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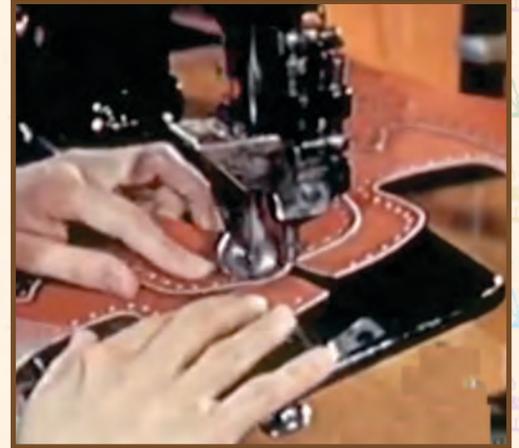
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LEATHER
SECTOR
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Facilitator Guide



Sector
Leather

Sub-Sector
Footwear

Occupation
Stitching

Reference ID: LSS/Q2501, Version 4.0
NSQF Level 3

Stitching Operator (Footwear)

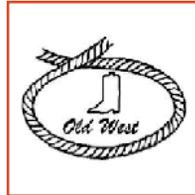


Shri Narendra Modi
Prime Minister of India

“ Skilling is building a better India.
If we have to move India towards
development then Skill Development
should be our mission. ”

Acknowledgements

We thank the following organization for endorsing the contents of this Facilitator Guide, thus contributing towards skilling based on the Qualification Pack (QP) and National Occupational Standards (NOSs).



About this Guide

This Facilitator Guide is designed to enable training for the specific Qualification Pack (QP). Each National Occupational (NOS) is covered across Unit/s.

Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS. The symbols used in this book are described below.

Symbols Used



Steps



Time



Tips



Notes



Objectives



Do



Ask



Explain



Elaborate



Field Visit



Practical



Lab



Demonstrate



Exercise



Team Activity



Facilitation Notes



Learning Outcomes



Say



Resources



Activity



Summary



Role Play



Example

Table of Contents

S.No	Modules and Units	Page No
7.	Employability Skills - 30 Hours (DGT/VSQ/N101) https://eskillindia.org/NewEmployability	121
		
8.	Annexure	123
	Annexure I – Training Delivery Plan	124
	Annexure II – Assessment Criteria	131
	Annexure III - List of QR codes Used in the PHB	138





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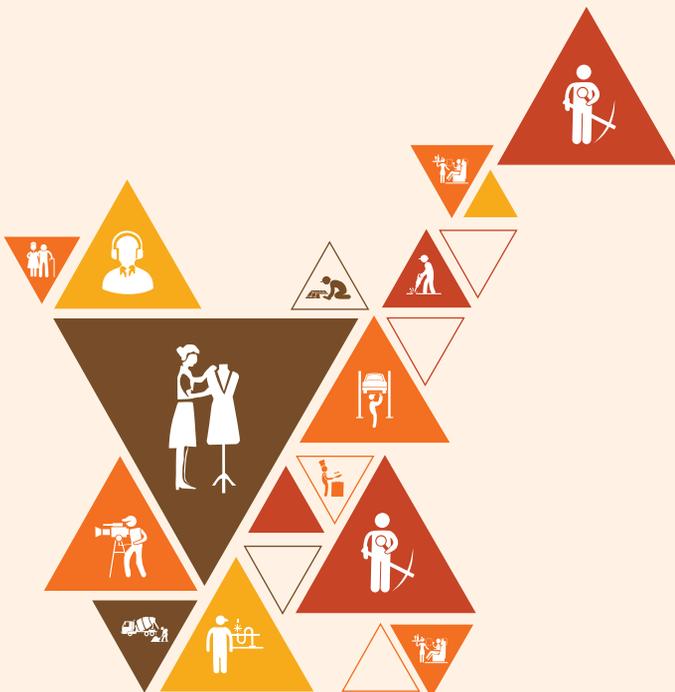
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LEATHER
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1. Overview on Leather Industry and Generic Skills

Unit 1.1 - Introduction to Leather Industry and
Stitching Operator (Footwear)



Key Learning Outcomes

At the end of this module, students will be able to:

1. Gain in-depth knowledge about Leather industry in India
2. Identify the factory/ section you are working and your role in the section
3. Describe manufacturing leather
4. Identify hazards associated with the trade and mitigation
5. Comply with SHE guidelines and legal provisions
6. Follow workplace skills
7. Use PPE
8. Wear PPE Properly

UNIT 1.1: Introduction to Leather Industry and Stitching Operator (Footwear)

Unit Objectives

At the end of this unit, students will be able to:

1. Explain the importance of leather industry
2. Describe leather manufacturing process
3. Describe the uses of different types of leather products in India
4. List down different types of leather available
5. Describe the role of a stitching operator in leather industry

Notes for Facilitation

- You could ask the participants about the expectations from the course
- Encourage the participants to participate. List the expectations on the whiteboard.
- Give the participants a brief overview of what will be covered in the program.
- Keep discussion relevant to the Unit's objective
- Guide the participants in presenting and sharing information
- Keep motivating the participants which creates the urge for learning.

1.1.1: Introduction to Leather Industry

Resources to be Used

Participant Handbook, Chairs, Trainers desk and computer, Student table, Projector, White projector screen, White board, Flip chart display stand, Safety Hazard signs, Newspaper, Stationery and PPE set

Do

- Describe the growth and development of the leather industry in India.
- List the strengths of Indian leather sector.
- Discuss the current scenario and major markets of leather and its product.

Say 

- India accounts for 10% of the world's leather production
- The revenue of leather industry is more than INR 81000 core
- Leather industry employs 2.5 million people
- 24% growth projected in the next five years
- 55% of workforce below 35

Elaborate 

Refer to 1.1.1: Introduction to Leather Industry topic in participant handbook and elaborate on following points mentioned below.

- India is the fifth-largest exporter of leather goods and accessories in the world.
- The Leather Industry holds a prominent place in the Indian economy.
- Strength of Indian leather sector.
- The major markets for Indian Leather & Leather Products.

Notes for Facilitation 

- Keep discussion relevant to the unit's objective.
- Guide the participants in presenting and sharing information.
- Keep motivating the participants which creates the urge for learning.

1.1.2: Leather

Say 

Leather is a durable and flexible material created by the tanning of animal rawhide and skin, often cattle hide

Do 

- Show the different samples of leather to all the participants.
- Make them understand the variation of different leather by touching the samples.
- Ask the participants to identify raw leather and top grain leather from the samples shown.

Explain

Provide details of different leather samples



Fig 1.1.1.1 Raw Leather



Fig 1.1.1.2 Top Grain Leather



Fig 1.1.1.3 Leather Swatches

Notes for Facilitation

- Involve all the participants to participate and have an on job practice.
- Ask them what difference they can see and feel among various samples of leather.
- Conduct a group discussion so that they can exchange their views.

1.1.2.1: Grain Structure

Do

- Show the image of grain structure and explain the different layers to the participants.
- Explain the various types of finished leathers, which are used for making leather products.
- Demonstrate the leather samples with different finishes.

Elaborate

Describe the various types of finished leathers, which are used according to the specification and characteristics. (Refer to 1.1.2.1: Grain Structure topic in participant handbook)

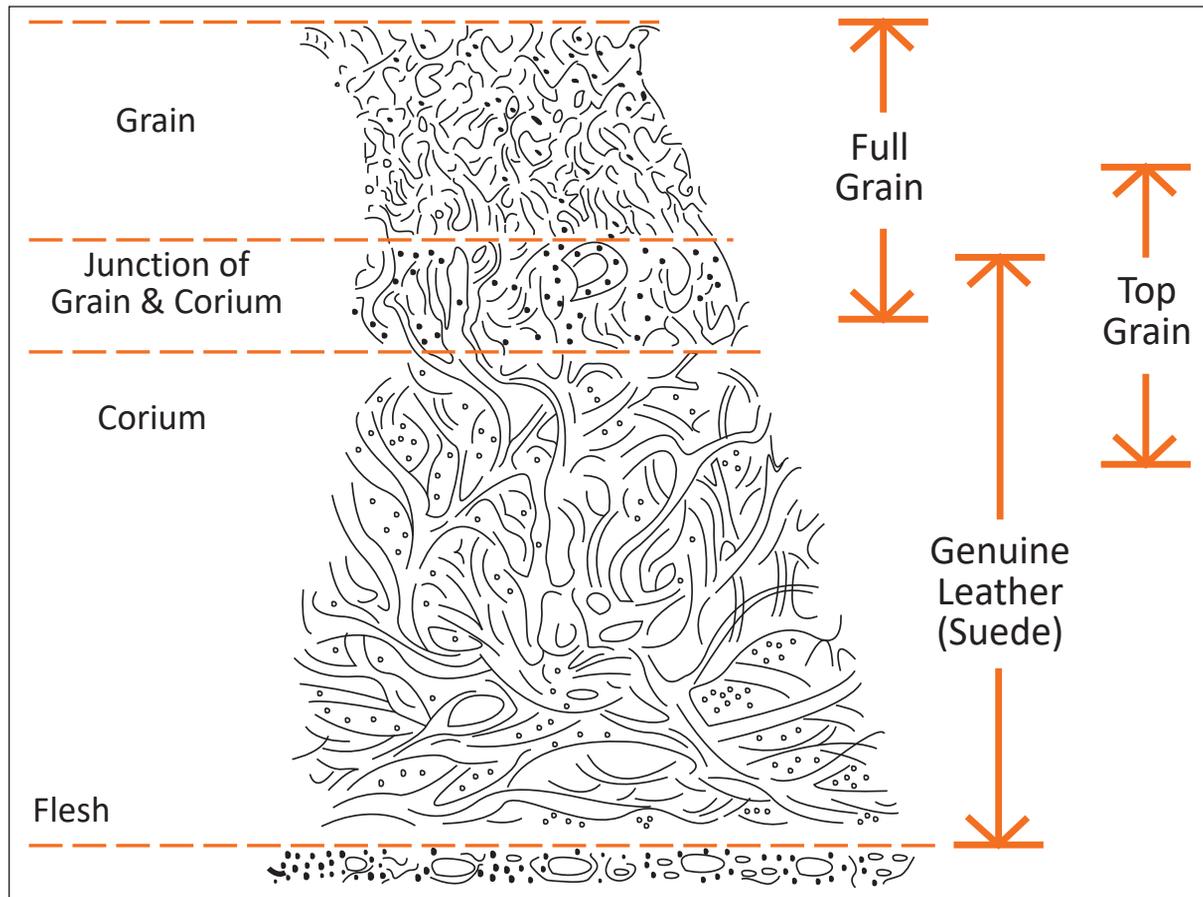


Fig 1.1.4 Grain Structure

Demonstrate

- Gather all the participants and make them stand in a way that the demonstration is clearly visible.
- Show the participants leather samples with different finishes such as Natural Grain Finish, Full Aniline finish, Semi - Aniline Finish, Pigment Finish, Imitation Grain Finish, Corrected Grain Finish, Printed Finish, Split Surface Finish, Nubuck finish, Oil Pull-up Finish and Antique Finish.

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Identification of Leather samples	1 hour	Leather samples with different finishes

Notes for Facilitation

- Ask them to get into pairs for identification.
- Ask them to explain how these samples of leather vary from one another.
- Wrap the unit after summarizing the key points and answering questions.

1.1.2.2: Leather Properties

Do

Discuss the various physical properties which make leather a unique and valuable material for usage.

Explain

List all the different properties on the white board.

Provide more information on all the different properties of leather which are:

- High tensile strength
- Thermostatic
- Moldable
- Resistance to tear, flexing, and puncture
- Resistant to dry and wet abrasion – Wear
- Resistant to fire
- Resistant to fungi
- Resistance to chemical attack

Notes for Facilitation

Ask participants to list and explain the different properties of leather.

1.1.3: Leather Products

Do

- Discuss about the various leather products that are produced such as leather shoes, jackets, belts, wallets, saddle, bean bags, bags, boots and dress.
- Show the images of leather products that are manufactured and explain its significance.

Elaborate

- Elaborate different leather products manufactured to the participants.
- Refer to 1.1.3: Leather Products topic in participant handbook to explain the usage of each leather products.

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Identification of Leather products	1 hour	Images of leather products.

Notes for Facilitation

- You could ask participants if they can think over other leather products.
- Organize a group discussion among the participants if required.

1.1.4: Leather Production Process

Do

- Show the image and explain the cycle of leather production process.
- Discuss and explain the steps involved in preparation, manufacturing and finishing process.

Elaborate

Refer to 1.1.4: Leather Production Process topic in participant handbook to provide details on Leather manufacturing process.

Provide detailed information on the leather manufacturing process.

The leather production/ manufacturing process starts from prepping the hide (collecting raw hide of the animal), tanning the leather and ends at finishing the leather (When it reaches to end customer in form of leather product).

Tanning, in simple terms, refers to the treatment of raw hides and skins with tanning substances to render the material immune to bacterial attack that is to produce leather.

Notes for Facilitation

- Give the participants a brief overview of what is covered in the topic.
- To make sure if they have understood, ask them few questions.
- Encourage shy participants to ask doubts if anything are unclear.

1.1.5: Introduction to Factory/ Section

Do

- Give an introduction on footwear manufacturing factory.
- Explain them the various departments involved in manufacturing footwear with images.

Explain

- Use the below content to provide information on a footwear manufacturing units.
1. Assortment Department
 2. Clicking or Cutting Department



Fig 1.1.5 Clicking or Cutting Department

3. Preparation Department
4. Closing or Machining Department



Fig 1.1.6 Closing or Machining Department

- Lasting and Making Department



Fig 1.1.7 Lasting and Making Department

- Finishing and the Shoe room



Fig 1.1.8 Finishing Department and the Shoe Room

Notes for Facilitation

- You could ask the participants what are the different departments in manufacturing a foot wear.
- Encourage the participants to participate and come up with new ideas if they have.

1.1.6: Role of Stitching Operator (Footwear)

Explain

Use the below content to provide information on the stitching operator's responsibilities which have to be followed in order to achieve a safe and good operation.

- Study and be aware of the upper components for the models under production
- Reading a job card
- Deciding the materials, parts for the particular model
- Checking the material parts for quality
- Arrange the raw materials in the order of stitching
- Keep the hand tools clean and in an orderly manner
- Keep the machinery clean and carry-out daily maintenance
- Estimate the quantity of the above for the batch quantity specified in the job card
- Select the hand tools/ machinery
- Carry-out stitching
- Check the quality of the final product
- Carry-out necessary rectification/ repair
- Report the quantity produced
- Follow safe practices at work place
- Follow good housekeeping activities
- Escalate problems to higher levels when necessary

Notes for Facilitation

- Give the participants a brief overview of what is covered in the program.
- Tell them to recall the points, call individual and ask them to say two points at least.
- Frequently ask questions on the lectured topics.
- Explain every topic with a daily life example.
- Ask them if they are clear about the topic and then proceed to next.



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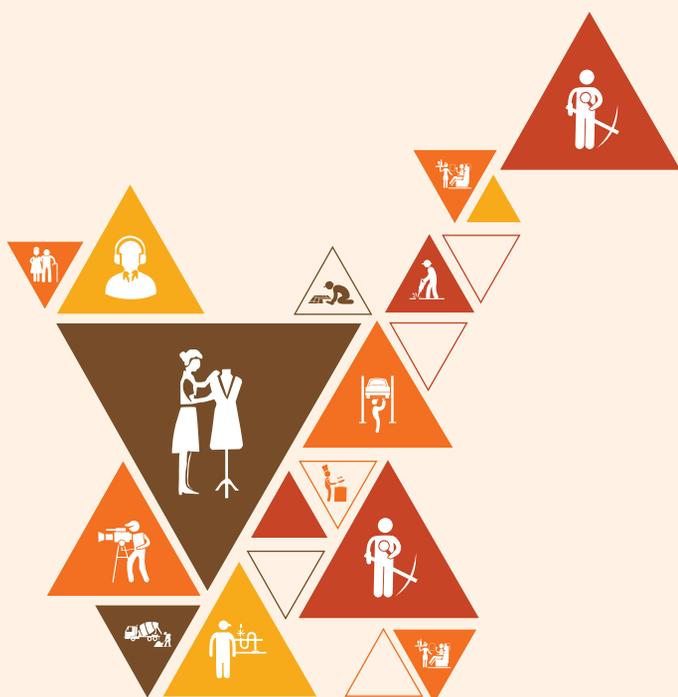


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2. Preparation of Materials and Machines for Stitching Operations

Unit 2.1 - Prepare the Materials

Unit 2.2 - Prepare the tools, equipment and Machines



LSS/N5805

Key Learning Outcomes

At the end of this module, students will be able to:

1. Prepare the raw materials for stitching operation
2. Prepare the machines before the stitching operations
3. Handle the raw materials carefully for stitching
4. Check the raw materials according to their specifications
5. Check the needle, thread, stitch length is as per the specification given
6. Wear proper PPE's during stitching operation

UNIT 2.1: Prepare the Materials

Unit Objectives

At the end of this unit, students will be able to:

1. Preparing Leather materials
2. Preparing Non-Leather materials
3. Preparing for Stitching
4. Sewing Techniques

2.1.1: Prepare the Leather and Non Leather Materials

Do

- Invite participants to participate. List the expectations on the whiteboard.
- Give the participants a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.
- Explain to the participants about the different types of Leather & Non Leather Materials

Demonstrate

- Collect all the tools required for the demonstration
- Gather all the participants and make them stand in a way that the demonstration is clearly visible.
- Read out the SOP clearly
- Read out the safety measures
- Show what are the different types of Leather & Materials used.

Notes for Facilitation

- Ask participants to explain about various function of each and every part
- Ask participants to explain the safety and precaution measures requires while handling the machine.
- Ensure every participant is performing according with standard company SOP

2.1.2: Select and Inspect the Quality of Leather

Do

- Invite participants to participate. List the expectations on the whiteboard.
- Give the participants a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.
- Explain to the participants about the how to inspect the leather & materials

Notes for Facilitation

- Ask participants to explain about various function of each and every part
- Ask participants to explain the safety and precaution measures requires while handling the machine.
- Ensure every participant is performing according with standard company SOP

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
Identifying types of leather and its properties used for making footwear	2 hours	Pieces of leather: Camel skin, sheep skin, calf skin and buffalo skin leather
Work with threads and understanding the factors in selection	2 hours	Different types of threads
Identify various types of fibres and fabrics	2 hours	Manmade and natural made fabric pieces, such as Cotton, wool, Jute, Nylon, Polyester etc.

2.1.3: Types of Leather & Non-Leather Materials for Stitching Operations

Do

- Explain the various important properties of leather under material handling
- List out the leather defects and its implications
 - Defects caused during life: Scars, Infestations, Infections and Cockle
 - Damages caused after death: Flay cuts and gouges, Putrefaction, Vainness and damage due to heat

Explain

List the types of leather used for making footwear and refer to 2.1.3: Material (Leather and Non-Leather) topic in participant handbook to explain it.

Elaborate

List the types of threads and non-leather material used for making footwear and refer to 2.1.3: Material (Leather and Non-Leather) topic in participant handbook to explain it.

