

## MODULE 3 PROCESSES, MATERIALS AND EQUIPMENT

### 3.1 Materials, tools and practice of manual cutting blade

#### materials, tools and types.

#### Shoe materials and parts Type Camping

Component parts: SHOVEL AND HEEL

Sometimes these models can carry loops, heel, toe or some other type of adornment; how we can see in this model.



#### Composed by: Materials used:

- Shovel. -Fabric serraje.
- Heel. I live cotton.
- Talonera. -Talonera linen.
- Label. -Puntera yarn fabric.
- Toecap. -Point eyelet, piped
- Ornaments. -Jute.
- Jute soil.

### Type materials and parts Shoe Salon:

Hall jute platform taupe: leather, jute and rubber.



In this model we can distinguish three parts; two that make up the heel and a shovel to the face.

As we can see these pieces are lined skin, so, the first step forward will have been gluing the leather lining with a corresponding piece of split, prior identification and classification (as mentioned above) of each number and foot appropriate.

The next step is to form the buckle with the corresponding elastic and prepare for insertion.

Upon completion of this process each number with their separate and distinct pieces passed into the hands of aparadora that will hold stitching and buckle placed.

As we can see in the image model this room. On the ground, the heel height, carries a piece called "coulotte" to which we pass the edge stitching to secure bonding the liner (previously set) or as an ornament.

Once assembled this coulotte it would stick on the shoe bottom as seen in the image.

### OTHER MODELS OF ROOM:



### Blucher:

English shoe type.

Blucher skinned woman, color Albero.

**COMPOSITION:** Jute, rubber and cowhide.



### Sandal:

Sandals models can cover are very varied, as the sandal is one of the most popular products and there is more game to make different models.

So we are in the market, with great diversity in estructura footwear, components and materials used.

We can find different sized wedges, platforms, flat, with ferrules, uncovered, with mechanical heel etc.

We see models below.



### practice manual cutting blade

Thanks to new technologies is possible through software and automatic cutting machine make the cut in a faster way, but involves a large financial investment. The vast majority of companies, combines automatic cutting for more complex parts with the proper craftsman manual cutting, supported by die cutting, which gives the cutting section of excellent control for quality control shoe.

For starters, the cutter examines each skin to ensure that no defects that quality control factory has been overlooked. If the skin cuts, spots or wrinkles, these are marked with pencil for not using in any way such areas for cutting the pieces and avoid during placement patterns. These defects can be caused by nature itself: by microbes and parasites; by the very process of tanning or man-made, such as fire brands, brands Wand livestock, cuts the skin and others.

Once the selected skin features, the scale sizes of all patterns and all the tools prepared expert cutter proceed to cut each of the pieces that compose the shoe upper.

The cutter stretches the skin in all directions to check the direction in which elasticity extends. Positioning patterns must keep order and pre-planning, counting parts profitably.

**The method that follows the cutter is always the same** Regardless of the type of skin with the shoe manufactures, as well as the number of patterns that comprise the model. The skin lying on a table that has a slight incline, allowing the cutter to work with comfort. To cut the skin is used as the base glass or a zinc foil according to the preference of the cutter itself and pressing patterns on the skin and a sharp band different pieces of skin are cut, leaving between each fragment little millimeter make the skin as possible. The strip, being a flexible steel blade, like a scalpel that constantly sharpens a sharpening steel for non-slip and cause erroneous cuts. The way to grab the strap plays an important role, since it will firmly and poise in order that cutting the skin does not move from side to side and resulting in the edges of the skin present serrations or undulations, which greatly hinder the work of the aparadora. Another tool used is the punch that is used to mark the skin a guide to consider the assembly of the parts.



Once cut all the pieces, the vast majority must carry a series of figurative pen, and these figurados guidelines that will use the aparadora to assemble the pieces together. This pen ink disappear easily rub.

A good cutter contributes to the beauty and strength of the shoe, because it is your responsibility to choose and cut the pieces of skin, being an expert in relation to the different tonalities, weight, moisture and suppleness of the skin.

