Operate cutting machines strictly as per the manufacturer's guidelines to avoid overheating, blade dullness, or accidents.
- **Use Personal Protective Equipment (PPE):** Wear cut-resistant gloves, aprons, safety shoes, and protective goggles while handling cutting tools.
- **Safe Lifting Techniques:** Use correct ergonomic lifting practices or lifting aids when moving fabric rolls or heavy cutting machines.
- **Emergency Preparedness:** Keep first-aid kits and fire extinguishers accessible for injuries, cuts, or electrical hazards.
- **Workplace Organisation:** Keep cutting tools, blades, and cords arranged properly to avoid tripping and accidental injuries.

Safety Measures in Maintenance

When maintaining cutting equipment, safety is essential to prevent accidents and ensure smooth operations:

- **Power Disconnection:** Always unplug machines before blade replacement or maintenance.
- **Use Proper Tools:** Only use manufacturer-approved tools and spare parts for repairs.
- **Protective Gear:** Wear gloves, goggles, and PPE when handling sharp blades and electrical components.
- **Cooling Time:** Allow machines that generate heat (e.g., motorised cutters) to cool down before servicing.
- **Avoid Water Exposure:** Keep all electrical parts dry to prevent shocks and short circuits.
- **Proper Ventilation:** Maintain good airflow in cutting areas to disperse fabric dust and ensure worker comfort.
- **Scheduled Inspections:** Regularly check blade sharpness, motor condition, and cutting tables to detect problems early.
- **Training and Awareness:** Ensure cutters receive training on safe machine handling, maintenance, and emergency procedures.



Fig. 7.1.1: Precautions taken by labourers

By following these safety measures, the risk of workplace accidents and equipment failures can be significantly reduced, ensuring a safer and more efficient work environment.

Preventing Equipment Damage

To ensure long-term efficiency and performance of cutting tools and machines, fabric cutters should:

- **Use Equipment as Intended:** Follow manufacturer instructions for cutting machines and tools.
- **Avoid Overheating:** Monitor usage time and avoid overloading machines with thick fabric layers.
- **Regular Blade Sharpening and Replacement:** Sharpen straight knives, band knives, and scissors regularly to maintain cutting quality.
- **Proper Storage:** Store scissors, knives, and blades in dry, protected areas to avoid rust and dullness.
- **Electrical Safety:** Inspect wiring, switches, and plugs regularly for damage.
- **Routine Maintenance:** Replace worn-out parts like blades, belts, and cutting pads promptly to prevent downtime.

Following these practices minimises repair costs, ensures consistent cutting quality, and extends machine lifespan.



Fig. 7.1.2: Preventing equipment damage

7.1.2 Identifying Appropriate Cleaning Methods for Machine Efficiency and Contamination Prevention

Maintaining clean cutting tools and equipment is vital for machine efficiency, fabric quality, and workplace safety. Regular cleaning prevents malfunctioning, ensures accurate cutting, and extends equipment lifespan.

Category	Cleaning Method	Description
Straight & Band Knife Machines	Blade Cleaning	Wipe blades with a lint-free cloth and apply rust-preventive oil to avoid dullness and rusting.
	Dust Removal	Use compressed air or vacuum to remove fabric lint and threads from motors, guides, and tables.
	Lubrication	Apply manufacturer-recommended lubricants to moving parts to reduce friction.
Round Knives & Die Cutters	Edge Sharpening	Sharpen blades regularly with appropriate grinding tools to ensure smooth fabric cutting.
	Surface Cleaning	Remove fabric residues and adhesives with mild cleaning agents.
Cutting Tables & Mats	Daily Wipe-Down	Clean surfaces with a soft cloth to prevent fabric contamination.
	Sanitizing Surfaces	Disinfect periodically to ensure hygiene and prevent fabric soiling.

Table 7.1.1: Cleaning Methods by Equipment Type

Category	Prevention Measure	Description
Fabric Contamination Prevention	Use Clean Blades	Prevent fabric stains and tears by keeping blades sharp and residue-free.
	Separate Cleaning Tools	Use designated brushes and cloths for different machines to avoid cross-contamination.
Dust & Chemical Prevention	Use Non-Toxic Cleaning Agents	Prevent chemical residue transfer to fabrics.
	Ensure Proper Ventilation	Remove lint, fumes, and dust with exhaust systems.
	Schedule Deep Cleaning	Weekly deep cleaning of all machines and workstations to remove hidden contaminants.

Table 7.1.2: Contamination Prevention Measures

7.1.3 Conducting Regular Maintenance, Identifying Faults, and Applying Corrective Measures

For fabric cutters, regular maintenance of machines and tools is critical to maintain efficiency, reduce downtime, and ensure fabric quality.

1. Conducting Regular Maintenance

Maintenance Task	Equipment
Blade Cleaning & Sharpening	Straight knife, band knife, round knife, scissors
Lubricating Moving Parts	Band knife machines, die cutters
Checking Alignment	Cutting tables, guides, and machine beds
Inspecting Electrical Components	Motorised cutters, band knives
Cleaning Workstations	Cutting tables, mats, and surrounding areas

Table 7.1.3: Tasks for Regular Maintenance

Procedures include:

- Wiping blades after use and sharpening regularly.
- Lubricating hinges, rollers, and moving parts to reduce friction.
- Checking power cords, switches, and plugs for damage.
- Ensuring proper alignment of machine guides and tables.
- Keeping the workstation clean and free from obstructions.

2. Identifying Faults in Cutting Equipment

Common faults include:

- **Dull or Damaged Blades:** leading to uneven or frayed cuts.
- **Misalignment:** fabric not cutting to pattern specifications.
- **Overheating Motors:** caused by dust build-up or overuse.
- **Loose or Worn Belts:** reducing cutting precision.
- **Electrical Malfunctions:** faulty switches, wiring, or circuit issues.

Fault Detection Methods:

- Visual inspection of blades, belts, and guides.
- Listening for unusual motor sounds.
- Checking for uneven or jagged cutting results.
- Monitoring overheating or irregular speed in machines.

3. Applying Corrective Measures

Fault Identified	Corrective Measure
Dull or Damaged Blades	Sharpen or replace blades immediately.
Uneven Cutting	Realign guides and ensure fabric is placed correctly.
Motor Overheating	Clean dust, allow cooling time, and service the motor.
Loose/Worn Belts	Replace worn-out belts with manufacturer-approved spares.
Electrical Malfunctions	Replace faulty switches, wiring, or fuses; ensure proper grounding.

Table 7.1.4: Corrective Measures

UNIT 7.2: Work Processes, Tools, and Quality Control

Unit Objectives

By the end of this unit, the participants will be able to:

1. Describe machines used in layering, spreading, and cutting, along with essential marking tools.
2. Minimise material wastage through efficient handling and adherence to company quality standards.
3. Maintain accurate records related to quality, production, and equipment maintenance.

7.2.1 Machines Used in Layering, Spreading, and Cutting, along with Essential Marking Tools

In the stitched apparel industry, the precision of fabric cutting plays a crucial role in ensuring high-quality production. Fabric cutters work with various machines for layering, spreading, and cutting fabric, along with essential marking tools to maintain accuracy. Each stage is vital to achieving uniformity and reducing material wastage in garment manufacturing.

Machines used in Layering

Fabric layering is the process of arranging multiple plies of fabric in a stack before cutting, ensuring uniformity in garment production. The accuracy of this process affects fabric utilisation, cutting precision, and final garment quality.

Machine/Tool	Description	Function	Key Benefits
<p>Manual and Automatic Spreading Tables</p> 	<p>Flat surfaces are used for arranging fabric layers before cutting. Manual tables require hand positioning, while automatic tables have rollers for smooth fabric distribution.</p>	<p>Helps ensure fabric is laid evenly without wrinkles or distortions.</p>	<p>Distributes fabric smoothly, reducing wrinkles and distortions.</p>
<p>Automatic Layering Machines</p> 	<p>Computer-controlled machines that layer fabric with precise tension control.</p>	<p>Ensures even fabric alignment and reduces manual errors in layering.</p>	<p>Aligns and positions fabric correctly, crucial for mass production.</p>

Machine/Tool	Description	Function	Key Benefits
<p>End Cutters</p> 	<p>Mechanical or handheld tools are used to trim fabric edges after layering.</p>	<p>Helps maintain uniform layer lengths, ensuring consistency in cutting.</p>	<p>Prepares fabric for spreading and cutting by keeping edges even.</p>

Table 7.2.1: Tools in layering

Machines used in Spreading

Spreading machines ensure fabric is laid out evenly over the cutting table before the final cutting process. The efficiency of spreading determines cutting accuracy and material efficiency.

Machine/Tool	Description	Function	Key Benefits
<p>Manual Spreading Machines</p> 	<p>Workers manually pull fabric across a cutting table. Requires skill to ensure fabric is evenly spread without wrinkles or misalignment.</p>	<p>Used for avoiding wrinkles, fabric misalignment, and uneven tension.</p>	<p>Improves accuracy in manual operations.</p>
<p>Automatic Fabric Spreading Machines</p> 	<p>Motorised machines that automate fabric spreading with programmed settings for width, length, and alignment. Equipped with sensors and tension controllers.</p>	<p>Ensures uniformity, prevents stretching or loosening, and keeps fabric properly positioned.</p>	<p>Increases productivity and precision.</p>

Machine/Tool	Description	Function	Key Benefits
<p>Air Floating Tables</p> 	Tables that use air pressure to lift and adjust fabric, making it easier to spread and align.	Reduces friction and allows smooth movement of fabric layers.	Reduces risk of creases and misalignment.