Explain

Use the below content to explain the special features of different threads

Special features of Polyester Cotton Threads:

- Improved sewing performance because it is less harsh
- Cotton rap acts as insulation against needle heat
- Gives extra seam grip
- Fills the needle hole completely

Special features of Nylon Cotton Threads:

- High strength and durability
- Excellent fineness/strength ratio
- Higher abrasion resistance
- Improved sew ability
- Better seam performance
- Rot-proof and immune to attack by mildew, fungus etc. and
- Minimum wear of machine parts because of superior lubrication

Do 

- Explain how fibres are made naturally and artificially from the below figures/ chart
- Explain types of fibres i.e Natural Fibres and Manmade fibres, in detail and how it is derived
- Draw the chart on the whiteboard
- Explain the process of fibre to fabric step by step

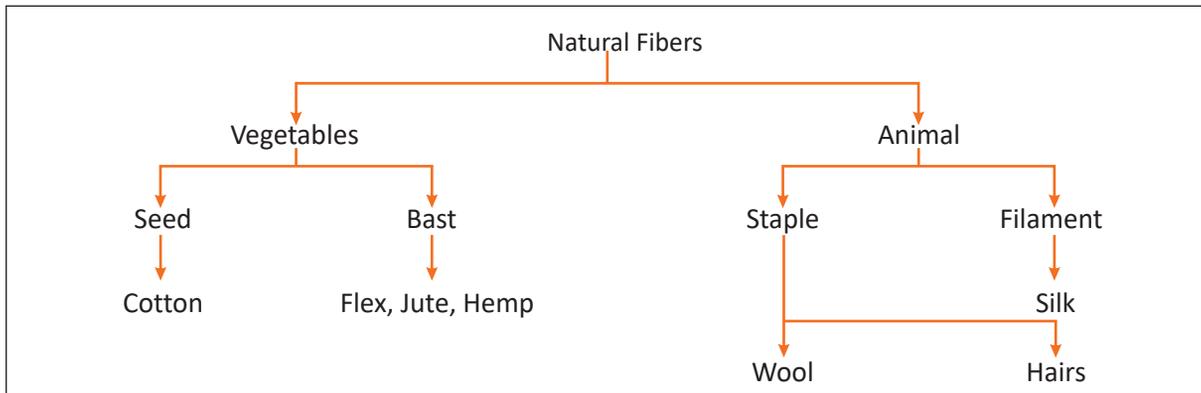


Fig 2.1.1 Classifications of Natural Fiber

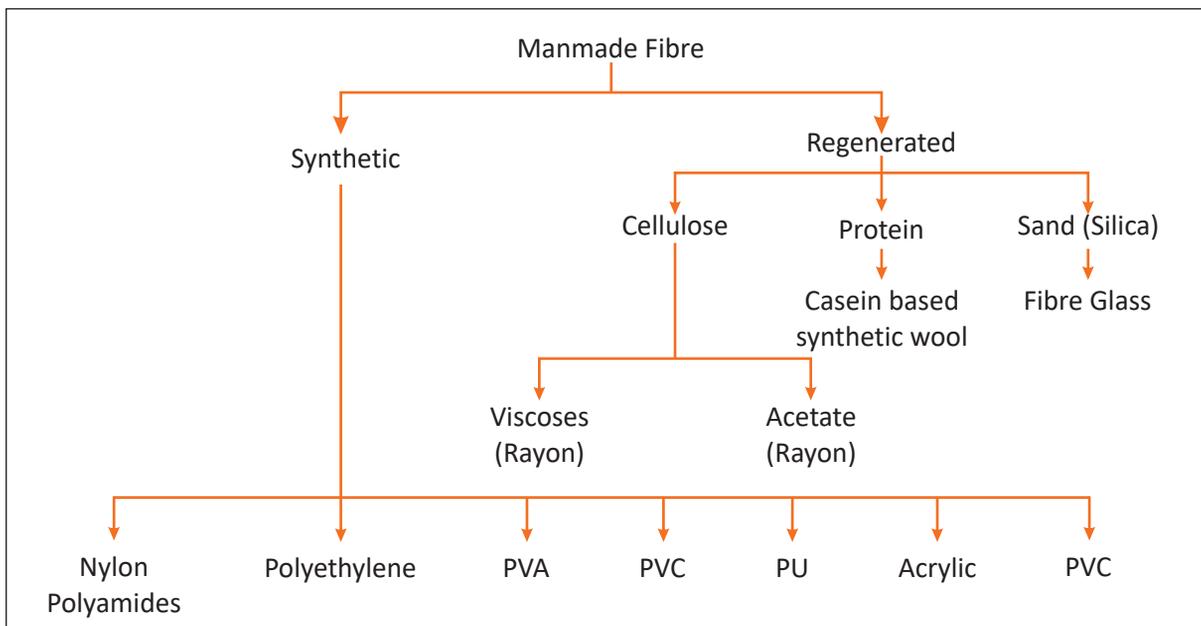


Fig 2.1.2 Classifications of Manmade Fiber

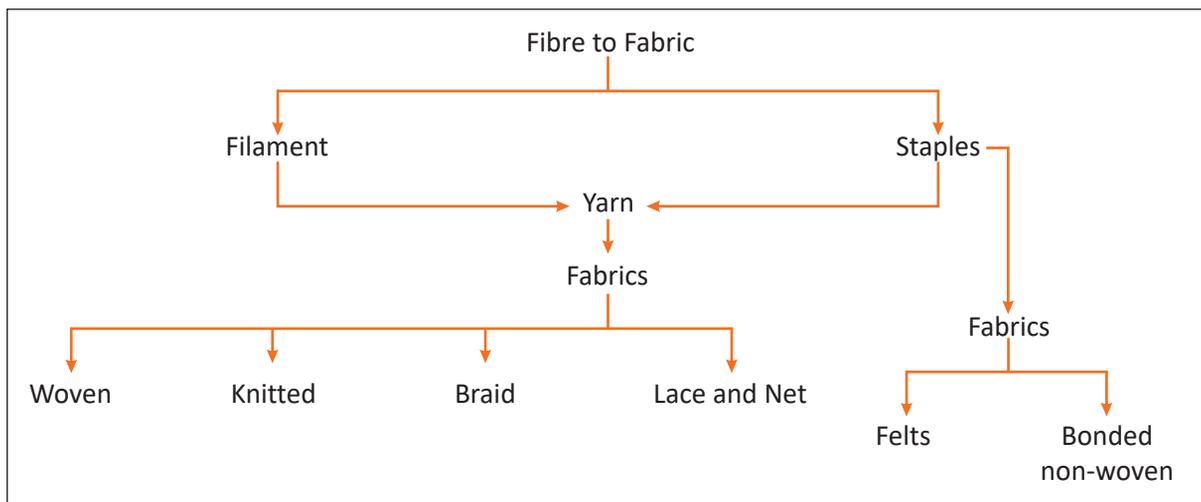


Fig 2.1.3 Fiber to Fabric

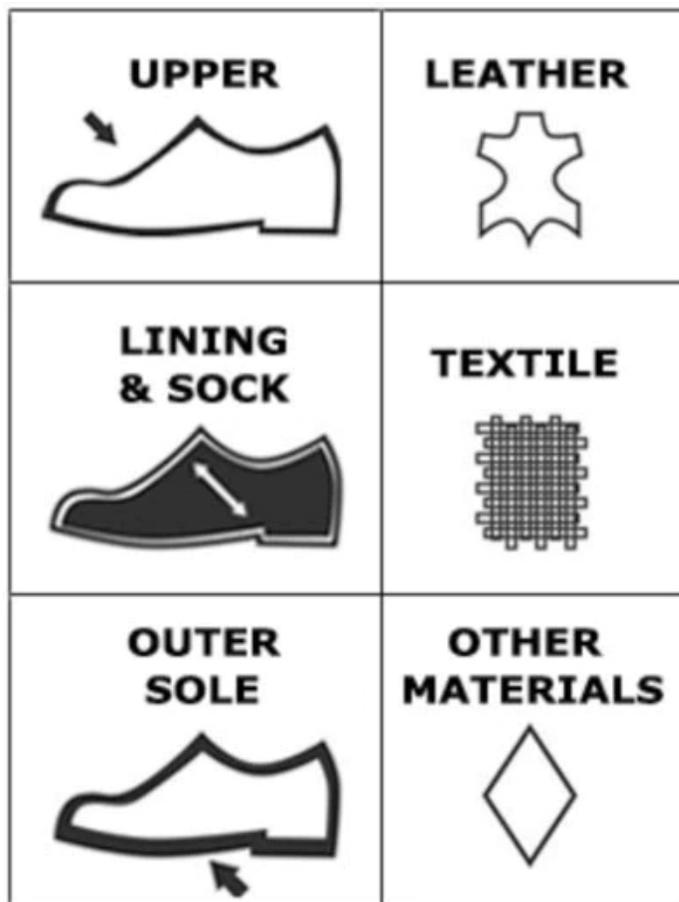


Fig 2.1.4 Types of Non Leather Materials

Notes for Facilitation



- Ask participants to explain about types of leather and its properties.
- Tell them to observe the quality of threads and factors involved in thread selection
- Give each fabric piece to each of the participant and ask them individually to identify the fabric type
- Individually question the participants the advantages of these fabrics

UNIT 2.2: Preparation of Tools, Equipment and Machines

Unit Objectives

At the end of this unit, students will be able to:

1. Select the correct machine and equipment to be used and keep them in readiness
2. Follow company reporting procedures about defective tools and machines which effect and report risks/ problems likely to affect services to the relevant person promptly and accurately
3. Report defective machines, tools and equipment to the supervisor
4. Check the equipment prior to making the stitching

2.2.1: Introduction to Sewing Machine

Do

- Invite participants to participate. List the expectations on the whiteboard.
- Give the participants a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.
- Explain to the participants about the features and specifications of a sewing machine.
- Show them the parts of sewing machine and explain its functions.
- Ensure health and safety at workplace

Notes for Facilitation

- Ask participants to explain about types of leather and its properties.
- Tell them to observe the quality of threads and factors involved in thread selection
- Give each fabric piece to each of the participant and ask them individually to identify the fabric type
- Individually question the participants the advantages of these fabrics

2.2.2: Tools used for Stitching Operations

Say



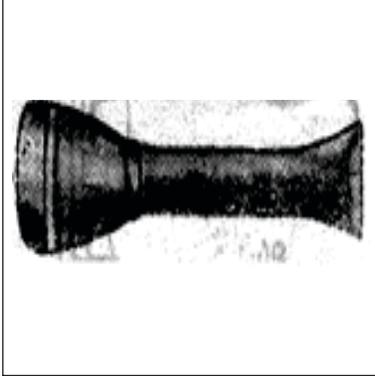
There are various types of materials, tools and equipment's that are used in stitching operation, for example materials like: thread, sewing needles, leather etc. Tools such as stitching awl, scissors, creasing tool, punch and hammer etc. Equipment such as Leather Sewing Machine.

Demonstrate



- Collect all the tools like scissors, marker, awl, divider etc. required for the demonstration
- Read out the SOP clearly
- Read out the safety measure
- Demonstrate the steps in using the following tools:

Tools Name	Images	Description
Scissors		It is used for cutting upper thread ends, cutting slots and other similar type of work
Stitching Awl		This awl has "U" shape cut at the end of the awl to hold the thread while stitching. This used for stitching sole of a shoe
Stitch Marker		It is used to mark decorative stitches for the guidance to the stitcher

<p>Spring divider</p>		<p>It is used mainly in the designing department for measuring various allowances of paper patterns of the footwear</p>
<p>Stainless Steel Scale/ Ruler</p>		<p>Stainless steel scale/ruler is used in pattern making process. The parts of the leather product are drawn first on a drawing paper with accurate measurements, using a ruler and then the measured parts are cut, using ruler and knife as paper patterns. It is also used as a cutting guide for cutting leather and lining components for making leather footwear. 12" and 24" stainless steel scales are normally used.</p>
<p>Khurpi/ Rampi</p>		<p>This is a most important tool in the leather products industry. Skiving by hand is done only with this instrument</p>
<p>Lasting pincers (Medium type)</p>		<p>This pincers is widely used for lasting of all types of civilian shoes</p>

Shoe Hammer		A general purpose hammer used in shoe trade
Channel Opener		After cutting the channel of the sole, this tool is used for opening and widening the channel to facilitate the stitching of the sole

Similarly explain all the tools and equipment's used in footwear making.

Do

- Explain the types of tools and their description with pictures
- Show and describe them using learning cards

Activity

- Tell the participants that a small test will be conducted based on what is covered.
- Give them some time to prepare and remember things which has been taught.
- Conduct the test by asking them to match the different image of tools used with its name.

Name	Tools
Stitching awl	
Channel Opener	
Lasting Pincer	

Notes for Facilitation

- Check the performance of the participants after the test is completed
- Analyze the individual performance and give the feedback, also appreciate all for their participation
- Based on their performance understand where the concern has to be taken.

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
Identify different types of tools and equipment's	12 hours	Various Stitching operation tools

Notes for Facilitation



- Ask participants to explain about various different tools used in stitching operation.
- Give each tool to each of the participant and ask them individually to identify what it is and its purpose

Explain



Provide description, purpose, and use of various types of needles. (Refer to the below content.)

A sewing needle is a long slender tool with a pointed tip which is used in stitching the leather or any fabric.

There are different types of needles for different fabrics. Depending on the thickness of the fabric, needles are designed to penetrate the fabric.

Swing needles are of two categories:

1. Hand Sewing Needle



Fig 2.2.1 Hand sewing needle

2. Machine sewing needle

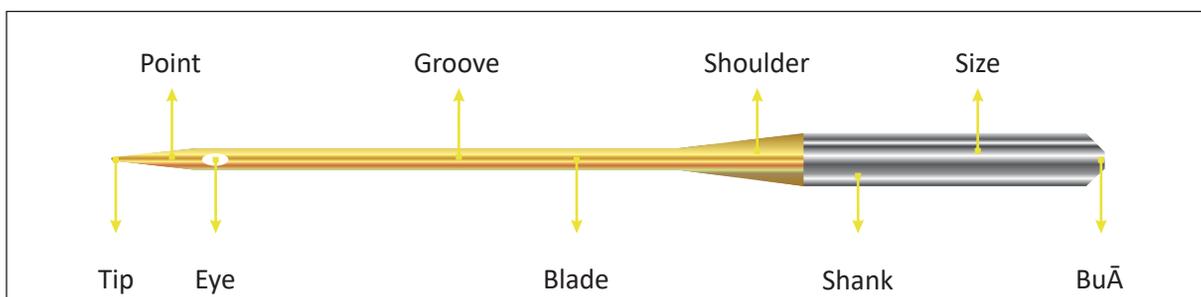


Fig 2.2.2 Machine Sewing Needle



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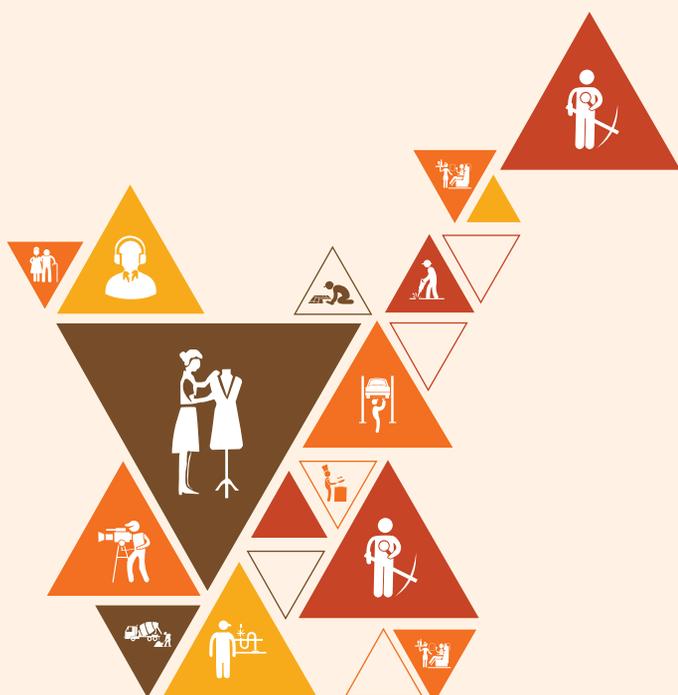


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3. Perform Hand Stitching Process for Leather and non-Leather Footwear

Unit 3.1 - Check the Tools and Equipment

Unit 3.2 - Carry-out Hand Stitching Process



LSS/N2202

Key Learning Outcomes

At the end of this module, students will be able to:

1. Understand the various functions on the production departments.
2. Prepare the machines before the stitching operations
3. Check the needle, thread and materials required for carrying out stitching operation
4. Set the machine controls for the materials being stitched
5. Select the right sewing machine, needle, threads as per the specification on the job card
6. Check the components as per color and size.
7. Stitch the correct materials in the right sequence as required by the production specification/sample.
8. Carry out basic maintenance machinery and keep them clean after use.
9. Maintain the production target, quality record and other documents
10. Perform corrective action and reporting effectively

UNIT 3.1: Check the Tools and Equipment

Unit Objectives



At the end of this unit, students will be able to:

1. Follow the instructions on the work ticket/ job card
2. Make sure the work area is free from hazards
3. Ensure the materials used to meet the specification matching
 - a) Within a product
 - b) Between a pair of products where applicable
4. Agree and review agreed upon work targets with the supervisor
5. Select the correct machine and equipment to be used and keep them in readiness
6. Follow company reporting procedures about defective tools and machines which effect and report risks/ problems likely to affect services to the relevant person promptly and accurately
7. Report defective machines, tools and equipment to the supervisor
8. Complete forms, records and other documentation
9. Sort out the material and threads as per the specifications in the job card
10. Select the right sewing machine, threads and bobbins for the materials as per the specifications in the job card
11. Check the equipment prior to making the stitching, including:
 - a) Correct controls
 - b) Correct attachments
 - c) Changing needles
 - d) Changing threads
 - e) Changing awls
 - f) Correct timing
12. Set machine controls for the materials being stitched
13. Perform a test run to ensure machine is operating correctly

3.1.1: Stitching Types and Styles

Explain



Refer to 2.2.4: Stitching types and styles to provide explanation on the following constructions.

- a) Cut-edge construction
- b) Turn-over edge Construction (Fold-edge Construction)
- c) Turn-edge construction (Stitch and turn construction)
- d) Butt-Edge Construction

Activity



- Tell the participants that a small test will be conducted based on what is covered.
- Give them some time to prepare and remember things which has been taught.
- Conduct the test by asking them to write a brief description on each of the construction styles

Notes for Facilitation



- Check the performance of the participants after the test is completed
- Analyze the individual performance and give the feedback, also appreciate all for their participation
- Based on their performance understand where the concern has to be taken.
- Keep discussion relevant to the Unit's objective
- Guide the participants in presenting and sharing information
- Keep motivating the participants which creates the urge for learning.
- Ask participants to explain about various types of construction and styles

3.1.2: Edge Construction

Elaborate



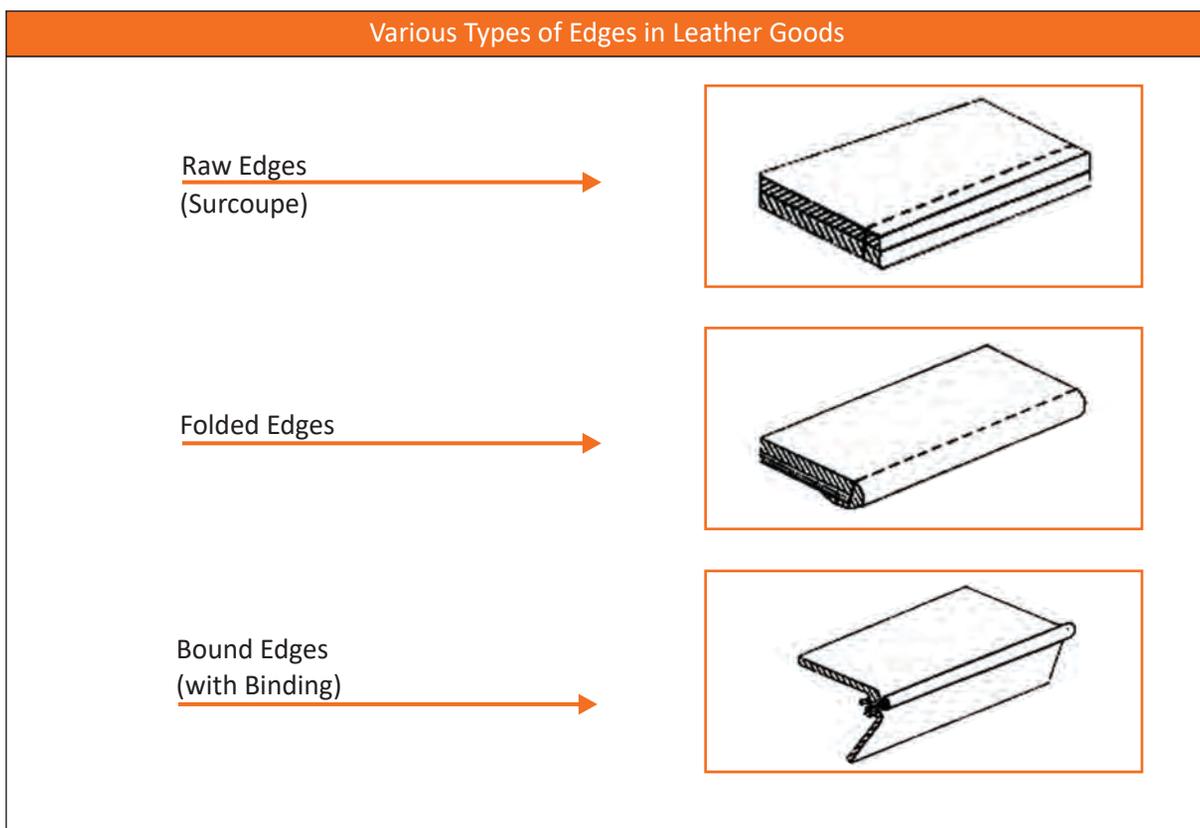
Refer to 2.2.4.1: Edge construction to provide description of the following edges:

- a) Raw edges
- b) Folded edges
- c) Bound edges
- d) Bound edges with binding
- e) Bound edges without binding
- f) Straddled edges
- g) Mixed edges

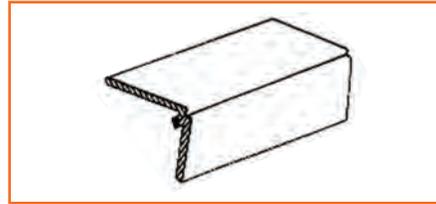
Do



Show the pictures and explain how the edges look like:



Bound Edges
(without Binding) →



Straddled Edges
or Bound to Binder →



Mixed Edges
(Folded and Raw) →



Table 3.1.1 Edges in Leather Goods

Elaborate



Use the below content and images of seam to provide description of different types of Seams.

Show the pictures and explain how the Seam looks like.

a) Astride Seam

In astride seam, one of the pieces comes on top of the other and a seam attaches all these together.

b) Piped Seam

A piping is done on the first piece on the grain side. A second piece is then fixed against the piping. The finished seam is identical to a simple seam with the piping in the middle.

c) Blind Seam

The seam is made invisible by tapping the top piece on the bottom piece. For this, an underlay must be done on the bottom piece.

d) Closed Seam

This seam is produced by facing together the grain sides of the two uppers and then stitching approximately at a distance of 1.5 to 2mm. from the edge. The seam is then opened and rubbed down.

e) Open Seam

This seam is the reverse of a closed seam. Reverse side of the upper are joined together keeping face to face and then stitching at a distance of 1.5 to 2 mm from the edge.