## 3.2 SUPPLY CHAIN IN SHOEMAKING. SPECIFICITY JUTE FOOTWEAR AND SUSTAINABILITY

### Supply chain shoemaking

The following describes in summary the overall manufacturing process of shoes in a company:

1. **Material procurement:** The development of footwear starts with the receipt of inputs in the factory. They will have graded and sorted the type of material. The most important volume and cost are the skins (approx. 20% of the cost of the shoe) and soles (approx. 10% of the final cost).
2. **Transportation process area:** Selected materials are transported to the production area.
3. **Cut pieces:** It is made by molding according to the extent required to shape the fabric according to the designed pattern.
4. **I Aparado:** parts of a batch for further processing meet. Each shoe takes from 7 to 20 parts by model. This task involves an average of 10% of the cost of the shoe.
5. **Cutting machining:** Several processes are required:
  - **Marked:** is printing linings key, batch number, model number pair, shoe size or extent; for rapid screening and identification.
  - **Recorded:** brand impression on the template
  - **Perforated:** in some cases it is carried out according to the design
  - **Reinforced:** before mounted, it sets the stop and abutment. The cap is what gives strength and shape the toe of the shoe to give greater consistency. The buttress duplicates the function in the heel.
6. **Mounted:** the mold according to the numbering for forming is selected, set the plant based nails and adhesive, this is done manually and a special machine to press is used and it is well realized and shaped shoe. tips and heels are mounted. After the settling process consisting of making the cut in the mold lies properly performed.

- 7. I ensuelado:**The soles made purchased, first sole checked, after carding is performed in the part of the sole to be glued to cut in a special machine slits are made so that the glue better impregnate and subsequently takes glued sole. For bonding the sole temperature is increased by a special machine sticking to the sole pressure for 30 seconds, and finally the mold is removed.

For attachment of the sole with the product body there are different processes such as gluing and stitching. For bonding are increased use of polyurethane adhesives because they provide durability binding of the sole in footwear.

- 8. Finish:**templates stick the edges of soles and linings are painted, washing and cutting linings with special soap is made; Shoe waste in the production process removes stains.
- 9. Pigmented:** This is done in order to uniformize the color, the shoe is retouched with lacquer to polish, which is done with rotating brushes.
- 10. Packing:** model number shoe number is printed and the product is stored in cardboard boxes.
- 11. Storage of the finished product:** Once packed proceeds to classify finished shoes on shelves, by style and number.

### Specificity jute footwear and sustainability

#### **Jute footwear**

A variety of jute footwear basically divided into two classes: those which conform with tapes and no. It can also divide flat, as traditional, and high heel, which usually incorporate a wedge. At present it is common that the jute sole is wholly or partially coated with a thin layer of rubber, to protect them from moisture and wear.



Jute shoes espadrilles are par excellence. Espadrilles are manufactured using a strong canvas, rope-soled. Espadrilles are very light, with good grip to the ground and very thin. Currently it has industrialized its fabric and nylon yarns and rubber sole, as well as with canvas cover and base vegetable fiber used. The sandal is woven by hand in home triangular looms using wicks (cotton yarn), combining different colors. The sole can be tanned leather. It consists of the upper (top that covers the instep and forefoot), 'heel' (part arcing heel) and strap, used to hold the capellada to heel.



### Jute benefits for foot

Here are some of the advantages of jute for foot jute and other benefits for the environment.

- Jute adds comfort underfoot.
- It provides stability.
- Jute is a superb insulator so it protects the foot from heat during the hot months and fresquito beginning to appear in autumn or still have in the early days of spring.
- resistant sole that prevents breakage or any damage that may damage our standing for long walks.
- It is a very breathable material that prevents the appearance of sweat on foot.
- The jute sole prevents the appearance of malodors, precisely because of its breathability and its plant composition.
- therapeutic effects to promote better irrigation circulatory foot and leg.

- Favors due to its stable and smooth ride, an advantage when recovering from injury or rheumatic problems.

### Jute benefits for medioambiente

Jute is a vegetable fiber 100% organic. Which it is also respectful of the environment following the global trends that are installed in our society, because jute is biodegradable and recyclable. Plantation jute, about fifteen tons of carbon dioxide are consumed, per hectare also free about eleven tons of oxygen. In short, it is a plant that helps improve the environment of the planet. It does not require any artificial or chemical products for maintenance and perfect growth fertilizer.



