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*Islamabad*

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


## LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

NAVTTC

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**Islamabad, Pakistan**

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-1

LEARNER GUIDE

National Vocational Certificate Level 2

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# Contents


Introduction 1
Modules 3
Module 1: Demonstrate Communication Skills 3
Module 2: Maintain Safe Work Environment 11
Module 3: Perform cutting operations 18
Module 4: Prepare Small Parts of Leather Products 34
Module 5: Stitch Leather Garments 62
Module 6: Stitch leather gloves 79
Module 7: Perform Finishing Operations on Leather Products 88
Module summary 107
Frequently Asked Questions 110
Test Yourself (Multiple Choice Questions) 113
ANSWERS 116

# Introduction

Welcome to your Learner's Guide for the *Stitcher* Programme. It will help you to complete the programme and to go on to complete further study or go straight into employment.

The *Stitcher* programme is to engage young people with a programme of development that will provide them with the knowledge, skills and understanding to start this career in Pakistan. The programme has been developed to address specific issues, such as the national, regional and local cultures, the manpower availability within the country, and meeting and exceeding the needs and expectations of their customers.

The main elements of your learner's guide are:

- **Introduction:**
  - This includes a brief description of your guide and guidelines for you to use it effectively
- **Modules:**
  - The modules form the sections in your learner's guide
- **Learning Units:**
  - Learning Units are the main sections within each module
- **Learning outcomes**:
  - Learning outcomes of each learning units are taken from the curriculum document
- **Learning Elements:**
  - This is the main content of your learner's guide with detail of the knowledge and skills (practical activities, projects, assignments, practices etc.) you will require to achieve learning outcomes stated in the curriculum
  - This section will include examples, photographs and illustrations relating to each learning outcome
- **Summary of modules**:
  - This contains the summary of the modules that make up your learner's guide
- **Frequently asked questions**:
  - These have been added to provide further explanation and clarity on some of the difficult concepts and areas. This further helps you in preparing for your assessment.
- **Multiple choice questions for self-test**:
  - These are provided as an exercise at the end of your learner's guide to help you in preparing for your assessment.

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-1

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

# Modules

## Module 1: Demonstrate Communication Skills

**Objective of the module:** The aim of this module is to develop knowledge and understanding of working in team, generating work reports on prescribed format and dealing with clients.

**Duration** 90 hours **Theory:** 18 hours **Practical:** 72 hours

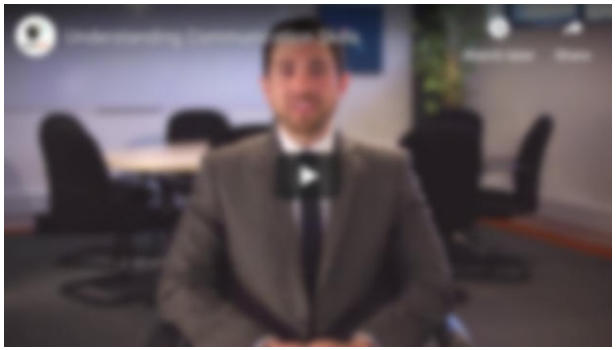
| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:** Work in Team | **The student will be able to:**<br>Treat team members with respect and maintain positive relationship to achieve common organizational goals<br>Listen to instructions carefully and fully comply with them<br>Provide work related information to team members and identify interrelated work activities to avoid confusion<br>Identify problems and resolve them through discussion and mutual agreement | The importance and contents of a good communication process at workplace including message encoding, channels and barriers, message decoding and feedback.<br>Commonly used effective communication media including body language, verbal, written, electronic media etc. and there importance.<br>Required workplace attitude that includes honesty, Integrity, punctuality, respect for co-workers, respect for difference of opinion etc.<br>Importance of listening and following instructions carefully at workplace and drawback of noncompliance.<br>Importance of teamwork to perform a task. Roles and functions of team members. Importance of identifying a potential conflict and basic conflict resolution techniques. | Case studies on teamwork and conflict resolution<br>Videos on communication process and teamwork |
| **LU2:** Prepare Reports | **The student will be able to:**<br>Prepare templates of production and quality reports<br>Record production and quality status on production report | The importance of recording and reporting the completed work. Contents of a basic production and quality report.<br>Understanding of different media of reporting including verbal, written, demonstration etc.<br>Importance of correct reporting and consequence of a flawed or false report<br>Commonly used templates of reporting production and | Different report formats used in leather products industries in Pakistan<br>Passages/Cases presenting completed work for group discussion |

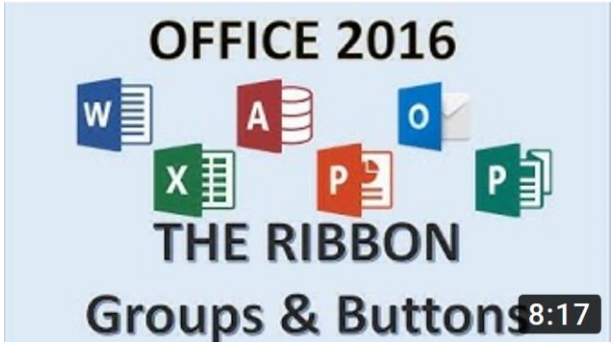
| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | quality in leather products industry to familiarize with workplace needs. | |
| **LU3:** Prepare Reports using computer | **The student will be able to:**<br>Create a report in required format on prescribed template<br>Send the report via email to the concerned supervisor | Basic components of a computer system and their functions.<br>Common Office applications including Word, Excel, Email and working with Files and Folders. Common features of office applications, including the ribbon, shortcuts, dialog boxes, and shortcuts along with navigating, getting help, and printing.<br>Important word functions of Setting Page Layout, Typing Text, Character Formatting, Font, Font Style & Font Effect, Using short cut keys for Bold and Italics, Line and Paragraph Spacing, Working with Tables, Textboxes, Headers, Footers, and Page Numbers etc.<br>Important excel functions of Setting Print Layout, Making and Formatting Tables, Typing Text and Data in cells, Conducting Basic Mathematical Calculations etc.<br>Purpose and benefits of using emails, setting up personal email addresses; ethics of writing emails, layout and functions of major tools of email client (web based) like Setting Email Layout, Entering email addresses (To, Cc, Bcc functions), Typing text and Working with Tables, Insert Attachments, Send/Save/Draft functions etc. | Sample documents and spreadsheets<br>Instructions / data for making Word document, spreadsheets etc.<br>Example of good and bad emails |
| **LU4:** Deal with Clients | Collect and confirm work requirements from clients using appropriate communication procedures<br>Provide clear information to clients about work requirements including costs and time needed to | Importance of client orientation and traits of a good service provider or product supplier.<br>Importance of timely delivery of goods and services, consequences and losses due to late delivery.<br>Importance of 4-P's i.e. Product, Price, Placement, and Promotion in developing and marketing the products.<br>Components of leather garments and gloves; steps and | Posters on 4-P's of marketing<br>Assembled and unassembled leather gloves and garments<br>Template for cost calculation |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | accomplish the task<br>Negotiate with clients regarding wages, time, labour requirements etc. | processes required to assemble and finish the products.<br>Techniques of calculating cost of making a basic garment or glove including prevailing cost of material, labour, utilities, finishing, overheads and taxes.<br>Effective practices and techniques of negotiating with clients while maintaining respect, integrity and profitability. | |

**Examples and illustrations**

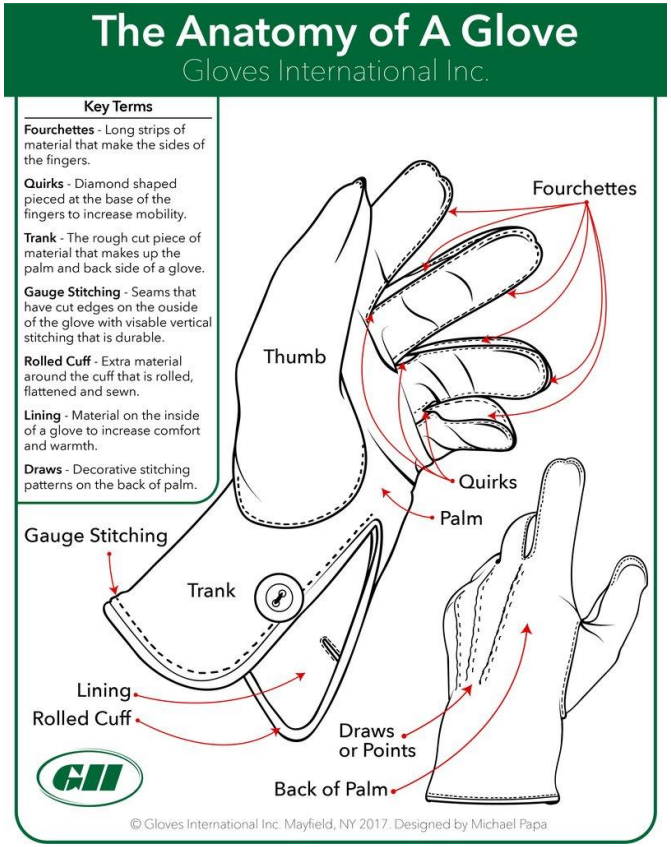
**VIDEOS:**

| | |
|---|---|
|  | A brief article and video on Communication Process in English Level 2<br>https://www.mindtools.com/pages/videos/communication-transcript.htm |
|  | Non Verbal Communication in English Level 1<br>https://youtu.be/9LhLjpsstPY |

| | |
|---|---|
|  | Team Work video<br>https://youtu.be/fUXdrl9ch_Q |
|  | Microsoft Office 2016 Ribbons explained in a video in English Level 2<br>https://youtu.be/EwFLDKJIgbE |

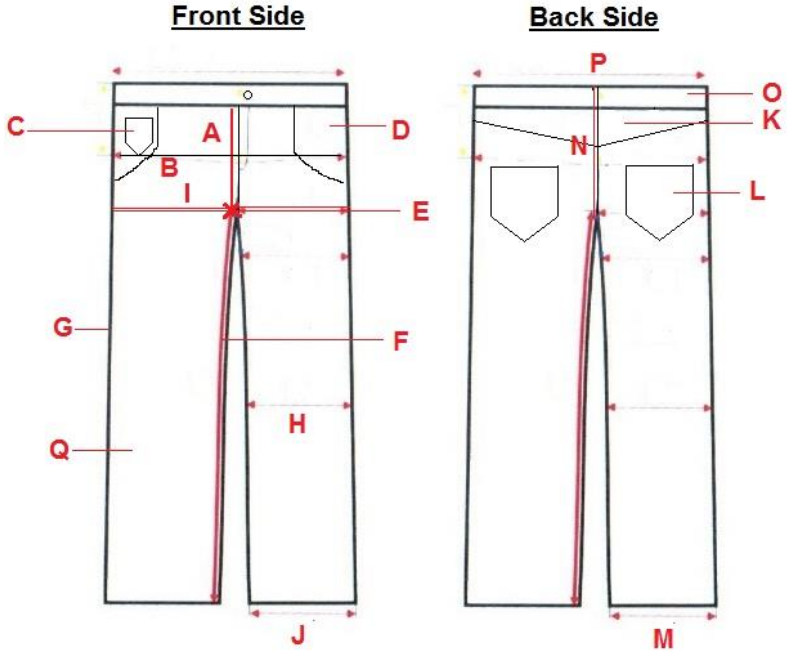
| | |
|---|---|
|  | The Beginner's Guide to Microsoft Excel 2016 – Video in English<br>https://youtu.be/rwbho0CgEAE |
|  | The Beginner's Guide to Microsoft Word 2016 – Video in English<br>https://youtu.be/S-nHYzK-BVg |

**Anatomy of a Glove**



**Parts of a Leather Garment**

For more information on calculating cost of making a garment, please visit https://sabeenzulfiqar.wordpress.com/2013/01/30/cm-cost-of-making-of-a-garment/




A = Front Rise
B = Hips
C = Coin Pocket
D = Scoop Pocket
E = Cronch (center point)
F = Inseam
G = Sideseam
H =Knee
I = Thigh (cronch to side seam)
M/J = Leg Opening / Bottom Hem
K = Yock
L = Back Pocket
N = Back Rise
O = Waist Band
P = Waist
Q = Pannel (Back/Front)

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-2

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

## Module 2: Maintain Safe Work Environment

**Objective of the module:** The aim of this module is to develop knowledge on the use and purpose of PPE's, all types of hazards and their remedies in a workplace.

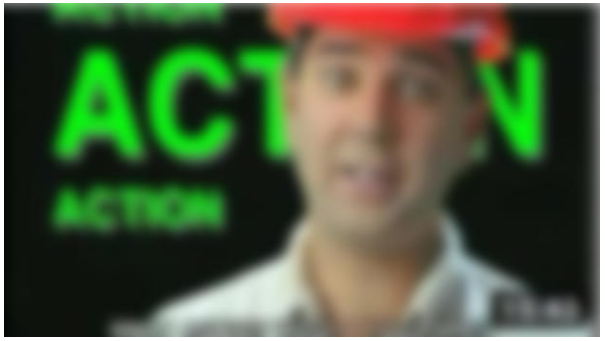
**Duration** 60 hours **Theory:** 12 hours **Practical:** 48 hours

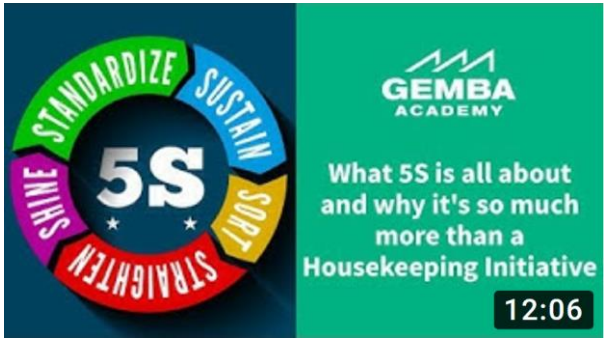
| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:** Identify Hazards at Workplace | **The student will be able to:**<br>Analyse work processes and procedures correctly to identify hazards at workplace<br>Recognize processes, tools, equipment and consumable materials that have the potential to cause harm<br>Identify possible risks at the workplace and report to the concerned official | Identifying Chemical, Mechanical, Electrical, Environmental hazards at leather factories. (Chemical and Environmental hazards mostly exist in the finishing process).<br>Hazards in material handling & placement - emphasise on safe methods of handling heavy loads<br>Health and safety signs and symbols used for various types of hazards. The signs and symbols vary according to type and severity of hazard.<br>Using hazard identification sheet or chart to report hazards at workplace; reporting hierarchy in the leather factories and your role as cutting, stitching or finishing worker in hazard and incident handling and reporting in organizations<br>Difference between Hazard and Risk. Basic Techniques and methods to identify the risks of hazards at workplace. | Videos and illustrations on hazards at workplaces.<br>Specific pictures and videos of leather making process for hazard identification.<br>Labels and signs used for identification of electrical, mechanical, Chemical and environmental hazards.<br>Format of hazard identification sheet |
| **LU2:** Observe Occupational Safety and Health (OSH) | **The student will be able to:**<br>Properly wear Personal Protective Equipment appropriate to the risks at workplace<br>Deal with problems which are | Importance of using personal protective equipment (PPE)<br>Identification of various PPEs and their uses.<br>Health and safety precautions required for leather products making<br>Correct usage of personal protective equipment to ensure proper safety | Assorted range of Personal Protective Equipment<br>Videos on correct usage of PPEs<br>Videos and illustrations on 5S |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | within your control, and report those that cannot be resolved to the safety officer<br>Keep work area clean and clear of obstructions to prevent potential accident or injury | Japanese 5S concept to organize the workplace i.e.<br>• Seri (Sort)<br>• Seiso (Set in order)<br>• Seiton (Cleanliness; Shine)<br>• Seiketsu (Standardize)<br>• Shitsuke (Sustain; make it a habit) | |

**Examples and illustrations**

**VIDEOS:**

| | |
|---|---|
|  | A series of videos on safety and usage of personal protective equipment<br>https://www.napofilm.net/en |
|  | Quick training Video on Personal Protective Equipment in English<br>https://youtu.be/e5UcGudDews |

| | |
|---|---|
|  | Video on 5S concept in English<br>https://youtu.be/jPXYa3FQP8k |

## Safety Symbols

### Electrical Safety Symbols

Source of images: https://www.electrical-safety-forum.com/electrical-safety-symbols


### Personal Protective Equipment Symbols

Image source: https://www1.essex.ac.uk/health-safety/substances/documents/safety-signs.pdf

**Chemical Hazard Symbols**

**GIZ toolkit on Resource Efficient Management of Chemicals (REMC)**


For more information, please visit;

https://www.electrical-safety-forum.com/electrical-safety-symbols

https://www1.essex.ac.uk/health-safety/substances/documents/safety-signs.pdf

https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev04/English/ST-SG-AC10-30-Rev4e.pdf

**Occupational Safety and Health (OSH) considerations during stitching**

**Image source: https://www.onlineclothingstudy.com/2015/10/workers-health-safety-apparel-industry.html**


Read more about this at

- https://stitchingmall.com/sewing-machine-safety-tips/
- http://onguardsafetytraining.com/login/v8_user/BLM_textiles_instruction/Industrial_Sewing_Machine_Instruction.pdf
- http://safety.ucanr.edu/files/1564.pdf
- https://shop.mybluprint.com/sewing/article/sewing-safety-tips/
- https://www.onlineclothingstudy.com/2015/10/workers-health-safety-apparel-industry.html
- https://study.com/academy/lesson/sewing-machine-safety-rules-tips.html

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-3

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

## Module 3: Perform cutting operations

**Objective of the module:** The aim of this module is to gain knowledge in selection and identification of leather skin / hide according to desired product and in performing cutting operation according to occupational standards.