Explain

Provide explanation on each factor that are important in the selection of Seam Type and Application. Explain each factor as listed below:

1. Footwear design, type, quality, end use, and care
2. Material type, bulk, texture, weight transparency, and tendency to fray
3. Desired strength and durability
4. Difficulty of construction and skill of the operators
5. Equipment available
6. Cost of labor and materials
7. Retail price
8. Designer or manufacturer preference
9. Current fashion trends

Do

- Explain how different sewing machine produces a specific stitch formation.
- Explain the participants by showing pictures how the stitch looks.
- Explain their characteristics in detail

Notes for Facilitation

- Ask participants to explain about various types of Edges.
- Ask participants to explain about various types of Seams.
- Keep the class motivated through asking them few questions
- Ask participants to share their answers. Ensure that everyone participates in the activities (Write their responses on flip chart)
- Instruct participants to write their answers in their workbook for quick reference in future

UNIT 3.2: Carryout Hand Stitching Process

Unit Objectives

At the end of this unit, students will be able to:

1. Understand the various functions on the production departments.
2. Prepare the machines before the stitching operations
3. Check the needle, thread and materials required for carrying out stitching operation
4. Set the machine controls for the materials being stitched
5. Select the right sewing machine, needle, threads as per the specification on the job card
6. Check the components as per colour and size.
7. Stitch the correct materials in the right sequence as required by the production specification/sample.
8. Carry out basic maintenance machinery and keep them clean after use.
9. Maintain the production target, quality record and other documents.

Do

Write down all the name of tools required for hand stitching on the whiteboard.
Show the images of each of these tools and explain them its uses and features

Notes for Facilitation

- Ask participants, just now we learned about different tools required for hand stitching, can you all list them?
- Write the answers on whiteboard.
- This will help in bringing back the learner's attention in the classroom.

3.2.1: Sequence to Punch Holes and Stitch

Do

List the steps involved in punching holes and stitching.

Show the images of each of these tools and explain their uses and features

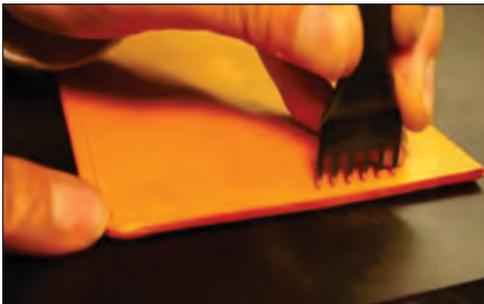
Steps



STEP 1: Fix pieces together with glue before punching holes for stitching



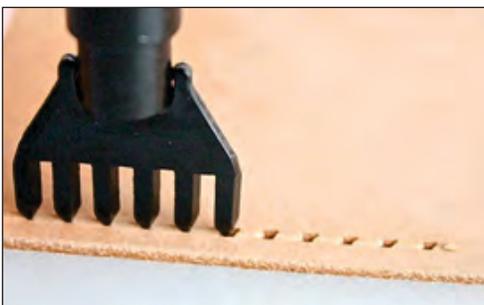
STEP 2: Use adjustable edge creaser to mark stitch line on the leather



STEP 3: Hold Pronging Chisel straight up and down, 90°. Press it on leather sheet to mark holes along the stitch line



STEP 4: Strike pronging chisel with rawhide mallet



STEP 5: To keep holes an equal distance, place one point of chisel in last hole



STEP 6: Use 4/5/6 prong punch to go long straight distances



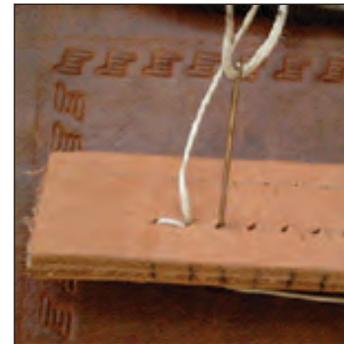
STEP 7: Use 2 prong punch to go around corners



STEP 8: Use 1 prong punch or scratch awl to end or fill in spaces, or to free form pattern



STEP 9: Insert the lower needle/ thread from the bottom **ALONGSIDE** the thread filling the hole. Take care to insert the needle **ALONGSIDE** the thread, do not **PIERCE** it!



STEP 10: Pull the stitch snugly with the top needle then being inserted into the next hole awaiting, to repeat till finished.

Activity



- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity
- Assign a style for construction of footwear by participants

Skill Practice	Time	Resources
Perform different steps to punch holes and stitch	30 hours	Punching holes tools and stitching tools



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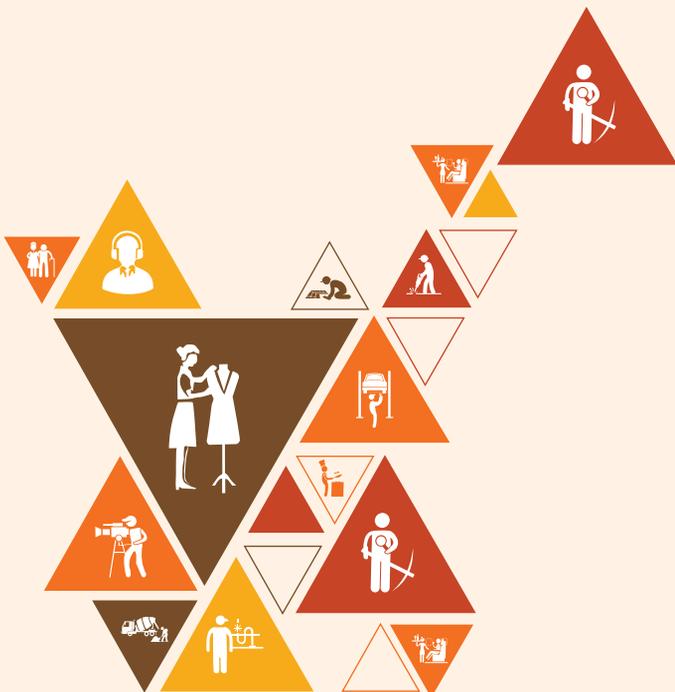


LEATHER
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4. Carry-out Machine Stitching Operation in Footwear

Unit 4.1 - Check the Tools & Equipment

Unit 2.2 - Carry-out Machine Stitching Operation



LSS/N2203

Key Learning Outcomes

At the end of this module, students will be able to:

1. Describe materials used (Leather & Non Leather) & their properties, tools & machinery
2. List parts of Sewing Machines and their functions
3. Choose and change needle
4. Wind a bobbin, thread a machine, thread color change, without removing complete thread (by knotting) adjust tension, choose and change a needle
5. Describe footwear making sequence
6. Prepare footwear stitching operations
7. Demonstrate controls for the materials being stitched
8. Differentiate the needs of Lock Stitch, and Chain Stitch
9. Explain basic maintenance of machineries
10. Explain causes of thread breakages, skip, and jump stitches & needle breakages

UNIT 4.1: Check the Tools and Equipment

Unit Objectives

At the end of this unit, students will be able to:

1. Follow the instructions on the work ticket/ job card
2. Make sure the work area is free from hazards
3. Ensure the materials used to meet the specification matching
 - a) Within a product
 - b) Between a pair of products where applicable
4. Agree and review agreed upon work targets with the supervisor
5. Select the correct machine and equipment to be used and keep them in readiness
6. Follow company reporting procedures about defective tools and machines which effect and report risks/ problems likely to affect services to the relevant person promptly and accurately
7. Report defective machines, tools and equipment to the supervisor
8. Complete forms, records and other documentation
9. Sort out the material and threads as per the specifications in the job card
10. Select the right sewing machine, threads and bobbins for the materials as per the specifications in the job card
11. Check the equipment prior to making the stitching, including:
 - a) Correct controls
 - b) Correct attachments
 - c) Changing needles
 - d) Changing threads
 - e) Changing awls
 - f) Correct timing
12. Set machine controls for the materials being stitched
13. Perform a test run to ensure machine is operating correctly

4.1.1: Introduction to Sewing Machine

Do

- Invite participants to participate. List the expectations on the whiteboard.
- Give the participants a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

- Explain to the participants about the features and specifications of a sewing machine.
- Show them the parts of sewing machine and explain its functions.
- Ensure health and safety at workplace

Demonstrate



- Collect all the tools required for the demonstration
- Gather all the participants and make them stand in a way that the demonstration is clearly visible.
- Read out the SOP clearly
- Read out the safety measures
- Show the participants different parts of sewing machines

Sewing Machine parts and functions

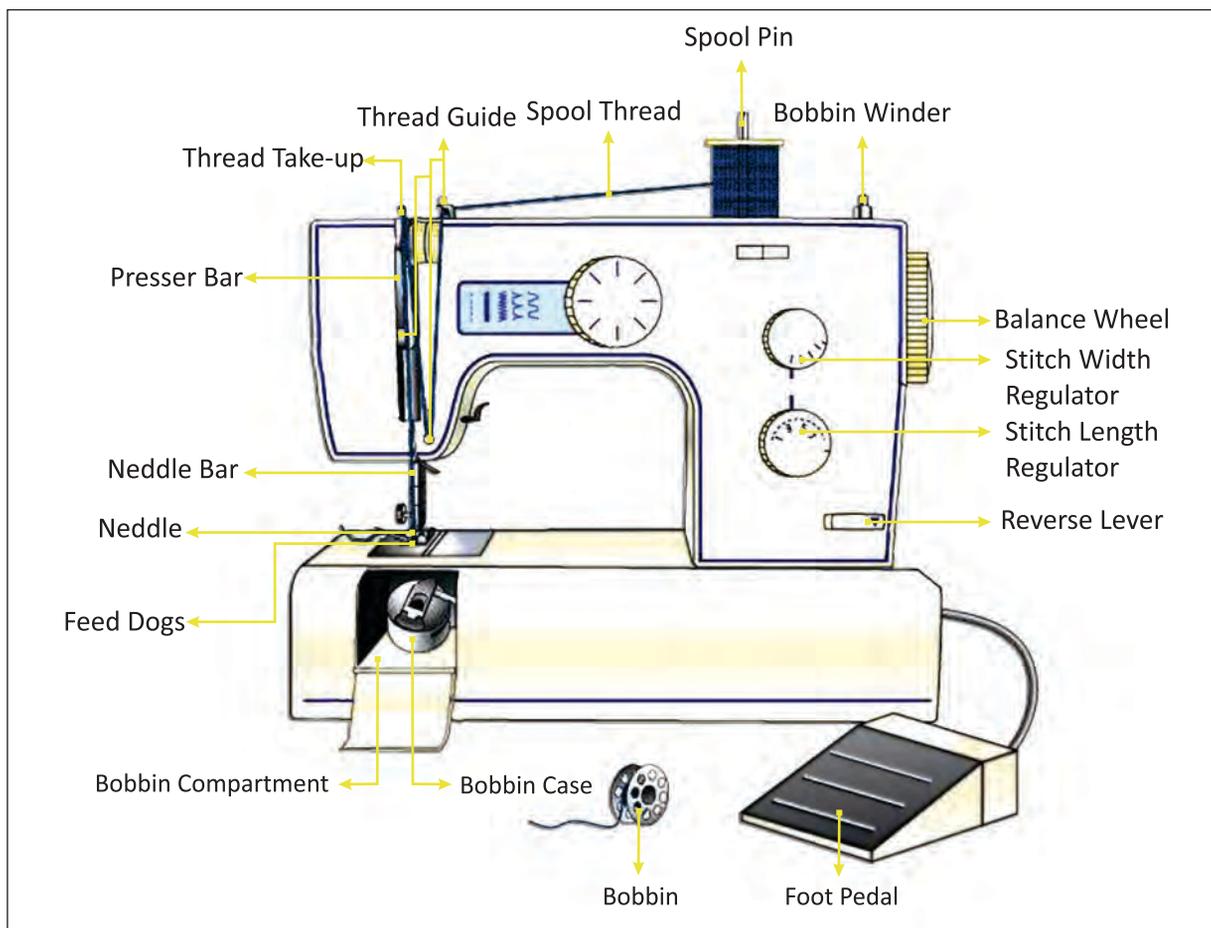


Fig 4.1.1 Sewing machine parts and functions

You may use the below content to start discussing the parts and its functions.

Let us now understand the parts and its functions:

1. **Main switch:** To supply electrical power to the machine

2. **Clutch type treadle:** To run or stops the machine
3. **Balance wheel:** To control the movement of the needle
4. **Reverse feed lever:** To make lock stitches at the beginning and at the End
5. **Stitch length regulator:** To select stitch length either in inch or metric system (stitches/inch or stitches/mm.)
6. **Tension control regulator:** To control the rate at which the thread feeds to the needle by a numbered dial

Similarly explain all the other parts and its functions, such as Thread guides, Thread take-up lever, Presser regulating screw, Presser bar, Needle bar, Needle holder, Needle, Presser foot, Presser foot lifter handle / knee, Combined bottom needle and upper feed mechanism (alternating feet), Rotator hook, Needle guard, Short throat plate with round edges and sharp single line feed dog, Shuttle, Feed dog, Bobbin case, Bobbin, Presser foot roller guide, Flat guide, and Thread stand.

Activity

Display the machine pictures and label them numbers in sequential order. Hide the name of the parts.

- Ask participants to create the observation sheet as shown below.

Item S.no	Name of the part	Function

- Assign 5 minutes per part to participants to write the description.
- Discuss in the end of the class the correct answers.
- Conduct with skill practice activity.

Skill Practice	Time	Resources
Identifying the parts of Sewing Machine	8 hours	Sewing Machine

Notes for Facilitation

- Ask participants to explain about various function of each and every part
- Ask participants to explain the safety and precaution measures requires while handling the machine.
- Ensure every participant is performing according with standard company SOP

Explain



Explain the following are the significant criteria for classification of stitching machine:

- a) General shape of the head
- b) Type of the stitch formation
- c) Number of needles
- d) Direction of the needle bar movements
- e) Type of construction

Based on these five classification, the operator will be able to select right sewing machine, threads and bobbins for materials as per the specifications mentioned in the job card.

Demonstrate



- Collect all the sewing machines- post bed, flatbed machines, cylinder arm and zigzag machines for the demonstration
- Read out the SOP clearly
- Read out the safety measures
- Show the components and describe the function
- You may use the below content to start discussing the parts and its functions.

The sewing machines are divided in the four main categories according to the shape of the head

1. Post Bed stitching machine: Commonly used sewing machine for footwear stitching purpose is post bed sewing machine. This machine has a small working area raised to allow easier fitting and stitching on the particular area of a closed upper or leather footwear.



Fig 4.1.2 Post Bed Stitching Machine

2. Flat Bed Stitching Machine

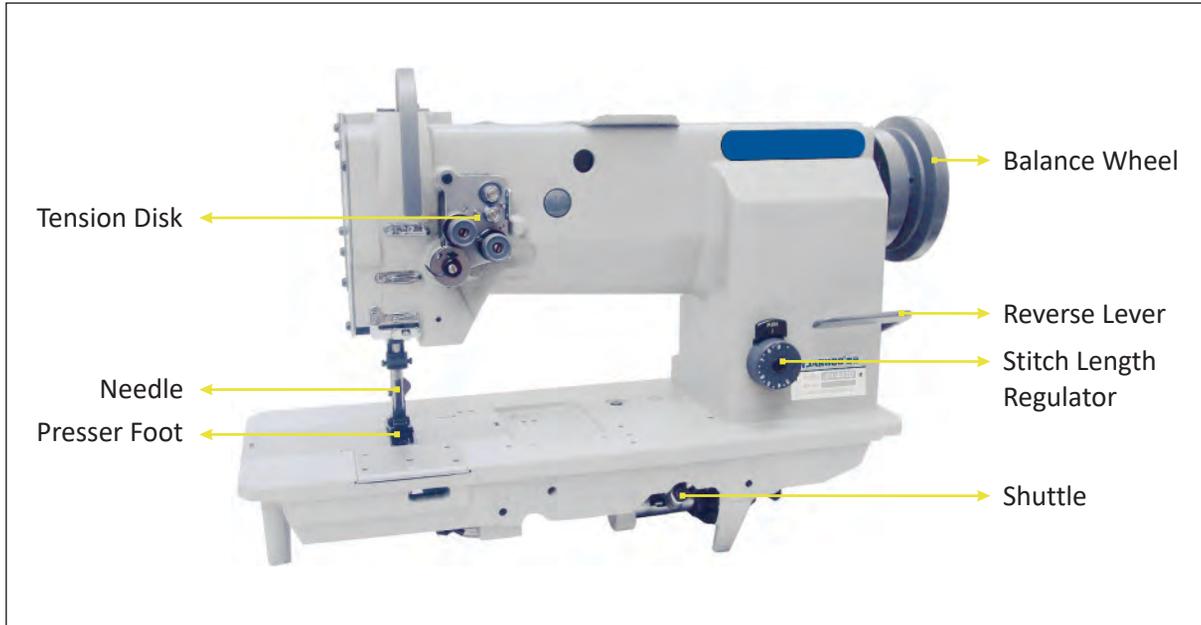


Fig 4.1.3 Flat Bed Stitching Machine

3. Cylinder Arm Machine: Cylinder arm stitching has a horizontal cylinder arm or which allows free movement around the working area for stitching particular position of the closed upper leather footwear and leather gloves. This Machine is also known as a Bamboo machine in the industry.

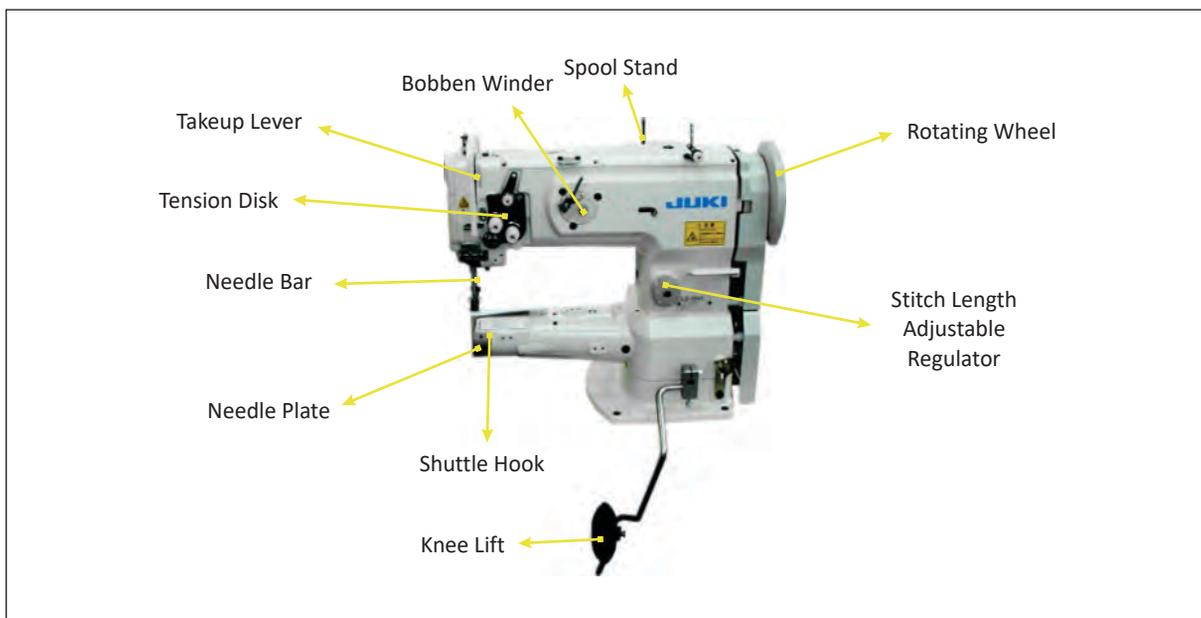


Fig 4.1.4 Cylinder Arm Machine

4. Zigzag Sewing Machine: Almost all modern sewing machines offer a zigzag stitch—a configuration that takes one stitch to the left and one stitch to the right.

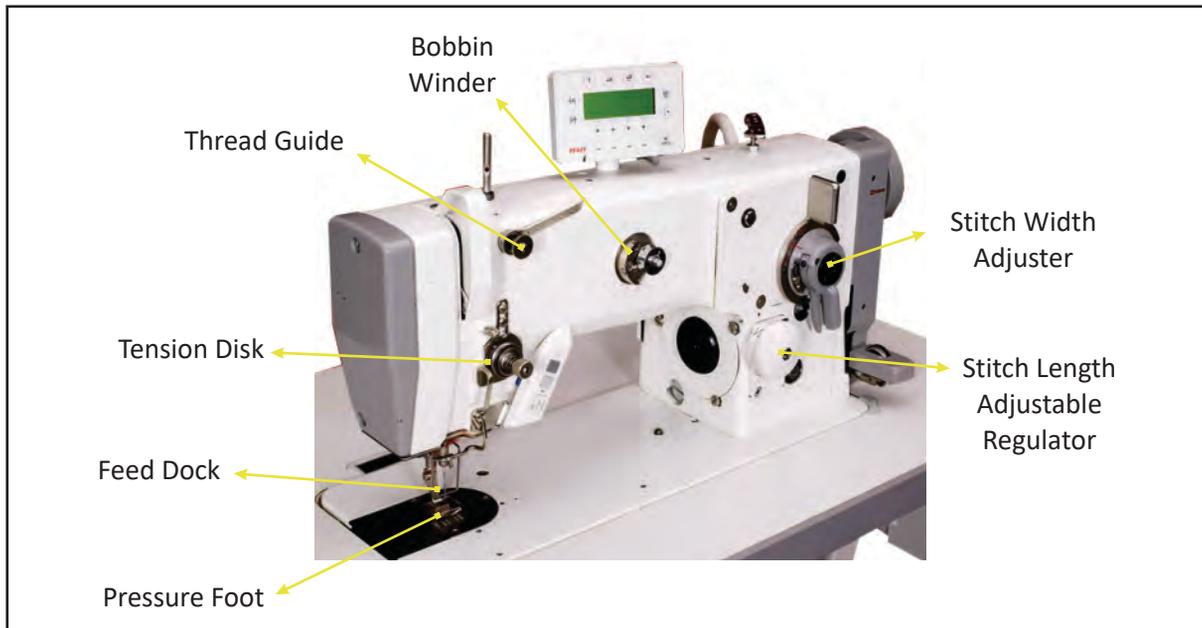


Fig 4.1.5 Zigzag Sewing Machine

Activity



- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
Identifying various types of Sewing Machines and its parts	8 hours	Post Bed Stitching Machine Flat Bed Stitching Machine Cylinder Arm Machine Zigzag Sewing Machine

Notes for Facilitation



- Ask participants to explain about various parts of sewing machines.
- Tell them to observe the machines and identify the various parts.