Table 7.2.2: Machines used for Spreading

Machines used in Cutting

Cutting machines define the accuracy of fabric patterns, ensuring that pieces match the garment design perfectly. Cutting precision is essential for maintaining fabric quality and reducing wastage. The different tools used in cutting are provided below:



Straight Knife Cutting Machines

- These machines use a vertical, straight blade to cut through multiple layers of fabric at once.



Round Knife Cutting Machines

- Round knife cutters have a **circular blade** and are suitable for **cutting curved patterns and soft fabrics**.



Band Knife Cutting Machines

- A band knife cutter consists of a continuous loop blade that moves rapidly to slice through multiple fabric layers with high precision.



Die Cutting Machines

- These machines use pre-shaped dies to cut fabrics into specific patterns with high accuracy.



Laser Cutting Machines

- For **high-precision cutting**, laser cutting machines use a **focused laser beam** to **cut intricate designs** with minimal fabric waste.



Computerized Cutting Machines (CNC Cutting)

- Computer-controlled cutting machines **automate the cutting process** by following pre-programmed digital patterns.

Fig. 7.2.1: Tools used for cutting

Essential Marking Tools Used in Cutting

Marking tools help guide cutting machines and ensure accurate pattern placement on the fabric. Proper marking ensures consistency and alignment during stitching.

For mass production, stencil guides help in marking identical shapes on multiple layers of fabric, ensuring consistency and reducing measurement errors.

Layering, spreading, and cutting machines improve efficiency, reduce fabric wastage, and ensure precise garment production. Manual and automatic machines are used depending on production scale and fabric type. Marking tools play a crucial role in ensuring accurate cutting and alignment, preventing fabric defects. Using the right machines and tools improves overall garment quality, productivity, and cost-effectiveness in apparel production.



Fig. 7.2.2: Marking tools used for pressing

7.2.2 Minimising Material Wastage

Material wastage during cutting is a significant concern in the stitched apparel industry. Reducing fabric waste improves cost efficiency, sustainability, and production quality. **Fabric cutters** play a key role in ensuring minimal fabric loss through proper handling, efficient cutting techniques, and adherence to quality standards.

Key Strategies to Minimise Material Wastage

Strategy	Description	Key Benefits
Proper Fabric Preparation Before Cutting	<ul style="list-style-type: none"> • Ensure fabric is properly spread, aligned, and wrinkle-free before cutting to avoid distortions. • Check for grain line consistency to ensure proper garment fit. • Conduct trial cuts on scrap fabric before starting production. 	<ul style="list-style-type: none"> • Prevents fabric distortions and misalignment. • Reduces fabric damage and the need for rework. • Ensures cutting precision.

Strategy	Description	Key Benefits
Optimised Use of Cutting Equipment	<ul style="list-style-type: none"> • Perform regular maintenance on straight knife cutters, band knives, and round knives for clean cuts. • Use sharp blades to reduce fabric fraying and errors. • Follow standardised cutting techniques to minimise rework. 	<ul style="list-style-type: none"> • Prolongs equipment lifespan. • Reduces risk of cutting defects and fabric waste. • Enhances efficiency in cutting.
Avoiding Rework and Damage	<ul style="list-style-type: none"> • Double-check marker placement before cutting. • Utilise cutting guides and templates for consistency. • Handle delicate fabrics carefully to prevent fraying, stretching, or tearing. 	<ul style="list-style-type: none"> • Prevents unnecessary material waste. • Improves garment quality and uniformity. • Reduces production delays.
Efficient Waste Management	<ul style="list-style-type: none"> • Collect and reuse excess fabric cuttings where possible. • Implement fabric recycling programs to repurpose scraps. • Train fabric cutters in best practices to minimise unnecessary fabric loss. 	<ul style="list-style-type: none"> • Reduces overall fabric waste and enhances sustainability. • Lowers production costs by maximising material usage. • Encourages eco-friendly production.

Table 7.2.3: Strategies to Minimise Wastage in Cutting

Relation to Other Key Aspects of Production

- **Optimising fabric utilisation:** Minimising material wastage ensures efficient use of fabric by reducing shrinkage, misalignment, and errors.
- **Adhering to quality standards:** Reducing fabric damage helps maintain quality consistency in stitched garments. Correct cutting techniques ensure proper pattern alignment and professional garment finishing.
- **Reducing errors in production:** Errors during cutting can lead to fabric rejection, rework, and production delays. By following standardised procedures, cutters help minimise defects, reducing material loss and improving efficiency.

Minimising material wastage in cutting improves cost efficiency and sustainability. Optimising fabric utilisation ensures fabric is used effectively, reducing unnecessary waste. Adhering to quality standards prevents errors and ensures professional garment finishing.

7.2.3 Maintaining Accurate Records

Accurate record-keeping is crucial in the stitched apparel industry, especially in the cutting process. It ensures quality control, efficiency, compliance, and traceability throughout production. Fabric cutters play a key role in maintaining detailed logs of cutting activities, equipment maintenance, and material usage.

Importance of Accurate Record-Keeping

- **Quality Assurance:** Helps track garment defects, cutting inaccuracies, and corrective actions.
- **Operational Efficiency:** Ensures smooth workflow by keeping records of cutting schedules, machine settings, and workload distribution.
- **Material Tracking:** Monitors fabric usage, reduces waste, and prevents shortages.
- **Equipment Maintenance:** Maintains logs of blade servicing, machine breakdowns, and repairs.
- **Compliance & Audits:** Ensures adherence to industry regulations and supports audits.



Fig. 7.2.3: Quality Check for garments

Maintaining accurate records directly impacts quality control, production tracking, and equipment maintenance. These records help in improving efficiency, reducing defects, and ensuring smooth operations.

Quality Control Documentation

- **Ensuring Consistency in Cutting:** Accurate cutting logs help maintain sharpness records, speed, and cutting precision.
- **Tracking Defects and Rework:** Recording cutting errors such as uneven cuts, fabric tears, or misaligned layers helps identify trends and improve techniques.
- **Compliance with Industry Standards:** Documentation ensures that garments meet quality specifications before moving to the stitching stage.

Line Input Register (Sewing Department)										
Left side of the register										
Style	: 870001	Line #	: 01	Record Keeper	: Janet					
Buyer	: DOC	Color	: Red							
Order Qty	: 3000									
Cutting Received										
Date	Challan#	Sizes						Total	Cumm Total	Sign / Remarks
		XS	S	M	L	XL	2XL			
25-Sep	870001	300	418	400				1000	1000	
26-Sep	870002		800	1200	800			2800	3800	
27-Sep	870003			400	400	400		1200	5000	
		300	1218	2000	1300	400				
Right side of the register										
Cutting Loaded to production Line						Line Rec.				
Date		Sizes						Total	Cumm Total	Sign / Remarks
		XS	S	M	L	XL	2XL			
25-Sep		300	418					600	600	
26-Sep			800	400				1200	1800	
27-Sep				1200				1200	3000	
28-Sep				400	1300			1800	4800	
29-Sep						400		400	5200	
		300	1218	2000	1300	400	0			

Fig. 7.2.4: Logging an issue

Example: A cutter logs an issue of frequent fabric tearing on a particular fabric. The records reveal dull blades, prompting timely sharpening and preventing further damage.

Production Tracking

- **Monitoring Daily Output:** Records track the number of layers or markers cut per shift, ensuring production targets are met.
- **Identifying Bottlenecks:** If cutting slows due to machine issues or fabric defects, logs help identify causes for quick resolution.
- **Optimising Workforce Allocation:** Records provide insights into worker efficiency, helping managers distribute workloads effectively.

Details of Cut to Ship quantity													
Order#	Shipped on	Order quantity	Cut quantity	Units cut @ 3%	Input to sewing department	Stitched quantity	Garments damaged in stitching	Quantity issued to finishing dept.	Finished quantity	Rejected/damaged garment in finishing	Packed quantity	Shipped quantity	Balance quantity
870001	3-Jan	10000	10300	300	10300	10251	49	10251	10187	64	10187	10100	87
Breakdown of Packed Quantity													
Color	Sizes					Total/color							
	S	M	L	XL	XXL								
Red	2	10	6	3	7	30							
Nevy	3	5	12	2	3	25							
White	5	8	10	4	5	32							
	10	23	28	11	15	87							

Fig. 7.2.5: Order Completion Records

Example: A factory identifies from cutting records that output decreases by 15% in the evening shift. Investigation shows fabric misalignment due to improper spreading, leading to corrective training.

Equipment Maintenance Logs

- **Preventing Machine Breakdowns:** Records track servicing schedules, blade replacements, and adjustments.
- **Reducing Cutting Defects:** Properly maintained machines prevent uneven cuts and fabric wastage.
- **Extending Equipment Lifespan:** Preventive maintenance reduces downtime and repair costs.

Name	Dept. No. (Department Code)	Tool Number	Qty	Unit	Serial Number	Operator's Name	Operator's Signature	Machine Code or ID	Operator's Signature	Remarks

Fig. 7.2.6: Tool Registration list

Example: A straight knife machine begins producing uneven cuts. The log shows the last sharpening was overdue, prompting immediate servicing to restore cutting quality.

Accurate record-keeping in cutting improves quality control, tracks production efficiency, and ensures proper equipment maintenance. Well-maintained records help in identifying and resolving issues before they escalate, reducing material wastage and increasing productivity.

UNIT 7.3: Workplace Organisation and Communication

Unit Objectives

By the end of this unit, the participants will be able to:

1. Communicate effectively with colleagues and supervisors, following proper reporting procedures.
2. Ensure proper waste disposal and safe storage of cleaning equipment.
3. Maintain a clean, safe, and organised work environment.