**Duration** 60 hours **Theory:** 12 hours **Practical:** 48 hours

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:**<br>Segregate various skin/hide types | **The student will be able to:**<br>Identify and mark defects in skin/hide<br>Differentiate various shades of leather skin/hide correctly<br>Measure skin/hide thickness using leather gauge meter<br>Differentiate skins/hides as per their hardness | Types of materials used in the manufacturing of leather goods. Difference between leather and synthetic materials and methods of identifying the material types.<br>Nomenclature used in leather material e.g. Skin, hide etc. Various leather skin/hide quality parameters (shade, grain, split, colour matching stretch-ability, hardness/softness, thickness etc.).<br>Various defects in skin/hide (butcher cuts, warble fly, tick marks etc.) and their consequences.<br>Leather measurement techniques, especially using Leather Gauge Meter and other measuring tools.<br>Various parts of Skin/Hide and products or parts of a leather product prepared from various Skin/hide parts. | Samples of leather skin and hide, synthetic<br>Swatches of different articles like Nubuck, Suede, Aniline, t-burnish, Split, glaze etc.<br>Swatches of synthetic material (Rexene) like TPR, PU & PVC coating, Ammara,<br>Leather gauge meter and other measuring tools |
| **LU2:**<br>Trace cutting pattern on leather skin/hide | **The student will be able to:**<br>Align skin/hide for cutting according to the Line of Tightness and Line of Stretch-ability<br>Trace panels as per product requirement considering required skin/hide quality while maintaining nesting efficiency/average | Line of tightness and stretch-ability of leather skin/hide and synthetic materials to ensure proper alignment for cutting.<br>Identify various product components & their panels.<br>Nesting/manipulation efficiency in cutting and basic techniques of controlling cutting wastage.<br>Basic know-how of matching of leather components and familiarize with skin/hide cutting layout.<br>Basic understanding of pattern and types of patterns. | Leather skins/hides and synthetic materials<br>Illustrations / pictures of leather products and their parts<br>Samples of leather products and their cut panels<br>Cutting patterns for different products |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | Identify different parts of patterns of various products<br>Thorough understanding of using tracing tools and their application on different types of materials.<br>Practice pattern tracing, cutting and matching on paper sheets of various textures like Plain, striped (even & uneven), plaid (even & uneven) before shifting to leather or synthetic material. | Tracing tools<br>Paper sheets to practice tracing<br>Numbering Machine |
| **LU3:**<br>Cut and bundle the panels | **The student will be able to:**<br>Cut panels as per tracing<br>Check quality of cut panels and prepare a report<br>Mark and bundle panels according to product requirements (shade, grain, component etc.) | Cutting techniques and methods prevailing in the industry including Single-layer and multi-layer cutting and quality criteria for cutting of leather<br>Different Reinforcement Materials (fusing material/Cotton Tape etc.) and their usage in leather cutting process<br>Different types of cutting tools (Knife, Scissor, Electric Cutter, Press, Laser Cutting, etc.)<br>Correct and safe usage of cutting tools<br>Procedure of sizing, numbering, marking and bundling of cut panels as per size/article/shade/operation. | Leather skins/hides<br>Various types of leather cutting tools<br>Samples of good and bad cut panels for demonstration<br>Paper sheets to practice cutting<br>Learner self-assessment forms |

## Examples and illustrations

**LU1: Segregate various skin/hide types**

***Basic Leather Nomenclature***

Definition of leather is:

“Leather is end product of tanning the raw hide / skin of an animal to make it durable and flexible. The hair or wool may, or may not, have been removed. It is also made from a hide or skin that has been split into layers or segmented either before or after tanning.”

The amount of surface coating applied to the leather influences whether or not the item can be described as genuine leather.

“..If the leather has a surface coating, the mean thickness of this surface layer, however applied, has to be 0.15mm or less, and does not exceed 30% of the overall thickness”.

***Differentiate between Leather and Synthetic Material: Leather is a natural material made from animal skin by tanning while synthetic is manmade material,***

For more information about Leather, its types and nomenclature, please read;

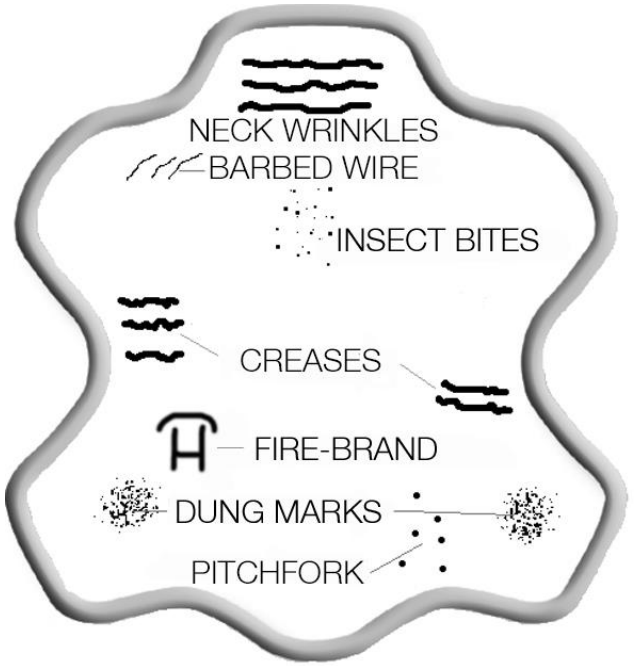
- http://www.all-about-leather.co.uk/what-is-leather/what-is-leather.htm
- https://www.worldofleathers.com/leather-guide-and-info/what-is-leather-its-origins-forms-and-uses/

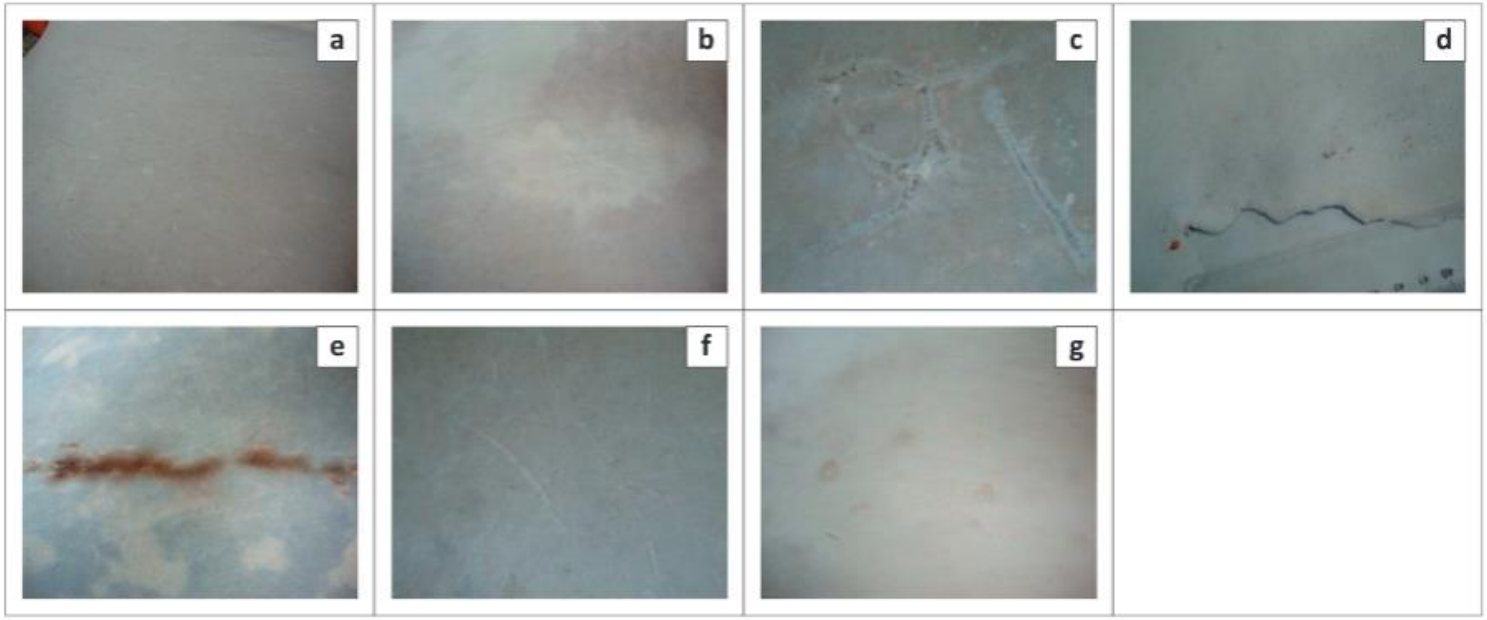
***Defects in Hides and Skins***

Natural markings on an animal's skin, depending their severity and extent, can affect the usability of the rawhide for a specific type of leather.

The extent of damage dictates how much of the skin is usable during cutting, leading to higher levels of wastage per skin. There are two categories of damage: postural injuries incurred during the animal's lifetime like scratches, warble fly marks, growth marks, insect bite marks, identification marks etc. and damage after slaughter like butcher cuts, scratches, discolour, brand marks ,chemical marks etc.

Parasite marks on Cattle hide





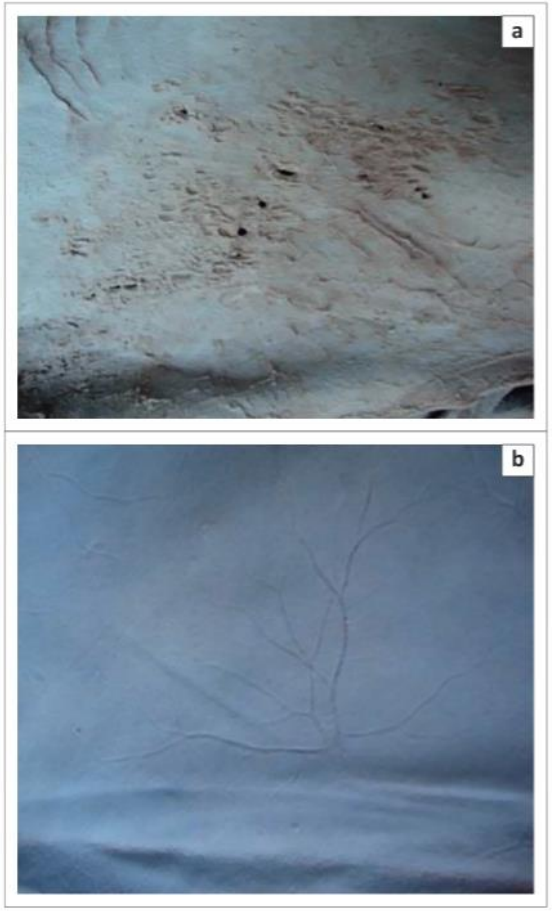

*Source*: Photos taken by Guesh Negash and Birhanu Hadush

**FIGURE 1:** Major pre-slaughter defects seen in hides and skins: (a) pox lesions; (b) cockle (*ekek*); (c) branding marks; (d) tick damage; (e) aged skins; (f) grain scratch; (g) wart lesions.

**Sources of images and additional reading material on Skin/Hide Defects**

Read more about defects in Hides and Skins at;

- https://www.leather-dictionary.com/index.php/Natural_markings_on_leather
- Hide defects - identification and eradication by FAIR Project (https://leathercouncil.org/fair/hide.htm)
- https://www.colourlock.com/blog/Leather-natural-markings/
- http://www.scielo.org.za/scielo.php?pid=S0030-24652015000100009&script=sci_arttext
- Kahsay, T., Negash, G., Hagos, Y. & Hadush, B., 2015, 'Pre-slaughter, slaughter and post-slaughter defects of skins and hides at the Sheba Tannery and Leather Industry, Tigray region, northern Ethiopia', Onderstepoort Journal of Veterinary Research 82(1), Art. #931, 7 pages. http://dx.doi.org/10.4102/ojvr. v82i1.931 (https://pdfs.semanticscholar.org/4f1b/9bbd9ccad8a4f104f6c7e2b048f32ca32c97.pdf)




*Source:* Photos taken by Guesh Negash and Birhanu Hadush

**FIGURE 2:** Slaughter defects seen in hides and skins: (a) flay cuts or scores and (b) vein marks.

***Measurement of Leather and Parts of Skin/hide***

Leather is measured and calculated in square metres, decimetres, square feet (inch: inches), lengthwise or in kilogrammes. Hide , skins are measured in square feet (f²). A cattle skin usually has 25 to 40 sqft. The leather thickness is measured in millimetres with special measuring instruments (gauge meter).

The hide/skin is divided in different sections: Shoulder, belly and butt.

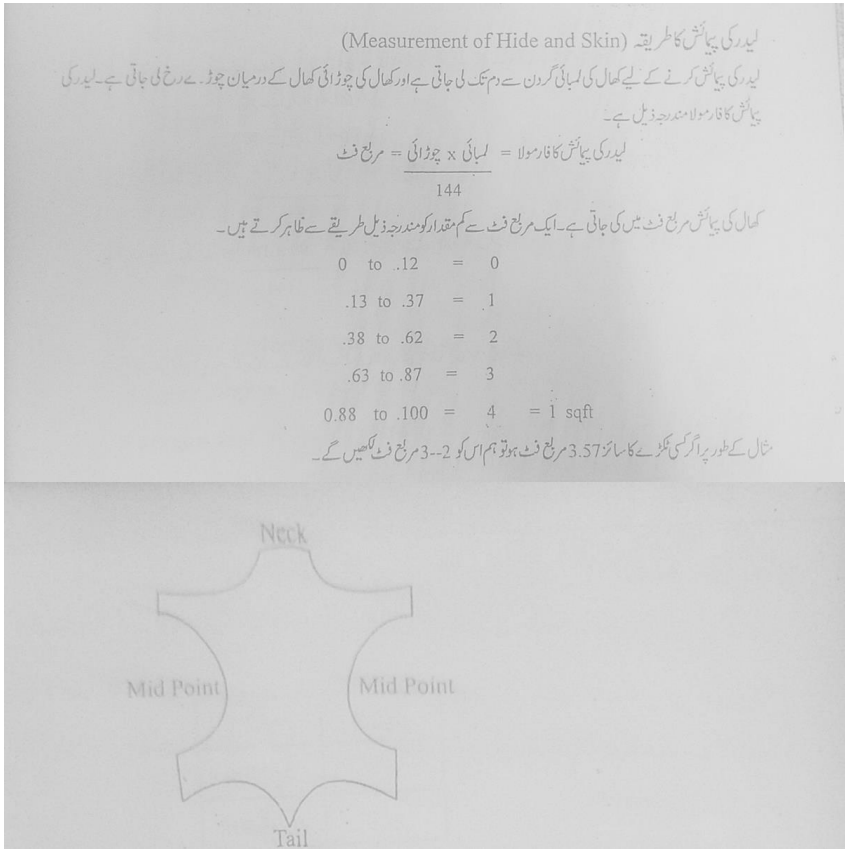
- Shoulder: The shoulder is a softer area of the hide.
- Belly: The belly is a stretchy soft leather of varying thickness.
- Butt: The butt is the thickest and strongest part of the hide.
- Back: Butt + shoulder.

**Sources of images and further reading material;**

- https://www.leather-dictionary.com/index.php/Measures_and_weights
- https://www.leather-dictionary.com/index.php/Parts_of_the_hide
- http://www.kingsmerecrafts.info/page17.html
- https://www.worldofleathers.com/leather-guide-and-info/what-is-leather-its-origins-forms-and-uses/
- https://www.worldofleathers.com/leather-guide-and-info/what-is-leather-its-origins-forms-and-uses/

***Leather measurements***

**Picture source: Teaching notes of Leather Products Development Institute (LPDI) Sialkot**



مثال نمبر 1۔ ایک چمڑے کی لمبائی 80 انچ اور چوڑائی 45 انچ ہے۔ چمڑے کا کل رقبہ کتنے فٹ ہوگا؟

چمڑے کی لمبائی = 80 انچ

چمڑے کی چوڑائی = 47 انچ

لیدر کی پیمائش کا فارمولا = $\frac{\text{لمبائی} \times \text{چوڑائی}}{144}$ = مربع فٹ

پیمائش درج کرنے سے = $\frac{47 \times 80}{144}$ = 26.11 مربع فٹ = 26 مربع فٹ

مثال نمبر 2۔ ایک چمڑے کی لمبائی 160 انچ اور چوڑائی 90 انچ ہے۔ چمڑے کا کل رقبہ کتنے فٹ ہوگا؟

چمڑے کی لمبائی = 160 انچ

چمڑے کی چوڑائی = 90 انچ

لیدر کی پیمائش کا فارمولا = $\frac{\text{لمبائی} \times \text{چوڑائی}}{144}$ = مربع فٹ

پیمائش درج کرنے سے = $\frac{90 \times 160}{144}$ = 100 مربع فٹ = 100 مربع فٹ

نوٹ

انسٹرکٹر ٹرینیز کو کلاس روم میں چمڑے کے مختلف ٹکڑوں کا رقبہ نکالنے کی مشق کروائیں گے۔

***Line of Stretch-ability (Stretchiness)***

When a skin is pulled, the line or known as the "line of stretch or stretch-ability." This property varies in the several kinds of skins, and also in the same class of skin if tanned or dressed differently. The directions in which the skin yields least when pulled or strained, or are relatively tightest, are termed the "lines of tightness." Different methods of indicating lines of Stretch-ability and Tightness are presented in following figures (the Lines of Tightness are indicated by arrows, cutting through the lines of Stretch).