Explain



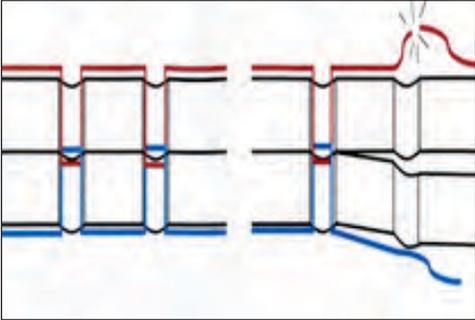
Use the below content to explain the different adjustments used to Control Stitch:

- **Length and Width:** The zigzag stitch width and length can be adjusted to change the appearance of the stitch
- **Tension:** A zigzag stitch should lie flat against the fabric without tunnelling
- **Seaming:** Seaming helps to eliminate thread breakage and subsequent tears in areas subjected to stress
- **Seam Finishing:** Seam finishing is done on the single layer seam allowance or on both together

Elaborate



Use the below content to provide description, purpose, importance and use of Lock stitch and Chain Stitch.

<p>Lock Stitch</p> 	<p>This stitch is formed by two threads. One thread coming from the top of the machine and feed through the needles. The other thread coming from the bobbin which is kept in the bed of the machine.</p> <p>A complete lock stitch forms in the following ways.</p> <ol style="list-style-type: none"> The descending needle pierces the materials and carries the thread below the needle plate A small loop is formed as the needle commenced to rise and the rotating hook of the bobbin goes through it and thereby interlocks the bobbin threads The needle still ascending and assisted by the take up lever draws up the loop and slack thread causing the lock to position itself centrally in the material
<p>Chain Stitch</p> 	<p>A chain stitch can be formed by several ways. Generally it is formed by one thread only but chain stitch can also be made by two or more threads, since for chain stitching creation bottom thread must be shuttled through the loop formed by the needle, threads should be of unlimited length.</p> <p>The action of chain stitch formed by one thread is as follows.</p> <ol style="list-style-type: none"> The needle pierces the material and leaves a loop of thread below After the needle ascends the material feeds to the next stitch position The needle again descends to pierce the material and also the loop left from the previous stitch

Explain

Provide description, purpose and use of various classification of stitching machine, based on number of needles, direction of needle bar movement, type of construction of machine.

Demonstrate

- Gather all the participants and explain demonstration process.
- Show them the different type of stitch.
- Show them the adjustments to control stitch.

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
1. Adjustments to Control Stitch	60 hours	Sewing Machines, Threads
2. Types of Stitch Formation		

Notes for Facilitation

- Ask them to get into pairs while conducting the activity.
- Give practice until they are familiar with both the stitch.
- Wrap the unit after summarizing the key points and answering questions.

Elaborate

Use the below information to elaborate on the different parts of machine sewing needle and its function:

1. Shank: The shank is the part of the needle that fits into your sewing machine, with the flat side to the back
2. Blade: The blade is what determines the needle size. (For example, a size 75 needle has a blade that is 0.75 mm in diameter.)
3. Groove: The shaft is the “body” of the needle, and the groove that runs the length of the shaft holds the needle thread
4. Point: The point and tip of the needle refer to the size, shape and length - all of which vary based on the type of needle
5. The scarf of the needle is an indentation on the backside that allows the bobbin hook to smoothly grab the thread under the sewing machine throat plate to create a proper stitch
6. The eye of the needle carries the thread to sew
7. The shoulder is the part of the needle where the thick shank tapers down to the shaft

Elaborate

- Explain the types of points and their description with pictures
- Show and describe them using the needles (Be careful while handling the needles)

Provide more information on the four main categories of the needle points, which are:

1. Round
2. Wedge
3. Twist
4. Cross

Elaborate

Use the below content to provide information on how needle Selection, needle point and needle size play a major role in stitching operation.

- Needle Selection: Once the needle system type is determined, the needle selection - its needle point and size – depends primarily on the characteristics of the fabric, but also on the thread, seam type, and stitch type.
- Needle Point: The needle point is determined by the fabric weight and its structure. Round points have a conical shape designed to spread the yarns without breaking them; they are used for most woven and many knitted materials. Cutting points have sharp cutting edges; they are used on leather, suede, and neoprene.
- Needle Size: The needle size can be as small as 60 (0.6mm) or as large as 250 (2.5 mm). The metric size describes the diameter of the needle blade in hundredths of a millimeter. The needle size is determined by the thread size.

Explain



Use the below content to list and explain safety measures to be taken while using Tools and Material.

1. Always wear eye protection when sewing, stamping or punching leather and closed-toed shoes that fully protect your feet. If available, wear an apron made of heavy fabric or leather.
2. Always cut in a direction away from your body and appendages when using a leather knife or cutter. If you drop a knife or cutter do not attempt to catch it. Let it fall to the floor.
3. When using leather shears, cut away from your body in regular, small strokes. Resting the shears against a table allows for better cutting control. It is easier to cut from right to left when you are right handed and from left to right when left handed.
4. Never run with a pair of leather shears or leather knife/cutter in your hand.
5. Carefully grasp awls, edgers, bevelers, creasers, chisels, and punchers at least one inch from their sharp or patterned tips. Use these tools in directions away from your body and appendages.
6. When using a mallet or maul, strike the head of the tool accurately and firmly to achieve the desired pattern effect, cut, or punch hole. Do not overstrike the tool.
7. Never use bent or broken needles or sewing awls to sew leather.
8. Use gloves when applying leather stains. Put a small amount of stain on a cloth or other applicator and recap the stain container before applying the stain to the leather.
9. When finished, clean the leather working area and put away all tools
10. If you are injured while leather working, notify you project leader, parent, or guardian. If a wound is not serious, wash it with soap and water and apply a clean bandage. Seek medical attention if the injury is serious

Do



Explain all the precautionary measures to be followed with pictures

Activity



- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
Identify different types of needle points	10 hours	Various needle points

Elaborate

Use the below content to explain the Relation between Needle and Thread size, Thread Selection and Thread Properties

Thread

- A long, thin strand of cotton, nylon, or other fibers used in sewing or weaving. Thread is the most important part as it will hold the leather together.
- Quality of thread also determines the quality of the stitch and finished product.
- Therefore it is important to choose the correct thread for correct material to stitch.

Thread Selection

- To provide good sewing performance a thread must have consistent size, strength, stretch and needle heat resistance.
- The thread selected for sewing has to provide satisfactory appearance in the seam in both stitch formation and colour match.

Factors in Thread Selection

- Footwear design, type, quality, end use, and life expectancy
- Desired strength and durability
- Fabric weight and type
- Stitch and seam type, number of stitches/inch, machine speed, and needle size
- Cost

Key points

Relationship between Thread and Needle

- Needle sizes and Thread sizes are inversely proportional like
- Needle / 60 / 70 / 80 / 90 / 100 / 110 / 120
- Thread / 80 / 60 / 40 / 20 / 10

Thread Properties

- Threads are used to form the stitches that hold the fabric parts Together. They can be described by fiber type, construction, and size.

Fiber Type

- Threads can be made from a single fiber type such as cotton, linen, silk, rayon, nylon, polyester, or rubber or from a combination of fibers such as cotton/ polyester.

Do

Similarly explain various details of thread, like thread construction, twisted threads

4.1.2: Preparation for Stitching Operation

Say



There are certain factors that need to be considered while preparing for the stitching operation.

Explain



Use the below content to provide the tasks that the operator has to perform for preparing for the stitching operation.

1. The operator must ensure that the work area is clean and check for any hazards.
2. A job card is a card that gives the detail of a job to be performed by a stitching operator.
3. The operator must select and sort the tools, materials and threads as per the specifications mentioned in the job card.
4. The operator must review and agree upon the work targets with the supervisors.
5. The operator must communicate with the supervisor and seek feedback on work-related performance such as quality, machinery selection and tool selection.
 - a) The operator must ask questions to obtain more information on tasks when the instructions are unclear.
 - b) The operator must report risks/problems likely to affect services to the supervisor promptly and accurately.
6. The operator must report defective machines, tools and equipment to the supervisor.
7. The operator must dispose of waste materials safely in the waste container and return re-useable materials like leather to the storage area.
8. The operator must carry out start and closedown procedures on completion of work safely as follows:
 - Read manufacturer manual carefully and completely before operating the machine
 - Wear proper clothes for work
 - Keep hands or other parts of the body away from the machine's operation parts (needle, shuttle, thread take-up lever, pulley, etc.) when the machine is operating
 - Be sure to connect the earthing conductor
 - Turn off the main power after completion of work and then sort and place work to assist the next stage of production
 - Do not step on the pedal when turning the power on
9. Policies are a statement of purpose, which highlight broad guidelines on action to be taken to achieve that purpose.
10. The operator must carry out visual inspection to ensure the products are free from handling defects.

Notes for Facilitation

- Ask participants to explain about various factors that needs to be considered for stitching operation.
- Individually question the participants how they will carry-out start and close down procedure

4.1.2.1: Service and Targets

Say

Before delivering anything, you need to understand the service and its targets

Explain

Discuss the Job cards and work ticket with supervisor to fully understand the requirement and quantity need to be produced. Agree and review your agreed work targets with your supervisor and check for special instructions, if any:

Always

- Sort and place work to assist with the next stage of production and minimize the risk of damage.
- Leave work area safe and secure when work is complete.
- All the company SOP will be discussed by trainer. SOPs are related to quality, safety, standards, feedback, job card details, work agreement, mechanism to discuss work with supervisor and line production. It is important to read the SOP to understand organization work quality standards, procedures etc. which will be important for effective productivity.

Elaborate

Provide purpose, description and other details on the following types of documentation:

1. Raw materials test certificate from supplier
2. Lab test report of raw materials
3. Production register/log
4. Machine batch log
5. Machine condition log
6. Communication files
7. Quality check list

Notes for Facilitation

- Ask participants to explain about different types of documentation.
- Explain them about Job Card

UNIT 4.2: Carry-out Stitching Operation

Unit Objectives

At the end of this unit, students will be able to:

1. Adjust machine controls like stitch length, tension and where ever necessary
2. Operate machines safely and in accordance with guidelines
3. Estimate the expected length of time for the process
4. Optimize the positioning and layout of materials to ensure a smooth and rapid throughput
5. Check the upper components and conduct shade wise pairing
6. Stitch the correct materials in the right sequence as required by the production specification
7. Perform back joining/quarter back joining using zigzag machine/flatbed machine
8. Perform seam rubbing by machine if back joining done by flatbed machine
9. Attach vamp with tongue using flatbed machine
10. Apply adhesives on the components
11. Join upper and lining using flat/post bed machine and join quarter with vamp using post bed machine
12. Carry-out visual inspection as per specifications in the job card
13. Sort and place work to the next stage of production and minimize the risk of damage
14. Respond accordingly where stitched items do not meet production specification
15. Carry-out basic maintenance of machinery and keep them clean after use
16. Report risks/ problems likely to affect services to the relevant person promptly and accurately
17. Complete forms, records and other documentation

4.2.1: Stitching Operation

Say

After assembling, components are checked for quality and then sent for stitching operation.

Elaborate

Refer to 2.2.1: Stitching operation to introduce stitching operation and provide the overview on various types of stitches that are carried out in this operation.

4.2.2: Sequence of Operations for Toe Cap Oxford

Steps

Let's understand different operation steps for Toe Cap Oxford

Step 1:	Stitching marking
Step 2:	Edge coloring
Step 3:	Skiving
Step 4:	Interlining ironing
Step 5:	Counter back seam stitching
Step 6:	Seam rubbing and taping
Step 7:	Quarter + counter fitting
Step 8:	Quarter + counter double row stitching
Step 9:	Eyelet facing + Quarter fitting
Step 10:	Eyelet facing + Quarter double row stitching
Step 11:	Folding of quarter top line, vamp (if required)
Step 12:	Toe cap + vamp fitting
Step 13:	Toe cap + vamp double row stitching
Step 14:	Vamp + quarter top line fitting
Step 15:	Vamp + quarter top line stitching
Step 16:	Eyelet reinforcement attaching
Step 17:	Tongue upper + tongue lining fitting
Step 18:	Tongue edge stitching
Step 19:	Tongue edge trimming
Step 20:	Quarter lining + heel grip fitting
Step 21:	Quarter lining + heel grip stitching
Step 22:	Quarter lining + Vamp lining + Tongue fitting
Step 23:	Quarter lining + Vamp lining + Tongue stitching
Step 24:	Lining fitting with upper
Step 25:	Quarter top line stitching
Step 26:	Eye letting
Step 27:	Cleaning and thread burning
Step 28:	Final inspection

Do

- Take the participants through each of these steps in detail
- Make them understand the steps by giving them examples
- Ask the participants randomly to list the steps, after explaining

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
Carry-out operations for Toe Cap Oxford making	60 hours	Tools for marking, coloring, ironing, skiving, seam rubbing, stitching etc.

Notes for Facilitation

- Ask participants to explain about various steps in making Toe Cap Oxford.
- Give instructions for using proper tools for operation

4.2.3: Components of Footwear

Say

The structure of a shoe can be divided into two parts: an upper and lower/ bottom part.

- Sections of the upper are made up of the vamp, quarter, toe box, throat, insole board, and topline.
- The sections of the lower shoe consist of an outsole, shank and heel.

Demonstrate

- Get shoes required for the demonstration
- Read out the SOP clearly
- Demonstrate the components of footwear

Let us now see the various components of Footwear

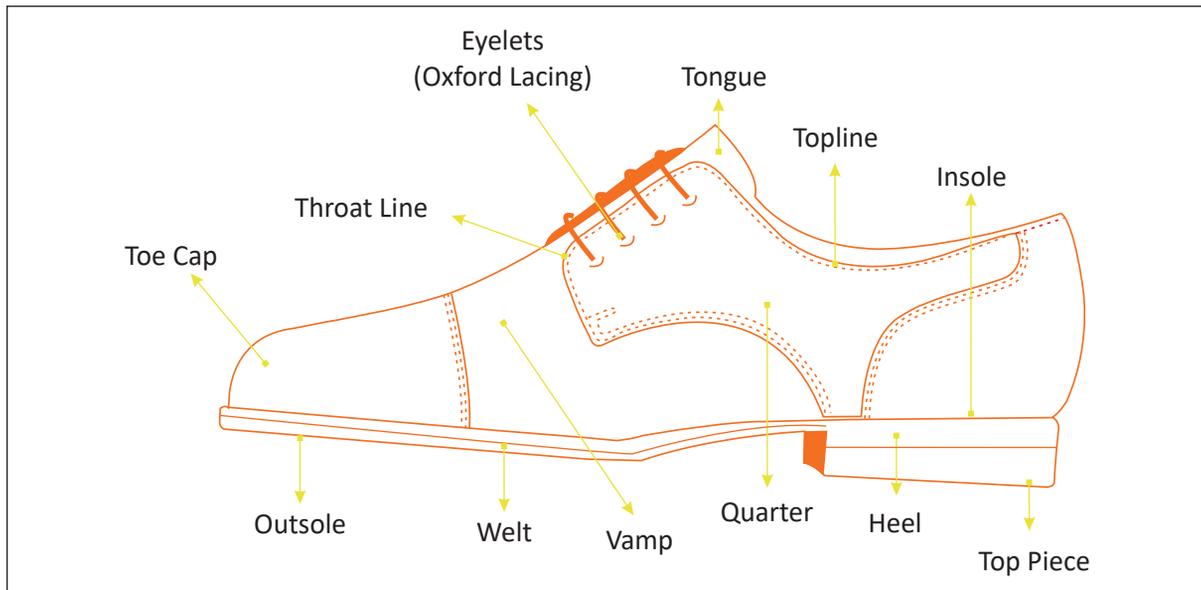


Fig 4.2.1 Components of Footwear

Explain



Show the image of footwear components.

Provide details of each component to the participants.

Demonstrate



- Get shoes required for the demonstration
- Read out the SOP clearly
- Demonstrate the components of the sole of the shoe

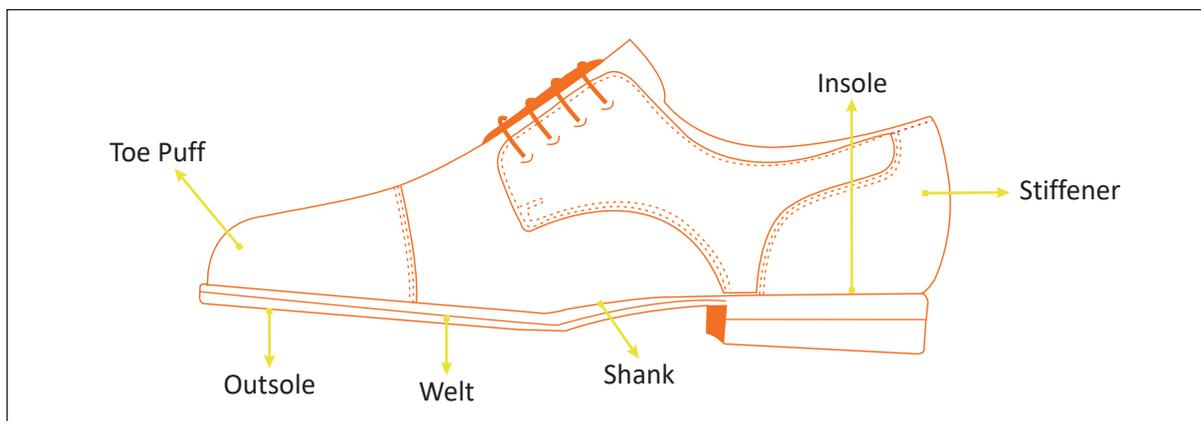


Fig 4.2.2 Sole of the Shoe

Explain



Provide more information on components of sole:

1. Insole: A layer of material shaped to the bottom of the last and sandwiched between the outsole (and midsole) and the sole of the foot inside the shoe.
2. Outsole: Outsole is the outer most sole of the shoe, which is directly exposed to abrasion and wear
3. Lining: Lining is an important process. It is done in almost all leather footwear. In lining, the lining pattern must always be bigger than the leather component pattern.

Say



There are variety of linings which are used in footwear making.

1. Edge lining: Edge lining is done on the edges of the component which gives softy feel to the products.
2. Full Lining: Full lining is attached to the whole surface of the component, using adhesive. The edges of the leather component are folded and then stitched.
3. Drop-in-Lining: The lining is stitched first and then attached to the product on the top by stitching. The lining is held loosely inside the article. It is also called pull out or loose lining.

Explain



Show images as you explain the type of shoe as per the table below.

Types of Shoes	Description
Albert Shoe	The basic construction of the shoe is like Derby shoe. Instead of providing eyelets in the quarters, the quarter of the shoe is designed with a bar running over the instep from the inside quarter to outside quarter.
Bar Shoe/Monk Shoe	Simple low-cut men's casualshoe. No elastic or lace is used in this shoe. It is made with one piece of leather, but some time a cut is provided on the inside quarter.
Ballerina Shoe	This is a wide-open simple low cut ladies shoe. The front top line of the shoe passes through the main line of flexing of the foot.
Ball Shoe	A ladies shoe with low-cut, flat heel, light-weight and slip-on casual shoe for teenaged girls.

Bootee	This is basically an ankle shoe for women. The word 'Bootee' came from 'Boot' which is also an ankle high footwear used by men.
Ballet Shoe	This is a low-cut gents shoe. This is a shoe with a closed front-laced ankle.
Boot	This is a type of Oxford with no seams, apart from the toe cap seam, descending to the welt, a style common on boots.
Brogue Shoe	It is the name given to footwear which has a quarter height more than the height of the ankle. This may be of any type and construction.
Court Shoe	It is a traditional ladies shoe with usually with a moderate heel height. The lasts are designed for better gripping of the shoe.
Chappal	This is one of the few footwear which originated in India. The vamp portion of the sandal is divided in two parts with wide straps to cover the most part of the foot.
Casual Shoe	A low cut shoe without lace or elastic for fastening it with the feet. The shoe is designed in such a way that men can easily put his feet in the shoe and start moving.
Derby/Gibson	This is the most popular and simplest construction for a shoe upper.
Ghillie Shoe	The shoe lace is passed through rings or loops, usually metal, stitched into the margin of the front opening instead of eyelet. The front opening is from vamp throat to instep.
Jodhpuri Boot	There are two types of Jodhpuri boots available. One is semi ankle height with 3 to 4 eyelets and quarters are made with one-piece leather and it looks like simple derby type construction. The other is with ankle or more than ankle high boot.
Jalsa	A low cut wide open casual shoe. It is generally made with single piece upper component joined at the back.
Mule	This is basically a lady's sandal. It is with no counter and quarter. This is held on the foot by the forepart only.

