



“बेटी बचाओ, बेटी पढ़ाओ”

# JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

## (Format for Preparing E Notes)

### Faculty of FEM

**Faculty Name-**                    **JV'n Daksha I (Assistant Professor)**  
**Program-**                            M.Sc. Fashion &Textile I Semester  
**Course Name -**                    Advance Knitting and Weaving Technique  
**Session No. & Name –** 2023-2024

### Academic Day starts with –

- Greeting with saying ‘**Namaste**’ by joining Hands together following by 2-3 Minutes  
Happy session, Celebrating birthday of any student of respective class and **National Anthem.**

Lecture Starts with-

Introduction & Brief Discussion about the Topic

Topic to be discussed today- Warp knitted fabrics

University Library Reference-

- E-notes, handmade notes.
- E- Journal
- Online Reference if Any.
- Suggestions to secure good marks to answer in exam-
- Explain answer with key point answers
- Questions to check understanding level of students-
- Small Discussion About Next Topic-

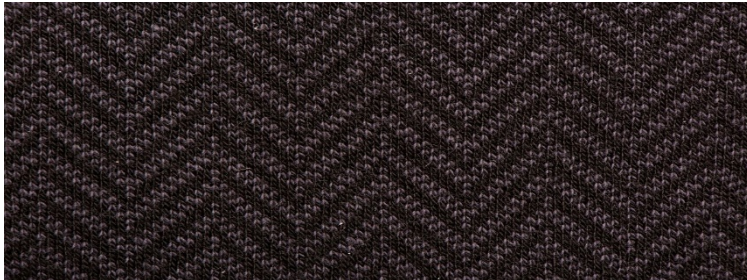
- Academic Day ends with- National song' **Vande Mataram**.

## **Warp Knitting Fabrics**

Yarn is fed into the knitting zone parallel to the fabric selvedge in the process of warp knitting, which forms loops. Making loops from yarns that come in parallel sheet form and run in the direction of fabric formation is how warp knitting creates fabric<sup>1</sup>. Threads are moved back and forth between adjacent needles to join the loops together width-wise.

Numerous distinct yarns are used to create each stitch in a course, and these yarns zigzag down the length of the fabric. After this process, a fabric with connected loops is produced. Knitting warps is the quickest way to make fabric from yarns.

## **Tricot Fabric**



Tricot comes from the French word for knitting, known as 'tricoter'

A flatbed knitting machine is used to weave tricot fabric, which is a thin knit fabric. Its front side has a distinct zigzag pattern, and its back has a crosswise rib. Tricot's smooth and elastic qualities can be attributed to its use of both natural and synthetic fibres. It is so adaptable that it can be used for swimwear, performance wear, and lining.

Circular knitting machines are used to create most knit materials. Tricot is different since a flatbed knitting machine is used to weave it.

Tricot keeps the elasticity of knit material while being just as robust and long-lasting as woven fabric. It cannot be readily torn because it is run-resistant. Tricot can be fast-drying, effective as an insulator, and even antimicrobial. It keeps the clothing comfortable to wear by not adhering to the wearer or creating static.

Tricot is woven using a different technique than other knit materials. Circular knitting machines are used to create most knit materials. Using a flatbed knitting machine, tricot is woven.

Fibres, both natural and synthetic, can be used to make tricot. Synthetic fibre versions of artificial tricot tend to be more elastic, making them perfect for sportswear or active wear. Because synthetic materials are more adaptable, tricot is typically composed of a spandex and nylon blend or a spandex and polyester blend. Tricot is occasionally made from natural fibres like cotton.

### **Raschel Fabric**



One kind of warp-knit fabric is called Rachel Knit Fabric. Utilising a special knitting machine, threads from the warp beam are used to create this type of fabric.

- This equipment uses a specific type of needle called a latch needle.
- There are vertical knitting loops on the face side of the fabric that are slightly angled. But there are angled horizontal floats on the opposite side of the fabric.

\*The majority of raschel knits feature intricate patterns with open spaces that resemble crochet or lace, giving the surface an almost three-dimensional appearance.

- Industrial knitting machines, as opposed to human hands, are used in the knitting technique known as "raschel knitting."
- Raschel knits frequently have a bulky appearance and are not very stretchy.

## Simplex fabric



Simplex warp knitting fabric is a type of fabric produced on a warp knit machine known as a simplex machine<sup>1</sup>. These machines are wide and flat, similar to a tricot machine, but they have two needle bars which essentially produce a double and integrated thickness of fabric<sup>1</sup>.