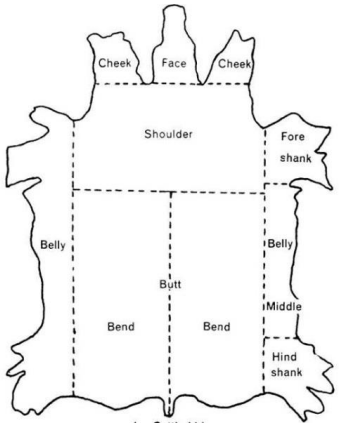



**Image source: https://chestofbooks.com/business/clothing/footwear/The-Manufacture-Of-Boots-And-Shoes/Stretchiness-And-Tightness.html**

***and Tightness***

direction in which it gives or stretches most is technically

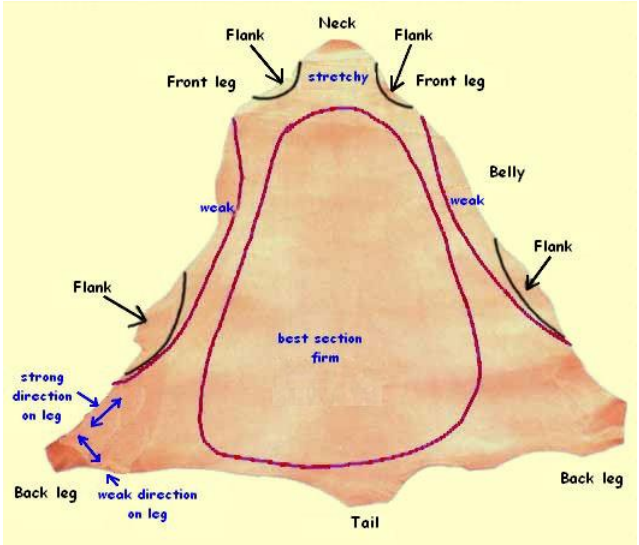
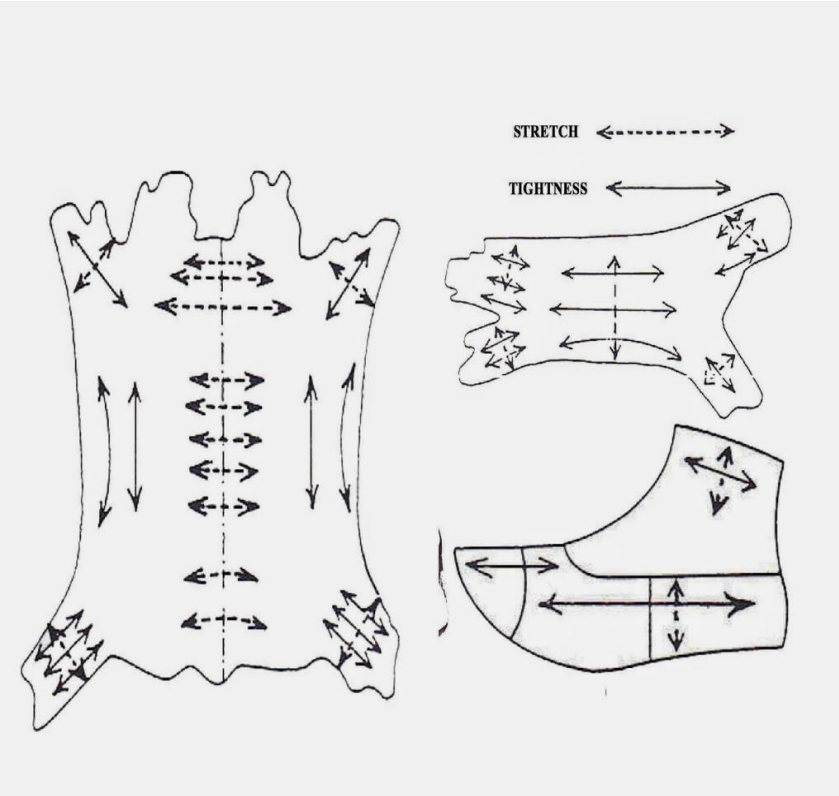


**Image Source: https://howtoshoes.blogspot.com/2014/05/basic-of-shoes-leather-upper.html**



**LU2 and LU3: Pattern Tracing and Cutting**
***VIDEOS:***

| | |
|---|---|
|  | Tracing a pattern on Leather<br>https://youtu.be/I4Sdta85qlc |
|  | 10 Basic leather cutting tools<br>https://youtu.be/zhVTEqYowmI |

| | |
|---|---|
|  | Cutting leather using Cutting Wheel<br>https://www.instructables.com/lesson/Cutting-Leather/ |
|  | Cutting leather using a Knife<br>https://www.instructables.com/lesson/Cutting-Leather/ |

| | |
|---|---|
|  | Die Cutting Leather vs Laser Cutting Leather - A Comparison<br>https://youtu.be/AvG5VhUYNmE |

***Manual leather cutting tools***

**Awl**

**Knife**

**Scissors**

**Cutting Wheel**

**Strap Cutter**

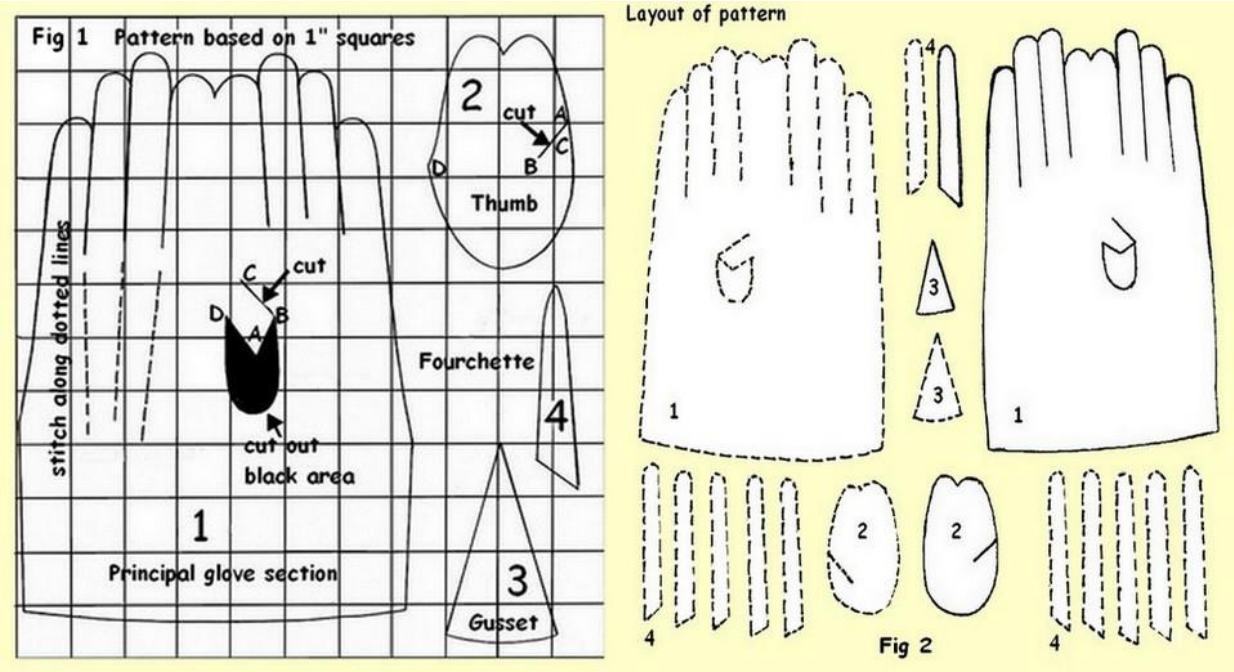
**Image source and additional reading material on pattern tracing and cutting**

- Self-learning lesson on Pattern Tracing and Cutting (https://www.g-w.com/pdf/sampchap/9781605259970_ch08.pdf)
- https://www.instructables.com/lesson/Cutting-Leather/

***Parts of Leather Products***

Pattern of a basic glove is presented in following illustration.

**Image source: http://www.kingsmerecrafts.info/page85.html.**



# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-4

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

## Module 4: Prepare Small Parts of Leather Products

**Objective of the module:** The aim of this module is to enable the students to produce small parts of leather garments and gloves according to professional standards.

**Duration** 160 hours **Theory:** 32 hours **Practical:** 128 hours

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:** Prepare machine according to stitching requirements | **The student will be able to:**<br>Clean the workstation and machine from dust, fluff and oil<br>Set Needle and Thread according to product material<br>Adjust stitch parameters and foot pressure according to product requirement<br>Prepare the workplace for the work operation ( put up of cut panels to sew, technical file/ sewing instruction/sketch) | This learning unit is the base for stitching, thus proper time must be spent to this unit.<br>Recall the concepts of workplace organization and 5S learnt in the Module-2.<br>Purpose of different types of stitching machines used in stitching leather garments and gloves, and different types of seams and stitches made by these machines.<br>Various components of stitching machines, purpose and functions of machine components, and differences among components of various machine types.<br>Machine cleaning and oiling procedures; basic maintenance of machine like changing broken needle, rectifying broken thread, ensuring smooth movement of parts etc.<br>Setting up machine as per product requirement including setting thread, bobbin winding, needle attachment, and adjustment of bobbin & bobbin case on different machine types and for different types of seams.<br>Various types of needles and their usage.<br>Know-how about various types of threads.<br>Method of reading technical files, sketches and samples of products. Methods of identifying stitching requirements like thread type, seam type, machine type etc. from the | Various types of Stitching Machines with complete accessories like folder, Stitch Gauge;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Cylinder Arm Stitching Machine<br>• Flat Lock (Three Needle Machine)<br>• Bar tack Machine<br>• Zig Zag machine |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | technical file, sketch and samples.<br>Refer to LU4 of Module-1 where you learnt the process sequence for leather products manufacturing. Recap the process flow and make sure you memorize and understand the process sequence.<br>Various accessory attachments of leather garments and gloves and their purpose.<br>Stitching parameters like Stitch per Inch (SPI), Adjustment of pressure foot, thread tension etc. and their importance in quality of stitching.<br>Observing occupational safety and health (OSH) during all activities. Refer to the Module-2 for more details. | Unassembled machine components<br>Basic maintenance toolkit including Clipper, Scissor, Hammer, Oil Can, Screw Driver Set & Allen Key Set<br>Learners guide for Module-1 and Module-2<br>Questionnaires with pictures of machine components<br>Samples of various seam types<br>Different types of threads<br>Different types of needles and needle attachments<br>Technical files, sketches and samples of various leather products<br>Various attachments or leather garments and gloves |
| **LU2:** Stitch small parts of leather garment | **The student will be able to:**<br>Apply fusing on specified areas of the panel<br>Apply adhesive to the designated area of panel in | Various small parts of leather garments like pockets, belts, collar, cuff, zip etc. Label different types of leather garments like jacket, pants, shirt, skirt, blouse etc.<br>Contents and templates of the Job Card and work reports prevailing in the leather industry. Make sure you fill job | Learners guides for previous modules<br>Samples of different types of assembled and unassembled leather |

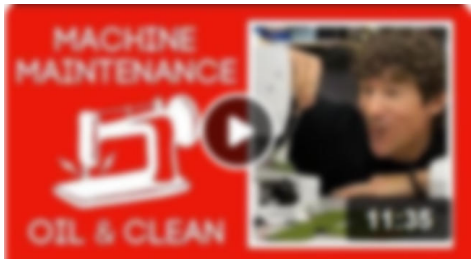
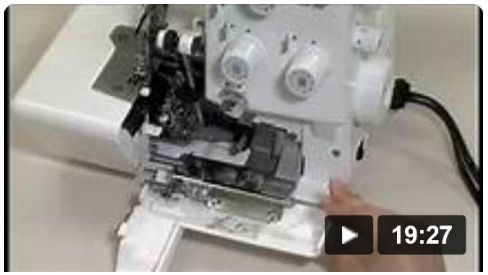
| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | appropriate quantity<br>Fold panel as per tracing according to adhesive specifications<br>Press the folded area with a hammer homogeneously<br>Stitch the component as per sample or instructions<br>Control the stitched small parts of leather garment according to the quality requirements<br>Bundle stitched components according to sizes / number marking<br>Prepare and submit production report on prescribed format | cards and work reports of all activities performed in this learning unit.<br>Skiving and its purpose; Marking requirements and technique for skiving, folding and stitching; and using skiving machine<br>Importance and purpose of seam allowance.<br>Folding requirements and methods. Application of different types of adhesives and correct usage of folding tools like hammer or folding machine.<br>Recap following learning elements (which were already learnt during previous modules);<br>• Fusing materials and their applications<br>• Commonly used measuring systems<br>• Various panels of leather products and their shapes<br>• Usage of Stitch Gauge<br>• Different stitch types and their uses<br>• Various stitching parameters including thread tension, SPI, foot pressure etc.<br>Purpose and method of different types of seams like piping, inseam, top seam, double top seam, lapped seam etc.<br>• This is the most important aspect of stitching, so you are advised to spend ample time to it and practice multiple times<br>• Practice different types of seams as printed on the paper work sheets. Practice on leather only when you demonstrate adequate skills on paper worksheets.<br>Quality requirements of stitching process using product specification charts, technical sheets, sketches, samples | garments<br>Cut panels of small parts of leather garments<br>Samples of job cards and work reports<br>Skiving machine<br>Marble Slab<br>Iron / fusing press<br>Iron stand<br>Brush to apply adhesive<br>Cylinder arm machine<br>Adhesives<br>Pressing hammer<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole |

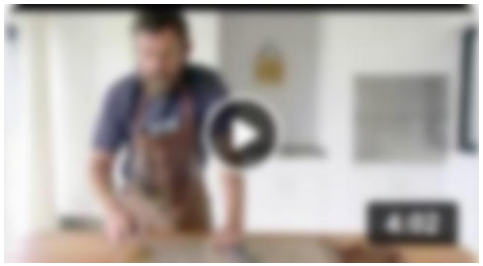
| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | etc.<br>Ironing on leather garments; requirements, purpose and methods.<br>Methodology of numbering & bundling stitched parts.<br>Observing occupational safety and health (OSH) during all activities. Refer to the Module-2 for more details. | machine<br>• Flat Lock (Three Needle Machine)<br>• Bar tack Machine<br>• Zig Zag machine<br>Paper, fabric and leather sheets for practice sessions<br>Technical files, sketches and samples of various leather products.<br>Assessment guide |
| **LU3:** Prepare small parts of gloves | **The student will be able to:**<br>Prepare Glove Thumb as per sample or instructions<br>Prepare Glove Cuff as per sample or instructions<br>Prepare Glove Fourchette as per sample or instructions<br>Control the stitched small parts of gloves according to the quality requirements<br>Prepare and submit production report on prescribed format | Various small parts of different types of leather gloves like thumb, cuff, fourchette etc.<br>Different panels of leather glove parts and their shape difference among various types of gloves.<br>Fusing, its purpose and application techniques.<br>Stitching requirements of different glove parts including thumb, cuff, fourchette etc. Apply your knowledge and skills of stitching; as acquired in LU2 of this module; and prepare small parts of different types of leather gloves in multiple practice sessions using different types of stitching machines.<br>Quality requirements of leather gloves using product specification charts, technical sheets, sketches, samples etc.<br>Prepare job cards and work reports of stitching small parts of leather gloves.<br>Observing occupational safety and health (OSH) during | Learners guides for previous modules<br>Samples of job cards and work reports for glove making<br>Samples of different types of assembled and unassembled leather gloves<br>Cut panels of small parts of leather gloves<br>Binding Machine<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light; |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | all activities. Refer to the Module-2 for more details. | • Zigzag Machine<br>• Double Needle Lock Stitch Machine<br>• Over Lock Machine<br>Technical files, sketches and samples of various leather products.<br>Assessment guide |
| **LU4:** Perform finishing operations on stitched small parts | **The student will be able to:**<br>Trim extra threads and flash material from stitched components<br>Clean tracing lines from stitched components<br>Clean the stitched component for dust, oil and adhesive marks<br>Clean the workplace after finishing the work<br>Check the ready sewn leather garment according to the product design and quality requirements<br>Prepare and submit report on prescribed format | Finishing requirements of small parts of leather products including trimming and cleaning; practice on the components you stitched in LU2 and LU3 of this module.<br>Quality requirements of leather garments, gloves, and their small parts; importance of quality of small parts in overall quality of the products.<br>Method of checking product quality using a checklist or product sample and preparing a quality check report.<br>Recall workplace organization, 5S and good housekeeping concepts from previous modules; perform housekeeping of your workstations after completing stitching and finishing operations.<br>Observing occupational safety and health (OSH) during all activities.<br>Prepare and submit work completion report. | Samples of leather garments, gloves and their parts<br>Quality check lists of various leather products<br>Quality report template<br>Trimming tools e.g. Clipper, Scissors etc.<br>Measuring tape<br>Cleaning brush, cotton and cloth<br>Cleaning agent |

**Examples and illustrations**

**VIDEOS:**

| ***LU1: Prepare machine according to stitching requirements*** | |
|---|---|
|  | How to use your sewing machine<br>https://youtu.be/jmaZBTMzkoY |
|  | Cleaning and oiling a sewing machine<br>https://binged.it/2XkU5Iw |
|  | Preparing, threading and adjustment of an overlock machine<br>https://youtu.be/KPCOqnRj4oM |

| ***LU2: Stitch small parts of leather garment*** | |
|---|---|
|  | How to skive leather using skiving knife<br>https://youtu.be/ZkNftXoWzAM |
|  | How to use a leather skiver<br>https://youtu.be/2_gDpm732Vg |
|  | Leather folding and binding<br>https://youtu.be/jOiuBcl2fek?t=128 |

| | |
|---|---|
|  | Learning how to sew, easy sewing class for beginners<br>https://youtu.be/rnTwT-ifLkU |
|  | Introduction to Flatbed Sewing Machine<br>https://vimeo.com/13698554 |
|  | Zipper pocket, How to sew<br>https://www.youtube.com/watch?v=CfkgeBcVY3k |

## LU1: Prepare machine according to stitching requirements

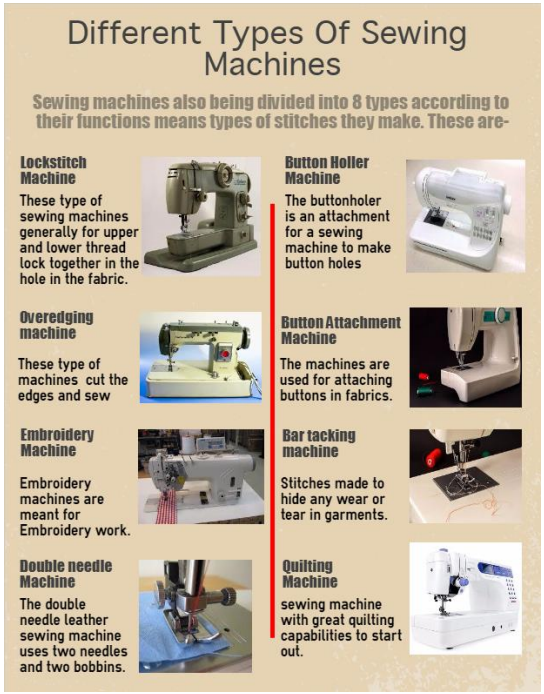
### *Types of Stitching Machines*

Various types of Stitching Machines used for stitching leather garments and gloves are;

- Single Needle Flatbed & Double Needle)
- Post Bed (Single & Double Needle)
- Overlock Machine
- Button Attach Machine
- Button Stitch Machine
- Button Hole
- Cylinder Arm Stitching Machine
- Flat Lock (Three Needle Machine)
- Bar tack Machine
- Zig Zag machine

For technical specifications and information about more types of stitching machines, please visit following link;
https://www.juki.co.jp/industrial_e/products_e/leather_e/plain_e/

Image Source: https://www.sewinglist.com/different-types-of-sewing-machines/



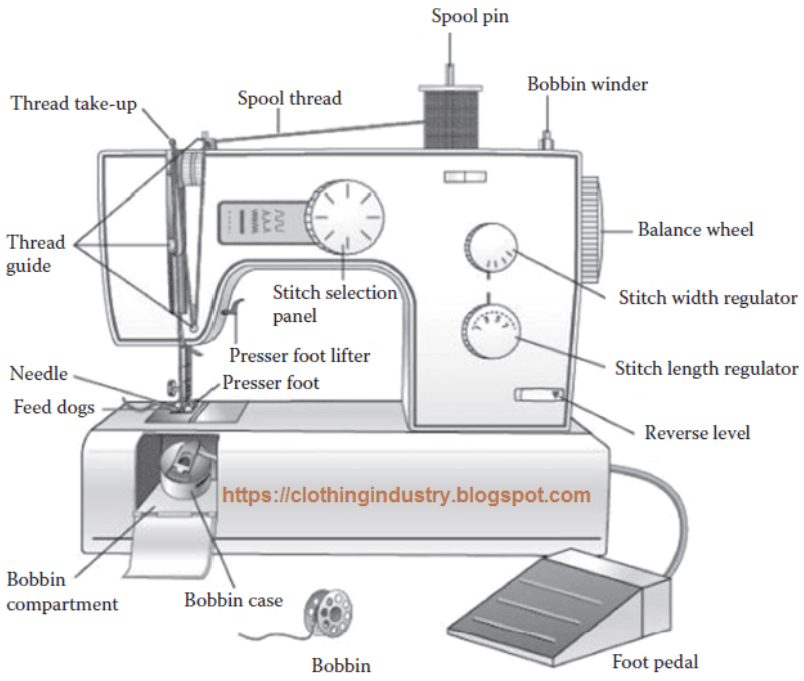

Flatbed Machine

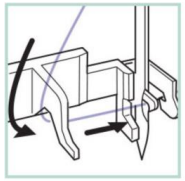
Post Bed Machine

Cylinder Arm Machine

***Parts of a sewing machine***

**Image source: https://clothingindustry.blogspot.com/2018/01/sewing-machine-parts-functions.html**



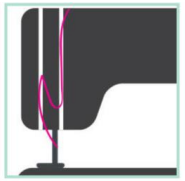


## Automatic Needle Threader

A specially-designed function created to aid threading the sewing machine's needle. Simply raise the needle to its highest point, hook your thread underneath the thread guide, pull down the threader so that the end of the thread passes through the eye of the needle, then guide the thread into the hook. Once you release them, it'll thread automatically!