Moccasin	This is a form of upper construction where maximum upper portion of the shoe excluding apron are made in one piece of leather.
Pump Shoe	This is a low cut ladies shoe wide open and having no additional means of fastening.
Peep Teo	The vamp contains only a single piece or interlaced straps. This is usually for women.
Sling-Back	The quarter for this footwear is replaced by a buckled strap or strap with elastic at back, passing from the forepart around the back of the ankle.
Sports Shoe	The salient features of this construction is shock absorption, flexibility, durability and light in weight.
Balmoral Shoe	This is a type of Oxford with no seams, apart from the toe cap seam, descending to the welt, a style common on boots.

Do



- Take the participants through each of the components of shoe
- Explain them in detail, with the pictures
- Demonstrate the components by showing the actual sole
- Demonstrate various types of footwear and its key features

Activity



- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
List the components of a Footwear	6 hours	Simple Footwear
List the components of sole	6 hours	Simple Footwear/Sole
Identifying the different types of Footwear	6 hours	Sample Footwear's – Sports shoe, pump shoe, peep toe, ballerinas, Moccasin, mule, jalsa etc.

Notes for Facilitation



- Ask participants to explain about various components of footwear.
- Ask participants to explain different components of sole
- Ask participants to identify different types of footwear
- Ensure every participant is taking part in the activity

4.2.5: Steps for Machine Stitching Process (Leather)

Do



Explain the step by step procedure involved in machine stitching process.

Steps



STEP 1: Switch on the Machine and operate safely



STEP 2: Optimize the positioning and layout of materials to ensure a smooth and rapid throughout



STEP 3: Adjust machine controls, tension and stitch length



STEP 4: Collect the cut parts of the upper



STEP 5: Check the edges of the upper are shaved, to prevent thickness where they overlap or fold



STEP 6: Stitch the tip to the Vamp using flat bed machine and join quarter with the vamp using post bed machine as specified in the job card



STEP 7: After stitching is done to prepare uppers for the lasting stage seams should be reduced



STEP 8: Sorting & placing and Inspection

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
Showcase different steps for machine stitching process	2 hours	Stitching operation machine and other tools

Notes for Facilitation

- Ask participants to think about the steps
- Ask them if they have any doubts in how it needs to be performed
- Allow time for brief discussion and answer their queries if any
- Ensure every participant is performing according with standard company SOP

2.2.6.1: Steps for Machine Stitching Process (Non-Leather)

Do

Explain the steps involved in carrying out stitching operations of upper (Non-Leather) using machine

Steps



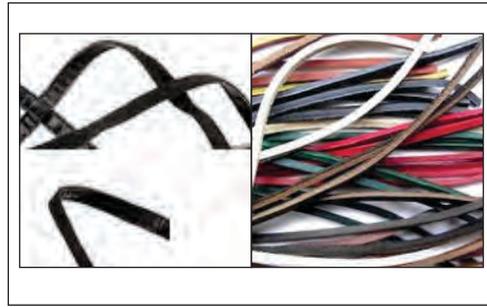
STEP 1: Switch on the Machine and operate safely



STEP 2: Optimize the positioning and layout of tools and materials to ensure a smooth and rapid throughout



STEP 3: Adjust machine controls, tension and stitch length



STEP 4: Collect the cut parts of the upper (non-leather)

Notes for Facilitation

After step 4, follow steps 5 to 8 as explained in stitching leather shoes

Do

- Explain various safety precautions that is mandatory at workplace while performing machine stitching
- Mention procedure in detail
- Explain standard operating procedures

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity
- Assign a style for construction of footwear by participants

Skill Practice	Time	Resources
Showcase different steps for machine stitching process non leather	90 hours	Stitching operation machine and other tools

Notes for Facilitation

- Ask participants to explain about various steps in machine stitching
- Ask participants to explain about the safety procedures while machine stitching process
- Ask them if they have any doubts in how it needs to be performed
- Allow time for brief discussion and answer their queries if any
- Ensure every participant is performing according with standard company SOP

4.2.6: Basic Maintenance of Machinery

Do

- Explain various general procedures required in the basic maintenance of cleaning, oiling, and lubricating as maintenance of sewing machine
- Mention cleaning procedure in detail
- List out the components that needs to be cleaned

Elaborate

Use the below content to provide the general cleaning and oiling requirement.

- Remove all the parts possible in order to clean the machine thoroughly. Keep the parts in order to make it easier to replace them.
- Bobbin Area: If possible, remove the bobbin case to remove all lint and stray threads.
- Upper Thread Tension: Pull a piece of cloth soaked in solvent back and forth between discs to clean.
- Face Plate Area: Remove lint from faceplate area using a soft brush. A cloth dipped in solvent can be used to remove grease and grime.
- Face Plate Area: Place a drop or two of oil on moving parts where they slide through a housing or move against each other
- Oiling: Place one or two drops of oil in holes designated by the instruction booklet.

Notes for Facilitation

- Ask participants to explain about Do's and Don'ts in general cleaning procedure
- Make the class interesting by asking questions on their understanding
- Keep the learners motivated through giving various examples

4.2.7: Lockout Procedure

Do

- Explain the seven steps involved in proper lockout procedures
- Mention operative practices

Steps

1. Prepare for shutdown
2. Shut down the equipment
3. Isolate the Equipment
4. Attach Locks/Locking Devices and Tags
5. Control stored energy
6. Verify isolation of equipment
7. Release from lockout control

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
List seven steps involved in lockout procedure	8 hours	Stationery, Chart

Notes for Facilitation

- Ask participants to explain about various steps in lockout procedure
- Tell them how to follow lockout procedure
- Ensure every participant is performing according with standard company SOP

4.2.8: Reporting and Documentation

Do

- Explain effects of non-compliance of reporting and documentation
- Mention the important reasons for maintaining the records

Notes for Facilitation

- Discuss the importance of maintaining the records at the workplace to the participants.
- Ask participants to explain about importance of keeping records
- Summarize the key takeaways from the unit
- Mention key points that needs to be followed during stitching operation

Explain

Give an example of any issue that can occur during operation.

Provide details on why such issue is important for reporting and documentation.

Provide more reasons as listed below.

The records are very important for the following reasons

1. Since maintenance history is recorded, work can be easily transferred to the next team or individual when the staff changes
2. Labor becomes more productive because employees and maintenance tasks are tracked, which eliminates redundant work.
3. To change the SOP to avoid re occurrence of the same defects
4. To plan for adaptation of new processes and plan the equipment

Activity

- Conduct skill practice activity
- Ask the participants to gather
- Explain the purpose and importance
- Set guideline regarding the discipline during the activity

Skill Practice	Time	Resources
How to fill the record book	8 hours	Record book format/ template
Role play on how to report an incident to the supervisor	8 hours	NA

Notes for Facilitation

- Ask participants to fill out the template
- Ask them the important reasons of maintaining record book



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& ENTREPRENEURSHIP



N S · D · C
National
Skill Development
Corporation

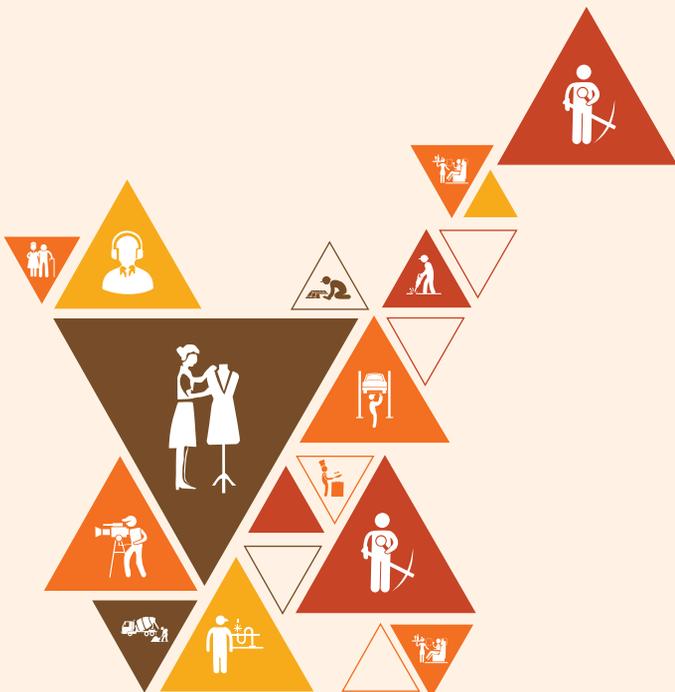
Transforming the skill landscape



LEATHER
SECTOR
SKILL
COUNCIL

5. Contribute to Achieving Product Quality in Stitching Operations on Footwear

Unit 5.1 - Perform Quality Checks on Materials and Equipment, Achieve
Quality in Stitching Operations on Footwear Making



LSS/N2204

Key Learning Outcomes

At the end of this module, students will be able to:

1. Differentiate Stitching types and styles
2. Learn about product specification
3. Report quality issues
4. Process knowledge of ISO and 5S
5. Perform corrective action and reporting effectively

UNIT 5.1: Achieving Product Quality

Unit Objectives

At the end of this unit, students will be able to:

1. Ensure that materials and component parts meet specifications
2. Ensure that the quality and appearance of the uppers are not affected during materials movement
3. Ensure that the required productivity and quality of the product meets specification
4. Carry-out quality checks at agreed intervals and in the approved way
5. Check that the upper components are paired shade wise as per the specifications in the job card
6. Check that the stitching is done properly as per the design specifications and no damaging the appearance and quality
7. Check that no spillage of adhesives appears on the uppers
8. Maintain the continuity of production with minimum interruptions and downtime
9. Identify faults and irregularities in equipment and machinery and report to the superior

Notes for Facilitation

- You could ask the students about the expectations from the course
- Encourage the students to participate. List their expectations on the whiteboard.
- Give the students a brief overview of what will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

5.1.1: Quality and Standards

Do

Explain what is quality control and standards in simple language

- Explain some of the defects that does not qualify to meet quality standards. Cover the below mentioned defects products that do not meet the quality standards.
 1. Eyelet and lace defects – Loose Eyelet
 2. Upper dirty – Glue stain
 3. Quarter defect – Glue slip out
 4. Damaged upper defects – scratch mark on upper
- Explain in detail referring to the pictures and table. As you explain the defects, write them on the chart/ white board

Elaborate

Explain various defects to the participants referring to the tables in the chart/ white board

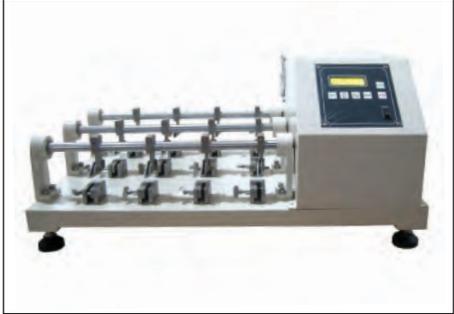
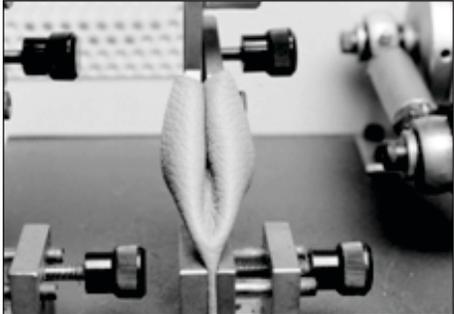
Stitching Defects Color Variation Defects	Color Variation Defects
Crooked stitching (out of stitching mark)	Poor antique treatment
High, low, or uneven stitch density	Variation between left and right shoe
Stitching too close to seam edge	Color variation between different pieces of upper
Skipped stitch on upper	Color of stitching and upper material not matching (as per conformation sample)
Incorrect needle type	Wrong color on ornaments and lace
Open seam	
Incorrect thread size	
Thread ends	

Damaged Upper Defects	Lining Defects
Scratch mark on upper	Lining dirty, damaged or wrinkled
Cut upper	Trimming damage on top line stitching, causing lining to show gap
Visible roughing marks more than 1.5 mm or conspicuous	Sock lining gap not deeper than 2 mm
Crooked upper caused by mis-stitching of moccasin construction	
Torn upper caused either by high stitch density or poor reinforcement	Cementing off, between upper and lining
Back heights not uniform within pair	

Upper Dirty	Eyelet & Lace Defects
Glue stain	Punched bigger or smaller than eyelet
Dirty marks	Loose eyelet
High glue line more than 1.5 mm in any area	Rust on eyelet or other metal buckles
Thread residue	Laced wrong for easy try on
Fading, fugitive color	Wrong length, (need ton lace up the measure for length)
Color shade, off shade, color deviation	Dirty marks on lace
	Poor eyelet attachment
	Eyelet not uniform

Do 

- Show them the Quality Testing Equipment's to check the flexing resistance of footwear upper material and busting strength.
- Explain its uses as per the table below.

Quality Testing Equipment	Use
 	<p>It is used to test the flexibility of footwear upper materials.</p> <p>The test can be carried out with wet or dry test specimens and at ambient or sub-zero temperatures.</p>
	<p>It is used to measure the resistance to rupture in various materials like paper, board, fiber and corrugated board.</p>

Explain 

Use the below content to explain explain the common problems and reporting encountered during stitching process

Any problem encountered during stitching process should be recorded in the log/register book, indicating clearly date, time, and batch number. Besides the concerned batch should be segregated and kept in "HOLD area" with a clear red label mentioning recipe number, batch number and small note on the incident.

A clearly visible placard may be posted on the machine or work area indicating the hazard. It is very important to follow the procedure of recording a hazardous incident as wells as communicating to the concerned personal for immediate attention to resolve the same as well as for future reference.

Noncompliance of the above can affect employee health or result in accidents such as slippage in the oily floor and also chances of repetition in the future.

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Prepare a chart on various defects	10 hours	stationery items, chart

Notes for Facilitation

- Ask participants what are the various defects
- Conduct a group discussion assessing the defects
- Make sure every participant is on the same page and participating
- Ensure every participant can understand what are various defects
- Take the participant through Stitched Upper Part Quality Inspection Report
- Ask the participants about different quality testing equipment's and its uses
- Ask the participants about the importance of maintain records
- Explain clearly about the effects of non-compliance

5.1.2: Quality Control Aspects

Explain

Use below content to provide knowledge on Specifications, Stage specifications and quality & excellence.

Specifications

Written specifications are essential to ensure that the buyer and seller both understand exactly what is to be manufactured. In many cases, "specifications" are informal. The term "commercially acceptable" is frequently encountered but unfortunately, it does not tell the leather footwear maker what standards his product should conform to or the leather footwear producer what the leather characteristics should be. Formal specification results in the company being control of the whole operation.

Stage Specifications

- Agree with the customer the specification of the leather footwear he wants
- Translate this into the company's technical terminology
- Define specifications for raw materials and accessories
- Define specifications and tolerances for each stage of leather footwear production

- Complete the quality manual entry form for the leather footwear in question

Specifications must be agreed between the parties concerned, be the buyer and seller or cutting room and sewing room. Specifications, which are too tight, can make the product more expensive than it need be.

Quality and Excellence

Quality must not be confused with excellence. One could, for instance, set out to produce a low quality product by legitimately using quality control to ensure that the product remains consistently at that quality level and did not drift into the quality higher or lower than that planned.

Quality Accreditation

Quality accreditation requires not only good quality control but also tangible evidence to show its effectiveness and to convince a potential customer that product quality is under control.

The Cost Quality

Quality and the cost of attaining it must be measured and evaluated objectively in the same way as other facets of the firm. All cost associated with quality and its control is very important. There are three categories of quality cost that are identifiable:

- Prevention and preparation
- Measurement and analysis
- Failures and rectification

Elaborate



Refer to 3.1.2: Quality Control Aspects in participant handbook to provide details on the following:

1. Monitoring Quality
2. Measure Defect Rate
3. Defect Analysis
4. Parameters of Quality

Activity



- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Prepare a chart on quality control parameters	10 hours	Stationery items, chart

Notes for Facilitation



- Ask participants what are the important aspects of Quality Control
- Ask them to explain its specifications
- Ask the participants to explain various quality parameters that needs to be followed during quality control
- Conduct a group discussion on all the quality control parameters
- Make sure every participant participates in the activity

5.1.3: Quality Control Aspects of Production

Elaborate



Refer to 3.1.3: Quality Control Aspects of Production topic in participant handbook to provide information on the following:

- finished leathers
- feel
- adhesion to finish
- cracking
- dry and wet rub
- scuff resistance
- strength
- fading
- water absorption
- water repellent
- chemical resistance
- tensile strength
- stitch-tear strength
- abrasion resistance
- water vapor permeability
- fittings, lining and accessories
- elongation at break
- mechanical process
- stitching process

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Prepare a chart on quality control aspects of production	10 hours	Stationery items, chart

Notes for Facilitation

- Ask participants what are the important parameters of quality
- Conduct a group discussion on physical tests on finished product
- Make sure every participant is on the same page
- Ensure every participant can understand what is quality analysis

5.1.4: Tips to Maintain Quality

Do

- Explain the tips to maintain quality
- Mention the importance of monitoring, warehousing, and good housekeeping

Notes for Facilitation

- Ask participants what are the important key points to maintain quality
- Conduct a group discussion on good housekeeping
- Make sure every participant is on the same page
- Ensure every participant can understand what is quality control is?

5.1.5: Common Problems

Do

- Take the participants through some of the common problems during stitching
- Explain the defects, cause and how to resolve the same through some of the remedies
- Explain about the quality specifications to the participants

5.1.5: Common Problems

Do 

- Take the participants through some of the common problems during stitching
- Explain the defects, cause and how to resolve the same through some of the remedies
- Explain about the quality specifications to the participants

Do 

Take the participant's through other quality checks, such as incorrect stitching, verifying the number of uppers, damage to the shoe, spillage of adhesives, trimming and reporting procedures

Notes for Facilitation 

- Ask participants what are some of the common problems that hinders productivity and quality
- Conduct a group discussion on the below flow chart
- Make sure every participant is on the same page
- Ensure every participant can understand what is quality specifications

5.1.6: ISO (International Organization for Standardization)

Do 

Refer to 3.1.6: ISO topic in participant handbook to explain the principles of ISO 9000.

Notes for Facilitation 

- Ask participants what are some of the principles of ISO
- Ensure participants on the knowledge and ask if they have any doubts
- Motivate the participants by conducting various activities and energizer's

5.1.7: Reporting and Documentation

Do

- Explain effects of non-compliance of reporting and documentation
- Mention the important reasons for maintaining the records of problem encountered during stitching process should be recorded in these books.

Explain

Use the below content to explain the importance of reporting the incidents.

Any problem encountered during stitching process should be recorded in the log/register book, indicating clearly date, time, and batch number. Besides the concerned batch should be segregated and kept in “HOLD area” with a clear red label mentioning batch number and small note on the incident. The purpose of this segregation and clear identification of the problem batch is to alert the shop supervisor and higher ups to take cognizance of the problem and initiate corrective action at the earliest. Recording maintenance history accurately leads to failure prevention and drives awareness about equipment maintenance.

Notes for Facilitation

- Discuss the importance of maintaining the records at the workplace to the participants.
- Ask participants to explain about importance of keeping records
- Summarize the key take aways from the unit
- Mention key points that needs to be followed during stitching operation
- Ask them the important reasons of maintaining record book
- Ensure to follow the company guidelines as per their standard SOP

Key Learning Outcomes

At the end of this module, students will be able to:

1. Describe cleaning equipment
2. Explain work area regulations
3. Explain the importance of maintaining a clean and hazard free working area
4. Describe machine guards
5. Describe correct lifting and handling procedures

UNIT 6.1: Maintain the Work Area

Unit Objectives

At the end of this unit, students will be able to:

1. Handle materials, machinery, equipment and tools safely and correctly
2. Use correct lifting and handling procedures
3. Use materials with minimum wastage and dispose of waste safely in the designated location
4. Prepare, organize work and deal with work interruptions
5. Maintain a clean and hazard free working area
6. Work in a comfortable position with the correct posture
7. Use cleaning equipment and methods appropriate for the work to be carried out
8. Carry-out cleaning according to schedules and limits of responsibility and store cleaning equipment safely after use
9. Complete and store accurate records and documentation

Notes for Facilitation

- You could ask the students about the expectations from the course.
- Invite students to participate. List the expectations on the whiteboard.
- Give the students a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

6.1.1: Maintaining Workplace and Housekeeping

Explain



Name 5S is the acronym of five Japanese words of the following meanings: They are

Japanese 'S'	Translation	English 'S'
Seiri	Organization	Sorting
Seiton	Neatness	Simplifying Access
Seiso	Cleaning	Sweeping
Seitetsu	Standardization	Standardization
Shitsuke	Discipline	Self-Discipline

Table 6.1.1 5S

Explain



- Write the 5S on flipchart/ board along with their translations.
- Explain each rule in detail by providing examples. (Refer 5's topic in a participant handbook.)

Activity



- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and importance.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Prepare a chart on 5s system for the classroom	5 hours	Stationery items, chart

Notes for Facilitation



- You could ask the participants if they understood the 5S process.
- Ask them question on how 5S will bring in the change and its benefits.
- Ensure all the students are involved in the discussion.

UNIT 6.2: Perform Maintenance Operations

Unit Objectives



At the end of this unit, students will be able to:

1. Carry-out running maintenance within agreed schedules
2. Report unsafe equipment and other dangerous occurrences to supervisor
3. Carry-out maintenance and/or cleaning out of responsibility
4. Ensure that the correct machine guards are in place
5. Work in a comfortable position with the correct posture
6. Use cleaning equipment and methods appropriate for the work to be carried out
7. Carry-out cleaning according to schedules and limits of responsibility and store cleaning equipment safely after use
8. Complete and store accurate records and documentation

Notes for Facilitation



- You could ask the students about the expectations from the course.
- Invite students to participate. List the expectations on the whiteboard.
- Give the students a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

6.2: Maintaining Tools and Machines

Say



- Maintaining tools and machines in proper condition is vital at work area.
- Clean, well-oiled machine is essential for safety and good performance.
- Machine maintenance is also important.