7.3.1 Effective Communication with Colleagues and Supervisors

In the cutting department, maintaining efficiency, productivity, and a positive work atmosphere all depend on effective communication. To guarantee smooth operations, reduce mistakes, and preserve garment quality, **fabric cutters** must communicate clearly with co-workers and managers.

Importance of effective communication in cutting:

- **Ensuring Accuracy in Cutting Tasks:** Clear instructions from supervisors help cutters follow correct marker layouts, fabric alignment, and cutting techniques.
- **Reducing Errors and Rework:** Quick communication of issues such as machine malfunctions, fabric defects, or cutting mistakes prevents delays and reduces material wastage.
- **Improving Workplace Coordination:** Seamless collaboration between cutters, spreaders, and supervisors ensures fabric is processed efficiently.
- **Enhancing Safety:** Proper reporting of equipment faults, blade hazards, or ergonomic concerns helps maintain workplace safety.

Methods of Effective Communication in Cutting

Communication Method	Application in Cutting	Benefits
<p>Verbal Communication (face-to-face discussions, team meetings)</p> 	<p>Used for daily task assignments, urgent problem-solving, and discussing cutting techniques.</p>	<p>Reduces misunderstandings and allows for immediate feedback.</p>

Communication Method	Application in Cutting	Benefits
<p>Written Communication (logbooks, reports, messages)</p> 	<p>Important for documenting cutting issues, maintenance schedules, and shift reports.</p>	<p>Ensures proper record-keeping and helps track process improvements.</p>
<p>Non-Verbal Communication (gestures, body language, demonstrations)</p> 	<p>Used in training sessions and when explaining cutting methods to new workers.</p>	<p>Reinforces instructions and improves learning effectiveness.</p>
<p>Digital Communication (WhatsApp groups, emails, factory software)</p> 	<p>Helps supervisors relay updates, marker plans, and production targets.</p>	<p>Improves real-time coordination and reduces response time to issues.</p>

Table 7.3.1: Communication strategy with colleagues

Best practices for effective communication among fabric cutters:

- **Active Listening:** Pay attention to instructions from supervisors and clarify doubts immediately.
- **Clear and Concise Messages:** Use simple language when discussing cutting tasks.
- **Timely Reporting of Issues:** Inform supervisors immediately about equipment faults, blade defects, or production delays.
- **Maintaining Professionalism:** Use respectful communication with colleagues and management.

- **Regular Feedback and Discussions:** Engage in team discussions to improve workflow and suggest cutting process improvements.
- **Better Communication, Fewer Errors:** Understanding garment requirements prevents defects such as misaligned layers, uneven cuts, or wasted fabric.
- **Stronger Teamwork, Smoother Workflow:** Coordinating with spreading, stitching, and finishing teams ensures the timely delivery of cut fabric.
- **Clear Reporting Improves Equipment Maintenance:** Quick reporting of cutting machine issues prevents major breakdowns.

Effective communication among fabric cutters, colleagues, and supervisors reduces errors, enhances productivity, and ensures garment quality.

Following Proper Reporting Procedures

Fabric cutters must immediately report equipment malfunctions, cutting defects, or material shortages to supervisors to prevent workflow disruptions.

- Use logbooks, shift reports, and maintenance logs to track recurring issues.
- Reporting should be done through predefined channels such as verbal briefings, written reports, or digital platforms to ensure clarity.
- Proper reporting ensures that each stage of cutting is monitored, allowing supervisors to identify errors early and implement improvements.

Example: If a cutter notices dull blades producing frayed edges, they should immediately record it in the maintenance log and notify the supervisor to prevent fabric wastage.



Fig. 7.3.1: Timely Issue Reporting

Team Coordination for Workflow Efficiency

- **Smooth Communication between Departments:** Cutters must coordinate with spreading, stitching, and finishing teams to ensure fabric pieces move efficiently through production.
- **Task Assignment and Role Clarity:** Each cutter should know their responsibilities, cutting schedules, and fabric requirements.
- **Workload Distribution:** Supervisors should allocate cutting tasks based on skill levels and production demands.
- **Quick Problem-Solving:** When issues arise (e.g., misaligned markers, machine failure), team discussions help find immediate solutions.

Example: If a batch of garments requires urgent cutting, the cutting team should coordinate with the spreading and stitching teams to prioritise workflow and meet deadlines.

Aspect	Impact on Communication	Result in Cutting Operations
Proper Reporting Procedures	Ensures that cutting issues, machine faults, and fabric defects are logged and addressed.	Reduces errors, downtime, and fabric wastage.
Clear Task Assignments	Avoids confusion about who is responsible for cutting, quality checks, and maintenance.	Increases workflow efficiency and ensures production targets are met.
Real-Time Coordination	Helps cutters quickly communicate fabric conditions and equipment issues to supervisors.	Prevents delays, enhances quality control, and ensures smooth production.
Feedback and Continuous Improvement	Encourages workers to share cutting-edge improvements and optimisation ideas.	Leads to higher efficiency, fewer defects, and better teamwork.

Table 7.3.2: Reporting and Coordinating

Following proper reporting and team coordination ensures that cutting issues are documented, resolved efficiently, and production targets are met.

7.3.2 Proper Waste Disposal and Safe Storage of Cutting Equipment

Cutting sections generates various types of waste, including fabric scraps, paper markers, and packaging materials. To maintain workplace safety, cleaning tools and chemicals must also be stored appropriately. Improper storage and disposal can result in hazards, health risks, and legal issues.

Waste Disposal Practices

Type of Waste	Examples	Proper Disposal Method
<p>Fabric Waste</p> 	Fabric scraps, off-cuts, discarded garments	Collect in designated bins and send for recycling or donation.

Type of Waste	Examples	Proper Disposal Method
<p>Plastic Waste</p> 	Wrappers, packaging materials	Collect separately and send for recycling.
<p>General Waste</p> 	Dust, food wrappers, and non-recyclable debris	Dispose of in municipal waste bins following regulations.

Table 7.3.3: Waste disposal methods in cutting

Best Practices for Waste Disposal:

- Segregate waste (fabric, paper, plastic, general).
- Label bins clearly for easy identification.
- Schedule regular waste collection.
- Train cutters on best practices and environmental impact.
- Follow government recycling and waste management guidelines.

Safe Storage of Cleaning Equipment

Cleaning equipment and supplies used in the apparel industry include mops, brooms, cleaning chemicals, and disinfectants. Improper storage can lead to accidents, chemical spills, and fire hazards.

Guidelines for Safe Storage of Cleaning Equipment

Equipment Type	Storage Recommendation
<p>Mops & Brooms</p> 	Store in a dry, ventilated area to prevent mould and odours. Use wall hooks or storage racks.

Equipment Type	Storage Recommendation
<p data-bbox="395 297 588 327">Cleaning Cloths</p> 	<p data-bbox="810 409 1342 506">Keep separate cloths for different uses (e.g., ink cleaning vs. general cleaning) to prevent contamination.</p>
<p data-bbox="328 638 659 667">Detergents & Disinfectants</p> 	<p data-bbox="810 759 1307 824">Store in a cool, dry area away from direct sunlight. Keep tightly sealed.</p>
<p data-bbox="336 965 651 994">Chemical Cleaning Agents</p> 	<p data-bbox="810 1093 1334 1189">Keep in original labelled containers, away from heat sources, and in locked cabinets if hazardous.</p>
<p data-bbox="440 1339 547 1368">Spill Kits</p> 	<p data-bbox="810 1543 1366 1608">Maintain an emergency spill response kit near areas where chemicals are used.</p>

Table 7.3.4: Cleaning Equipment

Best Practices for Safe Storage are as follows:

- **Keep Chemicals Away from Heat Sources:** Avoid storing near pressing machines or electrical outlets.
- **Ensure Proper Ventilation:** Prevent the build-up of chemical fumes by using well-ventilated storage rooms.
- **Follow MSDS (Material Safety Data Sheet) Guidelines:** Train workers on the proper handling of hazardous cleaning chemicals.
- **Regular Inspection:** Checking expiry dates of cleaning chemicals and disposing of expired products safely.

Proper waste disposal and the safe storage of cleaning equipment are essential for maintaining a clean, organised, and hazard-free workplace for pressmen in the apparel industry. By following structured waste segregation, implementing safe storage solutions, and complying with regulations, manufacturers can reduce workplace risks, improve efficiency, and contribute to environmental sustainability.

7.3.3 Maintaining a Clean, Safe, and Organised Work Environment

A clean, safe, and organised workplace increases productivity, reduces the risk of accidents, and ensures compliance with government regulations. In the cutting department, fabric dust, sharp tools, and heavy rolls require careful organisation to protect workers' health and efficiency.

Key areas to maintain:

- **Workplace Cleanliness:** Regularly clean fabric dust, remove scraps, and keep cutting areas free of obstructions.

**Regular Cleaning**

- Cleaning schedules should be assigned to ensure accountability and consistency.

**Ventilation**

- Proper airflow is necessary to reduce exposure to ink fumes, which can be harmful if inhaled over long periods.

**Waste Management**

- Used ink cartridges, chemical containers, and fabric scraps must be disposed of properly to prevent contamination and fire hazards.

Fig. 7.3.2: Activities for maintaining workplace cleanliness

- **Safety Measures:** Use safety guards on cutting machines, provide PPE (gloves, masks), and train workers in blade handling.