## Automatic Thread Cutter

A handy feature that allows you to programme your sewing machine to automatically snip your threads when required, or simply touch a button on your machine to operate the cutter.



## Automatic Thread Tension

An automatic function that determines the correct thread tension for the fabric you're using, although it can be re-functioned to your own preference.

## Bobbin

A small spool for holding the thread in the bottom of the machine. The thread needs to be wound onto the bobbin before you start sewing – although most electric machines have a bobbin-winding function and newer sewing machines often have a drop-in bobbin.

## Bobbin Winder

This small pin sticks out of the top of the sewing machine and is used to load thread onto the bobbin.

## Buttonholes

Buttonholes are exactly what you'd expect – the holes in clothing that buttons slot into. Many sewing machines have multiple buttonhole styles, sewing them in either a 1-step or 4-step process.

## Feed Dogs

A metal plate positioned on the bed of the machine with tiny zigzag teeth that feed the fabric from front to back while you're stitching. As the needle exits the fabric, the feed dogs rise up and grip the fabric against the presser foot, slide backwards and then pull the fabric with them. Some machines have a drop feed dog function, allowing you to manually move the fabric under the needle – this is useful for embroidery and mending.

## Foot Pedal

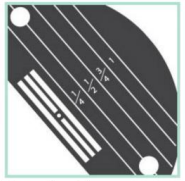
A sewing machine is driven by a belt inside that synchronises the moving parts so that they work together to form a stitch – the speed of this belt is controlled by a foot pedal positioned on the floor. The more pressure you apply with your foot, the faster the machine will stitch. However, some machines offer a switch that allows you to select a high or low speed setting, giving you greater control of the speed.

## Free Arm

The free arm allows you to sew longer garments like sleeves and trouser legs. The concept is simple: usually concealed in the bed of the machine, the free arm will pull out into a protruding cylinder shape, thus extending your workspace!

## Integrated Drop Feed

Useful for free machine embroidery, this feature allows your fabric to move more freely through the machine when the feed dogs drop down.



## Needle Plate

The needle plate fits over the feed dog on the bed of the sewing machine and covers the bobbin, with a hole for the needle to pass through. Needle plates usually have lines etched onto them to indicate the measurement away from the needle, helping you to stitch even seams.

## Needle Up/Down

This function enables you to program the needle so that it always finishes in a certain position – either up or down.

## Presser Foot

This essential feature holds the fabric flat under the needle and against the feed dog to secure your fabric in place. Extremely easy to change, there's a range of different feet available, each with a different purpose.

## Spool Holder

This is the pin at the top of the machine that holds the cylindrical plastic reel that carries the thread. Some machines come with two spool holders to allow sewing with two different colours of thread at the same time with a twin needle.

## Twin Needles

These needles allow you to stitch two parallel rows at a time for a stronger or more decorative stitch, commonly used to create pin tucks.

### Adjustable Guide Foot

The Adjustable Guide Foot is very similar to the Quarter Inch Foot, but is far more adjustable. Allowing you to use multiple needle positions (such as zigzag), this foot is used as a seam allowance guide for accuracy in stitching – however it doesn't allow for very small seam allowances.

### Appliqué Foot

Usually clear or open-toed to see where you're going, the Appliqué Foot is used for easy manoeuvring when sewing appliqué pieces.

### Big/Quilting Foot

The Big/Quilting Foot is used in free-motion embroidery and, because of its size, gives you the freedom to move your fabric exactly as you please.

### Binder Foot

The Binder Foot comes with a funnel guide for binding edges with a specific size bias binding, depending on the specification of the foot. Used with lightweight fabric, it can sew with a straight, zigzag or decorative stitch.

### Buttonhole Foot

Most machines come with various buttonhole capabilities but if not, the Buttonhole Foot aids you in forming buttonholes in clothing. Instructions will always accompany this foot.

### Embroidery/Darning Foot

Perfect for creating neat and consistent stitch patterns, the Embroidery/Darning Foot allows you to embroider beautiful finishes and embellishments onto your fabric.

### Gathering Foot

Often used in clothing to hide zips, the Invisible Zipper Foot does a similar job to the Zipper Foot, but instead conceals the zip's teeth. It gently glides over the teeth to push them either side of the roller.

### Invisible Zipper Foot

Often used in clothing to hide zips, the Invisible Zipper Foot does a similar job to the Zipper Foot, but instead conceals the zip's teeth. It gently glides over the teeth to push them either side of the roller.

Jean-A-Ma-Jig Foot

The Jean-A-Ma-Jig Foot helps you to hem your jeans in a professional, accurate way. Perfect for denim and heavier materials, it helps to protect your needles and thread while stitching.

Piping Foot

Neatly create corded piping for your home décor projects with the impressive Piping Foot. Providing accurate placement of piping into seams and edges, expect a tailored finish every time.

Presser Foot

This is the standard foot that comes with most sewing machines. The Presser Foot holds your fabric in place, preventing movement, with an even pressure. Quite a universal foot, it's used for both straight stitching and zigzag stitching.

Quarter Inch Foot

This handy little Quarter Inch Foot allows you to achieve a precise quarter inch seam allowance on your fabric, without having to draw it on manually. It even has red markers on it to indicate which point you need to stop sewing when approaching a corner!

Walking Foot

When sewing two layers of fabric together, the Walking Foot ensures that both bits of fabric are fed through the machine at the same rate. This means that you won't end up with one piece of fabric longer than the other – they will be perfectly aligned.

Zipper Foot

The Zipper Foot is primarily used to insert zips into fabric, however can also install cording or piping into cushions. It allows you to sew closely alongside a bulky material and requires extremely careful use of fingers.

**Image sources and further reading material**

- https://www.createandcraft.com/gb/introduction-to-sewing-machines#content
- https://www.sewinglist.com/infographics/
- https://www.sewinglist.com/resource/

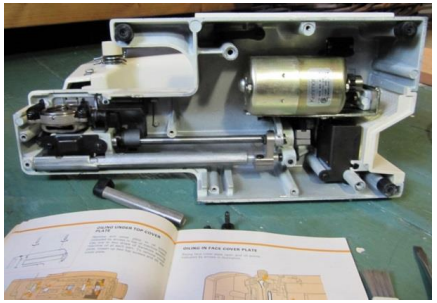
***Instructions for Oiling and Cleaning the stitching Machine***

You can keep your machine running smoothly when you:

- Keep your machine clear.
- Report faults to your supervisor of machine.

Before you start cleaning your machine you have to:

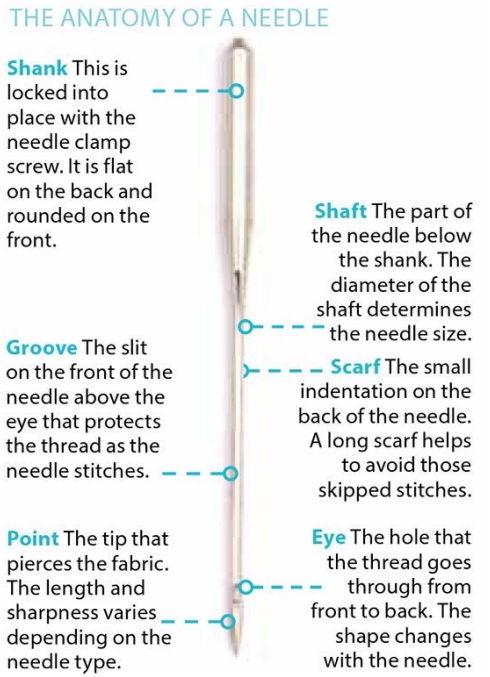
- Switch off the machine.
- Take your both feet off from the treadle.
- Unthread the machine.
- Take the bobbin out.
- Remove the needle.

Read more about oiling and cleaning at:
http://sewingschool.org/2011/05/19/basic-sewing-machine-maintenance-cleaning-and-oiling/

***Anatomy of a Needle***

**Image source: http://www.simplysewingmag.com/how-to-sew/know-sewing-machine-needles/**




## NEEDLE SIZE GUIDE

| EUROPEAN SIZE | AMERICAN SIZE | FABRIC |
|---|---|---|
| 60 | 8 | Silks |
| 70 | 10 | Lightweight fabrics |
| 75 | 11 | Medium weight fabrics |
| 80 | 12 | Medium weight fabrics |
| 90 | 14 | Medium weight fabrics |
| 100 | 16 | Heavy weight fabrics |
| 110 | 18 | Upholstery fabrics/Denim |
| 120 | 20 | Heavy Canvas |

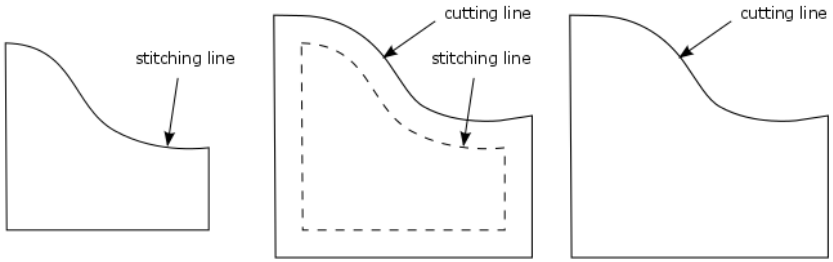
***Types of Sewing Threads***

- Cotton thread
- Polyester/Nylon thread
- Silk thread
- Wool thread

***Seam Allowance***

Read about seam allowance at http://www.sewingspark.com/all-about-seam-allowances/

**Three pattern pieces: no seam allowances, cutting and stitching lines shown, cutting line only**



**LU2 & LU3: Stitch small parts of leather garment, and Stitch small parts of leather gloves**

***Types of Seams***

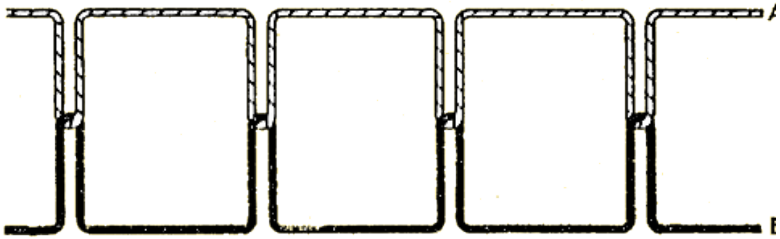
Read more about seam types at;

- https://sewguide.com/how-to-sew-seams/
- http://www.nvg.org.au/documents/other/stitches.pdf
- http://sewastraightline.com/index-of-sewing-lessons

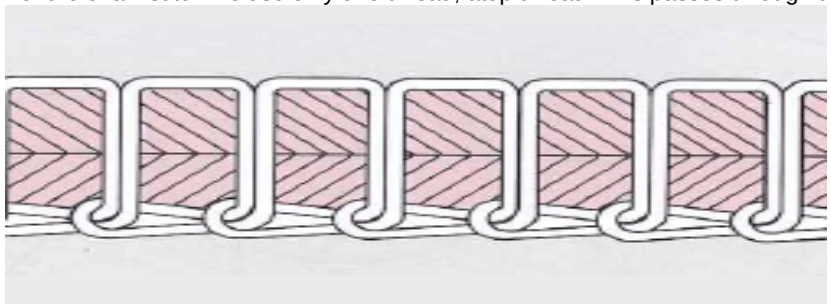

***Types of Stitches:***

1. Lock stitch
   For the lock stitch we use two threads, a top thread and a bottom thread

   By this type of stitch, the top thread passes through the eye of the needle and goes through the material.



2. Chain Stitch
   For the chain stitch we use only one thread, atop thread. This passes through the eye of the needle and goes through the material



   For more detail visit at:
   https://www.pegasus.co.jp/en/machine/reference/

Stitch per Inch:

In the stitching of leather garments normally 08 - 10 stitches are used in per inch while in gloves normally 10 - 13 stitches are used in per inch.

***Technical Package***

Tech pack (also known as a technical pack) is a comprehensive set of illustrations and documents containing every detail needed to produce a garment. It serves as the blueprint of the design. It enables the designer to communicate with the garment maker so they are able to translate what was once the sketch of an idea into reality. It contains very specific details that can include drawings, raw materials to use, measurements, brand standards and other special instructions.

A detailed tech pack will help the manufacturer to have a clear understanding about how to make the specific item of clothing. It ensures that the goods are made precisely as designed, in the correct quantity and time it is needed.

Why do you need a tech pack?

Time costs money and communication is always a challenge in dealing with offshore manufacturers from other countries. Differences in terminologies and practices can sometimes be interpreted in different ways by different people. It is frustrating to be going back and forth with minute details that can sometimes make or break designs. Using a tech pack as your holy grail during the development stage all the way through to production will save you significant amounts of time, money and misunderstandings along the way. It serves as a guide and a basis to both the brand and the maker to create products while being efficient and cost effective.

Making one design in several colourways in at least 4 size breakdowns costs a lot of money. You can always plan your course of action but sometimes things just don't go as planned. If somebody misses out on a certain instruction or makes mistakes on particular details it can be very expensive. In these cases somebody needs to be accountable. Sometimes the errors can be negligible. Other times it can be quite damaging and comes with a hefty price tag. Using a tech pack will help ensure that these kinds of mistakes, misinterpretations and omissions can be avoided. In case it happens, it is easier to know what went wrong and how the situation can be rectified.

Using a tech pack as a guiding tool to help you navigate the industry is the standard. It is efficient, cost effective and the easiest way to avoid unnecessary mistakes.

What are the tools used to create a tech pack?

Though it is a bit tedious, the tech pack can be created manually using just paper, pens, rulers and colouring materials to create the illustrations and detailed instructions of a particular design. The advantage of using freehand drawing is that you don't need to pay for expensive computer programs to be able to create it as long as the drawings and instructions are clear. That is the most important thing. The disadvantage is, you have to start every time from scratch.

What is more common and what is considered the industry standard is with the use of computer aided programs like Adobe Illustrator or CorelDRAW for the drawings and Microsoft Excel for the specs and worksheets. There are also templates that can be purchased online that

will help you organize the tech pack and make it easier for you not to miss out on any of the details needed. Templates are great, because you can simply reuse them with new projects and avoid having to recreate a tech pack from scratch.

Either way the most important thing is to remember that it has to include everything necessary for the manufacturer to be able to interpret the designer's idea to produce the garment.

A tech pack is made up of following three contents. A detailed description of these contents is given below:

1. Cover Sheet
2. Specification Sheet
3. Grading Sheet

A Specification Sheet (also called spec sheet) is the most difficult and comprehensive part of the tech pack. It is the page that explains everything regarding the product and makes sure the buyer gets the desired product with desired quality and aesthetics. This includes

- Flat sketch
- Colour specifications
- Fabric details
- Stitching and construction details
- Embroidery details
- Trim details
- Point of measurement (POM)
- Bill of Materials (BOM)
- Label details
- Folding and Packaging details
- Special treatment (if any)
- Comment box

Samples of technical package are provided on next pages. Sources and further reading material are available at;

- https://fittdesign.com/what-is-a-tech-pack
- http://www.mypracticalskills.com/store/fashion-apparel-tech-packs/

## MISSY-JUNIOR JACKETS TECH PACK

| SEASON | Fall 2009 | DATE | 4/25/09 | FABRICATION | Bengaline |
|---|---|---|---|---|---|
| STYLE # | JKT-1422 | DESIGNER | KR | FABRIC DESIGN | Black Solid |
| DESCRIPTION | Fitted Blazer with Notch Collar, Flap Pockets and Single Button Closure | | | | |

### SAMPLE REQUEST FORM

| MEASUREMENTS | M | 1ST FIT | APPRVD SPEC |
|---|---|---|---|
| BODY LENGTH FROM HPS | 25 1/2 | | |
| ACROSS SHOULDERS | 16 | | |
| ACROSS FRONT | 14 | | |
| ACROSS BACK | 14 1/2 | | |
| CHEST 1" BELOW ARMHOLE *** | 36 | | |
| WAIST 15 1/2" BLW HPS *** | 32 | | |
| | | | |
| BOTTOM SWEEP *** | 41 | | |
| SHOULDER DROP FROM HPS | 2 | | |
| SLEEVE LENGTH FROM CB | 33 1/2 | | |
| ARMHOLE CURVED *** | 20 1/4 | | |
| BICEP (1" BELOW ARMHOLE) *** | 14 | | |
| SLEEVE OPENING | 5 1/2 | | |
| | | | |
| NECK WIDTH (HPS TO HPS) | 6 1/2 | | |
| FRONT NECK DROP FROM HPS TO SEAM | 3 3/4 | | |
| FRONT NECK DROP FROM HPS TO 1ST BUTTON | 16 | | |
| BACK NECK DROP | 1/2 | | |
| COLLAR POINTS | 1 1/4 | | |
| LAPEL WIDTH (TO FOLD) | 3 | | |
| COLLAR LENGTH PT TO PT | 15 1/2 | | |
| COLLAR WIDTH AT CB | 2 1/4 | | |
| COLLAR STAND HEIGHT | 1 1/4 | | |
| | | | |
| POCKET PLCMNT FROM HPS | 18 | | |
| POCKET PLCMNT FROM CF | 3 1/2 | | |
| POCKET WIDTH W/O FLAP | 5 | | |
| POCKET LENGTH W/O FLAP | 1/4 | | |
| FLAP LENGTH | 2 | | |
| FLAP WIDTH | 5 | | |

### SKETCH

| | |
|---|---|
| HARDWARE & TRIM | 1 PC 4 HOLE PLASTIC DTM BODY BUTTON W/RIM 32L<br>6PVS 4 HOLE PLASTIC DTM BODY BUTTONS W/RIM 26L |
| COLORS | BLACK, SAND, WHITE, BLACK PINSTRIPE |

**COMMENTS:** *** TOTAL CIRCUMFERENCE MEASUREMENT

NOTE: GRADE SHEETS REMAIN HIDDEN UNTIL FINAL SPECS ARE APPROVED!
To unhide in Excel 2007/2010 (PC): In the Cells Group of the Home Tab, choose FORMAT> HIDE & UNHIDE> UNHIDE SHEET and select the desired GRADE sheet.
To unhide in older versions Excel 2002, 2003 (PC), 2004, 2008, 2011 (Mac): select FORMAT>SHEET>UNHIDE from the top menu and select desired GRADE sheet.