Explain



- Discuss the work area maintenance with the participants.
- Explain the cleaning procedure and their purpose to the participants. (Refer to the below table)

Running Maintenance Task		
Task	Key Points	Method
Cleaning	The machine or equipment should be maintained in a periodic manner.	Cleaned with a cloth to clear the excess amount of dust and oil from the machine.
Tooling	Tools should always be maintained and used in sharp condition.	Grinder is used to sharpen the tool in a periodic basis.
Lubricating 	Lubrication of the moving parts is essential and carried out in a routine basis. Proper maintenance operation such as lubricating should be carried out by the operator to avoid the breakdown of machine. Periodical checkup for oiling and greasing for the motor, gear box and pinion wheel.	The operator checks the machine manual for maintaining the oil level in equipment. It provides him information on what type of oil to be used and where to oil the machine.

Table 6.2.1 Running Maintenance Task

Notes for Facilitation



- You could ask the participants to explain the maintenance tasks of work area.
- Make all of them to participate and engage the discussion.

6.2.1: Work Area Regulations

Say

Work area regulations refer to the basic etiquettes to be followed at work area.

- Floor marking establishes safe pathways for workers.
- Do not cross the yellow lines on the floor
- Awareness of the significance of the colours used in workplace is important for the safety of the employee.

Do

Explain the color code and its purpose

Color Code	Purpose
Yellow	To mark aisles and pathways. Indicates areas where caution is required.
Orange	This color is used to indicate materials being held for inspection.
White	This color is used for general purposes such as lines around equipment and storage locations.

Table 6.2.2 Color codes

6.2.2: Machine Guards

Say

- After maintenance task is completed, the operator must ensure that machine guards are kept in proper place.
- The main objective of the machine guard is to defend the operator of Splitting machine and other workers from threats or dangers caused due to rotating parts, sparks and running nip points.



Fig 6.2.3 Splitting machine Guards

6.2.3: Lighting and Ventilation

Say



Lighting and ventilation at work is very important to the health and safety of every one using the workplace. Good lighting will enable worker to work and move about safely.



Fig 6.1.5 Good Lighting

Explain



- Use below content to provide information on running maintenance tasks.

Inadequate lighting influences the well-being of employees during work leading to develop headaches, migraine and eye strains. Inadequate lighting is one of the reasons that lead to decrease productivity. Hence the operator must ensure that the place he is working has sufficient lighting and lights are in working condition.

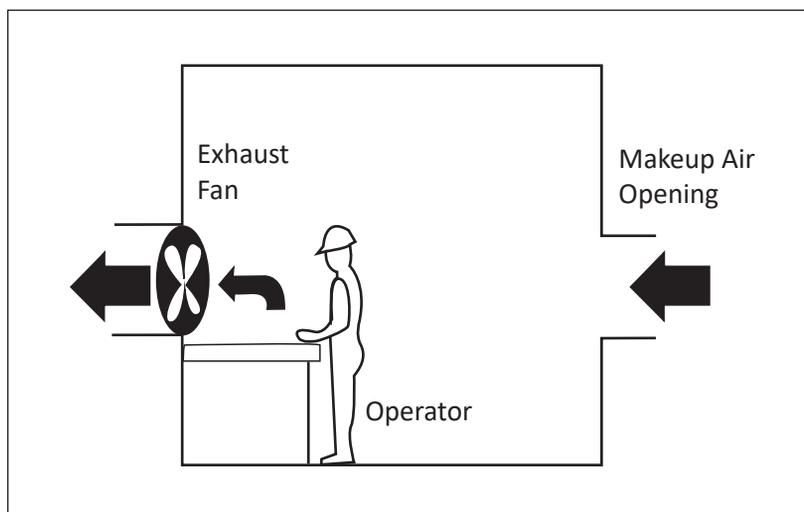


Fig 11.1.6 Ventilation

Adequate ventilation is equally important in workplace as lighting. Hence operator must keep windows in workplace open or exhaust fan running, so as to admit fresh air.

6.2.4 Steps for Correct Lifting and Handling Procedures

Demonstrate

Explain the step by step procedure of lifting.

Steps: Correct Lifting and Handling of Heavy Load



STEP 1: Stand close to the load with your feet spread apart about shoulder width, with one foot slightly in front of the other for balance



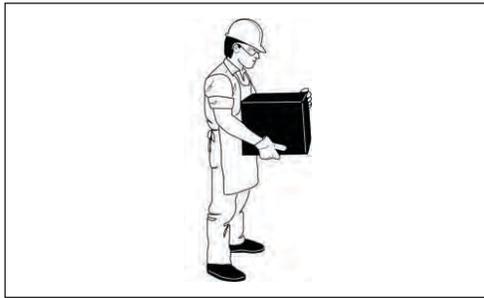
STEP 2: Squat down bending at the knees (not your waist). Tuck your chin while keeping your back as vertical as possible



STEP 3: Get a firm grasp of the object before beginning the lift



STEP 4: Begin slowly lifting with your LEGS by straightening them - Never twist your body during this step



STEP 5: Once the lift is complete, keep the object as close to the body as possible

Say



- When the quantity or extent of carrying a particular object is too heavy for an individual, then he must ask for help.
- The employees who agree upon carrying that object must preferably be equal in sizes.
- One individual needs to be responsible for control of the action to and the other must ensure proper coordination. When one among them lifts very soon compared to the other then either of them might get hurt or have an injury.
- Watch out each and every step you take.

Activity



- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and importance.
- Set guidelines pertaining to discipline and expected tasks.
- Assign a style for construction of footwear by participants.

Skill Practice	Time	Resources
Showcase correct lifting and handling procedure	8 hours	Load Object

Notes for Facilitation



- Ask the participants to demonstrate correct lifting and handling procedures.
- Ask them if they have any doubts in how it needs to be performed.
- Allow time for brief discussion and answer their queries if any.
- Ensure every participant is performing according with standard company SOP.

6.2.5: Cleaning Equipment, Materials and their Maintenance

Explain



Refer to 11.1.7: Cleaning Equipment, Materials and their Maintenance topic in a participant handbook to:

- Explain the reasons why cleaning is carried out.
- Explain the principles of cleaning.
- Explain different types of cleaning agents and how it is used in the process of cleaning.

Do



Explain safety procedures in factory

- Brief on other equipment's used for cleaning purpose
- PPE
- Ladder
- Waste collecting containers
- Pallets and forklifts for material handling

Notes for Facilitation



- Ask participants to explain reasons for cleaning.
- Show different cleaning agents used which are available in market.
- Explain about the safety procedures while cleaning in the factory.
- Ask them if they have any doubts in cleaning and maintenance.
- Allow time for brief discussion and answer their queries if any.
- Ensure every participant is performing according with standard company SOP.

6.2.6: Reporting and Documentation

Say



Always maintain a record in which you note the date of maintenance and things perform while maintenance. Always report to supervisor if any housekeeping issue persists or any machine fault which cannot be repaired by you.

Notes for Facilitation

- Summarize the key take aways from the unit.
- Ask participants if they have any questions relating to any topic or content.
- Answer all the questions before ending the class.

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and importance.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Reporting and Documentation	7 hours	Stationery items, chart

Notes for Facilitation

- You could ask the participants if they understood when and what to report and documentation.
- Ask them question on the importance of reporting and documentation.
- Ensure all the students are involved in the discussion.

UNIT 6.3: Comply with Health, Safety, Security at the Workplace

Unit Objectives

At the end of this unit, students will be able to:

1. Comply with health and safety related instructions applicable to the workplace
2. Use and maintain personal protective equipment as per protocol
3. Carry-out own activities in line with approved guidelines and procedures
4. Maintain a healthy lifestyle and guard against dependency on intoxicants
5. Follow environment management system related procedures
6. Identify and correct (if possible) malfunctions in machinery and equipment
7. Report any service malfunctions that cannot be rectified
8. Store materials and equipment in line with manufacturer's and organizational requirements
9. Safely handle and move waste and debris to the designated place
10. Minimize health and safety risks to self and others due to own actions
11. Seek clarifications, from supervisors or other authorized personnel in case of perceived risks
12. Monitor the workplace and work processes for potential risks and threats
13. Carry-out periodic walk-through to keep work area free from hazards and obstructions, if assigned
14. Report hazards and potential risks/ threats to supervisors or other authorized personnel
15. Participate in mock drills/ evacuation procedures organized at the workplace
16. Undertake first aid, fire-fighting and emergency response training, if asked to do so
17. Take action based on instructions in the event of fire, emergencies or accidents
18. Follow organization procedures for shutdown and evacuation when required

Notes for Facilitation

- You could ask the students about the expectations from the course.
- Encourage the students to participate. List their expectations on the whiteboard.
- Give the students a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

6.3.1: Health, Safety and Security Requirements

Do

- Discuss about the requirements of health, safety and security at workplace.
- Explain how much important it is to one in a workplace.
- Tell the participants on how these requirements are implemented to create awareness.

Notes for Facilitation

- You could call individual and ask to explain on health, safety and security requirements.
- Encourage them to come up with their own ideas regarding the topic.
- Give them a chance to share their views.

6.3.2: Personal Protective Equipment (PPE)

Demonstrate

- Gather all the participants and outline them about the demonstration process.
- Show them the different PPE and signify its purpose.
- Show them how to wear and use the PPE.

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and importance.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Identification of PPE	2 hours	Earplugs Respiratory mask Shoe Apron Goggles Gloves
Wearing/Usage of PPE		

Notes for Facilitation

- Ask them to get into pairs while conducting the activity.
- Give practice until they are familiar with all the PPE.
- Wrap the unit after summarizing the key points and answering questions.

6.3.3: Safety Measures

Explain

Refer to 12.1.3: Safety Measures topic in a participant handbook to:

- Discuss on how safety measures are achieved in a work place with the participants.
- Explain the Do's and Don'ts that one should follow in the work place.

Notes for Facilitation

- You could ask them what the other safety measures that can be followed are.
- Revise the tips and ask if they have understood.
- Organize a group discussion on safety measures and involve all the participants to share their views.

6.3.3.1: Safety Guidelines and Procedures

Elaborate

Use below content to discuss the safety Guidelines to be followed during emergencies.

- Check for Hazards at workplace and surrounding and notify the supervisor immediately
- Report any injuries or accidents immediately to the instructor.
- Always inspect the machine before starting to work. Ensure that all the protection guards are in place.
- Turn the motor off during cleaning and while carrying out adjustments of the machine and in emergency.
- When operating the machine, keep your hands at a safe distance from the needle.
- When operating the machine, keep your hands, scissors, and other sharp objects away from the belt.
- Concentrate on work and do not talk with others while working.
- Ensure regular cleaning and maintenance.
- Carry-out minor repairs only when you are very clear about the rectification. If not report to the supervisor.

Notes for Facilitation



- Make sure if all the participants have understood the topic.
- Give some time for them to recall all the points taught in the class.
- Ask each of them to explain two points at least.

6.3.4: Guidelines for Health

Do



- Discuss generally the importance and benefits of having a good health.
- Explain few simple tips to ensure good health with images to the participants.

6.3.4.1: Hazard Identification

Do



- Show images and explain the various hazards and its significance.
- Show images and explain the different prohibition sign to the participants.
- Show images and explain the different mandatory sign to the participants.
- Show images and explain the different fire sign to the participants.
- Show images and explain the different general information sign to the participants.

Do

Hazards Signs

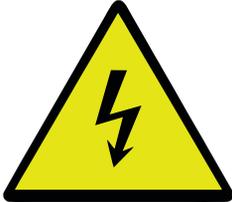
Description	Sign
<p>Biological Hazard</p> <ul style="list-style-type: none"> • Bio hazardous materials handled in laboratory 	
<p>Flammable Hazard</p> <ul style="list-style-type: none"> • Chemicals are flammable • Possibility of fire • No open flames 	
<p>Corrosive Hazard</p> <ul style="list-style-type: none"> • Chemicals are corrosive • Use proper PPE when handling 	
<p>Radiation hazard</p> <ul style="list-style-type: none"> • Radioactive materials handled in laboratory 	
<p>Poison hazard</p> <ul style="list-style-type: none"> • Chemicals are poisonous • Can be fatal 	
<p>Electrical hazard</p> <ul style="list-style-type: none"> • Possibility of Electrocution 	

Table 6.3.1 Hazard Identification

Prohibition Sign

Description	Symbol
No smoking sign	
Do not extinguish with water	
Do not clean or oil moving machinery	
Do not touch	
No open flame sign	
Do not use mobile phones	
No Entry	

Table 6.3.2 Prohibition Identification

Mandatory Signs

Description	Symbol
Head protection sign <ul style="list-style-type: none"> Personnel require to put on helmet when entering workplace 	
Eye protection sign <ul style="list-style-type: none"> Personnel require to put on safety glasses when entering workplace 	
Ear protection sign <ul style="list-style-type: none"> Personnel require to put on ear muffs or ear plugs when entering workplace 	
Respiratory protection sign <ul style="list-style-type: none"> Personnel require to put on respirator when entering workplace 	
Hand protection sign <ul style="list-style-type: none"> Personnel require to put on gloves when entering workplace 	
Footwear protection sign <ul style="list-style-type: none"> Personnel require to put on covered footwear when entering workplace 	

Table 6.3.3 Mandatory signs

Fire Sign

Description	Icon
Fire Alarm call point	 <p>Fire alarm call Point</p>
Fire Extinguisher	 <p>Fire Extinguisher</p>
Fire Phone	 <p>Fire Phone</p>
Fire hose reel	 <p>Fire hose real</p>

Table 6.3.4 Fire signs

General Information Sign

Description	Icon
Please use bins provided	

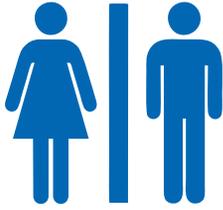
Toilet	
Employees must wash hands before returning to work	
Disabled parking only	

Table 6.3.5 General signs

Activity



- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Hazards

Skill Practice	Time	Resources
Hazard identification	5 hours	Biological Hazard Flammable Hazard Corrosive Hazard Radiation Hazard Poison Hazard Electrical Hazard
Hazard explanation		

Exercise

- Tell the participants that a small test will be conducted based on what is covered.
- Give them some time to prepare and remember things which has been taught.
- Conduct the test by asking them to list the different type of hazard, prohibition sign, mandatory sign, Fire sign and General information sign.

Hazard	Prohibition sign	Mandatory Sign	Fire Sign	General information Sign

Notes for Facilitation

- Check the performance of the participants after the test is completed.
- Analyze the individual performance and give the feedback, also appreciate all for their participation.
- Based on their performance understand where the concern has to be taken.

6.3.8: Guidelines to Handle Medical Emergency

Do

- Explain the participants what is first aid.
- Show images and explain the contents of first aid box to the participants.
- Discuss and explain the first aid procedure for burns with images.

Elaborate

- Elaborate the required contents of first aid box and their use.
- Explain the correct way to treat different degree of burns.
- Refer to pages 12.1.8: Guidelines to Handle Medical Emergency in participant handbook and elaborate on above points mentioned.

Ask

- Ask the participants to list the guidelines to handle medical emergency.
- Ask the participants to explain first aid procedure for burns.

UNIT 6.4: Maintain Hygiene and Sanitation

Unit Objectives

At the end of this unit, students will be able to:

1. Ensure workplace is neatly maintained and Sanitized
2. Maintain Personnel Hygiene
3. Use and maintain personal protective equipment as per protocol
4. Follow environment management system related procedures
5. Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers
6. Monitor the workplace and work processes for potential risks and threats
7. Show how to sanitize and disinfect one's work area regularly
8. Report hazards and potential risks/ threats to supervisors or other authorized personnel
9. Participate in mock drills/ evacuation procedures organized at the workplace
10. Undertake first aid, fire-fighting and emergency response training, if asked to do so
11. Take action based on instructions in the event of fire, emergencies or accidents
12. Follow organization procedures for shutdown and evacuation when required

Notes for Facilitation

- You could ask the students about the expectations from the course.
- Encourage the students to participate. List their expectations on the whiteboard.
- Give the students a brief overview of what all will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

Resources to be Use

- Available objects such as white board, marker pens, soap, sanitizer, water etc.
- PC with LCD Projector or Flip Chart

Do 

- Before starting the session ask them do they have any doubts pertaining to the previous unit.
- Capture their responses on board and share them wherever necessary.

Say 

- As we all are facing pandemic of coronavirus, we need to follow certain procedures while working in the workshop for the safety of self and others.
- In this session, we will discuss about safety procedures related to health and hygiene to keep everyone safe and secure and manage stress during an epidemic and pandemic.

Ask 

- What is an epidemic and pandemic?
- What are the safety practices need to follow during a epidemic and pandemic?

Elaborate **Elaborate and discuss following topics:**

- Difference between epidemic and pandemic
- Safety protocols during an epidemic and pandemic at workplace
- Workplace hygiene
- Importance of hygiene at workplace
- How to maintain hygiene in the workplace
- Personal grooming
- Differentiate between hygiene and sanitization
- Workplace and personal sanitization

Do 

- Show how to follow safety protocols during a epidemic or pandemic.
- Give some tips to maintain personal hygiene at workplace.
- Give some tips to slow the spread of germs specifically through cleaning and disinfecting.
- Show how to maintain personal sanitization.
- Show how to clean hands properly by soap or sanitizer.

Notes for Facilitation

- You could ask them if they are clear about the topic.
- Wrap the topic by summarizing it briefly.

6.4.1: Steps to Treat Minor Burn

Do

- Explain the participants about steps to treat the minor burns.
- Demonstrate the steps to treat the minor burns.

Demonstrate

- Call a volunteer and outline the steps to treat minor burn.
- Now demonstrate the steps to treat minor burn.

Steps: Treat Minor Burn



STEP 1: To treat a minor burn, run cool water over the area of the burn or soak it in a cool water bath (not ice water). Keep the area submerged for at least 5 minutes.



STEP 2: After flushing or soaking for several minutes, cover the burn with a sterile bandage or a clean cloth. Minor burns will usually heal without further treatment.

6.4.2: First Aid Procedure for Electric Shock

Do

- Discuss the immediate steps to be taken when a person is subjected to electric shock.
- Explain the steps of first aid procedure for electric shock to the participants.
- Demonstrate on how to free a person from electric shock.

Demonstrate

- Call two volunteer and outline the steps on how to free a person from electric shock.
- Now demonstrate and explain the steps to the participants.

Role Play

Duration: 3 hours

- Assign two job roles to each volunteer for demonstration.
- One person as who is subjected to electric shock.
- Other person as the preventer.

Steps



Fig 6.4.1 First Aid for Electric Shock

1. Separate the victim from live point by insulated rod

2. Keep yourself on an insulated mat.

3. Simultaneously arrange to switch off the electric supply

Notes for Facilitation

- Repeat the demonstration if they have not understood.
- Give a brief description on topic covered and wrap the unit.

6.4.3: First Aid Procedure for Removing Foreign Object from the Eye

Do

- Explain the steps on how to first aid for removing foreign object from the eye.
- Give a demonstration on removing foreign object from the eye to the participants.

Demonstrate

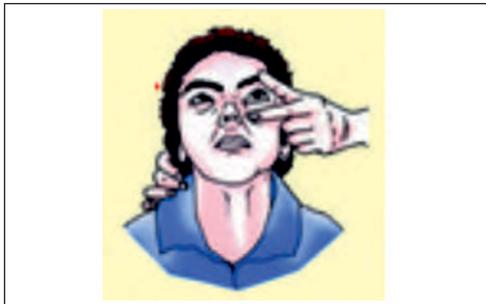
- Call two volunteer and outline the steps on how to remove foreign object from the eye.
- Now demonstrate and explain the steps to the participants.

Role Play

Duration: 3 hours

- Assign two job roles to each volunteer for demonstration.
- One person as who is suffering by the foreign particle in his eye.
- Other person to first aid.

Steps



STEP 1: Make the vic m to sit down facing the light and ensure not to rub the eye. Separate the eyelids with your finger and thumb. Examine each part of the eye. Do not allow the vicm` to apply pressure to the injured eye.



STEP 2: Run water through the eye. Keep doing till particle is removed from the eye.

Notes for Facilitation

- Repeat the demonstration if they have not understood.
- Give a brief description on topic covered and wrap the unit.

6.4.4: First Aid Procedure to Remove Foreign Object from Throat

Do

- Explain the steps on how to first aid for removing foreign object from the throat.
- Give a demonstration on removing foreign object from the throat to the participants.

Demonstrate



- Call two volunteer and outline the steps on how to remove foreign object from the throat.
- Now demonstrate and explain the steps to the participants.

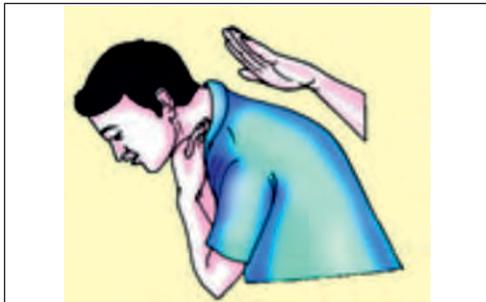
Role Play



Duration: 3 hours

- Assign two job roles to each volunteer for demonstration.
- One person as who is suffering by the foreign particle in his throat.
- Other person to help him removing the foreign particle from his throat.