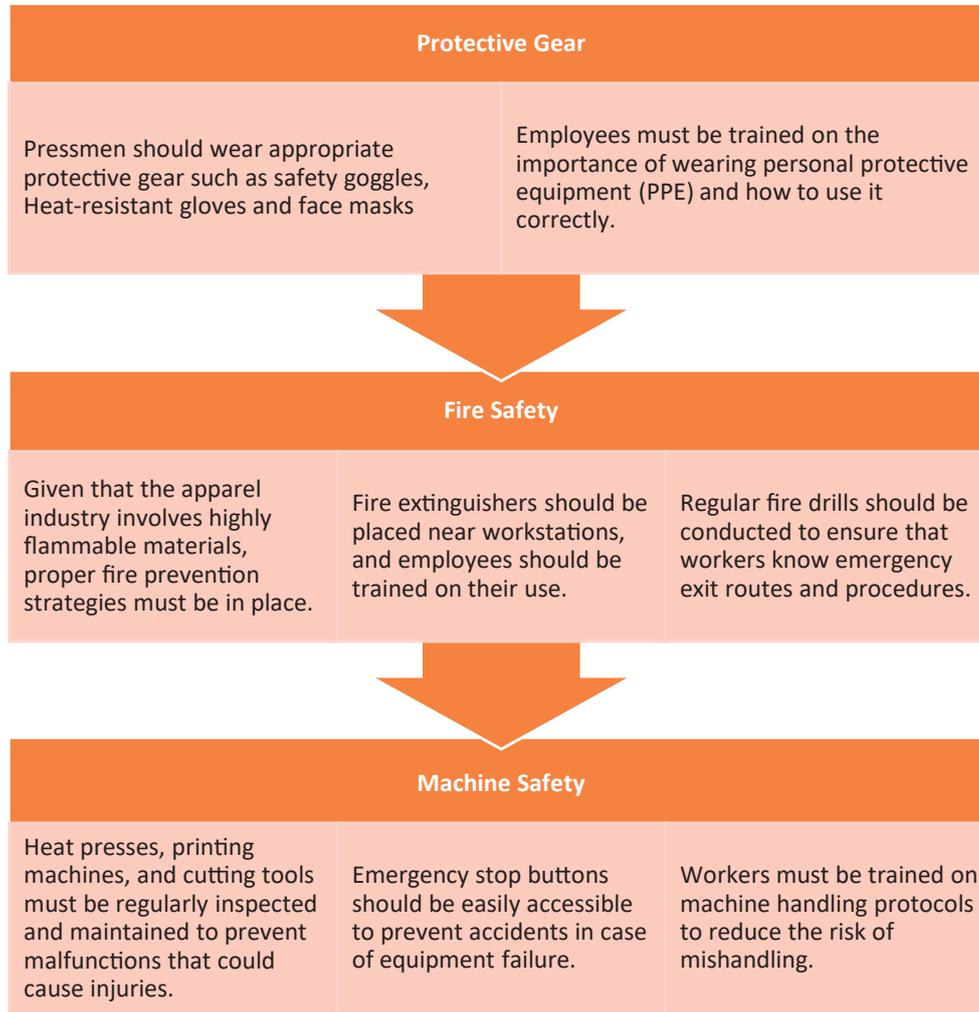
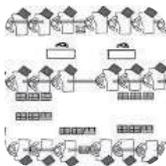


Fig. 7.3.3: Safety precautions in the workplace

- **Organised Work Environment:** Arrange fabric rolls, markers, and tools systematically to prevent clutter.

Activities in organising the workplace



Proper Layout

- Clear pathways should be maintained to allow free movement of workers and materials.



Storage Solutions

- Labelled racks and shelves should be used to store inks, fabrics, and tools systematically.
- An inventory management system should be implemented to track supplies and prevent stock shortages.



Workflow Management

- Proper signage and labels should be used to ensure workers can easily identify work areas and required safety measures.
- Assigning supervisors to oversee operations can help maintain order and efficiency.

Fig. 7.3.4: Activities in organising the workplace

- **Health and Hygiene:** Maintain proper ventilation to reduce dust inhalation and ensure workers follow hygiene practices.

Activities

Rest Breaks

Workers should be given sufficient breaks, particularly in high-heat environments, to avoid exhaustion.

Scheduled breaks can improve focus and efficiency, reducing the likelihood of errors and accidents.

Hydration and Ventilation

Adequate cooling systems, such as fans or air conditioning, should be installed to prevent heat stress.

Clean drinking water should be readily available, and workers should be encouraged to stay hydrated throughout their shifts.

Sanitation Facilities

Proper hand washing stations and clean restrooms should be maintained to promote hygiene and prevent the spread of infections.

Soap dispensers, hand sanitizers, and clean towels should be provided.

Fig. 7.3.5: Activities in managing the health and hygiene

- **Compliance with Regulations:** Follow safety and labour standards to avoid accidents and legal penalties.

Factory Act, 1948



- The Factory Act of India mandates safe working conditions, proper ventilation, and hygienic facilities for workers.
- Employers must conduct periodic safety audits and adhere to regulations related to working hours and occupational health standards.

Occupational Safety and Health (OSH) Guidelines



- Workers should receive proper training on handling hazardous materials, operating machines safely, and responding to emergencies.
- Employers must implement workplace safety policies in line with government-mandated OSH standards.
- Maintaining records of workplace safety incidents can help improve future safety measures.

Fig. 7.3.6: Activities for cleanliness, safety, organising, hygiene, and compliance

A tidy, secure, and well-organised cutting section not only improves worker health but also ensures productivity and compliance. Structured cleaning procedures, strict safety measures, and organised workstations allow cutters to perform their tasks efficiently and with minimal risk.

Summary

- Fabric cutters in the stitched garment industry face hazards like blade cuts, musculoskeletal disorders, respiratory issues from fabric dust, and chemical-related skin irritations from fabric treatments.
- Key safety measures include regular equipment inspections, fire safety training, proper electrical maintenance, and safe chemical handling.
- Sustainable practices such as energy-efficient cutting machines, waste reduction, improved ventilation, and eco-friendly materials reduce environmental impact while enhancing worker safety and factory compliance with safety regulations.
- Fabric cutters must conduct pre-use inspections of tools like straight knives, band knives, and rotary cutters to prevent accidents and ensure smooth operations.
- Regular maintenance of machines such as cutting tables, spreading machines, and automatic cutting systems enhances durability and efficiency.
- Structured documentation, such as cutting reports, maintenance logs, and safety records, helps track efficiency, identify defects, and maintain compliance with industry standards.
- Fabric cutters ensure garment quality through careful inspections, checking for defects like fabric flaws, miscuts, pattern misalignment, and uneven edges.
- Proper handling of cutting tools, measuring instruments, and templates minimises risks.

Exercise

Multiple-choice Question:

1. Which of the following is NOT a preventive measure for reducing cutting-related injuries among fabric cutters?
 - a. Installing industrial exhaust fans
 - b. Encouraging use of cut-resistant gloves
 - c. Using faulty electrical wiring
 - d. Providing proper machine guards on cutting tools
2. What is the main purpose of conducting pre-use inspections for fabric cutting tools and equipment?
 - a. To ensure the machines work faster
 - b. To prevent accidents and identify faulty components
 - c. To check the fabric colour consistency
 - d. To reduce production time
3. How can fabric cutters prevent injuries while handling sharp cutting machines?
 - a. By using protective gloves and safety guards
 - b. By switching off machines every 5 minutes
 - c. By working in a cold environment
 - d. By washing the equipment frequently
4. What is the purpose of a Cutting Quality Report in the apparel industry?
 - a. To track the number of garments cut per shift
 - b. To ensure fabric pieces meet pattern and quality standards
 - c. To record worker attendance and shift schedules
 - d. To maintain an inventory of raw materials
5. Which of the following is a key factor in maintaining workflow efficiency in apparel manufacturing?
 - a. Overloading power sockets for better machine performance
 - b. Assigning specific storage locations for tools and equipment
 - c. Avoiding maintenance to reduce downtime
 - d. Using outdated cutting techniques to save costs

Descriptive Questions:

1. Explain the key workplace hazards faced by fabric cutters in the stitched apparel industry and discuss the preventive measures that can be implemented to ensure their health and safety.
2. Explain the importance of pre-use inspections in the fabric cutting process. How does it help in maintaining safety and efficiency?
3. Describe the role of proper tool storage in preventing workplace accidents in the stitched apparel industry. Provide examples of best practices.
4. How do structured reporting systems like maintenance logs and quality control checklists contribute to better production and compliance in garment manufacturing?
5. What are the key factors considered in visual inspections for fabric cutting quality control? Discuss the significance of maintaining compliance with international standards like ISO 9001 and AQL.

8. Comply with Industry, Regulatory, Organisational Requirements and Greening of Job Roles



Unit 8.1 - Ethical, Regulatory, and Governance Standards

Unit 8.2 - Workplace Efficiency and Environmental Responsibility

Unit 8.3 - Operational Compliance and Data Management



Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Carry out work functions in accordance with legislation and regulations, organisational guidelines and procedures.
2. Provide support to the supervisor and team members in enforcing the organisational considerations.
3. Identify procedures to follow if legal, regulatory and ethical requirements of the organisation are not met.
4. Interpret correctly legal, regulatory and ethical requirements specific to the apparel industry.
5. Follow the organisational policies and procedures within the limits of self-authority.

UNIT 8.1: Ethical, Regulatory, and Governance Standards

Unit Objectives

By the end of this unit, the participants will be able to:

1. Understand the importance of ethics, values, and compliance with legal and regulatory requirements in the apparel industry.
2. Follow organisational policies, procedures, and reporting protocols within personal responsibility limits.
3. Identify and address deviations from ethical, legal, and regulatory standards while supporting organisational governance.