## MISSY-JUNIOR JACKETS TECH PACK

| SEASON | Fall 2009 | DATE | 4/25/09 | FABRICATION | Bengaline |
|---|---|---|---|---|---|
| STYLE | JKT-1422 | DESIGNER | KR | FABRIC DESIGN | Black Solid |
| DESCRIPTION | Fitted Blazer with Notch Collar, Flap Pockets and Single Button Closure | | | | |

### DETAILED SKETCH

## MISSY-JUNIOR JACKETS TECH PACK

| SEASON | 0 | DATE | 1/0/00 | FABRICATION | 0 |
|---|---|---|---|---|---|
| STYLE # | 0 | DESIGNER | 0 | FABRIC DESIGN | 0 |
| DESCRIPTION | 0 | | | | |

### GRADING

| MEASUREMENTS | XXS | XS | S | M | L | XL | XXL |
|---|---|---|---|---|---|---|---|
| BODY LENGTH FROM HPS | -1 1/2 | -1 | - 1/2 | 0 | 1 | 2 | 3 |
| ACROSS SHOULDERS | -1 1/2 | -1 | - 1/2 | 0 | 1 | 2 | 3 |
| ACROSS FRONT | -1 1/2 | -1 | - 1/2 | 0 | 1 | 2 | 3 |
| ACROSS BACK | -1 1/2 | -1 | - 1/2 | 0 | 1 | 2 | 3 |
| CHEST 1" BELOW ARMHOLE *** | -6 | -4 | -2 | 0 | 3 | 6 | 9 |
| WAIST XX" BLW HPS *** | -6 | -4 | -2 | 0 | 3 | 6 | 9 |
| HIP XX" BLW HPS TOTAL *** | -6 | -4 | -2 | 0 | 3 | 6 | 9 |
| BOTTOM SWEEP *** | -6 | -4 | -2 | 0 | 3 | 6 | 9 |
| SHOULDER DROP FROM HPS | - 3/4 | - 1/2 | - 1/4 | 0 | 1/4 | 1/2 | 3/4 |
| SLEEVE LENGTH FROM CB | -2 1/4 | -1 1/2 | - 3/4 | 0 | 1 | 2 | 3 |
| ARMHOLE CURVED *** | -3 | -2 | -1 | 0 | 1 1/2 | 3 | 4 1/2 |
| BICEP (1" BELOW ARMHOLE) *** | -1 1/2 | -1 | - 1/2 | 0 | 3/4 | 1 1/2 | 2 1/4 |
| SLEEVE OPENING | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 |
| CUFF HEIGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NECK WIDTH (HPS TO HPS) | -1 1/2 | -1 | - 1/2 | 0 | 3/4 | 1 1/2 | 2 1/4 |
| FRONT NECK DROP FROM HPS TO SEAM | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 |
| FRONT NECK DROP FROM HPS TO 1ST BUTTON | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 |
| BACK NECK DROP | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLLAR POINTS | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LAPEL WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLLAR LENGTH PT TO PT | -3 | -2 | -1 | 0 | 1/2 | 1 1/4 | 2 |
| COLLAR WIDTH AT CB | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLLAR STAND HEIGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FRONT PLACKET WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| POCKET PLCMNT FROM HPS | -1 1/2 | -1 | - 1/2 | 0 | 3/4 | 1 1/2 | 2 1/4 |
| POCKET PLCMNT FROM CF | - 3/4 | - 1/2 | - 1/4 | 0 | 1/4 | 1/2 | 3/4 |
| POCKET WIDTH W/O FLAP | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| POCKET LENGTH W/O FLAP | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 |
| FLAP WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FLAP LENGTH | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 |
| BELT WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BELT LENGTH | -6 | -4 | -2 | 0 | 3 | 6 | 9 |
| 0 | | | | 0 | | | |

*** TOTAL CIRCUMFERENCE MEASUREMENT

PRE-PRODUCTION COMMENTS

## MISSY-JUNIOR JACKETS TECH PACK

| SEASON | 0 | DATE | 1/0/00 | FABRICATION | 0 |
|---|---|---|---|---|---|
| STYLE # | 0 | DESIGNER | 0 | FABRIC DESIGN | 0 |
| DESCRIPTION | 0 | | | | |

### GRADING

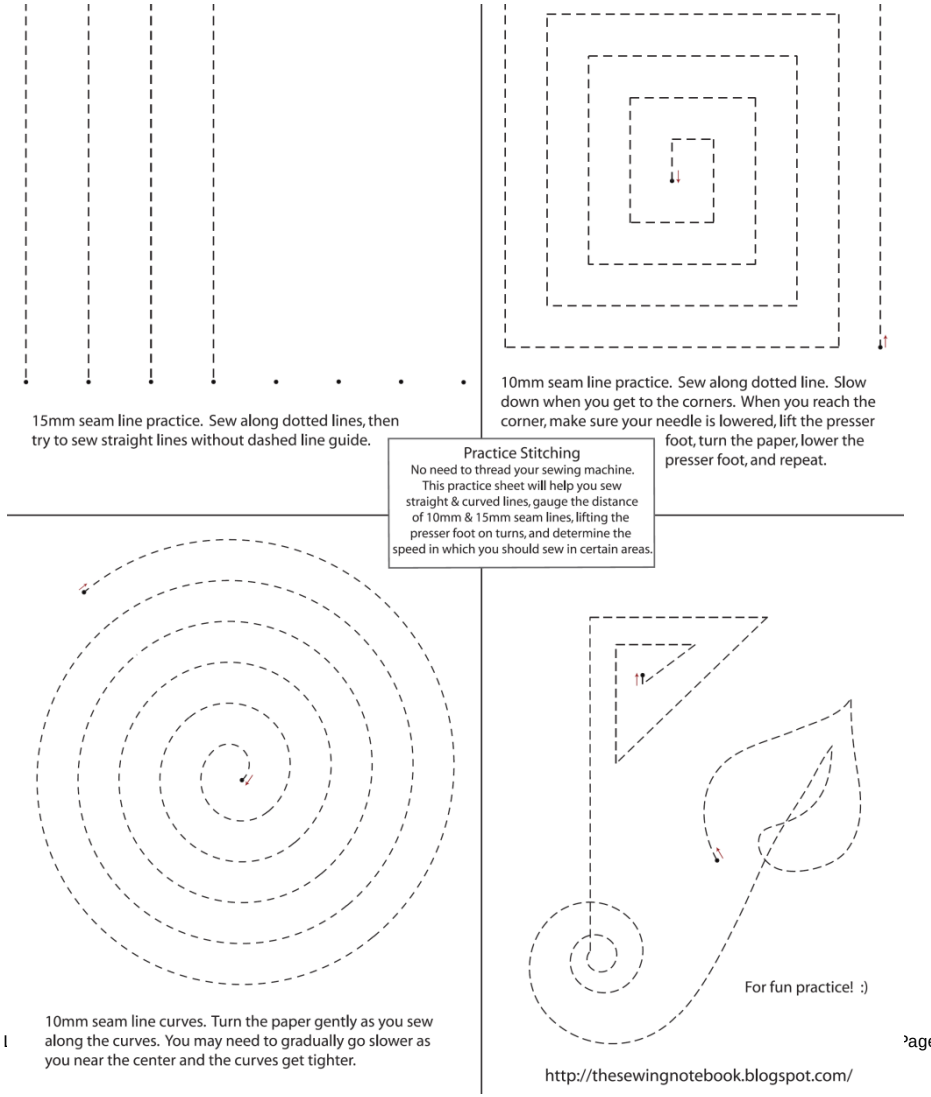
| MEASUREMENTS | 0 / 1 | 2 / 3 | 4 / 5 | 6 / 7 | 8 / 9 | 10 / 11 | 12 / 13 | 14 / 15 | 16 / 17 |
|---|---|---|---|---|---|---|---|---|---|
| BODY LENGTH FROM HPS | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 | 2 |
| ACROSS SHOULDERS | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 | 2 |
| ACROSS FRONT | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 | 2 |
| ACROSS BACK | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 1/2 | 1 | 1 1/2 | 2 |
| CHEST 1" BELOW ARMHOLE *** | -4 | -3 | -2 | -1 | 0 | 1 1/2 | 3 | 4 1/2 | 6 |
| WAIST XX" BLW HPS *** | -4 | -3 | -2 | -1 | 0 | 1 1/2 | 3 | 4 1/2 | 6 |
| HIP XX" BLW HPS TOTAL *** | -4 | -3 | -2 | -1 | 0 | 1 1/2 | 3 | 4 1/2 | 6 |
| BOTTOM SWEEP *** | -4 | -3 | -2 | -1 | 0 | 1 1/2 | 3 | 4 1/2 | 6 |
| SHOULDER DROP FROM HPS | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/8 | 1/4 | 3/8 | 1/2 |
| SLEEVE LENGTH FROM CB | -1 1/2 | -1 1/8 | - 3/4 | - 3/8 | 0 | 1/2 | 1 | 1 1/2 | 2 |
| ARMHOLE CURVED *** | -2 | -1 1/2 | -1 | - 1/2 | 0 | 3/4 | 1 1/2 | 2 1/4 | 3 |
| BICEP (1" BELOW ARMHOLE) *** | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 3/8 | 3/4 | 1 1/8 | 1 1/2 |
| SLEEVE OPENING | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/4 | 1/2 | 3/4 | 1 |
| CUFF HEIGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NECK WIDTH (HPS TO HPS) | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 3/8 | 3/4 | 1 1/8 | 1 1/2 |
| FRONT NECK DROP FROM HPS TO SEAM | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/4 | 1/2 | 3/4 | 1 |
| FRONT NECK DROP FROM HPS TO 1ST BUTTON | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/4 | 1/2 | 3/4 | 1 |
| BACK NECK DROP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLLAR POINTS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LAPEL WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLLAR LENGTH PT TO PT | -2 | -1 1/2 | -1 | - 1/2 | 0 | 1/4 | 1/2 | 3/4 | 1 |
| COLLAR WIDTH AT CB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLLAR STAND HEIGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FRONT PLACKET WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| POCKET PLCMNT FROM HPS | -1 | - 3/4 | - 1/2 | - 1/4 | 0 | 3/8 | 3/4 | 1 1/8 | 1 1/2 |
| POCKET PLCMNT FROM CF | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/8 | 1/4 | 3/8 | 1/2 |
| POCKET WIDTH W/O FLAP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| POCKET LENGTH W/O FLAP | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/4 | 1/2 | 3/4 | 1 |
| FLAP WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FLAP LENGTH | - 1/2 | - 3/8 | - 1/4 | - 1/8 | 0 | 1/4 | 1/2 | 3/4 | 1 |
| BELT WIDTH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BELT LENGTH | -4 | -3 | -2 | -1 | 0 | 1 1/2 | 3 | 4 1/2 | 6 |
| 0 | | | | | 0 | | | | |

*** TOTAL CIRCUMFERENCE MEASUREMENT

PRE-PRODUCTION COMMENTS

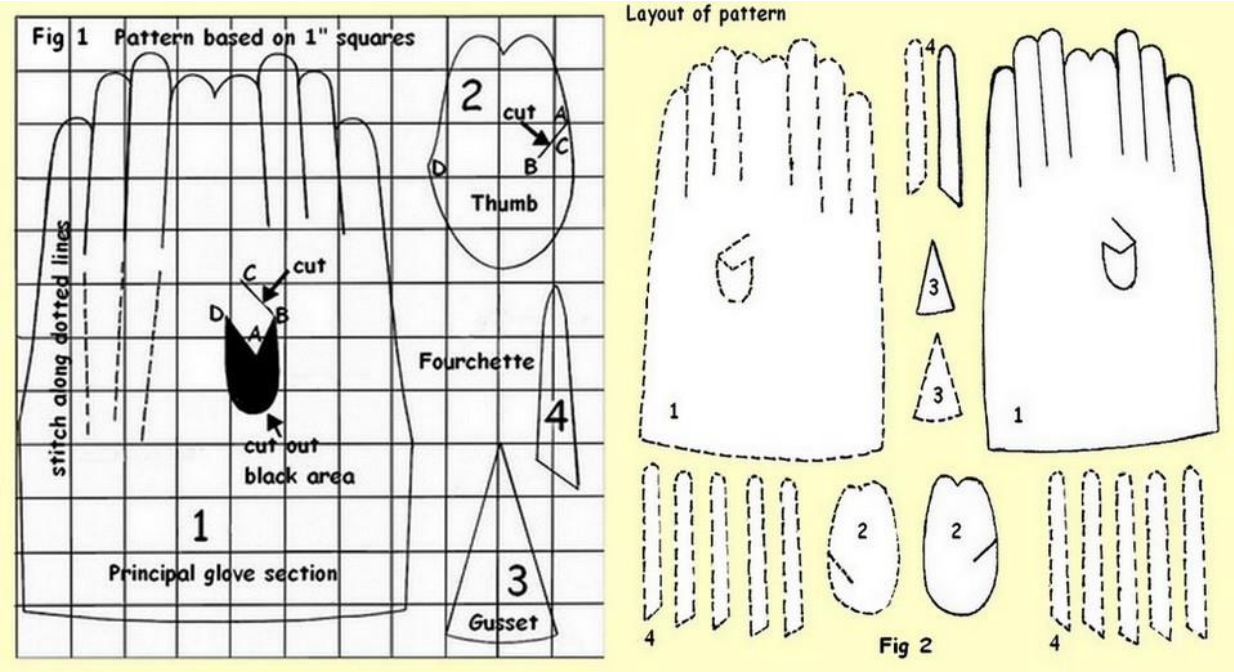
***Stitching practice sheets***

Practice stitching on paper sheets using following templates. Many such templates can be found on internet.



***Parts of Leather Products***

**Image source: http://www.kingsmerecrafts.info/page85.html.**



# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-5

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

## Module 5: Stitch Leather Garments

**Objective of the module:** The aim of this module is to qualify the students to produce different kind of leather garments and accessories by respecting professional requirements.