Simplex is traditionally created using 100% polyester<sup>2</sup>. However, due to its unique structure, the fabric has mechanical stretch, which makes it extremely versatile<sup>2</sup>. It has good stretch and recovery in the width without using any spandex fiber content<sup>1</sup>.

Simplex was the original glove fabric and it was also originally used in swimwear<sup>1</sup>. The drape and hand of the fabric is incomparably soft and flowing which makes it suitable for drapes, displays, and architectural fabrications<sup>1</sup>. Simplex fabrics of 100% polyester can be finished to easily achieve NFPA 701 flame retardancy for home or hotel furnishings<sup>1</sup>.

Simplex is also the most sought after fabric for brassieres, especially in large sizes where spandex doesn't offer enough control

Here are some properties and uses of simplex warp knitting fabric:

## Properties:

- **Material:** Simplex is traditionally created using 100% polyester.
- **Stretch:** Due to its unique structure, the fabric has mechanical stretch, which makes it extremely versatile. It has good stretch and recovery in the width without using any spandex fiber content.
- **Softness:** The drape and hand of the fabric is incomparably soft and flowing.
- **Flame Retardancy:** Simplex fabrics of 100% polyester can be finished to easily achieve NFPA 701 flame retardancy for home or hotel furnishings.

## Uses:

- **Gloves:** Simplex was the original glove fabric.
- **Swimwear:** It was also originally used in swimwear.
- **Drapes, Displays, and Architectural Fabrications:** The softness and flow of the fabric make it suitable for these applications.
- **Brassieres:** Simplex is the most sought after fabric for brassieres, especially in large sizes where spandex doesn't offer enough control.

## Milanese fabric



A type of warp knit fabric structure known as Milanese warp knitted fabric uses two loops to create the stitches (one from different warp yarns). In each course<sup>1</sup>, the loops' yarn alternates

between stitches in a diagonal fashion. The resulting fabric has a diamond effect on the reverse side and a fine rib stitch on the face thanks to this process<sup>1</sup>.

Two sets of warp are used to create the Milanese knit; one set moves downward to the left, and the other downward to the right. The diagonal crossing of the yarns creates a diamond pattern on the back, and the surface displays a fine rib.

### **Properties:**

- **Structure:** Milanese has two sets of warp, one moving downward to the left and the other downward to the right. A fine rib is visible on the surface, and the diagonal crossing of the yarns creates a diamond effect on the back<sup>1</sup>.
- **Smoothness:** Because these knit fabrics are created by knitting two sets of yarn diagonally, the reverse has a diagonal structure and the face has a fine vertical rib<sup>2</sup>. As a result, these fabrics are smooth, run-resistant, and lightweight.
- **Stability:** Compared to tricot, Milanese is more stable, smoother, and stronger

**Uses:** Historically, Milanese was used for gloves and lingerie, soft blouses, and it makes lovely eveningwear<sup>3</sup>. It was used in better lingerie due to its strength

Milanese warp knitted fabric, like other warp knitted fabrics, has a wide range of applications due to its unique properties. Here are some potential applications:

1. **Apparel:** Milanese fabric can be used in the production of various types of clothing, including sportswear lining, track suits, and leisure wear<sup>1</sup>. Its strength and smoothness make it suitable for these applications.
2. **Innerwear:** The fabric's softness and stability make it ideal for use in innerwear such as brassieres, panties, camisoles, girdles, and sleepwear<sup>2</sup>.
3. **Household Items:** Milanese fabric can also be used in household items such as furnishings, mattress stitch-in fabrics, laundry bags, mosquito nets, and fish nets<sup>2</sup>.
4. **Footwear:** The fabric's durability and smoothness make it suitable for use in footwear, particularly in the inner linings, sole linings and uppers of safety boots<sup>1</sup>.

5. **Industrial Textiles:** Warp knitted fabrics like Milanese are also used in the production of technical textiles for industrial purposes<sup>3</sup>.
  6. **Automotive Interiors:** The fabric's strength and smoothness make it ideal for use in automotive interiors<sup>4</sup>.
  7. **Sports and Outdoor Gear:** The fabric's durability makes it suitable for use in sports and outdoor gear<sup>4</sup>.
  8. **Medical Textiles:** Warp knitted fabrics are also used in the medical field due to their strength and flexibility<sup>4</sup>.
- ss<sup>3</sup>. However, it's worth noting that Milanese is now virtually obsolete<sup>2</sup>