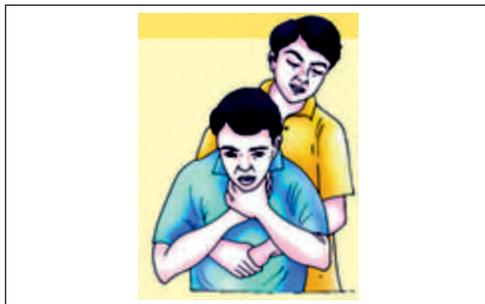
Steps



STEP 1: Encourage the victim to continue coughing. Give back slaps if the situation worsens.



STEP 2: If the back slaps fail to clear the obstruction then try abdominal thrusts.



STEP 3: Check for victim's mouth, if the obstruction has still not cleared, repeat the steps up to 3 times and check the mouth after each step.

Notes for Facilitation



- Repeat the demonstration if they have not understood.
- Give a brief description on topic covered and wrap the unit.

6.4.9: Emergency Action Plan

Do

- Explain Emergency action plan.
- Show and explain the plant layout plan to the participants.
- Also show the emergency exit sign.

Say

- Emergency plans are the guidelines decided by the organization and which should be followed during emergencies.
- The Emergency Action Plan (EAP) tells the employees about what type of evacuation is necessary and what their role is in carrying out the plan.

Notes for Facilitation

- Ask them if they are clear about the Plant layout plan and emergency exit sign.
- Call them individually and ask them to explain the plan and direction.

6.1.9.1: Sample Emergency Action Plan

Do

Explain sample emergency action plan to the participants.

Elaborate

- Use the below content to emphasize on the importance of evacuation plan during emergencies.

At the time of an emergency, all employees should know what type of evacuation is necessary and what their role is in carrying out the plan. In some emergencies total and immediate evacuation will be necessary. In other emergencies only partial evacuation may be necessary.

When a fire is detected it is necessary that the fire alarm pull station be activated as soon as possible. The fire alarm will notify the emergency response team who will perform assigned duties. The activation of the alarm will also notify the local fire department.

In the event of bomb threat, toxic chemical release, hazardous weather, or other emergencies notification will be made over the public address system.

In the event of fire, bomb threat, or toxic chemical release; employees are to proceed to the nearest available and safe exit and leave the building as soon as possible. Floor plans (maps) and exits have been posted in each department.

In the event of Weather emergencies all employees (and visitors) are to evacuate their assigned area and report to the lower level bomb shelter. Again, it is of critical importance that all employees and visitors are accounted for. Supervisors within each area shall take a head count at the designated meeting areas.

It is the responsibility of each supervisor to advise fire and police departments of any missing persons.

6.4.10: Reporting and Documentation

Do

- Discuss the importance of maintaining the records at the workplace to the participants.
- Show and explain the format for reporting any accident that takes place.
- Also guide them how to fill the format.

Say

Reporting and documentation must be done as and when any incident takes place in the concern of health and Safety.

Explain

Explain to the participants the purpose of maintaining records and documents.

Always maintain records and documents related to Health and Safety. Report any accidents or near miss incidents to the supervisor in the prescribed format provided by the HSE. This helps in taking measures in reducing such incidents in the future.

Recording maintenance history accurately leads to failure prevention and drives awareness about equipment maintenance.

The records are very important for the following reasons

1. Since maintenance history is recorded, work can be easily transferred to the next team or individual when the staff changes.
2. Labor becomes more productive because employees and maintenance tasks are tracked, which eliminates redundant work.
3. To change the SOP to avoid re occurrence of the same defects.
4. To plan for adaptation of new processes and plan the equipment.

Below you can see a format for reporting in case of an accident.

Incident Type			
1. <input type="checkbox"/> Injury/Illness	<input type="checkbox"/> Environment	<input type="checkbox"/> Security	<input type="checkbox"/> Assault
<input type="checkbox"/> Business/Quality	<input type="checkbox"/> Other	<input type="checkbox"/> Complaint	<input type="checkbox"/> Theft
		<input type="checkbox"/> Vandalism	<input type="checkbox"/> Criminal
Security Ref No.....			
2. Date occurred: _____/_____/_____		Time(24h): _____	
3. Specific Location/Room: _____		Campus: _____	
4. Faculty/Unit/Trade: _____			
5. <input type="checkbox"/> During work/class <input type="checkbox"/> Break from work/class <input type="checkbox"/> Travel to/from work <input type="checkbox"/> Other (Specify)			
Personal Details (Person involved in incident)			
6. Full Name: _____		Student ID: _____	
7. Address: _____		Date of Birth: _____	
8. Home Phone: _____		Work Phone: _____	
Mobile Ph: _____			
9. <input type="checkbox"/> Male		<input type="checkbox"/> Female	
10. <input type="checkbox"/> Staff		<input type="checkbox"/> Student	
		<input type="checkbox"/> Visitor	
<input type="checkbox"/> Other			
Incident Details: Describe the incident (include the name of bodily location, chemical, product, process equipment involved):			
11. _____			

Injury Illness Details			
12. Did the person <input type="checkbox"/> Return to work/class <input type="checkbox"/> Go home <input type="checkbox"/> Go to a doctor <input type="checkbox"/> Go to a Hospital			
13. First aid received? <input type="checkbox"/> Yes <input type="checkbox"/> No First Aider Details and treatment details: _____			

Follow-up Contact (Witness)			
14. Full Name: _____		Student ID: _____	
Home Phone: _____		Work Phone: _____	
Mobile Ph: _____			
15. Name of person completing this form: _____		Position: _____	
Signature: _____		Date: _____	
16. Preventive Action Taken:			
	Yes	No	
Eliminate work practice	<input type="checkbox"/>	<input type="checkbox"/>	Change work procedures
Equipment/Machinery Modifications	<input type="checkbox"/>	<input type="checkbox"/>	Change to inductions/training
Job Redesign	<input type="checkbox"/>	<input type="checkbox"/>	Personal protective equipment
Equipment/Machinery Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	Comments
			<input type="checkbox"/>
			<input type="checkbox"/>
17. Is a risk assessment required? <input type="checkbox"/> Yes <input type="checkbox"/> No			
18. Will an Accident/ Incident investigation Report be completed? <input type="checkbox"/> Yes <input type="checkbox"/> No			
19. Has the Health Welfare and Environment section been notified? Date: _____ Time: _____			
20. Supervisor/ Manager: Name: _____		Date: _____	
Second: _____		Signature: _____	
The supervisor/ manager needs to ensure an accident investigation report and/ or risk assessment is undertaken where appropriate.			

Fig 6.4.2 Accident Report

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
To fill the accident report	2 hours	Format and pen

Notes for Facilitation

- Guide them where ever they need assistance in filling the format.
- Ask them if they are clear in filling the format.
- Wrap the unit and proceed to next.

UNIT 6.5: Legal, Regulatory and Organizational Requirements

Unit Objectives

At the end of this unit, students will be able to:

1. Carry-out work functions in accordance with legislation and regulations, organizational guidelines and procedures
2. Seek and obtain clarifications on policies and procedures, from your supervisor or other authorized personnel
3. Apply and follow these policies and procedures within your work practices
4. Provide support to supervisor and team members
5. Identify and report any possible deviation to organizational requirements

Notes for Facilitation

- You could ask the participants about the expectations from the course.
- Encourage them to participate. List their expectations on the whiteboard.
- Give the participants a brief overview of what will be covered in the program.
- Keep motivating the participants which creates the urge for learning.

6.5.1: Policies and Procedures

Do

- Explain the importance of company policy and procedure to the participants.
- Tell the points which are to be followed while using the organizational facilities.

Elaborate

Explain in detail what are policies and procedures.

Every company has policies and procedures to be followed by the management and employees as well.

Refer to 13.1.1: Organizational and Customer Procedures in the participant's handbook to elaborate on Policies and Procedures, Ethical Decision Making, Professional use of facilities and Peer Relationship.

6.5.2: Ethical Decision Making

Say

Leather companies should abide the national laws and regulations on few factors.

Elaborate

Refer to 13.1.2: Ethical decision making topic in a participant handbook to explain the framework for ethical decision-making.

Role Play

This activity is conducted as how the operator abides the company rules and procedure, at the same time to have a good rapport with the customer.

- Gather all the participants and divide them into two or three groups.
- Assign different situation to each group
For example “Customer lately requests the operator to deliver the product on a different address”.
- In each group all the participants has to take part as the customer and operator based on situation assigned.

Skill Practice	Time	Resources
Customer and Operator relationship	2 hours	Participants with different situation

Notes for Facilitation

- Repeat the activity if needed for better understanding.
- You could ask them to recall what is been taught.
- To ensure if they have understood the concepts then ask few questions.
- Also encourage shy participants to ask doubts if they are unclear about the concept.

6.5.3: Compliance with all National Laws and Regulations

Do

Discuss the factors on which the leather companies should abide the rule.

Say

Leather companies should abide the national laws and regulations on few factors.

Explain



Provide explanation on leather companies should abide the national laws and regulations on few factors that are:

- Wages and overtime benefits
- Working hours and holidays
- Restrictions on child labor
- Restrictions on forced labor
- Human Rights
- Freedom of Association Operator (Footwear)
- Working conditions
- Employment Practices
- Safety, Health and Environment

Do



- Discuss the regulations that need to be followed as per The Factories Act, 1948.
- List and explain the records that need to be maintained by every organization.

Explain



Use the below information on the Factories Act, 1948 to discuss it with the participants.

As per The Factories Act, 1948 following regulations should be followed:

- Hours of work (adult) not to exceed 48 hours in a week or 9 hours in a day.
- Payment of Overtime wages for overstay at workplace @ twice the ordinary rate of wages.
- Weekly Holiday: No work for more than 10 days without a day of rest.
- Intervals of rest: half an hour for 5 hours of work.
- No child (who has not attained the age of 15 years) be permitted to work.
- Prohibition of employment of Women: No woman shall be employed in any factory for more than 9 hours in any day or between 7 pm and 6 am.

Notes for Facilitation



- You could ask participants what they know about Indian Laws.
- Give them some time to recall the topic taught and ask questions on The Factories Act, 1948.
- Make sure they involve themselves in learning and encourage them to participate.

6.5.4: Registers to be Maintained

Explain



Provide information on the register that has to be maintained by every organization which holds a record of the following:

- Attendance register/ muster roll
- Register of adult workers
- Record of lime washing, painting etc.
- Register of compensatory holidays
- Overtime muster roll for exempted workers
- Register of leave with wages
- Health register (in respect of persons employed in occupations declared to be dangerous operations u/s 87)
- Register of accidents and dangerous occurrences
- Particulars of rooms in the factory

UNIT 6.6: Respecting Diversity at the Workplace

Unit Objectives

At the end of this unit, students will be able to:

1. Respecting the diversity of different gender people
2. Practice the inclusive at the workplace
3. Demonstrate ways to communicate with People with Disability (PWD)
4. Demonstrate ways to communicate with different gender people

Resources to be Use

- Available objects such as white board, marker pens, duster.
- PC with LCD Projector or Flip Chart

Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- Each colleague plays an important role in the success of the organization.
- We communicate with people many times every day, either face to face, on the phone or in writing. When communicating with someone with disability, it is important to treat them like others but keeping some points in mind, so that they cannot hurt due to their disability.
- Similarly when communicating with different gender person, we need to consider some points at workplace, so that it can shows any discrimination due to different gender.

Notes for Facilitation

- Repeat the activity if needed for better understanding.
- You could ask them to recall what is been taught.
- To ensure if they have understood the concepts then ask few questions.
- Also encourage shy participants to ask doubts if they are unclear about the concept.

Unit 6.7: Material Conservation Practices

Unit Objectives

At the end of this unit, trainees will be able to:

1. Employ ways for efficient utilization of material and water
2. Ensure the Materials used for production are efficiently used and wastes are reduced

Notes for Facilitation

- Repeat the activity if needed for better understanding.
- You could ask them to recall what is been taught.
- To ensure if they have understood the concepts then ask few questions.
- Also encourage shy participants to ask doubts if they are unclear about the concept.

Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- In today's world, every organization is aiming to reduce production costs without any change in quality of the product and customer satisfaction.
- Energy efficiency is crucial to reduce the pollutant emissions into the atmosphere and the product makers find it challenging to increase the output of the products by adhering to energy efficiency practices.

Ask

- What is material conservation?
- What is the need of materials conservation?

Unit 6.8: Energy Conservation Practices

Unit Objectives

At the end of this unit, trainees will be able to:

1. List the ways to optimize usage of resources.
2. Employ ways for efficient utilization of material and water
3. Use energy efficient electrical appliances and devices to ensure energy conservation

Notes for Facilitation

- Repeat the activity if needed for better understanding.
- You could ask them to recall what is been taught.
- To ensure if they have understood the concepts then ask few questions.
- Also encourage shy participants to ask doubts if they are unclear about the concept.

Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- In today's world, every organization is aiming to reduce production costs without any change in quality of the product, customer satisfaction
- Energy efficiency is crucial to reduce the pollutant emissions into the atmosphere and the product makers find it challenging to increase the output of the products by adhering to energy efficiency practices.

Ask

- What is energy conservation?
- What is the need of energy conservation?

UNIT 6.9: Waste Disposal and Recycling

Unit Objectives

At the end of this unit, students will be able to:

1. Discuss various methods of waste management and its disposal
2. List the different categories of waste for the purpose of segregation
3. Differentiate between recyclable and non-recyclable waste
4. State the importance of using appropriate colour dustbins for different types of waste
5. Demonstrate different disposal techniques depending upon different types of waste

Do

Explain the ways of disposing the waste with images to the participants.

Say

- Waste management is the collection, transport, processing, recycling or disposal of waste materials.
- Waste may be classified as garbage, rubbish, industrial wastes, mining wastes etc.
- Industrial waste can be of following types: liquid waste, solid waste, organic waste, recyclable rubbish and hazardous waste.

Explain

- Explain different types of industrial waste.
- Explain different methods of waste management segregation, composting, landfill and recycling.

Ask

- What are the elements of waste management strategy?
- What are the different methods of waste management?

Notes for Facilitation

- Summarize the main points.
- Ask participants if they have any doubts.
- Share your inputs and insight to encourage the trainees.
- Wrap the session up after summarizing the key points and answering questions.



Fig 6.9.1 Leather Scrap



Fig 6.9.2 Oil/ chemical Spill

The main things to remember for proper disposal of waste are listed below and the operator should ensure these guidelines are followed properly.

1. Segregate the waste as Hazardous (Oil spill, Chemicals etc.) and non-hazardous waste (Leather, Paper, etc.) and disposed them at the designated places in daily basis.
2. Waste bins must have tight fitting lids.
3. Bins must be kept clean and washed after they are emptied.



Fig 6.9.3 Hazardous waste



Fig 6.9.4 Non-hazardous waste

Activity

- Conduct a skill practice activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Identification of waste	3 hours	Leather scraps, waste paper, Chemicals etc
segregation of waste		

Notes for Facilitation

- You could ask the students to list out the hazardous and non-hazardous waste.
- Brief them again the way to dispose the waste.



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N S · D · C
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Corporation

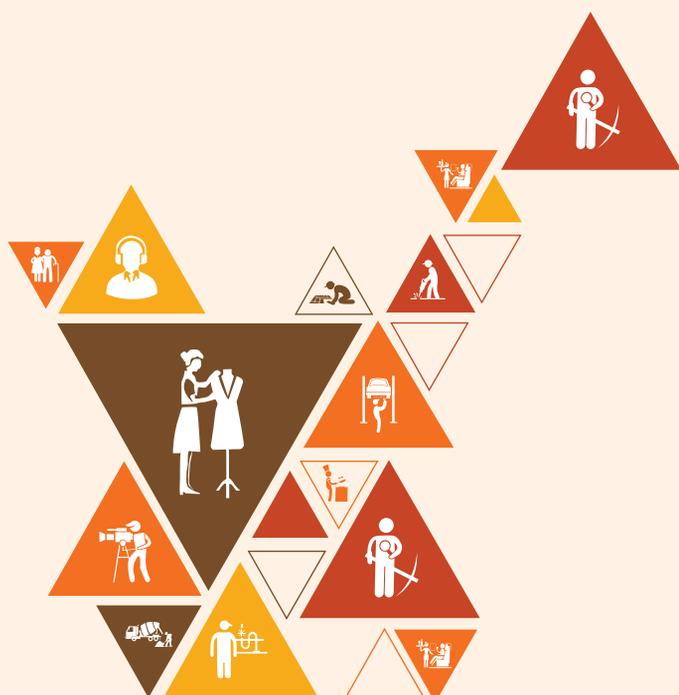
Transforming the skill landscape



LEATHER
SECTOR
SKILL
COUNCIL

7. Employability Skills

The book on New Employability Skills is available at
the following location [https://eskillindia.org/
NewEmployability](https://eskillindia.org/NewEmployability)



Annexure I

Training Delivery Plan

Training Delivery Plan		
Program Name:	Stitching Operator – Footwear	
Qualification Pack Name & Ref. ID	Stitching Operator - Footwear LSS/Q2501, V4.0	
Version No.	4.0	Version Update Date 23/02/2023
Pre-requisites to Training (if any)	Minimum Educational Qualifications: Ability to read and write Minimum Job Entry Age: 18 years Experience: Knowledge of shoe upper making would be an added advantage	
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Work in the footwear production line. • Prepare for stitching operations. • Carry out stitching operation using different machines. • Stitch the components to produce footwear upper or full shoe. • Conduct a quality inspection in stitching operations and identify faults, trace the causes for faults, and check that the work is done properly. • Prepare reports and documentation related to the stitching process. • Handle material, tools and machines, maintain clean and hazard free work area, proper usage of cleaning equipment, maintain correct usage of workplace tools and equipment. • Comply with health and safety measures in terms of personal safety and equipment safety relevant to shoemaking operations. • Carry out work following organizational guidelines and procedures, identify and report any possible deviation. 	

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
1	Overview on leather industry and Generic skills	Session 1: Introduction to Leather Industry and Pre-assembly Operator	The trainee will be able to: <ul style="list-style-type: none"> Explain the importance of leather industry and describe leather manufacturing process 	NA	<ul style="list-style-type: none"> Interactive Lecture/ Icebreaker 	Chairs, Trainers desk and computer, Student table, Projector, White projector screen, White board, Flip chart display stand, Safety hazard signs, Newspaper, Stationery, PPE set	T: 03:00
2	Preparation materials and machines for stitching operations	Session 2: Prepare the materials	The trainee will be able to: <ul style="list-style-type: none"> check the raw materials based on the specifications like color, thickness, area, etc handle the raw materials carefully and avoid any damages to the raw materials check the materials used are free from faults follow the instructions on the work order or job card arrange the material as per the specification store the raw materials as per specification report and document the fault materials ensure the work area is free from hazards and wastes 	LSS/N5805 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8 GS1, GS2, GS3, GS4, GS5, GS8, GS9	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	Flatbed sewing machine, Post bed sewing machine, Printed sewing practice sheets, Needle guard set up, Scale, Bobbin with case, Scissors, stitching awl, Divider, Hammer/mallet, Needles of different sizes, threads of different sizes, Pasting cane, Adhesive, sample materials, Attendance, job card model, weekly production plan model, sample materials for stitching practice, fusing/reinforcement materials, sample job specifications, PPE's, waste bins, Quality record sheet, Trainer/Facilitator Guide, Participant Hand Book	T: 04:00 P: 10:00
		Session 3: Prepare the tools, equipment and machines	The trainee will be able to: <ul style="list-style-type: none"> examine the machine for any safety-related issues and readiness for use check the needle, thread, stitch length are as per the specification given set the machine according to the type of operation like single needle, double-needle, overlock, folding stitch, etc., wear proper PPE's during stitching operation check the workstation is free from wastes and hazards 	LSS/N5805 PC9, PC10, PC11, PC12, PC13, PC14 KU1, KU2, KU3, KU4, KU5, GS6, GS7, GS8, GS9, GS10, GS11, GS12	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	Flatbed sewing machine, Post bed sewing machine, Printed sewing practice sheets, Needle guard set up, Scale, Bobbin with case, Scissors, stitching awl, Divider, Hammer/mallet, Needles of different sizes, threads of different sizes, Pasting cane, Adhesive, sample materials, Attendance, job card model, weekly production plan model, sample materials for stitching practice, fusing/reinforcement materials, sample job specifications, PPE's, waste bins, Quality record sheet, Trainer/Facilitator Guide, Participant Hand Book	T: 06:00 P: 12:00

3	Perform hand stitching process on leather and non-leather footwear	Session 4: Check the tools and equipment	The trainee will be able to: <ul style="list-style-type: none"> ensure the work area is free from hazards and wastes wear proper PPE like hand gloves and finger protection cap check the hand stitching needle and thread for correct size as per specifications check the needle for any bend and deformities follow the instructions on the work order or job card 	LSS/N2202 PC1, PC2, PC3, PC4, PC5, KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8, KU9 GS1, GS2, GS3, GS4	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	sample materials, Attendance, job card model, weekly production plan model, sample materials for stitching practice, fusing/reinforcement materials, sample job specifications, PPE's, waste bins, Quality record sheet, Trainer/Facilitator Guide, Participant Hand Book	T: 02:00 P: 05:00
		Session 5: Carry out hand stitching process	The trainee will be able to: <ul style="list-style-type: none"> examine the given material for any faults apply wax on the threads if required carry out the hand stitching operations on the given material perform the stitching operations in correct sequence as required by the product compare the processed products with sample/specifications given report the problems in the given format complete the required production target 	LSS/N2202 PC6, PC7, PC8, PC9, PC10, PC11, PC12 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8, KU9 GS6, GS7, GS8, GS9, GS10, GS11, GS12	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	Scale, Scissors, stitching awl, Divider, Hammer/mallet, Needles of different sizes, threads of different sizes, Pasting cane, Adhesive	T: 13:00 P: 25:00
4	Carry out machine stitching operations in footwear	Session 6: Check the tools and equipment	The trainee will be able to: <ul style="list-style-type: none"> ensure the work area is free from hazards and wastes wear proper PPE like hand safety goggles, gloves select the right sewing machine, threads and bobbins for the materials as per the specifications in the job card check the needle and thread for correct size as per specifications check the needle for any bend and deformities follow the instructions on the work order or job card 	LSS/N2203 PC1, PC2, PC3, PC4, PC5, PC6, KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8, KU9 GS1, GS2, GS3, GS4, GS5	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	Attendance, job card model, weekly production plan model, sample materials for stitching practice, fusing/reinforcement materials, sample job specifications, PPE's, waste bins, Quality record sheet, Trainer/Facilitator Guide, Participant Hand Book	T: 02:00 P: 10:00