### 3.3 CONCEPTS OF PROTOTYPES AND COLLECTIONS. CARVINGS AND ESCALATIONS

#### prototypes and collections

From technical specifications, early versions of the prototypes will be manufactured.

The mold is subsequently mold the shoe is mounted to give the desired shape. The prototype, wood, is made by hand and as a reference for production lasts, this time in plastic material, can meet a production.

At this stage the first prototype is produced to see a real version designed footwear. This may change, the result of various tests and trials (mounted, the line combination, adjustments, calzabilidad, softness, etc.), which are embodied in various versions of the prototype to the final result version.

Through scaling the different sizes are determined. This is a very complex task because, for subsequent assembly issues, not all parts increase or decrease its size proportionally.



## Carvings and ES CALADO

The scaling process is generated from the pattern or parts of a model designed for a specific size.

It is important to say that before performing the scaling process is performed

by the modelmaker, calzabilidad test model in the mold, which involves cutting the pieces of the base (36 or 39) pattern guarnecerlo and mounting it onto the mold in order to verify lines and adjustments.

### DEFINITION OF SCALES

In order to measure and express the length of three sets of scale shoes, which have been adopted either in each country they are mainly used.

The three main sets of scales used are:

#### **to. FRENCH SYSTEM (FRENCH POINT):**

This measurement system was created to be shown that the numbering based on division by centimeters, was not sufficiently accurate. Therefore we proceeded to divide 2 cm into three equal parts, resulting 6,66mm and defined as a measuring unit, denominating point French.

#### **b. English system (SIZE)**

This system is based on English units of length "foot" (foot) and inches (inch). 3 comprises an inch size and size is equal to 1/3 inch, therefore this measurement varies from a number (size) to another in 8,46mm. Later inch was divided into six equal parts of 4,23mm, being thus introduced the midpoint in the English system, which allows a better fit in footwear.

#### **C. American system:**

This system is based on the English scale and differs from this in that the zero point does not lie in 4 inches (10.16cm), but in 47/12 inch (9.95 cm), also was run on a number and means for footwear lady and a number for men's shoes.

### SCALING METHODS

It should be noted that any method used, builds on the same principles regardless if performed by hand, pantograph or computer; the difference lies in the speed and accuracy of each of the resources used.

### **to. PATTERNS FOR CLIMBING METHOD HAND:**

This method is used to scale the final pattern (that contains the model). It is mainly used when the model is composed of more than three parts, as the measures of parts according to each size are more accurate.

Steps for scaling a pattern size 37 and 35 from size 36:

- Draw a straight pencil by the pattern center (from heel to tip) line which should serve as a guide for the following process.

- Draw a straight line with pencil on cardboard covering the entire pattern.

Tip-drawing starting at the point of the metatarsal line facing the instep and ending at the point of the metatarsal line gives the plant pattern pattern, considering that the lines defined in the previous steps match

- The straight line drawn on cardboard, measure 3,33mm from the tip end of the pattern inward and outward

- Use the guideline drawn on cardboard in the previous step, to draw half of the pattern (front), taking account of on the new measure 3,33mm shifted to the right.

- Repeat the previous step but consider locating the pattern on the new measure 3,33m shifted to the left if it will happen to size

35 or 3,33mm clockwise if it will happen to size 37 and draw the back of the pattern.

- Make corrections as necessary until a new pattern.

- Repeat the above steps for the smaller sizes or larger as appropriate.



#### **b. CLIMBING METHOD USED PARTS:**

This method is used to scale the obtained pieces pattern. It is mainly used when the model is composed of three or fewer parts, since it is easier to scale the pieces and error in measurements is minimal.

To apply this method on the French scale, the value of 6.66 is taken and divided by the number of pieces. Therefore, for example below this value (3,33mm) is split between two parts (side and capellada) because the tongue does not count.

Steps for scaling one piece size 40 and 38 from size 39.