8.1.1 Importance of Ethics, Values, and Compliance in the Apparel Industry

Ethics, values, and compliance with legal and regulatory requirements are crucial in the apparel industry, particularly concerning fabric cutters (those responsible for cutting fabric layers accurately and safely using a straight knife, band knife, or computerised cutting machines). These factors influence workplace safety, labour rights, environmental responsibility, and product quality.

1. Ethical Standards and Values

Ethical standards and values play a significant role in shaping the working environment, operational integrity, and sustainability of the apparel industry, particularly for fabric cutters. These principles ensure that businesses maintain responsible practices that benefit employees, consumers, and the environment.

- **Workplace Integrity**
 - A culture of honesty and responsibility ensures fabric cutters follow safety protocols, use equipment properly, and achieve accurate cutting results.
 - Ethical workplaces encourage accountability, meaning employees take responsibility for both productivity and workplace safety.
 - Employers should establish clear ethical guidelines that discourage practices such as fabric pilferage, wastage, or misrepresentation of material usage.
- **Sustainability**
 - Fabric cutting produces significant waste in the form of off-cuts and scraps. Ethical practices include minimising wastage by optimising marker planning and recycling leftover fabric.
 - Using eco-friendly materials for cutting markers and adopting automated cutting machines can improve efficiency and reduce environmental impact.
 - Reducing fabric wastage contributes directly to cost efficiency and sustainability goals.
- **Fair Treatment of Workers**
 - Fabric cutters, like all workers, have the right to fair wages, reasonable working hours, and a safe working environment.
 - Ensuring safe working conditions includes proper training, access to protective gear (gloves, masks, safety shoes), and well-maintained machinery to prevent injuries from sharp blades or heavy fabric layers.
 - Respecting workers' rights also involves preventing harassment, discrimination, and ensuring inclusivity in the workplace.

2. Compliance with Legal and Regulatory Requirements

In order to safeguard employees, customers, and the environment, legal and regulatory compliance is crucial. Fabric cutters and apparel companies are subject to a number of laws and regulations that guarantee ethical business conduct, worker safety, and environmental sustainability.

- Occupational safety bodies (e.g., OSHA in the U.S. or equivalent regulators worldwide) enforce laws regarding machine operation and workplace safety.
- Fabric cutters operate sharp cutting tools and heavy machines, making compliance with occupational safety standards essential.
- Adequate ventilation, proper lighting, and ergonomic workstation design are required to reduce fatigue and prevent accidents.
- Employers must provide training on machine handling, blade replacement, and emergency procedures.
- Regulatory agencies such as the EPA set guidelines for waste disposal. Fabric waste, paper patterns, and plastic packaging must be disposed of or recycled properly.
- Businesses must comply with environmental sustainability standards, minimising waste and adopting fabric utilisation practices.
- Labour laws must be upheld to prevent forced labour, excessive overtime, and unsafe working conditions. Certifications such as SA8000 and Fair Trade confirm compliance with ethical labour standards.

3. Industry-Specific Compliance

- The apparel industry has compliance standards that go beyond general labour laws to ensure product quality and worker safety.
- Fabric cutters must comply with safety rules that prevent accidents such as cuts, slips, or machine injuries.
- OEKO-TEX Standard 100 and similar certifications ensure that fabrics are safe and free from harmful substances.
- Companies must also comply with intellectual property laws by ensuring patterns and marker layouts are not copied without authorisation.
- Consumer safety laws regulate labelling and fibre content, which begins with accurate cutting and handling.

An ethical and sustainable apparel sector is built on industry-specific standards, regulatory compliance, and ethical values. By ensuring worker safety, workplace integrity, environmental responsibility, and legal compliance, fabric cutters and the industry contribute to a more sustainable and responsible future.

8.1.2 Following Organisational Policies and Reporting Protocols

In the Indian stitched apparel industry, fabric cutters play a crucial role in preparing fabric for stitching and ensuring quality in production. Adhering to organisational policies, procedures, and reporting protocols is essential for efficiency, compliance, and workplace discipline.

Category	Key Areas	Explanation
Adherence to Organisational Policies and Procedures	Workplace Discipline and Attendance	Timely attendance and adherence to cutting schedules. Chronic absenteeism causes production delays and idle stitching sections.
	Compliance with break times and work hours	Fabric cutters must follow regulated work hours as per labour laws.
	Maintaining workplace ethics and decorum	Fabric cutters should respect team members, supervisors, and organisational rules.
Cutting Standards	Fabric spreading and marker following	Cutters must follow marker layouts accurately to minimise fabric wastage.
	Handling different fabrics carefully	Knowledge of fabric properties (stretch, shrinkage, direction) ensures accuracy.
	Following the workflow from cutting to bundling	Proper bundling ensures garments move efficiently to the stitching department.
Workplace Safety and Equipment Handling	Safe use of straight knives, band knives, and computerised machines	Incorrect handling can cause severe injuries. Workers must follow machine-safety guidelines.
	Wearing protective gear	Gloves, masks, and safety shoes reduce the risks of cuts and accidents.
	Regular machine maintenance	Blades should be sharpened and machines serviced regularly.

Table 8.1.1: Compliance of Pressman in the Apparel Industry

Compliance with Reporting Protocols

- **Reporting Quality Defects:** Fabric defects such as holes, stains, or misaligned patterns must be reported before cutting.
- **Reporting Equipment Malfunctions:** Machine faults (dull blades, faulty motors) should be logged and reported to supervisors immediately.
- **Following Chain of Command:** Fabric cutters should escalate issues to line supervisors and quality control teams using proper communication channels.

Legal and Compliance Aspects in India

- **Labour Laws:** Indian labour laws regulate working hours, wages, and workplace safety.
- **Wages:** Fabric cutters must receive at least the minimum wage and benefits under the Payment of Wages Act.
- **No Child Labour:** The Child Labour (Prohibition and Regulation) Act prohibits under-14 workers in cutting sections.
- **Factory Compliance:** Certifications like ISO 9001, SEDEX, and SA8000 ensure ethical and safe production environments.

8.1.3 Identifying and Addressing Deviations from Ethical and Regulatory Standards

Fabric cutters must adhere to ethical, legal, and regulatory standards. Deviations can lead to safety risks, production losses, legal violations, and reputational damage.

Ethical Deviations

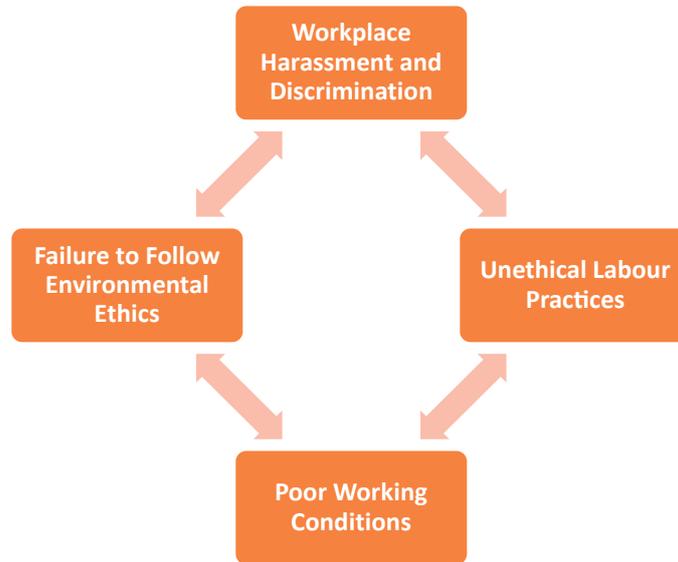


Fig. 8.1.1: Ethical Deviations

- Exploitation of cutters through low wages or excessive overtime.
- Workplace harassment, discrimination, or unsafe working conditions.
- Environmental negligence, such as wastage of fabric or improper disposal of scraps.

Legal Deviations

Deviation	Description	Impact
Violation of Labour Laws	Employing cutters without contracts or benefits	Fines, legal action, loss of credibility
Child Labour	Hiring underage cutters below 14 years	Factory license suspension, brand blacklisting
Financial Misconduct	Underreporting wages or tax evasion	Penalties, legal prosecution, investor distrust
Safety Violations	Lack of fire exits, no safety guards on cutting machines	Workplace accidents, lawsuits, and factory closures

Table 8.1.2: Legal Deviations

Regulatory Deviations

Deviation	Description	Impact
Non-Compliance with Safety Standards	Ignoring BIS or ISO rules for safe cutting operations 	Product rejections, business loss
Copyright Violations	Copying unauthorised cutting markers or brand logos 	Legal disputes, reputational harm
Environmental Non-Compliance	Disposing of fabric waste improperly 	Pollution fines, loss of certifications

Table 8.1.3: Regulatory Deviations

Preventive Measures for Governance

- Conducting audits for safety, labour, and environmental compliance.
- Training cutters in safe machine handling, ethical practices, and reporting protocols.
- Implementing whistle-blower policies to report misconduct safely.
- Providing fair wages, benefits, and safe workplaces.
- Complying with sustainability certifications (OEKO-TEX, GOTS) and adopting waste management systems.

For the Indian apparel industry, ensuring ethical labour practices, workplace safety, and regulatory compliance is essential. By strengthening governance, companies create a responsible, transparent, and sustainable production system, while protecting the rights and safety of fabric cutters.