**Duration** 160 hours **Theory:** 32 hours **Practical:** 128 hours

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:** Prepare the workstation | **The student will be able to:**<br>Prepare the workstation for work operation (gather material, set the suitable needle and sewing thread, perform machine calibration)<br>Perceive the product information | Practice your skills in using methods and equipment to prepare the workstation for stitching.<br>Recap learnings in LU1 of Module-4 for cleaning, oiling and preparing stitching machine.<br>Understand reading technical files, samples, and sketches of leather garments and recall the process sequence of stitching leather garments learnt in Module-1 and Module-3.<br>Familiarize with panels of components of leather garments including front panel, back panel, sleeves, lining etc.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Various types of Stitching Machines with complete accessories like folder, Stitch Gauge;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Cylinder Arm stitching machine<br>• Flat Lock (Three Needle Machine)<br>• Bar tack Machine<br>• Zig Zag machine |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | Basic maintenance toolkit including Clipper, Scissor, Hammer, Oil Can, Screw Driver Set & Allen Key Set<br>Technical files, sketches and samples of various leather products<br>Various attachments of leather garments<br>Learners guide for Module-1, Module-2 and Module-4<br>Self-assessment questionnaire |
| **LU2:** Trace ready-shape pattern of garment components | **The student will be able to:**<br>Place ready-shape pattern on the already cut panel according to seam allowance required for the component<br>Trace pattern on the panel (for leather, adhesive and lining)<br>Bundle the panels according to size (for leather, adhesive and lining) | Practice your skills in using methods and equipment to trace patterns for stitching, in a real or realistic environment.<br>Recap the concepts learnt in Module-3 to ensure thorough understanding of the tasks at hand; especially following;<br>• Line of tightness and stretch-ability of leather skin/hide and synthetic<br>• Panels of various types of leather garments and products<br>• Process sequence for leather products manufacturing<br>• Seam allowances used for different types of leather and stitches<br>• Component placement with the help of tracing pattern | Ready-shape Pattern<br>Tracing Table with Lights<br>Cut panels of garment components<br>Technical file, sketch, instructions, and samples of various leather products<br>Leather and synthetic material<br>Learners guide for Module-3 |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | • Marker making<br>• Nesting/manipulation efficiency and know techniques of controlling cutting wastage<br>Thorough understanding of matching of leather components as per colour, tone, shade and other parameters<br>Make sure you observe occupational safety and health (OSH) during all activities. | |
| **LU3:** Fold different panels of leather garment | **The student will be able to:**<br>Apply fusing on specified areas of the panel<br>Apply adhesive to the designated area of panel in appropriate quantity<br>Fold panel as per tracing according to adhesive specifications<br>Press the folded area with a hammer homogeneously | Practice your skills in using methods and equipment to perform folding, in a real or realistic environment.<br>Recap the concepts learnt in Module-4 to ensure thorough understanding of the tasks at hand; especially following;<br>• Skiving methods and requirements for different materials<br>• Use of adhesives according to various materials<br>• Reinforcement materials and their applications<br>Make sure you observe occupational safety and health (OSH) during all activities. | Hammers (Wooden, Plastic, Rubber and Iron)<br>Reinforcement Material(Double Tape, Fusing, )<br>Brush to apply adhesive<br>Rubber sheet and Rexene sheet<br>Marble Slab<br>Binding Machine<br>Skiving machine, skiver<br>Scissor, Clipper |
| **LU4:** Prepare Front panel | **The student will be able to:**<br>Stitch the front panel as per sample or instructions<br>Stitch related small parts with front panel on specific traced area<br>Control the result of the sewing process according to quality | Construction of front panel, various components and attachments, and types of seams used on front panel.<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Recap the concepts learnt in Module-4 to ensure thorough understanding of the tasks at hand.<br>Make sure you observe occupational safety and health | Learners guide for Module-4<br>Samples of assembled and unassembled front panels of leather garments<br>Various types of Stitching Machines with complete accessories like folder, |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | standards and the sewing instruction<br>Bundle prepared front panels according to sizes / number marking | (OSH) during all activities. | Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Flat Lock (Three Needle Machine)<br>• Eyelet machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Cuttings of front panel<br>Technical files, sketches and samples of various leather products.<br>Assessment guide |
| **LU5**: Prepare Back panel | **The student will be able to:**<br>Stitch the back panel as per sample or instructions<br>Stitch related small parts with | Construction of back panel, various components and attachments (Belt, plates, foam padding, straps, and air vents etc.), and types of seams used on back panel.<br>Practice your skills in using methods and equipment to | Learners guide for Module-4<br>Samples of assembled and unassembled back panels |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | back panel on specific traced area<br>Control the result of the sewing process according to quality standards and the sewing instruction<br>Bundle prepared back panels according to sizes / number marking | perform stitching, in a real or realistic environment.<br>Recap the concepts learnt in Module-4 to ensure thorough understanding of the tasks at hand.<br>Make sure you observe occupational safety and health (OSH) during all activities. | of leather garments<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Flat Lock (Three Needle Machine)<br>• Eyelet machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Cuttings of back panel<br>Technical files, sketches and samples of various leather products.<br>Assessment guide |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU6:** Prepare sleeves | **The student will be able to:**<br>Stitch related small parts with sleeves on specific traced area<br>Stitch the sleeve as per product requirement<br>Control the result of the sewing process according to quality standards and the sewing instruction<br>Bundle prepared sleeves according to sizes / number marking | Construction of sleeves including;<br>• Flap Pocket, Zip Pocket, Logo Embroidery etc.<br>• Identification of upper and under sleeve<br>• Armhole and sleeve length accurately<br>• High point shoulder (Centre Point) of sleeve<br>• Centre back neck length of sleeve<br>• Different types of Cuff and their application<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Recap the concepts learnt in Module-4 to ensure thorough understanding of the tasks at hand.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Learners guide for Module-4<br>Samples of assembled and unassembled sleeves of leather garments<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Flat Lock (Three Needle Machine)<br>• Eyelet machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Cut panels of sleeves<br>Technical files, sketches |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | and samples of various leather products.<br>Assessment guide |
| **LU7**: Prepare lining | **The student will be able to:**<br>Stitch the lining panel as per sample or instructions<br>Stitch related small parts with lining panel on specific traced areas<br>Control the result of the sewing process according to quality standards and the sewing instruction<br>Attach required labels with lining at specific place | Purpose of lining and its uses in the different kinds of garment like in Sports, Fashion, Protective, motorbike apparel etc.<br>Different types of fabric used in the lining materials like fleece, polyester, thinsulate, wool, nomex, cherry, satin, cotton etc. and their uses.<br>Panels of lining used in front, back and sleeve panels<br>Construction of lining including placement of size/content label, customer logo, side logo Velcro, zip pocket, mobile pocket etc.<br>Difference between stitching leather and fabric.<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Learners guide for Module-4<br>Samples of assembled and unassembled linings of leather garments<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Flat Lock (Three Needle Machine)<br>• Eyelet machine<br>• Bar tack Machine |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | • Zig Zag machine<br>Cut panels of lining<br>Technical files, sketches and samples of various leather products.<br>Assessment guide |
| **LU8**: Assemble garment | **The student will be able to:**<br>Attach front and back panel as per sample or instructions<br>Attach both sleeves with arm holes<br>Attach collar/belt and/or other related small parts with the body on specific areas<br>Attach lining with the shell on specific areas<br>Attach accessories with the product according to design requirement<br>Control the result of the sewing process according to quality standards and the sewing instruction<br>Finalize the garment with closing stitches | Process sequence of final assembly of leather garments. Thorough understanding of methods and quality requirements of following;<br>• Side seam, shoulder seam and joining of collar<br>• Stitching different lining material in to the shell<br>• Joining sleeves with shell of the garment<br>• Piped seam<br>• Finalize garment by stitching zip, Velcro, Button, Button Hole and closing stitch<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Learners guide for Module-4<br>Samples of assembled and unassembled leather garments<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Button Attach Machine<br>• Button Stitch Machine<br>• Button Hole<br>• Flat Lock (Three |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | Needle Machine)<br>• Eyelet machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Cut panels of Leather garments<br>Technical files, sketches and samples of various leather products.<br>Assessment guide |
| **LU9**: Perform finishing operations on stitched components and garment | **The student will be able to:**<br>Trim extra threads and flash material from stitched components<br>Clean tracing lines from stitched components<br>Clean the stitched component for dust, oil and adhesive marks<br>Control the ready sewn leather garment according to the product design and quality requirements<br>Prepare and submit production report on prescribed format | Finishing requirements of leather garments including trimming and cleaning; recap concepts learnt in Module-4.<br>Quality requirements of leather garments.<br>Method of checking product quality using a checklist or product sample and preparing a quality check report.<br>Recall workplace organization, 5S and good housekeeping concepts from previous modules; perform housekeeping of your workstations after completing stitching and finishing operations.<br>Observing occupational safety and health (OSH) during all activities.<br>Prepare and submit work completion report. | Samples of leather garments<br>Quality check lists of various leather garments<br>Quality report template<br>Trimming tools e.g. Clipper, Scissors etc.<br>Measuring tape<br>Cleaning brush, cotton and cloth<br>Cleaning agent |

## Examples and illustrations

**LU1 Prepare the workstation**

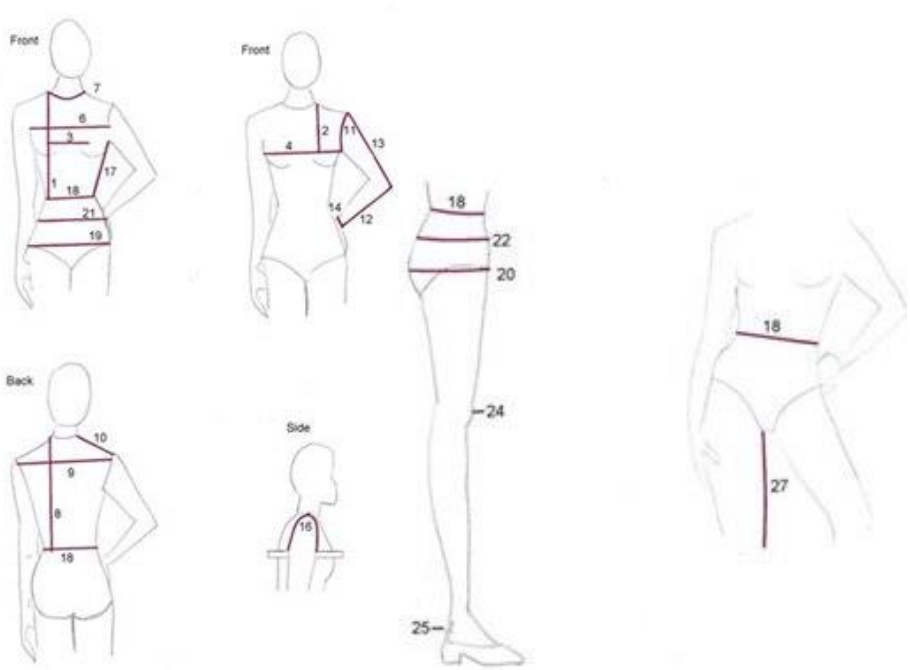
Refer to the Module-4 LU-1 for details.

**LU2 & LU3:**

This section includes learning material for following;

- Trace ready-shape pattern of garment components
- LU3: Fold different panels of leather garment

***Taking measurements***




| | |
|---|---|
| 1. FRONT WAIST LENGTH. | From the shoulder through the apex of the bust, to the waistline. |
| 2. BUST POINT. | From the shoulder at the base of the neck measured vertically to the apex of the bust. |
| 3. BUST SEPARATION. | The distance between both apexes in the bust. |

| | |
|---|---|
| 4. BUST CIRCUMFERENCE. | Measure with the measuring tape below the armpits all the way around the body one time making sure to keep the tape measure parallel to the floor and around the widest part of the bust. |
| 5. HALF BUST. | From one side at the bust height traveling through the apex to mid-center of the chest. |
| THORAX WIDTH. | Horizontal measurement (between the bust and the collar bone) the distance from one armpit to the other. |
| 7. NECK CIRCUMFERENCE. | One wrap of the measuring tape around the base of the neck. |
| 8. BACK LENGTH. | From the shoulder at the base of the neck measured vertically down the back to the waistline. |
| 9. BACK WIDTH. | From the end of one shoulder across to the end of the other. |
| 10. SHOULDER WIDTH. | Take measurement on top of shoulder from base of neck to the widest part of the shoulder. |
| 11. ARMHOLE. | One wrap around where the arm begins at the shoulder. Do not measure too snugly. |
| 12. SLEEVE LENGTH. | Arm slightly bent; measure from the shoulder through the elbow to the wrist. |
| 13. ELBOW. | From the shoulder to the elbow. |
| 14. WRIST. | (Measure snugly) One wrap around the wrist bone. |
| 15. FIST. | One wrap around a clenched fist, over the knuckles. (To take into account space needed to get hand through finished sleeve.) |
| 16. SHOULDER CUP. | Place a ruler horizontally under the armpit, measure from the ruler, over the shoulder to the ruler on the other side. (Take this measurement slightly loose.) |
| 17. SIDE LENGTH. | Measure along the side, the distance from the armpit to the waistline. |
| 18. WAIST. | One wrap of the tape measure around the waist. |
| 19. SECOND HIP. | One complete wrap with the tape measure around the widest part of the hips (at approximately where the femur starts) and rear end. |
| 20. HEIGHT OF SECOND HIP. | Measure along the side of the hip, from the waist to the second hip. |
| 21. FIRST HIP. | Find the point between the waist and the second hip; (approximately 10 cm or 4 inches down from the waist) Measure the circumference of that point with the tape measure. |
| 22. HEIGHT OF FIRST HIP. | Along the side of the hip, from the waist to the widest part of the first hip. |
| 23. SKIRT LENGTH. | Measure down the side from the waistline to the desired length of the skirt. |
| 24. KNEE. | The same as 23 but to the knee. |
| 25. ANKLE. | The same as 23 but to the ankle. |
| 26. OUTERSEAM (for pants). | The same as 23 but to the desired pant length, using the shoes that will be used when wearing the final garment. |
| 27. INSEAM (for pants). | Measure from the desired length to the crotch along the inside of the leg. |
| 28. CROTCH. | From the front waistline, through the legs to the back waistline. |
| 29. FRONT CROTCH. | Take the outer seam measurement and subtract the inseam measurement. This measurement can also be taken by sitting on a hard chair and placing a ruler on the side of your body, measuring from the waist line to the surface of the seat. |

Read more about this at

- http://isntthatsew.org/measuring-body-pattern-drafting/
- https://sewing.wonderhowto.com/how-to/take-your-measurements-0120880/

For further details on tracing the patterns on leather, please refer to the Module-3.

**LU-4 to LU8**

This section includes learning material for following learning units;

- LU4: Prepare Front panel
- LU5: Prepare Back panel
- LU6: Prepare sleeves
- LU7: Prepare lining
- LU8: Assemble garment

| | |
|---|---|
|  | Jacket: Sewing the hem of the jacket and connecting the lining to it.<br>https://youtu.be/7J69B8XYDhQ |
|  | Making Leather Jacket<br>https://youtu.be/muWEBgJZTlQ |

**LU9: Perform finishing operations on stitched components and garment**

***Checking and finishing after stitching***

**Source: Making of Leather Garments by PLGMEA and epb, page 37-38**

## اسٹیچنگ کے بعد چیکنگ:

۱۔ انچارج یا پروڈکشن مینیجر سے سیمپل کو اچھی طرح سمجھ لیں اور انچارج سے اسٹیچنگ انسٹرکشن اور میجرمنٹ انسٹرکشن لیں۔

۲۔ تیار شدہ گارمنٹس کو چیک کرتے وقت درج ذیل چیزوں کا خاص خیال رکھیں۔

- اسٹیچنگ سیدھی اور سیمپل کے مطابق صاف ستھری ہوں۔
- کوئی پینل اسٹیچنگ کے دوران سلائی میں دبا ہوا ہو تو اسے تبدیل کروائیں اور اسٹچر کی DEDUCTION بنائیں۔
- کٹنگ فالٹ تو نہیں ہے۔ پینل چھوٹے بڑے تو نہیں ہیں۔
- تمام اشیاء آرڈر شیٹ یا پارٹی سیمپل یا کاونٹر سیمپل کے مطابق لگی ہوئی ہیں۔
- آلٹر آنے کی صورت میں کارڈ کے پیچھے لکھ کر فوری آلٹر کروالیں۔ دوسرے دن پر نہ چھوڑیں۔

۳۔ چیکنگ کے نتیجے کا اندراج جاب کارڈ پر کریں۔

۴۔ جاب کارڈ کے خانے میں پاس ہونے کی صورت میں صحیح اور فیل ہونے کی صورت میں غلط کا نشان لگائیں اور جاب کارڈ کے پیچھے اس نقص کی تفصیل لکھیں۔

۵۔ چیکر جتنی دفعہ بھی چیک کرے اس عمل کو دہرائے اور جب تک گارمنٹ بالکل ٹھیک نہ ہو جائے اسے فنشنگ میں نہ بھجوائے۔

۶۔ نقص والے گارمنٹس علیحدہ رکھیں اور نقص کی صورت ایسی ہے کہ وہ شپمنٹ کے قابل نہیں ہے تو اسے REJECT کا ٹیگ لگائیں اور NCR بنائیں۔

۷۔ ہر نئے ماڈل کے شروع کے پانچ پیس ہر سائز میں بنائیں اور فائنل کرنے کے بعد ان کو چیف کوالٹی کنٹرولر سے چیک کروالیں تا کہ اطمینان ہو جائے کہ پیس ہر زاویہ یعنی میجرمنٹ، اور سلائی کے لحاظ سے تسلی بخش ہیں۔ اور اگر ان میں کوئی فالٹ ہو تو اس فالٹ کو دور کر کے پھر چیف کوالٹی کنٹرولر سے پاس کروائیں۔

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-6

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

## Module 6: Stitch leather gloves

**Objective of the module:** The aim of this module is to enable the student to produce gloves according to professional standards.

**Duration** 160 hours **Theory:** 32 hours **Practical:** 128 hours

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:** Prepare the workstation | **The student will be able to:**<br>Prepare the sewing machine according to the sewing operation (set the suitable needle and sewing thread, perform machine calibration)<br>Perceive the product information | Practice your skills in using methods and equipment to prepare the workstation for stitching.<br>Recap learnings in LU1 of Module-4 and Module-5 for cleaning, oiling and preparing stitching machine.<br>Understand reading technical files, samples, and sketches of leather gloves and recall the process sequence of stitching leather gloves learnt in Module-1 and Module-3.<br>Familiarize with panels of components of leather gloves including front panel, back panel, thumb, fourchette, lining etc.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Various types of Stitching Machines with complete accessories like folder, Stitch Gauge;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Cylinder Arm Machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Basic maintenance toolkit including Clipper, Scissor, Hammer, Oil Can, Screw Driver Set & Allen Key Set<br>Technical files, sketches and samples of various leather gloves |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | Various attachments of leather gloves<br>Learners guide for Module-4<br>Self-assessment questionnaire |
| **LU2:** Prepare front and back panels of Glove | **The student will be able to:**<br>Attach small parts (Finger Tips, Logo, Reflective Piping, patches etc.) with Back and Front Panels at specified areas<br>Stitch Thumb with Front panel<br>Stitch Elastic on Back or Front panel of the gloves with appropriate machine<br>Stitch Fourchette with the Back or Front panel<br>Stitch Cuff / Velcro with the Back or Front panel<br>Control the result of the sewing process according to quality standards and the sewing instruction | Types of leather gloves, their uses and construction.<br>Construction of front and back panels, various components and attachments, and types of seams used in both panels.<br>Various glove materials like thread types, zip, Velcro, logos, conductive fabric/thread, Leather, Protective components (knuckle, air vent, gels, foam padding) buttons and other attachments.<br>Panels of glove components used in various gloves types.<br>Glove stitching parameters like Stitch Per Inch (SPI), measurements etc.<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Recap the concepts learnt in Module-4 to ensure you have thorough understanding of the tasks at hand.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Learners guide for Module-4<br>Samples of assembled and unassembled front and back panels of leather gloves<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Cylinder Arm Machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Cuttings of front and back |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | panels of gloves<br>Technical files, sketches and samples of various leather gloves.<br>Assessment guide |
| **LU3**: Prepare lining of gloves | **The student will be able to:**<br>Stitch glove lining as per sample or instructions<br>Attach required labels with lining at specified areas<br>Control the result of the sewing process according to quality standards and the sewing instruction | Purpose of lining and its uses in the different kinds of gloves like in sports, safety, fashion and protective gear etc.<br>Different types of fabric used in the lining materials like fleece, polyester, thinsulate, wool, nomex, Kevlar, hypora etc. and their uses<br>Panels of lining used in front, and back panels<br>Construction of lining including placement of size/content label and logos etc.<br>Difference between stitching leather and fabric.<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Learners guide for Module-4<br>Samples of assembled and unassembled linings of leather gloves<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Cylinder Arm Machine<br>• Bar tack Machine<br>• Zig Zag machine<br>Cut panels of lining<br>Technical files, sketches |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | and samples of various leather gloves.<br>Assessment guide |
| **LU4**: Assemble glove | **The student will be able to:**<br>Assemble back and front panel of the glove as per sample or instructions<br>Attach stitched lining with the shell<br>Attach accessories with the product according to design requirements<br>Attach piping (cuff binding, self-folding etc.) with the glove<br>Finalize the glove with closing stitches<br>Control the result of the sewing process according to quality standards and the sewing instruction | Process sequence of final assembly of leather gloves. Thorough understanding of methods and quality requirements of following;<br>• Use of finger shape pipe & stick to take right side out for the final closing process<br>• Finish gloves by completing the final procedures like piped seam, binding, Self-Folding attachment of remaining accessories and final lock stitches<br>Practice your skills in using methods and equipment to perform stitching, in a real or realistic environment.<br>Make sure you observe occupational safety and health (OSH) during all activities. | Learners guide for Module-4<br>Samples of assembled and unassembled leather gloves<br>Various types of Stitching Machines with complete accessories like folder, Stitch Gauge, Machine Light/Needle Light;<br>• Single Needle Flatbed & Double Needle)<br>• Post Bed (Single & Double Needle)<br>• Overlock Machine<br>• Cylinder Arm Machine<br>• Bar tack Machine<br>• Zig Zag machine<br>• Bar tack Machine<br>Cut panels of Leather gloves<br>Technical files, sketches and samples of various |

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| | | | leather gloves.<br>Assessment guide |
| **LU5**: Perform finishing operations on stitched gloves | **The student will be able to:**<br>Trim extra threads and flash material from stitched components<br>Clean tracing lines from stitched components<br>Clean the stitched component for dust, oil and adhesive marks<br>Adjust glove shape using appropriate shaping tools<br>Control the result of the sewing process according to quality standards and the sewing instruction Prepare and submit production report on prescribed format | Finishing requirements of leather gloves including trimming and cleaning; recap concepts learnt in Module-4.<br>Quality requirements of leather gloves.<br>Method of checking product quality using a checklist or product sample and preparing a quality check report.<br>Recall workplace organization, 5S and good housekeeping concepts from previous modules; perform housekeeping of your workstations after completing stitching and finishing operations.<br>Observing occupational safety and health (OSH) during all activities.<br>Prepare and submit work completion report. | Samples of leather gloves<br>Quality check lists of various leather gloves<br>Quality report template<br>Trimming tools e.g. clipper, scissors etc.<br>Glove shaping tools<br>Iron base and Iron hand of different sizes<br>Measuring tape<br>Cleaning brush, cotton and cloth<br>Cleaning agent |

## Examples and illustrations

### LU-1: Prepare the workstation

Please refer to Module-4 for detailed instructions on preparing workstation.