- Draw a line with a pencil through the center of the workpiece which should guide to perform the next process line.
- Draw a straight line with pencil on cardboard covering the entire piece.
- Draw half of the piece back, noting that the lines defined in the previous steps match
- In the above position measuring 3,33mm forward or rightward if size 40 and to the left if size 38
- make the corrections necessary to get a new piece.
- Repeat the above steps for sizes smaller or larger as appropriate.

### 3.4 CONSUMPTION CALCULATION TECHNIQUES AND MATERIAL ESCANDALLOS

The escandallo model, cost sheet in English, is costing the production of a model. It includes the cost of raw materials, labor and manufacturing costs. Its result will end up allocating the sales price model.

The format of the document is usually the escandallo an Excel spreadsheet, or the like. But it can also be done using specific programs such as those of product management. In the same breakdown of the three basic concepts of escandallo (raw materials, cost of labor and manufacturing costs) described more general or more detailed depending on the type of business that requires escandallo way be included. Escandallo calculation can be done on an averaged consumption among all sizes or you can make detailed color. Or it can be done more or less detailed in the consumption of materials such as thread, etc. Calculating labor costs can be assigned to the total production or detailed sections, cutting, sewing, ironing, etc ... it costs all depends on the needs of the company. Even in many companies that have outsourced production to third parties the escandallos is made.

#### Cost of raw materials

The cost of raw materials is the largest component of total costs of a model.

all components of the model that comes from buying from suppliers are considered as raw materials. The main raw materials of a model are fabrics, trimmings, threads, labels, and bagging items, embroidery, etc ...

To calculate costs of raw materials must have the following information available:

- Complete list of model materials and consumption materials
- Material price list

On the list of materials the cost of each is calculated according to the required consumption by adding the percentage of decline assigned by the company to each type of material.

#### *Calculate labor cost of a model*

To calculate the cost of labor has to take into account the following:

- Determine the average time allotted to the model in minutes
- Percent line efficiency
- minute cost operator

### ***Average time allotted***

The average time allotted to model SAM in English, is the standard time required to produce a unit in the production line. It is calculated by measuring the time required for an operator to perform an operation working at 100% of its activity.

The SAM assigned to a model is determined by the type of footwear, the number of operations required, the type and characteristics of the stitch, the length of the seams, the fabric type, the technology used, etc ...

### ***Percentage of efficiency***

The percentage efficiency of a line or factory productivity shows it. It is calculated on the total number of operators, the total hours worked by all of them in one day, the total sum of parts produced in the day and SAM assigned to the model.

To calculate the percentage of efficiency first has to know:

- a) Total minutes produced by the line X = Total piece produced SAM assigned to the model.
- b) Total minutes worked on the line X = number of operators per minute per worker daily work.

The percent efficiency is calculated:

Percent efficiency = (Total minutes produced by line x 100) / Total minutes worked on line

### ***minute cost operator***

The labor cost is calculated on the total wage costs of all operators.



minute cost operator = total cost of labor in a month / Total average time worked in a month

The operator cost is calculated on the average total time worked and not on total working hours. It is done this way since no production is 100% of working time. So depending on the level of production efficiency same model will have a higher or lower cost.

Once we have these data, the cost of labor for a model is calculated as follows:

Labor cost assigned X = Time min /% cost efficiency

Following the example given for making the shirt.

Time allocated to the preparation of the jacket = 20 minutes

= 0.12 minutes cost

% Of line efficiency = 80%

So its production cost will be:

$0.12 \times 20/80\%$

Or what is the same

$(20 \times 0.12) \times 100/80 = 3 \text{ €}$

### ***Manufacturing costs***

As manufacturing costs are those costs not directly attributable to the model but are part of the overall costs of maintaining activity are included. It is calculated on the total cost of a year divided by units produced. This is a complex calculation that is usually added to applying a percentage in the pricing. The precise figure depends applied as provided by the company but is usually between 7 and 10%.

### **3.5 VISITS TO MANUFACTURERS OF LASTS, SOLES, PLANTS AND TANNED SKINS**

During the course delivery will be made several visits to see first hand manufacturers of lasts, soles, plants and tanned skin.