Fig. 8.1.2: Supporting Organisational Governance to Prevent Deviations

The preventive measures for supporting the organisational governance in the apparel industry are as follows:

- Factories must conduct internal and third-party audits to ensure compliance with labour laws, workplace safety rules, and environmental regulations. Regular audits help detect violations early, reduce legal risks, and create a safer work environment for pressmen.
- Pressmen should receive training on workplace rights, safety protocols, and ethical labour practices. Factories must also conduct fire safety drills and machine-handling training to reduce workplace accidents and legal violations. Educating workers fosters a culture of responsibility and compliance.
- Organisations should establish whistle-blower policies that allow workers to report harassment, unsafe working conditions, or unethical practices without fear of retaliation. Implementing strong reporting mechanisms ensures accountability and quick resolution of workplace issues.
- Ensuring pressmen receive minimum wages, overtime pay, and social security benefits is essential for ethical operations. Providing health benefits, paid leave, and safe workplaces increases worker satisfaction and reduces employee turnover and labour disputes.
- Factories should comply with OEKO-TEX and GOTS standards for ethical fabric sourcing and implement waste management systems to properly dispose of chemicals and fabric waste. Sustainable practices ensure compliance with fair-trade certifications and attract international buyers.

For the Indian stitched garment sector to uphold environmental responsibility, safeguard worker rights, and guarantee workplace safety, ethical, legal and regulatory compliance are essential. Factories that commit legal infractions, unethical labour practices, or regulatory non-compliance risk financial losses, harm to their reputation, and even closure. Ensuring long-term sustainability, worker well-being, and corporate success in the global garment market requires the implementation of solid governance practices, ethical standards, and compliance procedures.

UNIT 8.2: Workplace Efficiency and Environmental Responsibility

Unit Objectives

By the end of this unit, the participants will be able to:

1. Discuss sustainable practices in daily work, including resource conservation and eco-friendly processes.
2. Evaluate a clean, hazard-free workspace by handling materials, equipment, and software correctly.
3. List the workplace efficiency by managing work interruptions and assisting in environmentally friendly improvements.

8.2.1 Applying Sustainable Practices in Daily Work

Fabric cutters play a critical role in sustainability by implementing eco-friendly processes and ensuring resource conservation. Their efforts help reduce waste, lower environmental impact, and promote sustainable apparel production. The following sections detail sustainable practices under two key categories:

Eco-Friendly Processes in Apparel Production

Sustainability in apparel production requires reducing fabric wastage, optimising resource use, and improving energy efficiency in cutting operations. Fabric cutters can contribute through the following measures:

1. Optimising Energy Efficiency in Cutting Machines

Cutting machines such as straight knives, band knives, and computerised cutters consume significant electricity. Fabric cutters can help optimise energy use by:

- Using energy-efficient cutting machines with auto-shut features.
- Ensuring machines are switched off when idle instead of running unnecessarily.
- Maintaining sharp blades reduces power consumption during cutting.
- Conducting regular servicing to prevent energy losses due to faulty motors or overheating.



Fig. 8.2.1: Automatic Fabric Cutting Machine

2. Using Eco-Friendly Cutting Aids and Materials

Some cutting processes involve adhesives, markers, or plastic patterns that can be harmful to the environment. Sustainable alternatives include:

- Use biodegradable marking chucks or water-soluble pens instead of chemical-based markers.
- Replacing plastic patterns with recycled cardboard or digital pattern-making software.
- Ensuring safe disposal of adhesives or tapes used during cutting.



Fig. 8.2.2: Non-biodegradable Starch Solutions for Fabric

3. Implementing Proper Workspace Heat and Ventilation Management

Cutting rooms can generate heat and fabric dust, affecting energy use and worker comfort. Sustainable strategies include:

- Installing dust extraction and air-filtration systems.
- Maintaining proper ventilation to improve air circulation.
- Organising fabric layering to minimise unnecessary energy use in spreading and cutting.



Fig. 8.2.3: Fabric Dust Filtration System

Real-Life Example: Gokaldas Exports



Gokaldas Exports' manufacturing processes

Gokaldas Exports Ltd., a leading Indian apparel manufacturer, has focused on efficiency in fabric utilisation and eco-friendly processes. The company uses advanced CAD software for marker planning, reducing fabric wastage by up to 3%.

Resource Conservation and Waste Reduction

Resource conservation focuses on minimising the use of raw materials, reducing cutting waste, and promoting recycling. Key sustainable practices include:

1. Minimising Fabric Waste During Cutting

Fabric wastage often occurs due to inaccurate markers, blade errors, or careless handling. Fabric cutters can help minimise waste by:

- Using CAD-based marker planning to optimise fabric utilisation.
- Reusing leftover fabric scraps for smaller components or sample testing.
- Ensuring accurate cutting techniques to avoid damage, shrinkage, or rework.

2. Practising Responsible Waste Disposal and Recycling

Waste from cutting operations includes fabric scraps, paper patterns, and plastic packaging. Fabric cutters can support sustainable waste management by:

- Sorting fabric scraps by type (cotton, polyester, blends) for recycling.
- Encouraging factories to partner with textile recycling companies.
- Reducing single-use plastics in packaging and opting for biodegradable alternatives.



Fig. 8.2.4: Fabric Scraps

3. Using Sustainable Uniforms and Work Equipment

Fabric cutters can support sustainability by choosing eco-friendly materials for their workwear and tools. Sustainable options include:

- Wearing uniforms made from recycled or organic fabrics.
- Using durable safety equipment such as reusable gloves and protective masks.
- Avoiding disposable items wherever possible.



Fig. 8.2.5: Apparel sustainable uniforms

4. Promoting an Eco-Friendly Workplace Culture

Sustainability efforts can be strengthened by encouraging workplace awareness and participation. Fabric cutters can:

- Educate colleagues about fabric waste reduction techniques.
- Participate in workshops on energy-saving and eco-friendly practices.
- Suggest improvements in marker efficiency and recycling programs.

Real-Life Example: Doodlage

Indian sustainable fashion brand Doodlage upcycles fabric waste and post-production rejects into unique fashion items. Their approach highlights how efficient cutting practices can directly reduce textile waste.



Fig. 8.2.6: Doodlage Official webpage

8.2.2 Maintaining a Clean and Hazard-Free Workspace

For worker safety, productivity, and product quality, the cutting room of a clothing manufacturing facility must be hygienic and hazard-free. Proper handling of materials, equipment, and software ensures workplace safety and efficiency.

1. Proper Handling of Materials

- **Organised Fabric Storage:** Fabrics should be stored neatly on racks to avoid clutter and prevent accidents. Heavy rolls must be placed on lower shelves.
- **Safe Handling of Sharp Tools:** Blades, knives, and scissors must be stored safely in designated areas to prevent injuries.
- **Waste Disposal and Recycling:** Fabric scraps, paper markers, and packaging materials must be sorted and disposed of in designated bins.

2. Safe and Efficient Use of Equipment

- **Maintenance of Cutting Machines:** Regular servicing prevents blade breakage, overheating, or misalignment. Machines must have safety guards and emergency stop buttons.
- **Electrical Safety:** Power cables of cutting machines should be inspected regularly. Overloading circuits must be avoided.
- **Dust Control:** Installation of dust extraction units prevents health hazards caused by inhaling fine fabric dust.

3. Implementing Software for Workflow Efficiency

- **CAD/CAM Systems:** CAD software improves marker efficiency and minimises wastage.
- **RFID and Barcode Tracking:** Helps in fabric roll identification and prevents material misplacement.
- **E-Learning for Safety:** Workers should undergo digital training on safe cutting practices and machine handling.

4. Maintaining Cleanliness and Hygiene

- Workspaces must be cleaned daily to remove fabric dust and waste.
- Proper lighting and ventilation should be ensured in cutting rooms.
- Workers must use PPE like gloves, masks, and cut-resistant uniforms.

Real-Life Example: Shahi Exports Pvt. Ltd.

Shahi Exports uses CAD-based fabric planning and digital monitoring tools in its cutting rooms. Automated fabric spreaders and cutters ensure efficiency, while strict PPE compliance and dust extraction systems maintain safety and hygiene.



Fig. 8.2.7: Shahi Exports interior workplace

8.2.3 Supporting Workplace Efficiency and Environmental Improvements

Efficient workplace management in the cutting section is essential for productivity and sustainability. Fabric cutters play a crucial role in minimising interruptions and supporting eco-friendly initiatives.

1. Managing Work Interruptions to Improve Efficiency

Strategy	Implementation	Impact
Preventive Maintenance of Cutting Equipment	Scheduled servicing, predictive maintenance software	Prevents breakdowns, reduces downtime
Organising Workflow and Task Allocation	Applying the 5S methodology, designated cutting zones	Reduces clutter, improves efficiency
Effective Communication and Coordination	Digital dashboards, pre-shift briefings	Enhances teamwork, reduces delays
Reducing Fabric Bottlenecks	Efficient marker planning, timely fabric supply	Improves workflow and reduces defects

Table 8.2.1: Managing the work interruptions

2. Assisting in Environmentally Friendly Improvements

Fabric cutting operations can generate large amounts of waste and consume significant energy. Workers can support eco-friendly improvements by:

- Suggesting waste segregation and recycling initiatives.
- Promoting marker optimisation to reduce excess fabric loss.
- Using digital planning tools to minimise paper patterns.



Energy Efficiency in Pressing Operations

Using energy-efficient steam presses and heat transfer machines reduces electricity and fuel consumption.



Water Conservation in Steam Pressing

Steam pressing uses significant amounts of water, but efficiency measures like recycling condensed steam can reduce



Safe and Sustainable Chemical Use

Switching to biodegradable starch solutions and non-toxic fabric treatments minimizes environmental impact.



Waste Reduction and Recycling Initiatives

Reusing discarded fabric scraps for sample testing instead of using fresh materials minimizes waste.

Fig. 8.2.8: Environmentally friendly tactics in the workplace

Case Study: Raymond Ltd.

Raymond Ltd. has incorporated sustainability into cutting operations by adopting CAD software for marker optimisation, recycling fabric waste, and using eco-friendly textiles. Their factories implement zero-waste initiatives and energy-efficient machinery.