***Glove Nomenclature***

There are the following types of gloves:

- Industrial Gloves
- Sports Gloves
- Fashion Gloves
- Working Gloves

**Material used in glove**

- Velcro
- Zip
- Lining
- Logo
- Thread
- Buckle
- Air vent
- Gels
- Foam  padding
- Button
- Piping
- Protective parts
- Filling material
- Elastic
- Laces

**Types of thumbs**

- Bolton thumb
- Straight thumb
- Keystone thumb
- Round thumb
- Wind thumb

**Types of Fourchette**

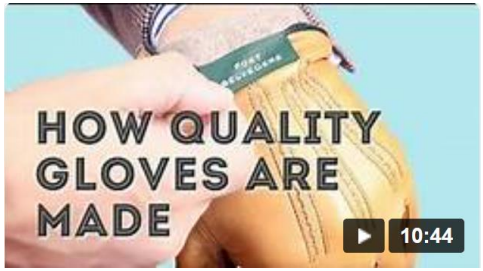
- Straight Fourchette
- Clutch Fourchette
- Curve Fourchette
- Butterfly FourchetteTap Fourchette

**LU-2 to LU-5**

This section includes learning material for following learning units;

- LU2: Prepare front and back panels of Glove
- LU3: Prepare lining of gloves
- LU4: Assemble glove
- LU5: Perform finishing operations on stitched gloves

| | |
|---|---|
|  | Process of making leather glove<br>https://youtu.be/NcWqoFHIDdY |
|  | How to make leather gloves by Evelyn Toomistu<br>https://www.youtube.com/watch?v=U6wLLjbD9sE |

| | |
|---|---|
|  | How High-End Leather Gloves Are Made - Handmade Quality Men's Dress Gloves from Fort Belvedere<br>https://binged.it/2ZeLdo2 |
|  | Ironing/forming machine for leather work glove<br>https://binged.it/2ZbVtNV |

For further details on finishing the stitching work, please refer to Module-5, LU-9.

# LEATHER PRODUCTS DEVELOPMENT TECHNICIAN


Module-7

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - October, 2019

## Module 7: Perform Finishing Operations on Leather Products

**Objective of the module:** The aim of this module is to qualify the student in performing finishing operations on all kinds of leather products by applying quality and occupational standards.

**Duration** 60 hours **Theory:** 17 hours **Practical:** 43 hours

| Learning Unit | Learning Outcomes | Learning Elements | Materials Required |
|---|---|---|---|
| **LU1:** Inspect the stitched product | **The student will be able to:**<br>Clean the product for dust and stains<br>Inspect the product for all quality requirements as per product design<br>Mark all defects / noncompliance areas on the product with prescribed tools<br>Prepare inspection report on the prescribed format | Quality requirements of leather garments and gloves; recap following concepts learnt in Module-5 and Module-6;<br>• Basic manufacturing process of leather products<br>• Basic techniques for spew threads by clipper or through burning<br>• Methods of cleaning the stitched product for marking lines, oil stain, adhesive stain etc.<br>• Defects like stitching defects, damaged parts, puckering of leather etc.<br>• Methods of marking defects through chalk, paper tape etc.<br>• Understanding technical files, sketches and master samples<br>Contents of an inspection checklist for gloves and garments.<br>Contents of a basic quality report and reporting hierarchy. | Samples of defective leather garments and gloves<br>Checklists, technical files, sketches and master samples of leather garments and gloves<br>Adhesive remover<br>Thread burner, clipper, scissors<br>Measurement tape<br>Chalk, masking (paper) tape, marking pen<br>Formats of quality inspection checklists and inspection report<br>Leather garments and gloves of various types for inspection |
| **LU2:** Perform measurement control | **The student will be able to:**<br>Control the measurement of the leather product according to the measurement chart<br>Check the product for required | Recap following concepts;<br>• Basic measuring units like, mm, cm inches etc.<br>• Understanding technical sheets<br>• Inspection of garments and gloves and making inspection report | Size Charts<br>Measuring Tape<br>Scale 12 Inch & 36 Inches<br>Formats of Inspection Sheet & Technical Sheet |

| | | | |
|---|---|---|---|
| | accessories and attachments<br>Prepare inspection reports on the prescribed format | Various sizing systems used for leather garments and gloves (e.g. UK, European, and USA etc.)<br>Measurement charts used for various leather products and their differences.<br>Checking measurements of various types of leather garments and gloves and filling the measurement control sheet. | Leather garments and gloves of various types for inspection |
| **LU3:** Perform surface finishing operations | **The student will be able to:**<br>Adjust shape of gloves using appropriate equipment<br>Apply appropriate chemicals for surface treatment of leather product as per fashion style<br>Apply wax on leather product as per surface shine requirement | Finishing requirements of leather garments and gloves of various types.<br>Recap methods of shaping and ironing leather gloves learnt in the Module-6.<br>Application of dyes manually as well as by spraying method. Usage of spray gun; quality requirements of dye application.<br>Purpose and usage of pigments/chemicals for the finishing dyes e.g. wax, Filler (creams), lacquer, binder etc.; quality requirements of pigment/chemical application.<br>Hazards and risks of surface treatment chemicals. | Samples of finished leather garments and gloves<br>Technical files, sketches and master samples of leather garments and gloves<br>Leather garments and gloves of various types for finishing<br>Spirit Lamp<br>Spray booth and gun<br>Buffing machine<br>Thread cutter<br>Sponge<br>Dyes<br>Wax, crayons<br>Creams, brushes, lacquer<br>PPEs |
| **LU4:** Pack the final product | **The student will be able to:**<br>Apply tags and labels as per company or customer | Methods and techniques of packing various types of leather garments and gloves. Packing requirements for shipment and different export markets including tags, | Batches of finished leather garments and gloves<br>Measuring tape |

| | | | |
|---|---|---|---|
| | requirements<br>Pack the product as per shipment and customer requirements<br>Apply labels (bar code, identification etc.) on the package as per shipment and customer requirements<br>Prepare packing report on the prescribed format | labels, packing material, insulations, stacking requirements etc.<br>Usage of various tagging tools e.g. Tag Gun, Stapler, Marking with Market, Bar Code Sticker, Hang Tag, Stamping, Tapping with branding, RFID Stickers etc.<br>Structure of the products and precautionary measures to maintain shape of the products during shipping/storage.<br>Contents of a basic packing report.<br>Working in teams to pack various types of leather garments and gloves and stack the packages in warehouse.<br>Hazards and risks of lifting heavy objects. | Cutter<br>Carton strapping tape and Tape roller<br>Stapler<br>Bar code printer<br>Bar code scanner<br>Carton strapping machine and strapping strip<br>Weighing scale<br>Packing instruction sheet<br>Tag gun<br>Fork lifter<br>Cartons and required packing material |

**Examples and illustrations**

**LU1: Inspect the stitched product**

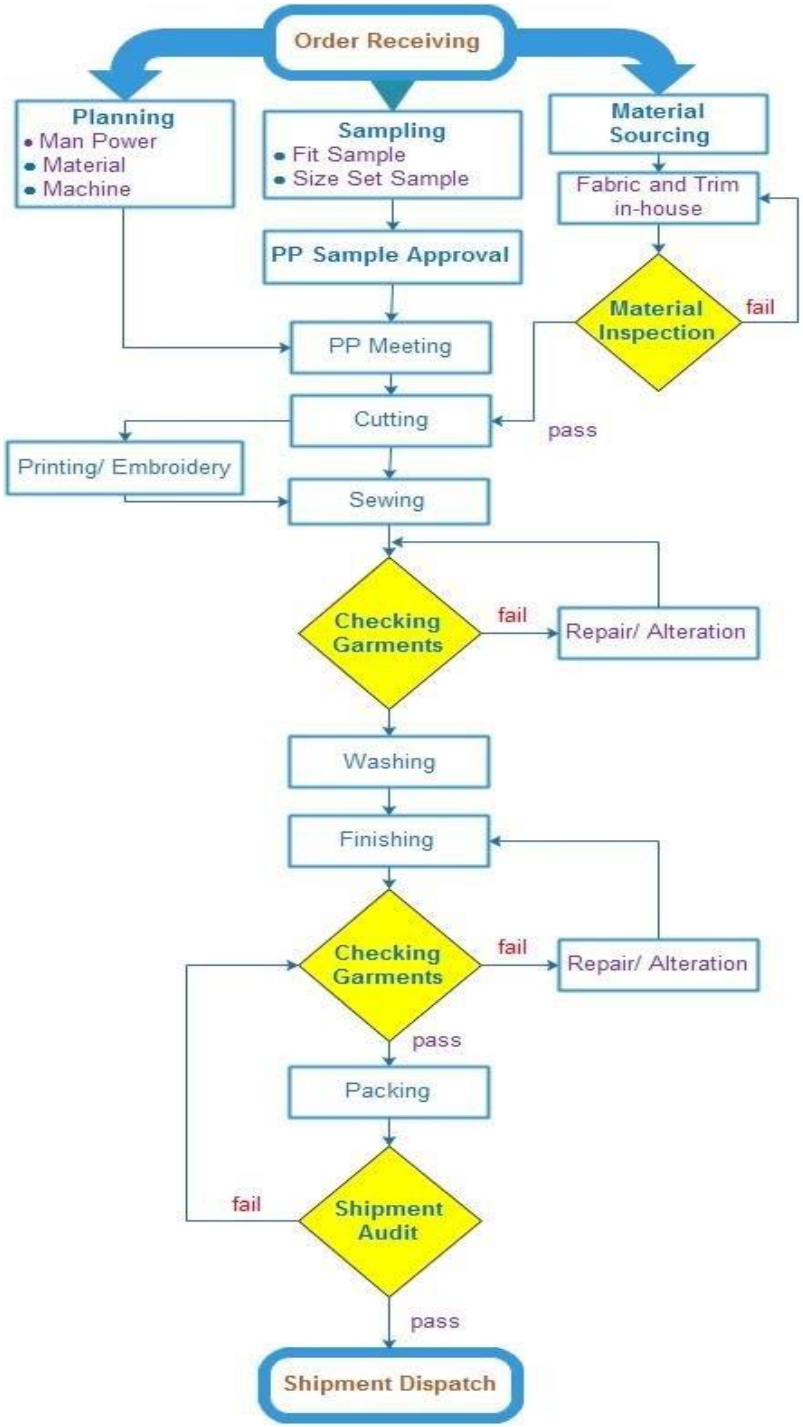
| | |
|---|---|
|  | Measuring glove sizes<br>https://youtu.be/fbECaH26IXg |

***Defects in leather products***

- Pin hole
- Butcher cut
- Loose leather
- Broken stitches
- Skipped stitches
- Missing stitches
- Untrimmed threads
- Dimensions out of tolerance
- Irregular seams
- Incorrect stitches per inch

For more detail please visit

https://www.intouch-quality.com/blog/top-6-most-common-garment-defects


Order Receiving
Planning
• Man Power
• Material
• Machine
Sampling
• Fit Sample
• Size Set Sample
Material Sourcing
Fabric and Trim in-house
PP Sample Approval
Material Inspection
fail
PP Meeting
Cutting
pass
Printing/ Embroidery
Sewing
Checking Garments
fail
Repair/ Alteration
Washing
Finishing
Checking Garments
fail
Repair/ Alteration
pass
Packing
Shipment Audit
fail
pass
Shipment Dispatch

## LU2: Perform measurement control

***Measurement Charts***

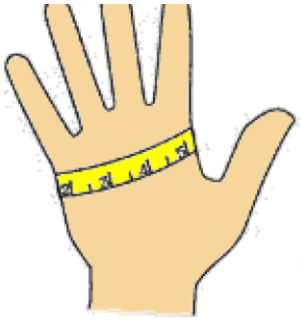
**Image source: http://www.glove.org/Modern/glovemeasure.php**

| | |
|---|---|
| | same way the manufacturer does. Use the table at the right to translate between "letter sizes" and "number sizes". |

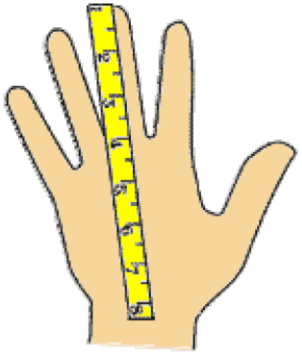
| **Sizes for UNISEX Gloves and Mittens** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| - | XXS | XS | S | M | L | XL | XXL | XXXL |
| Circumference of the Hand in Inches | 6.5 | 7 | 7.5 | 8.5 | 9 | 9.5 | 10 | 11 |
| - | | | | | | | | |
| **Sizes for WOMEN'S Gloves and Mittens** | | | | | | | | |
| - | XXS | XS | S | M | L | XL | XXL | XXXL |
| Circumference of the Hand in Inches | - | 6 | 6.5 | 7 | 7.5 | 8 | - | - |
| - | | | | | | | | |
| **Sizes for JUNIOR Gloves and Mittens** | | | | | | | | |
| - | XXS | XS | S | M | L | XL | XXL | XXXL |
| Circumference of the Hand in Inches | - | 4 | 4.5 | 5 | 5.5 | 6 | 6.5 | - |
| - | | | | | | | | |
| **Sizes for KIDS Gloves and Mittens** | | | | | | | | |
| - | XXS | XS | S | M | L | XL | XXL | XXXL |
| Age (Approx.) | 6M - 1Y | 1-2 | 2-3 | 3-4 | 4-5 | 5-6 | - | - |
| - | | | | | | | | |
| **MEN'S SIZES** | | | | | | | | |
| - | XXS | XS | S | M | L | XL | XXL | XXXL |
| Circumference of the Hand in | - | 7 | 7 ½ - 8 | 8 ½ - 9 | 9 ½ - 10 | 10 ½ - 11 | 11 ½ - 12 | - |
| cm | - | 18 | 20 | 23 | 25 | 28 | 30 | - |



Image source: http://www.glove.org/Modern/glovemeasure.php



B) measure from the tip of the middle finger to the base of the hand



C) Use the LARGEST of these two measurements for the correct size glove

D) If you are RIGHT handed, take measurements from your RIGHT hand

F) If you are LEFT handed, take measurements from your LEFT hand

G) The number of inches measured equals the size of the glove
(example: A 7" measurement equals a size 7 glove)

Image source: https://www.usleatherjackets.com/size-table

## Fashion Pants (Men)

| Men Fashion Pants [ SIZE CHART ] | | | |
|---|---|---|---|
| Size Chart | Waist (Inch) | Thigh (Inch) | Inside Leg (Inch) |
| XS | 30 | 23 | 29 |
| S | 32 | 23 | 30 |
| M | 34 | 24 | 31 |
| L | 36 | 25 | 32 |
| XL | 38 | 26 | 32 |
| 2XL | 40 | 27 | 33 |
| 3XL | 42 | 28 - 29 | 33 |
| 4XL | 44 | 29 - 30 | 33 |

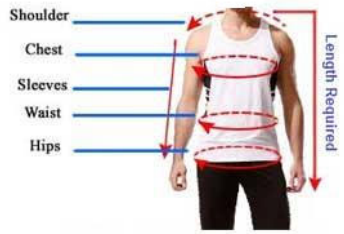
## Biker Chaps (Unisex)

| Chaps [ SIZE CHART ] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | XS | S | M | L | XL | 2XL | 3XL | 4XL | 5XL |
| Thigh | 20 | 21 | 22 | 23 | 25 | 26 | 27 | 28 | 29 / 30 |

**Image source: https://www.usleatherjackets.com/size-table**

## Fashion Leather Jackets (Men) SIZE CHART

| Size | Suitable for Chest | Chest | Waist | Sleeve | Shoulder | Length |
|---|---|---|---|---|---|---|
| XXS | 32 - 33 | 36 | 33 | 24 | 17 | 24 |
| XS | 34 - 35 | 38 | 35 | 25 | 17.5 | 25 |
| S | 36 - 37 | 40 | 37 | 25.5 | 18 | 25.5 |
| M | 38 - 39 | 42 | 39 | 26 | 18.5 | 26 |
| L | 40 - 41 | 44 | 41 | 26.5 | 19 | 26.5 |
| XL | 42 - 43 | 46 | 43 | 26.5 | 19.5 | 26.5 |
| 2XL | 44 - 45 | 48 | 45 | 27 | 20 | 27 |
| 3XL | 46 - 47 | 50 | 46 | 27 | 20.5 | 27 |