Fig. 8.2.9: Raymond sustainable clothes

By implementing sustainable practices, maintaining hazard-free cutting rooms, and supporting eco-friendly improvements, fabric cutters help the apparel industry achieve efficiency, compliance, and environmental responsibility.

UNIT 8.3: Operational Compliance and Data Management

Unit Objectives

By the end of this unit, the participants will be able to:

1. Discuss appropriate cleaning methods and report unsafe equipment or work conditions promptly.
2. Evaluate backup of design work files systematically for future reference.
3. Analyse system or software upgrades as needed to enhance work efficiency.

8.3.1 Ensuring Proper Cleaning Methods and Workplace Safety

In the clothing sector, keeping a clean and safe work environment is crucial, particularly in cutting operations. To protect worker safety, preserve production efficiency, and comply with industry requirements, proper cleaning techniques and prompt reporting of hazardous circumstances are essential. To maintain a clean and safe workspace in the apparel industry, fabric cutters should follow a structured cleaning process. The steps below outline the proper approach to cleaning cutting machines, workstations, and storage areas while ensuring safe work conditions.



Fig. 8.3.1: Steps for cleaning methods

The measures required for cleaning in the cutting workplace include:

- Gather Cleaning Supplies such as manufacturer-approved cleaning solutions, brushes, compressed air cans, and lint removers.
- Wear Protective Gear like cut-resistant gloves, masks, and goggles when handling sharp blades or chemicals.
- Turn Off Equipment, such as straight knives or band knife machines, before cleaning to prevent accidents.

- Wipe Down Blades and Cutting Surfaces to remove fabric residue, threads, and dust using appropriate cleaning tools.
- Inspect Machine Components like belts, guards, and rollers for dust or blockages and clean them with a soft brush.
- Use Manufacturer-Approved Cleaners on cutting surfaces and guides to avoid corrosion or damage.
- Clear the Work Area of Scraps and Waste by removing fabric trimmings, loose threads, and packaging residues.
- Mop and Disinfect Floors to eliminate fabric dust and reduce slip hazards.
- Dispose of Waste Properly by separating recyclable fabric scraps from non-recyclables.
- Label and Secure Containers to ensure chemicals, oils, or lubricants are stored safely.
- Use Eco-Friendly Products wherever possible, such as biodegradable cleaners.
- Replace Worn-Out Tools, including brushes, rags, and lubricating cloths, to maintain hygiene.
- Clean Air Filters and Exhaust Fans to ensure proper ventilation in cutting rooms.
- Check for Dust Build-Up around machines and ensure proper extraction systems are working.
- Monitor Temperature and Air Quality to maintain comfort and safe working conditions.

A step-by-step process for reporting unsafe equipment or work conditions is shown below:

Identify Unsafe Conditions	Check Machines for Malfunctions
	Inspect Work Environment
Report Issues Promptly	Notify Supervisors or Safety Officers
	Provide Clear Documentation
	Follow Company Reporting Protocol
Ensure Corrective Actions Are Taken	Follow Up on Reported Issues
	Participate in Safety Training
	Encourage a Safety Culture

Fig. 8.3.2: Steps for reporting an unsafe environment

Precautionary measures that fabric cutters must follow include:

- Identifying risks such as dull blades, loose machine guards, exposed wiring, or blocked ventilation.
- Reporting slippery floors, poor lighting, or faulty safety switches.
- Communicating hazards immediately to supervisors.
- Supporting reports with photos or written descriptions.
- Submit complaints via the official safety reporting system.
- Following up with maintenance staff to check if issues are resolved.
- Participating in workplace safety awareness sessions.
- Encouraging colleagues to report hazards for a safer environment.

By following these structured steps, fabric cutters ensure a well-maintained, efficient, and hazard-free workspace, which leads to improved safety, productivity, and compliance with industry standards.

8.3.2 Systematic Maintenance and Backup of Design Work Files

In the apparel industry, maintaining and backing up design work files systematically ensures smooth workflow, prevents data loss, and enhances efficiency. Fabric cutters, who handle CAD marker planning and digital cutting layouts, must follow structured file management practices to safeguard designs and production data.

1. Organising Design Work Files Systematically

- **Standardised File Naming and Categorisation:** Use consistent naming conventions (e.g., Client/Style/Date/Version).
- **Version Control and Documentation:** Maintain version histories and file tags to track approvals and prevent accidental overwrites.
- **Metadata Logs:** Use shared spreadsheets to record edits, approvals, and deadlines.

Sample Work-File Implementation

Aspect	XYZ Apparel Implementation
File Naming	Format: Brand/Design/Date/Version (e.g., XYZ_Top_250324_V1)
Categorization	Separate folders for markers, fabric rolls, and style variations
Version Control	Each file saved with V1, V2, Final
Metadata Logs	Google Sheet tracks modifications & approvals

2. Regular Backup of Design Work Files

Backup Method	Implementation at XYZ Apparel	Frequency
Cloud Storage 	Auto-sync to Google Drive/Dropbox for remote access	Real-time
External SSD 	Weekly backup of completed projects	Weekly

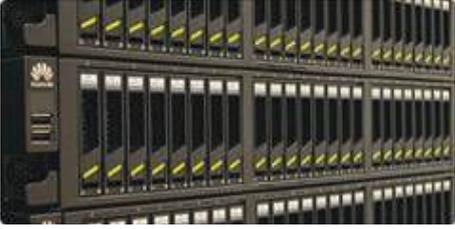
Backup Method	Implementation at XYZ Apparel	Frequency
<p>RAID System</p> 	Redundant in-house server copies	Continuous
<p>Automated Scheduled Backups</p> 	Daily automatic backups of CAD and marker files	Daily

Table 8.3.1: Regular Backup

3. Software and Hardware Maintenance for Design Work

- **Updating CAD Software:** Keep software like Gerber, Lectra, or Optitex up-to-date.
- **File Compression & Security:** Use encryption, antivirus, and secure file transfer systems.
- **Hardware Maintenance:** Regularly check SSDs, replace old drives, and ensure UPS backup.

Sample Implementation

Maintenance Type	XYZ Apparel	Frequency
CAD Software Updates	Monthly updates for compatibility	Monthly
Antivirus & Cybersecurity	Firewall + antivirus installed	Weekly
Hard Drive/SSD Maintenance	IT replaces aging devices	6 months
UPS Devices	Protects data from sudden shutdowns	Continuous

4. Implementing Systematic Workflows

- Establish file management policies with clear roles.
- Automate backups to avoid manual errors.
- Train workers on data security and organisation.
- Set up alerts for file audits and integrity checks.

Systematic maintenance and backup of design files ensure efficiency, security, and continuity in cutting operations.

8.3.3 Requesting System or Software Upgrades for Efficiency

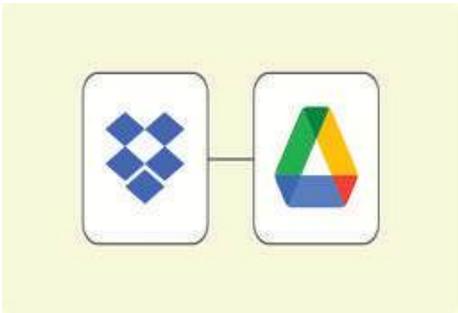
Fabric cutters rely heavily on cutting machines, CAD tools, and workflow management systems to achieve efficiency. Regular upgrades to software and equipment are essential for improving accuracy, productivity, and sustainability.

Identifying the Need for Upgrades

- **Better Performance:** Upgraded machines and CAD tools process work faster, reducing delays.
- **Improved Accuracy:** Latest CAD systems optimise markers, minimising fabric waste.
- **Improved Compatibility:** Newer software versions integrate seamlessly with cutting machines and ERP systems.
- **Cybersecurity Protection:** Updated systems safeguard design files from data breaches.
- **AI and Automation:** Intelligent software can auto-generate markers and layouts for maximum fabric efficiency.

Key System and Software Upgrades for Fabric Cutters

System/Software	Purpose	Benefits
<p>Cutting Machine Firmware</p> 	Updates embedded control systems	Improves precision, reduces energy loss
<p>CAD Software (Lectra, Gerber, Optitex)</p> 	Marker planning and cutting layouts	Enhances fabric utilisation, reduces waste
<p>ERP Workflow Systems</p> 	Track production schedules & materials	Reduces bottlenecks, optimises allocation

System/Software	Purpose	Benefits
<p>Automated Spreading & Cutting Systems</p> 	AI-driven machines optimise cutting	Increases productivity, reduces errors
<p>Cloud Storage & Backup</p> 	Google Drive, industry-specific platforms	Secure access, remote collaboration

Challenges and Solutions

- **High Costs:** Phased upgrades or subscription-based CAD tools reduce the burden.
- **Resistance to Change:** Training and workshops build confidence in new systems.
- **Downtime:** Scheduling upgrades during off-peak hours prevents delays.

Adapting to New Technologies

- **Seamless Transition:** Workers should be trained in upgraded CAD and cutting systems.

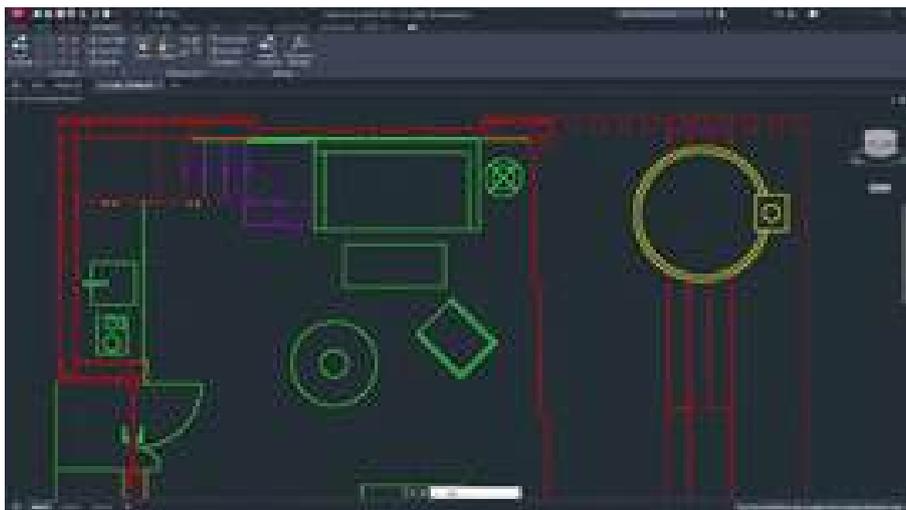


Fig. 8.3.3: CAD software

- **AI and Automation:** Smart cutting tools adjust blade speed and direction based on fabric type.



Fig. 8.3.4: AI cutting optimisation

- **Digital File Management:** Cloud-based storage improves retrieval and collaboration.



Fig. 8.3.5: Digital File Organisation

- **Boosting Efficiency:** Upgrades reduce errors, save energy, and support compliance with global standards.

Summary

- Fabric cutters in the apparel industry must adhere to ethical labour practices, workplace safety regulations, and environmental sustainability standards.
- Fabric cutters should follow workplace discipline, safety protocols, and structured reporting mechanisms.
- Ethical deviations like underpaid wages, workplace discrimination, and environmental negligence must be tackled through audits, worker training, whistle-blower policies, and compliance with labour laws.
- Fabric cutters can contribute to sustainability by optimising energy efficiency in cutting machines, using eco-friendly materials, and implementing proper workspace management to reduce environmental impact.
- Efficient fabric utilisation, reducing cutting waste, responsible disposal, and using sustainable uniforms and work equipment help in minimising resource consumption.
- Maintaining a clean, hazard-free workspace through organised material handling, proper equipment maintenance, software integration, and digital tracking improves efficiency and environmental responsibility.
- Proper cleaning methods and timely reporting of unsafe conditions in the apparel industry are crucial for fabric cutters to maintain a hazard-free, efficient, and compliant work environment.
- Fabric cutters must follow structured digital file management, including version control, cloud storage, and scheduled backups to prevent data loss and maintain workflow efficiency.

Exercise

Multiple-choice Question:

1. What is a common legal violation in the apparel industry that affects fabric cutters?
 - a. Providing excessive wages
 - b. Lack of fire safety measures
 - c. Encouraging work-from-home policies
 - d. Reducing working hours to 4 hours per day
2. Which of the following practices helps in maintaining workplace ethics in cutting units?
 - a. Encouraging overtime without pay
 - b. Allowing the use of unsafe machines
 - c. Providing workers with protective gear and fair wages
 - d. Ignoring environmental sustainability norms
3. Which of the following is NOT a sustainable practice in garment cutting?
 - a. Using energy-efficient cutting machines
 - b. Disposing of fabric waste in open areas
 - c. Recycling leftover fabric scraps
 - d. Regular machine maintenance
4. How can cutting operations reduce material wastage?
 - a. Using excessive fabric for sampling
 - b. Recycling fabric scraps for reuse
 - c. Increasing the blade speed unnecessarily
 - d. Using more chemical-based treatments
5. Which of the following is NOT a recommended step in maintaining a safe and clean cutting workstation?
 - a. Using proper tools to clean cutting blades
 - b. Storing chemicals in unmarked containers
 - c. Inspecting machine components for dust build-up
 - d. Monitoring air quality and ventilation

Descriptive Questions:

1. Explain the impact of ethical deviations such as unfair wages and workplace discrimination on the apparel industry and its workers.
2. Describe how structured reporting mechanisms contribute to quality control, compliance, and sustainability in the apparel sector.
3. Explain how fabric cutters can contribute to sustainability in the apparel industry through eco-friendly processes.
4. Describe the role of digital tracking systems and RFID technology in improving efficiency and safety in garment cutting operations.
5. Discuss the importance of systematic file maintenance and backup in the apparel industry.



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9. Employability Skills



DGT/VSQ/N0101

Employability Skills is available at the following location



<https://www.skillindiadigital.gov.in/content/list>

Employability Skills



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10. Annexure



Module No.	Unit No.	Topic Name	Page No	Link for QR Code (s)	QR code (s)
Module 1: Introduction and Orientation to Fabric Cutter (Bridge Module)	Unit 1.1: Introduction to Fabric Cutting	1.1.1 Size and Scope of the Apparel Sector	21	https://youtu.be/-ddisteV3tOo-?si=uF-DW4QKnItoOKknY	 Textile Sector in India
		1.1.3 Apparel Production Process and the Role of the Fabric Cutter within it	21	https://youtu.be/rcU9zn-qfa8c?si=mIZQMWD1WmqWHF70	 Best Fabric Cutting Machines SGT University
		1.1.4 Roles, Responsibilities and Personal Attributes of a Fabric Cutter	21	https://youtu.be/uvQJzjg-5bY?si=4yWAxtH9Vm0eGC7Y	 Fabric Cutter Job Role a different career option in Garment Sector
Module 2: Plan and Prepare for process of cutting fabrics as per the job card received (AMH/N1510)	Unit 2.1: Fabric Preparation and Marking Methods	2.1.1 Basic Textile Terminology, Types of Fabrics, and their Trade Names	59	https://youtu.be/-Dqd_KSCRPHY-?si=tkkHp9_31GrwKLTo	 10 Most Popular Fabrics and Their Properties and Uses
		2.1.2 Fabric Characteristics	59	https://youtu.be/-hNC1fK6GjF4-?si=iNu8p9pTl-ocnrER	 Classification Of Textile Fibers - Sources Of Textile Fibre

Module No.	Unit No.	Topic Name	Page No	Link for QR Code (s)	QR code (s)
		2.1.3 Different Types of Fabric Defects	59	https://youtu.be/-WCB2uATmsGI?si=yhyuvWA2LGjzYdL	 Different types of Fabric Defects
		2.1.4 Common Layering and Spreading Defects	59	https://youtu.be/-K-HQXP5QZ2o?si=dYs2G830msUuuNaC	 Apparel quality analysis
Module 3: Basic Calculations Related to Layering and Fabric Consumption (AMH/ N1510)	Unit 3.1: Fabric Laying and Cutting Essentials	3.1.1 Different Types of Fabric Laying Techniques	69	https://youtu.be/sNxFw-eD-Pzw?si=t-GFNQn4SkObrlyo	 Fabric Lay Method for Garment Factory
		3.1.2 Type of Cutting Machine	69	https://youtu.be/-kbG8tD0FB38?si=h5UGfetprShDZ3ay	 Types of Cutting Machines
Module 4: Cut fabrics as per plan received from production planning (AMH/ N1511)	Unit 4.1: Fabric Cutting Safety and Standards	4.1.3 Process of Checking Fabrics for Defects	86	https://youtu.be/-u7jkfZtU-8PA?si=vwnKSagnNvTFGCKf	 Fabric Inspection Process - 4 Point System of Fabric Inspection

Module No.	Unit No.	Topic Name	Page No	Link for QR Code (s)	QR code (s)
Module 5: Fabric Cutting Operation (AMH/N1511)	Unit 5.1: Fabric Cutting and Problem-Solving Skills	5.1.3 Process of Cutting Fabric Layers Manually and with Cutting Machines	105	https://youtu.be/-DdtfyENJ-6dY?si=jVufiAyaEbyl6-Si	 Modern Cutting Tools
Module 6: Maintain Health, Safety and Security in the Cutting Workplace with Gender and PwD Sensitisation (AMH/N1512)	Unit 6.1: Workplace Safety Systems and Procedures	6.1.3 Details and Purpose of Workplace Emergency Equipment	154	https://youtu.be/-lkEnRVeuQT4-?si=vgxL0281jrcYmBX3	 emergency preparedness
		6.1.6 Meaning of Health and Safety Signs in the Workplace	154	https://youtu.be/-SqZ5np_lCr0-?si=FKI1-V9lQ8zjRsv5	 Learn 30 Essential Safety Signs
	Unit 6.3: Personal Health and Emergency Response	6.3.5 Process of Performing Basic CPR Procedures	154	https://youtu.be/-hizBdM1Ob68-?si=du5HvEV9Zi6Ey8-0	 Learn How To Do CPR
Module 7: Maintain Work Area, Tools and Machines (AMH/N0102)	Unit 7.2: Work Processes, Tools, and Quality Control	7.2.1 Machines Used in Layering, Spreading, and Cutting, along with Essential Marking Tools	183	https://youtu.be/-Q9IHNBh73wc-?si=nK-NM7pjzudrkG8m	 Full Automatic Fabric Spreading Machine

Module No.	Unit No.	Topic Name	Page No	Link for QR Code (s)	QR code (s)
Module 8: Comply with Industry, Regulatory, Organisational Requirements and Greening of Job Roles (AMH/N0104)	Unit 8.1: : Ethical, Regulatory, and Governance Standards	8.1.1 Importance of Ethics, Values, and Compliance in the Apparel Industry	209	https://youtu.be/ItW7KVY-J1go?si=wzE1VK2cFgALdNY_	 <p>Business Ethics, Nature of Business ethics</p>





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**APPAREL MADE-UPS HOME FURNISHING
SECTOR SKILL COUNCIL**

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