## Fashion Leather Jackets (Ladies) SIZE CHART

| Size | Suitable for Chest | Bust | Waist | Hip | Sleeve | Shoulder |
|---|---|---|---|---|---|---|
| 6 / XS | 27 - 28 | 31 | 26 | 32 | 23.5 | 14.5 |
| 8 / S | 29 - 30 | 33 | 28 | 34 | 24 | 15 |
| 10 / M | 31 - 32 | 35 | 30 | 36 | 24.5 | 15.5 |
| 12 / L | 33 - 34 | 37 | 32 | 38 | 25 | 16 |
| 14 / XL | 35 - 36 | 39 | 34 | 40 | 25.5 | 16.5 |
| 16 / 2XL | 37 - 38 | 41 | 36 | 42 | 26 | 17 |
| 18 / 3XL | 39 - 40 | 43 | 38 | 44 | 26.5 | 17.5 |

**Image source: https://www.usleatherjackets.com/size-table**

## Motorcycle Leather Jackets / Suits (Men) SIZE CHART

| | JACKET | | | TROUSER | |
|---|---|---|---|---|---|
| Size | Suitable for Chest | Chest | Sleeve | Waist | Inside Leg |
| XS | 34 - 35 | 40 | 24 | 30 | 29 |
| S | 36 - 37 | 42 | 24.5 | 32 | 30 |
| M | 38 - 39 | 44 | 25 | 34 | 31 |
| L | 40 - 41 | 46 | 25.5 | 36 | 32 |
| XL | 42 - 43 | 48 | 26 | 38 | 32 |
| 2XL | 44 - 45 | 50 | 26.5 | 40 | 33 |
| 3XL | 46 - 47 | 52 | 27 | 42 | 33 |
| 4XL | 48 - 49 | 54 | 27 | 44 | 33 |

## Motorcycle Leather Jackets / Suits (Ladies) SIZE CHART

| | JACKET | | | TROUSER | |
|---|---|---|---|---|---|
| Size | Suitable for Chest | Chest | Sleeve | Waist | Inside Leg |
| XS | 33 - 34 | 38-39 | 22.5 | 30 | 29 |
| S | 35 - 36 | 41 | 23 | 32 | 30 |
| M | 37 - 38 | 43 | 23.5 | 34 | 31 |
| L | 39 - 40 | 45 | 24 | 36 | 32 |
| XL | 41 - 42 | 47 | 24.5 | 38 | 32 |
| 2XL | 43 - 44 | 49 | 25 | 40 | 33 |
| 3XL | 45 - 46 | 51 | 25.5 | 42 | 33 |
| 4XL | 47 - 48 | 53 | 26 | 44 | 33 |


Read more about measurement charts at following links;

- https://www.ebay.co.uk/gds/Size-conversion-chart-for-US-UK-EUROPEAN-clothing-shoes-/10000000002181633/g.html
- https://www.leatherglovesonline.com/np/sizing.htm
- http://www.sizechart.com/clothing/women/european/index.html
- http://www.sizechart.com/mens/jacket/index.html

**LU3: Perform surface finishing operations**

Source: https://munendrafddi2.blogspot.com/2014/12/finishing-of-leather.html

Finishing Of Leather-:

Finishing of leather is very important as for as the final appearance and surface properties are concerned. This appearance deals with the art of improving the quality of the leather(crust) so as to make it suitable for the manufacture of footwear or other leather goods.

Objective of Finishing-:

i. To provide surface coating so as to protect the leather from damage due to rubbing and scratching.
ii. To give level appearance of colour.
iii. To give suitable shade as per the fashion demands.
iv. To retain its properties during the all shoe making operations and could be easily dressed to cover up the machine cuts and abrasions.

Properties of Ideal Finishing Film-:

i. Protective coating
ii. Resistant to heat, cold and moisture.
iii. Should not crack on being extended or flexed.
iv. Should be fast to stain and light.
v. Should be easily cleaned and polished.
vi. Durability against rubbing on dry and wet leather.
vii. High adhesion.
viii. Permeability to water vapor and air, ensuring the hygienic properties of leather.

Properties of leather before finishing-:

Before finishing, the leather should be sorted out to examine their nature in order that correct formulation of leather finish, the application method and the drying conditions are carefully determined.

The desirable characteristics of leather prior to finishing operations are---

- The leather should have a flat, smooth grain with a fine grain, tight flanks and even substance.
- The grain surface should not be excessively greasy. Greasy grains will cause inadequate finish, poor coverage and a streaky appearance.
- The leather meant for corrected grain finish should have a uniform buffed surface.

- The leather should not be too absorptive
- The leather must be well laid out to facilitate brushing and spraying operations.

Impregnation of grain surface of the leather-:

In finishing, it is necessary to fill the grain surface of leather by surface impregnation which improve the quality of the finished leather. The impregnation agent penetrate in grain layer, tighten it, in addition to offering the following advantages to the subsequent finish coats

(i)Due to the presence of the impregnating agent in the grain layer there is a partial penetration of the base coat thus giving better coverage.

(ii)The finished coat is nicely anchored to the grain when plated.

(iii)The grain-break becomes smooth and fine.

Surface impregnates are of two types.

(i)solvent based

(ii)water based

Solvent based--: Impregnates are usually pre-condensed poly urethane resin which penetrate the grain surface and react with the moisture and the active chemical group in the leather.

Water based--: Impregnates are much simpler to use and less hazardous water based impregnates are premixed with penetrations and require simple dilution with water.

After impregnation the leather are dried over night, hot or cold plated, very light buffed with the finest paper, brushed off and the base coat finish applied on the grain surface.

Aniline and Semi-aniline finishes-:

The current fashion trend in leather manufacture favors leather finished with “aniline look” or “semi-aniline look”. Leather finished with very little or no pigment in the finish coat. The idea of aniline or semi-aniline look of leather is to give emphasis to the characteristics of nature leather distinguishing it from the synthesis. To make successful aniline leather some modifications in dying and finishing methods are necessary. The dying must be penetrative and level,bright and uniformly covered. The technique of dying is altered and adjusted by an intermediate treatment of cationic dye fixed ages with a view to producing a light pigmented effect during the dyeing process itself.

In the finishing of aniline leather the recent trend is the spray dyeing of leather surface with a dye solution in solvent as a base for producing aniline character. The finishes involves the use of finally ground transparent organic pigment which are dyestuff precipitate or lakes soluble in some solvents such as benzyl alcohol or glycol ethers. Several thin coats maintain the natural appearance of the grain underneath the pigmented layer.

Another method is to usually acrylic acid esters chemical reacted to dyestuff molecule, the resultant product giving a transparent suitable for all types full or semi-aniline finishes. These coloured resins are also used in normal pigment finishing for enriched brightness and fastness properties. The finishing formulation consists of pigments, coloured resin, alginate, wax emulsion, water and an acrylic resin emulsion. These finishes when used along with a little protein type binder can be polished or even friction glazed and are ideal for fine, clearly visible aniline grain or more aniline finishes, depending on the amount of added pigments.

Another method of semi-aniline finishing is to proceed exactly as for as a full pigment finish with acrylic resin but spray a contrast top with semi-lac colours, instead of a clear lacquer emulsion. Semi-lac colours are nitrocellulose lacquers tinted with 1:2 metal complex dyestuffs to give semi-aniline effect. A spotted effect can be obtained by spraying the semi-lac colours at a slightly reduced pressure. coloured resin,

Finishing with Resin Dispersion Binders-:

The art of finishing with dispersion binders depends in selecting the suitable type of binder and determining the correct ratio of binder to other constituents such as pigment, plasticizer, thicker etc. to achieve the desired effect. Hardly there is any single resin binder which can fulfill the desired requirements of the finish film. For the use of these type of resin binder the leather is given a soft bottom coat, a relatively hard middle coat and finally the hardest possible final coat which should be adjusted to the bottom coat. A decisive factor in many of the characteristics of the whole finish is the bottom coat.

Bottom coat or Ground coat-:

The object of the bottom coat is to fill and over the opened-up surface of the leather, to seal together the leather fibres exposed due to buffing operation and so contribute towards enhancing the strength of the finish film. It is also meant to level up the varying absorptive property of the leather surface and even up the shade desired in the final leather. In many cases the ground coat also expected to act as a plasticizer reservoir. As for as possible, the bottom coat should be designed to cover faults.

Middle or Intermediate-;

The middle coat is intended to be a covering and leveling coat so that any finishing marks or grain defects can be eliminated and covered at this stage. By adding various proportions of matting agents the desired degree of gloss is adjusted. To obtain increased resistance to hot plating and also to confer a more leathery feel higher proportion of resin binder are added in the middle coat.

Final Coat or Top Coat-:

The final coat is usually free from resin is designed to increase fastness to wet and dry rubbing and help to obtain adequate resistance to hot plating. Small quantities of wax preparations are also used to obtain a warm feel and the best possible surface smoothness. Gloss can be controlled in a suitable manner by the thickness of the finishing film.

The finishing coat are hardened with dilute formaldehyde or mixture of formaldehyde and chrome solutions.

**LU4: Pack the final product**

***Tagging tools***

**Image source: https://www.aliexpress.com/item/32844378027.html?storeId=3280019**

## Module summary

| Module Title and Aim | Learning Units | Timeframe of modules |
|---|---|---|
| **Module 1:** Demonstrate Communication Skills<br><br>**Aim:** The aim of this module is to develop knowledge and understanding of working in team, generating work reports on prescribed format and dealing with clients. | **LU1:** Work in Team<br>**LU2:** Prepare Reports<br>**LU3:** Prepare reports using computers<br>**LU4:** Deal with clients | 90 Hours |
| **Module 2:** Maintain safe work environment<br><br>**Aim:** The aim of this module is to develop knowledge on the use and purpose of PPE's, all types of hazards and their remedies in a workplace | **LU1:** Identify hazards at workplace<br>**LU2:** Observe occupational safety and health (OSH) | 60 Hours |

**Comment [SB1]:** GFA need to separate Level-1 and Level2 from here and also add new modules and their durations before submitting.

| Module Title and Aim | Learning Units | Timeframe of modules |
|---|---|---|
| **Module 3:** Perform Cutting Operations<br><br>**Aim:** The aim of this module is to gain knowledge in selection and identification of leather skin according to desired product and in performing cutting operation according to occupational standards. | **LU1:** Segregate various skin/hide types<br>**LU2:** Trace cutting pattern on leather skin/hide<br>**LU3:** Cut and bundle the panels | 60 Hours |
| **Module 4:** Prepare small parts of leather product<br><br>**Aim:** The aim of this module is to enable the students to produce small parts of leather garments and gloves according to professional standards | **LU1:** Prepare machine according to stitching requirements<br>**LU2:** Stitch small parts of leather garment<br>**LU3:** Prepare small parts of gloves<br>**LU4:** Perform finishing operations on stitched small parts | 160 Hours |
| **Module 5:** Stitch leather garments and accessories<br><br>**Aim:** The aim of this module is to qualify the students to produce different kind of leather garments and accessories by respecting professional requirements. | **LU1:** Prepare the work station<br>**LU2:** Trace ready shape pattern of garments components<br>**LU3:** Fold different panels of leather garment<br>**LU4:** Prepare front panel<br>**LU5:** Prepare back panel<br>**LU6:** Prepare sleeves<br>**LU7:** Prepare lining<br>**LU8:** Assemble garment<br>**LU9**: Perform finishing operations on stitched components and garment | 160 Hours |

| Module Title and Aim | Learning Units | Timeframe of modules |
|---|---|---|
| **Module 6:** Stitch leather gloves<br><br>**Aim:** The aim of this module is to enable the Student to produce gloves according to professional standards. | **LU1:** Prepare the workstation<br>**LU2:** Prepare back and front panels of glove<br>**LU3:** Prepare the lining of glove<br>**LU4:** Assemble glove<br>**LU5:** Perform finishing operations on stitched gloves | 160 Hours |
| **Module 7:** Perform finishing operations on leather products<br><br>**Aim:** The aim of this module is to qualify the student in performing finishing operations on all kinds of leather products by applying quality and occupational standards. | **LU1:** Inspect the stitched product<br>**LU2:** Perform measurement control<br>**LU3:** Perform surface finishing operations<br>**LU4:** Pack the final product | 60 Hours |

## Frequently Asked Questions

| | |
|---|---|
| 1. What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes? | Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented. |
| 2. What is the passing criterion for CBT certificate? | You shall be required to be declared “Competent” in the summative assessment to attain the certificate. |
| 3. What are the entry requirements for this course? | The entry requirement for this course is 8th Grade or equivalent. |
| 4. How can I progress in my educational career after attaining this certificate? | You shall be eligible to take admission in the National Vocational Certificate Level-3 in Leather Products Development Technician (Pattern Maker). You shall be able to progress further to National Vocational Certificate Level-4 in Leather Products Development Technician (Computerized Pattern Designer); and take admission in a level-5, DAE or equivalent course. In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC). |
| 5. If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate? | You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences. |
| 6. What is the entry requirement for Recognition of Prior Learning program (RPL)? | There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment. |
| 7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)? | There are no age restrictions to enter this course or take up the Recognition of Prior Learning program |
| 8. What is the duration of this course? | The duration of the course work is 1,510 hrs. (approx. 11 months) |
| 9. What are the class timings? | The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes. |

| | |
|---|---|
| 10. What is equivalence of this certificate with other qualifications? | As per the national vocational qualifications framework, the level-4 certificate is equivalent to Matriculation. The criteria for equivalence and equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC). |
| 11. What is the importance of this certificate in National and International job market? | This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTC website. |
| 12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well? | You shall be able to take up jobs in the leather products making companies in the functions of cutting, stitching and finishing of leather gloves and garments. |
| 13. What are possible career progressions in industry after attaining this certificate? | You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels. |
| 14. Is this certificate recognized by any competent authority in Pakistan? | This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). The official certificates shall be awarded by the relevant certificate awarding body. |
| 15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training? | On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards. |
| 16. How much salary can I get on job after attaining this certificate? | The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount. |
| 17. Are there any alternative certificates which I can take up? | There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field. |
| 18. What is the teaching language of this course? | The leaching language of this course is Urdu and English. |
| 19. Is it possible to switch to other certificate programs during the course? | There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field. |
| 20. What is the examination / assessment system in this program? | Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared “Competent” in the summative assessment to attain the certificate. |
| 21. Does this certificate enable me to work as freelancer? | You can start your small business of stitching leather garments, gloves or other products. You may need additional skills on entrepreneurship to support your initiative. |

## Test Yourself (Multiple Choice Questions)

| | | |
|---|---|---|
| **1.** | What is the skin of big animals called? | a. Skin<br>b. Hide<br>c. Grain<br>d. Side |
| **2.** | When does the Warble fly defect occurs in skin/hide? | a. Life of animal<br>b. Slaughtering<br>c. Tanning<br>d. Cutting |
| **3.** | Mention if the following statement is true or false.<br>"The only method of cutting leather is single layer cutting." | a. True<br>b. False<br>c. |
| **4.** | Mention if the following statement is true or false.<br>"The only method of cutting lining material is single layer cutting." | a. True<br>b. False<br>c. |
| **5.** | Which part of the skin/hide is the Front panel of jacket taken from? | a. Belly<br>b. Butt<br>c. Neck<br>d. Shoulder |

| | | |
|---|---|---|
| **6.** | Which of these is the most critical elment of care during tracing and cutting operation? | a. Line of tightness and stretch<br>b. Direction of the cuttter<br>c. Alignment of the table<br>d. No critical care is needed |
| **7.** | Natural thread is made of which of these materials? | a. Cotton<br>b. Polythene<br>c. Nylon<br>d. Cellulose |
| **8.** | Which part of needle is fixed in the stitching machine? | a. Needle eye<br>b. Pin point<br>c. Butt & shank<br>d. Groove |
| **9.** | Which kind of adhesive is used in leather gloves? | a. Latex<br>b. Rubber<br>c. Cementex<br>d. None of these |
| **10.** | How many thread ply is used in leather garments? | a. 1 ply<br>b. 2 / 3 ply<br>c. 6 ply<br>d. 9 ply |
| **11.** | What is the bottom part of needle called? | a. Shank<br>b. Tip<br>c. Groove<br>d. Butt |
| **12.** | Which kind of hammer is being used in the production of leather garments? | a. Iron<br>b. Wooden<br>c. Teflon<br>d. None of these |
| **13.** | Which equipment is NOT used while cutting material for leather gloves? | a. Knife cutter<br>b. Scissor<br>c. Press cutter<br>d. Laser cutter |
| **14.** | Which machine is used for stitching thumb in leather gloves? | a. Post bed<br>b. Cylinder Arm<br>c. Flat bed<br>d. Overlock |
| **15.** | Which tool is used to mark the defects of finished leather product? | a. Marker<br>b. Paper Tape<br>c. Pen<br>d. Pencil |
| **16.** | Which material is used to remove the extra adhesive from leather products? | a. Crepe rubber<br>b. Sand paper<br>c. Water<br>d. Eraser |

## ANSWERS

| | | |
|---|---|---|
| **1.** | What is the skin of big animals called? | b. Hide |
| **2.** | When does the Warble fly defect occurs in skin/hide? | a. Life of animal |
| **3.** | Mention if the following statement is true or false.<br>"The only method of cutting leather is single layer cutting." | b. False |
| **4.** | Mention if the following statement is true or false.<br>"The only method of cutting lining material is single layer cutting." | b. False |
| **5.** | Which part of the skin/hide is the Front panel of jacket taken from? | b. Butt |
| **6.** | Which of these is the most critical element of care during tracing and cutting operation? | a. Line of tightness and stretch |
| **7.** | Natural thread is made of which of these materials? | a. Cotton |
| **8.** | Which part of needle is fixed in the stitching machine? | c. Butt & shank |
| **9.** | Which kind of adhesive is used in leather gloves? | b. Rubber |
| **10.** | How many thread ply is used in leather garments? | b. 2 / 3 ply |
| **11.** | What is the bottom part of needle called? | b. Tip |
| **12.** | Which kind of hammer is being used in the production of leather garments? | a. Iron |
| **13.** | Which equipment is NOT used while cutting material for leather gloves? | a. Knife cutter |
| **14.** | Which machine is used for stitching thumb in leather gloves? | b. Cylinder Arm |
| **15.** | Which tool is used to mark the defects of finished leather product? | b. Paper Tape |
| **16.** | Which material is used to remove the extra adhesive from leather products? | a. Crepe rubber |

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