		<p>Session 7: Carry out machine stitching operations</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> examine the given material for any faults set machine controls and Perform a test run to ensure machine is operating correctly stitch the correct materials in the right sequence as required by the product specification use proper guides in raw edge and seam stitching operations perform the major stitching operations like back seam joining, Vamp-Quarter stitching, tongue stitching, collar seam and other lining stitching as per the given sample perform the supporting and finishing operations in stitching like edge trimming, thread end trimming & pasting, lacing and cleaning of roller marks if any check any stitch quality issues like stitch open, loop stitch, stitch break, roller impression, uneven stitching if any carry out basic maintenance of machinery and keep them clean after use optimize the positioning and layout of materials to ensure a smooth production report the problems in the given format complete the required production target 	<p>LSS/N2203 PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16, PC17 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8, KU9 GS5, GS6, GS7, GS8, GS9, GS10, GS11, GS12</p>	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	<p>Flatbed sewing machine, Post bed sewing machine, Printed sewing practice sheets, Needle guard set up, Pressing table with iron box for fusing/reinforcement, Scale, Bobbin with case, Scissors, stitching awl, Divider, Hammer/mallet, Needles of different sizes, threads of different sizes, Pasting cane, Adhesive, sample materials</p>	<p>T: 28:00 P: 80:00</p>
5	Contribute to achieving product quality in stitching operations on footwear	<p>Session 8: Perform quality check on materials and equipment</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> perform the quality check on incoming raw materials for color, defects, textures, strength, etc., as per the sample/specifications check the quality on the stitching needle and thread in the following parameters needle number and point as per specification sheet, needle bent, thread break, excessive thread tension, thread fraying, etc., check the machine parts like a bobbin, needle plate, needle bar, tension plate and correct them if required 	<p>LSS/N2204 PC1, PC2, PC3, KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8, KU9 GS1, GS2, GS3, GS4, GS5</p>	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	<p>Attendance, job card model, weekly production plan model, sample materials for stitching practice, fusing/reinforcement materials, sample job specifications, PPE's, waste bins, Quality record sheet, Trainer/Facilitator Guide, Participant Hand Book</p>	<p>T: 05:00 P: 20:00</p>

		<p>Session 9: Achieve quality in stitching operation on footwear making</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • check that the stitching is done properly as per the design specifications and no damage happens to the appearance and quality • carry out the quality checks at the specified intervals on the finished product • check any stitch quality issues like stitch open, loop stitch, stitch break, roller impression, uneven stitching if any • check that no spillage of adhesives appear on the uppers and folding is done properly • check the edge trimming, putting of eyelets and lacing are done correctly • report defects in the materials, tools, and equipment to the supervisor • report the problems in the given format and maintain the quality record and documentation • leave work area safe and secure when work is complete 	<p>LSS/N2204 PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU8, KU9 GS6, GS7, GS8, GS9, GS10, GS11, GS12</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>Flatbed sewing machine, Post bed sewing machine, Printed sewing practice sheets, Needle guard set up, Pressing table with iron box for fusing/reinforcement, Scale, Bobbin with case, Scissors, stitching awl, Divider, Hammer/mallet, Needles of different sizes, threads of different sizes, Pasting cane, Adhesive, sample materials</p>	<p>T: 15:00 P: 30:00</p>
6	<p>Maintain health, safety & security, a clean work area & equipment, use optimized resources at the workplace, and comply with industry & organizational Requirements</p>	<p>Session 12: Maintain the Work Area</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • handle materials, machinery, equipment and tools safely and correctly • use correct lifting and handling procedures • use materials to minimize waste 	<p>LSS/N8601 PC19, PC20, PC21 KU1, KU2, KU7, KU10 GS1, GS2, GS3, GS4, GS5</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>White board/black board marker/ chalk, duster, computer or Laptop attached to LCD projector, PPE, warning signs and tapes</p>	<p>T: 01:00 P: 03:00</p>
		<p>Session 13: Perform the Maintenance Operations</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Perform the cleaning of machine or tools at the end of each shift • carry out running maintenance within agreed schedules • report unsafe equipment and other dangerous occurrences • carry out works in a comfortable position with the correct posture • maintain proper lighting, and ventilation to make sure general comfort is there while working 	<p>LSS/N8601 PC22, PC23, PC24, PC25, PC26 KU1, KU2, KU6, KU7, KU10, KU11 GS1, GS2, GS3, GS4, GS5</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>Gloves, Helmet, Safety shoe, Ear plug, Apron, Goggles, Cleaning cloth, Water bucket, Cleaning materials, Mop, Dust bin, Broom</p>	<p>T: 01:00 P: 03:00</p>

		<p>Session 14: Compliance with Health, Safety and Security requirements</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> comply with health and safety-related instructions applicable to the workplace use the personal protective equipment as per protocol maintain a healthy lifestyle and guard against dependency on intoxicants follow environment management system related procedures monitor the workplace and work processes for potential risks and threats carry out periodic walk-through to keep the work area free from hazards and obstructions, if assigned report hazards and potential risks/threats to supervisors or other authorized personnel participate in mock drills/evacuation procedures organized at the workplace undertake first aid training, fire-fighting drill, and emergency response training, etc., take action based on instructions in the event of fire, emergencies or accidents safely handle and move waste and debris follow organization procedures for shutdown and evacuation when require 	<p>LSS/N8601 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, KU10, KU11, KU12, KU13 GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	<p>First aid kit, Fire extinguisher, PPE Set</p>	<p>T: 02:00 P: 04:00</p>
		<p>Session 15: Maintain Hygiene and Sanitation</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> maintain personal body hygiene and dental hygiene follow social distancing at the workplace ensure not to go to work if unwell, to avoid the risk of spreading an infection to other people cover the mouth with an elbow/handkerchief or turn away from people while sneezing or coughing ensure equipment, work area, restrooms, etc. are sanitized before and after sessions ensure regular vaccinations to avoid any spreading of diseases 	<p>LSS/N8601 PC13, PC14, PC15, PC16, PC17, PC18, KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, KU10, KU11, KU12, KU13 GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	<p>First aid kit, Fire extinguisher, PPE Set, Sanitizer, Mob, Floor Cleaning</p>	<p>T: 02:00 P: 04:00</p>
		<p>Session 16: Compliance with industry, regulatory and organizational requirements</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Carry out work functions in accordance with legislation and regulations, organizational guidelines, and procedure Seek and obtain clarifications on policies and procedures from the authorized personnel Follow the policies and procedures within the work practices Identify and report any possible deviation to these requirements 	<p>LSS/N8601 PC27, PC28, PC29, PC30 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	<p>First aid kit, Fire extinguisher, PPE Set, Sanitizer, Mob, Floor Cleaning</p>	<p>T: 01:00 P: 01:00</p>

		<p>Session 17: Respect diversity</p> <p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Transact with everyone without any personal bias like gender, disability, caste, religion, color, sexual orientation, and culture • Identify the indicators of harassment and discrimination • Report incidents of harassment and discrimination to appropriate authority • Respect the personal and professional space of others 	<p>LSS/N8601 PC31, PC32, PC33, PC34 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>First aid kit, Fire extinguisher, PPE Set, Sanitizer, Mob, Floor Cleaning</p>	<p>T: 03:00 P: 01:00</p>
		<p>Session 18: Material conservation practices</p> <p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Identify ways to optimize the usage of material including water in various activities/processes • Check for spills/leakages in various processes and plug the spills and leakages • Use the optimized amount of chemicals that have petroleum products (adhesives, leather chemicals, chrome salt, cleaning agents, IPA, etc.) • Use proper PPE when in contact with the above materials as per specifications 	<p>LSS/N8601 PC35, PC36, PC37, PC38 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>First aid kit, Fire extinguisher, PPE Set, Sanitizer, Mob, Floor Cleaning</p>	<p>T: 00:30 P: 00:30</p>
		<p>Session 19: Energy/electricity conservation practices</p> <p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Identify ways to optimize the usage of electricity/energy in various activities/processes • Check if the equipment/machine is generally functioning before commencing work and rectify wherever required • Ensure electrical equipment and appliances are properly connected and turned off when not in use 	<p>LSS/N8601 PC39, PC40, PC41 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>First aid kit, Fire extinguisher, PPE Set, Sanitizer, Mob, Floor Cleaning</p>	<p>T: 01:00 P: 01:00</p>
		<p>Session 20: Effective waste management/recycling practices</p> <p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Identify recyclable and non-recyclable, and hazardous waste generated • Segregate waste into different categories • Dispose of non-recyclable waste appropriately • Deposit recyclable and reusable material at the identified location • Follow processes specified for disposal of hazardous waste 	<p>LSS/N8601 PC42, PC43, PC44, PC45, PC46 KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, GS6, GS7, GS8, GS9, GS10, GS11</p>	<ul style="list-style-type: none"> • Interactive lecture • Group activity • Demonstration • Practice session 	<p>First aid kit, Fire extinguisher, PPE Set, Sanitizer, Mob, Floor Cleaning</p>	<p>T: 00:30 P: 00:30</p>

7	Employability Skills	Session 29: Employability Skills	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> understand the significance of employability skills in meeting the job requirements identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices Becoming a Professional in the 21st Century Basic English Skills Communication Skills Diversity & Inclusion Financial and Legal Literacy Essential Digital Skills Entrepreneurship Customer Service Getting ready for apprenticeship & Jobs 	<p>DGT/VSQ/N0101</p> <p>PC1, PC2, PC3, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21</p> <p>KU1, KU2, KU3, KU4, KU5, KU6, KU7, KU9, KU10, KU11, KU12, KU13, KU14, KU15, KU16, KU17</p> <p>GS1, GS2, GS3, GS4, GS5, GS6, GS7</p>	<ul style="list-style-type: none"> Interactive lecture Group activity Demonstration Practice session 	<p>White board/black board marker/ chalk, duster, computer or Laptop attached to LCD projector</p>	<p>T: 00:00 P: 30:00</p>
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Annexure II

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for Pre-Assembly Operator (Footwear)	
Job Role	Stitching Operator - Footwear
Qualification Pack	LSS/Q2501, V4.0
Sector Skill Council	Leather

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each qualification pack will be created by the sector skill council. Each performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	The Assessor will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).
4	The assessor is will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.
5	To pass the Qualification Pack, every trainee should score a minimum of 50% aggregate.
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

Assessment Outcome (NOS CODE AND DESCRIPTION)	Assessment Criteria (PC)	Total Marks	Out of	Theory Marks	Skills Practical Marks
1.LSS/N5805 Preparation materials and machines for stitching operations	PC1. check the raw materials based on the specifications like color, thickness, area, etc.,	60	5	2	3
	PC2. handle the raw materials carefully and avoid any damages to the raw materials		5	2	3
	PC3. check the materials used are free from faults		5	-	5
	PC4. follow the instructions on the work order or job card		5	2	3
	PC5. arrange the material as per the specification		5	2	3
	PC6. store the raw materials as per specification		5	2	3
	PC7. report and document the fault materials		5	-	5
	PC8. ensure the work area is free from hazards and wastes		1	1	-
	PC9. examine the machine for any safety- related issues and readiness for use		5	-	5
	PC10. check the needle, thread, stitch length are as per the specification given		8	3	5
	PC11. set the machine according to the type of operation like single needle, double-needle, overlock, folding stitch, etc.,		8	3	5
	PC12. wear proper PPE's during stitching operation		2	2	-
	PC13. check the workstation is free from wastes and hazards		1	1	-
			NOS Total	60	20
2.LSS/N2202 Perform hand stitching process on leather and non-leather footwear	PC1. ensure the work area is free from hazards and wastes	50	3	1	2
	PC2. wear proper PPE like hand gloves and finger protection cap		4	1	3
	PC3. check the hand stitching needle and thread for correct size as per specifications		5	1	4
	PC4. check the needle for any bend and deformities		5	-	5
	PC5. follow the instructions on the work order or job card		4	1	3
	PC6. examine the given material for any faults		3	1	2
	PC7. apply wax on the threads if required		6	1	5
	PC8. carry out the hand stitching operations on the		5	-	5

	given material				
	PC9. perform the stitching operations in correct sequence as required by the product		6	1	5
	PC10. compare the processed products with sample/specifications given		4	1	3
	PC11. report the problems in the given format		3	1	2
	PC12. complete the required production target		2	1	1
		NOS Total	50	10	40
3.LSS/N2203 Carry out machine stitching operations in footwear	PC1. ensure the work area is free from hazards and wastes	100	3	1	2
	PC2. wear proper PPE like hand safety goggles, gloves		4	1	3
	PC3. select the right sewing machine, threads and bobbins for the materials as per the specifications in the job card		7	2	5
	PC4. check the needle and thread for correct size as per specifications		7	2	5
	PC5. check the needle for any bend and deformities		7	2	5
	PC6. follow the instructions on the work order or job card		4	1	3
	PC7. examine the given material for any faults		4	1	3
	PC8. set machine controls and Perform a test run to ensure machine is operating correctly		5	1	4
	PC9. stitch the correct materials in the right sequence as required by the product specification		6	1	5
	PC10. use proper guides in raw edge and seam stitching operations		8	2	6
	PC11. perform the major stitching operations like back seam joining, Vamp-Quarter stitching, tongue stitching, collar seam and other lining stitching as per the given sample		8	2	6
	PC12. perform the supporting and finishing operations in stitching like edge trimming, thread end trimming & pasting, lacing and cleaning of roller marks if any		8	2	6
	PC13. check any stitch quality issues like stitch open, loop stitch, stitch break, roller impression, uneven stitching if any		8	2	6
	PC14. carry out basic maintenance of machinery and keep them clean after use		5	1	4
	PC15. optimize the positioning and layout of materials to ensure a smooth production		7	2	5
	PC16. report the problems in the given format		5	1	4
	PC17. complete the required production target		4	1	3

		NOS Total	100	25	75
4.LSS/Q2204 Contribute to achieving product quality in stitching operations on footwear	PC1. perform the quality check on incoming raw materials for color, defects, textures, strength, etc., as per the sample/specifications	80	7	2	5
	PC2. check the quality on the stitching needle and thread in the following parameters needle number and point as per specification sheet, needle bent, thread break, excessive thread tension, thread fraying, etc.,		10	2	8
	PC3. check the machine parts like a bobbin, needle plate, needle bar, tension plate and correct them if required		6	2	4
	PC4. check that the stitching is done properly as per the design specifications and no damage happens to the appearance and quality		6	2	4
	PC5. carry out the quality checks at the specified intervals on the finished product		7	2	5
	PC6. check any stitch quality issues like stitch open, loop stitch, stitch break, roller impression, uneven stitching if any		10	3	7
	PC7. check that no spillage of adhesives appear on the uppers and folding is done properly		10	3	7
	PC8. check the edge trimming, putting of eyelets and lacing are done correctly		6	2	4
	PC9. report defects in the materials, tools, and equipment to the supervisor		6	2	4
	PC10. report the problems in the given format and maintain the quality record and documentation		6	2	4
	PC11. leave work area safe and secure when work is complete		6	2	4
	NOS Total	80	24	56	
5.LSS/N8601 Maintain Health, Safety and Security, a clean work area and equipment, use optimized resources at the workplace, and comply with industry & organizational requirements	PC1. comply with health and safety-related instructions applicable to the workplace	150	3	1	2
	PC2. use the personal protective equipment as per protocol		3	1	2
	PC3. maintain a healthy lifestyle and guard against dependency on intoxicants		2	-	2
	PC4. follow environment management system related procedures		2	-	2
	PC5. monitor the workplace and work processes for potential risks and threats		3	1	2
	PC6. carry out periodic walk-through to keep the work area free from hazards and obstructions, if assigned		2	-	2

PC7. report hazards and potential risks/ threats to supervisors or other authorized personnel	3	-	3
PC8. participate in mock drills/ evacuation procedures organized at the workplace	3	-	3
PC9. undertake first aid training, fire-fighting drill, and emergency response training, etc.,	4	1	3
PC10. take action based on instructions in the event of fire, emergencies or accidents	1	1	-
PC11. safely handle and move waste and debris	2	-	2
PC12. follow organization procedures for shutdown and evacuation when require	2	1	1
PC13. maintain personal body hygiene and dental hygiene	3	1	2
PC14. follow social distancing at the workplace	3	-	3
PC15. ensure not to go to work if unwell, to avoid the risk of spreading an infection to other people	4	1	3
PC16. cover the mouth with an elbow/handkerchief or turn away from people while sneezing or coughing	4	1	3
PC17. ensure equipment, work area, restrooms, etc. are sanitized before and after sessions	3	-	3
PC18. ensure regular vaccinations to avoid any spreading of diseases	3	1	2
PC19. handle materials, machinery, equipment and tools safely and correctly	5	1	4
PC20. use correct lifting and handling procedures	6	2	4
PC21. use materials to minimize waste	5	1	4
PC22. Perform the cleaning of machine or tools at the end of each shift	3	1	2
PC23. carry out running maintenance within agreed schedules	5	1	4
PC24. report unsafe equipment and other dangerous occurrences	6	2	4
PC25. carry out works in a comfortable position with the correct posture	5	1	4
PC26. maintain proper lighting, and ventilation to make sure general comfort is there while working	5	1	4
PC27. carry out work functions in accordance with legislation and regulations, organizational guidelines, and procedures	3	1	2
PC28. seek and obtain clarifications on policies and procedures from the authorized personnel	6	2	4
PC29. follow the policies and procedures within the work practices	3	1	2
PC30. identify and report any possible deviation to these requirements	3	1	2

	PC31. transact with everyone without any personal bias like gender, disability, caste, religion, color, sexual orientation, and culture		6	2	4
	PC32. identify the indicators of harassment and discrimination		3	1	2
	PC33. report incidents of harassment and discrimination to appropriate authority		3	1	2
	PC34. respect the personal and professional space of others		3	1	2
	PC35. identify ways to optimize the usage of material including water in various activities/processes		3	1	2
	PC36. check for spills/leakages in various processes and plug the spills and leakages		2	-	2
	PC37. use the optimized amount of chemicals that have petroleum products (adhesives, leather chemicals, chrome salt, cleaning agents, IPA, etc.)		3	1	2
	PC38. use proper PPE when in contact with the above materials as per specifications		2	-	2
	PC39. identify ways to optimize the usage of electricity/energy in various activities/processes		3	1	2
	PC40. check if the equipment/machine is generally functioning before commencing work and rectify wherever required		4	-	4
	PC41. ensure electrical equipment and appliances are properly connected and turned off when not in use		3	1	2
	PC42. identify recyclable and non-recyclable, and hazardous waste generated		3	2	1
	PC43. segregate waste into different categories		2	1	1
	PC44. dispose of non-recyclable waste appropriately		1	1	-
	PC45. deposit recyclable and reusable material at the identified location		2	1	1
	PC46. follow processes specified for disposal of hazardous waste		2	1	1
		NOS Total	150	40	110
6. DGT/VSQ/N0101 Employability Skills	PC1. understand the significance of employability skills in meeting the job requirements	50	2	1	1
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices		2	1	1
	PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.		4	1	3
	PC4. speak with others using some basic English phrases		5	2	3

or sentences			
PC5. follow good manners while communicating with others	1	1	
PC6. work with others in a team	1	-	1
PC7. communicate and behave appropriately with all genders and PwD	1	1	-
PC8. report any issues related to sexual harassment	1	-	1
PC9. use various financial products and services safely and securely	2	1	1
PC10. calculate income, expenses, savings etc.	3	1	2
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	2	1	1
PC12. operate digital devices and use its features and applications securely and safely	5	2	3
PC13. use internet and social media platforms securely and safely	5	2	3
PC14. identify and assess opportunities for potential business	4	2	2
PC15. identify sources for arranging money and associated financial and legal challenges	4	1	3
PC16. identify different types of customers	2	1	1
PC17. identify customer needs and address them appropriately	1	-	1
PC18. follow appropriate hygiene and grooming standards	1	1	-
PC19. create a basic biodata	2	1	1
PC20. search for suitable jobs and apply	1	-	1
PC21. identify and register apprenticeship opportunities as per requirement	1	-	1
	NOS Total	50	20
			30

Do


- Explain each guideline for assessment in detail.
- Explain the score that each trainee needs to obtain.
- Recapitulate each NOS one-by-one and take participants through the allocation of marks for Theory and Skills Practical.
- Explain the Allocation of Marks. Explain that they will be assessed on Theory and Skills Practical.
- Explain that for the first NOS, 30 marks are allotted for Theory and 70 for Skills Practical.

Annexure III

List of QR codes Used in the PHB

NOS/ Module Name	Unit Name	Topic Name	URL	QR Code
1. Overview of the industry - Orientation	Overview of the industry -Orientation	Overview on Leather Industry and Generic Skills	https://www.youtube.com/watch?v=NhjZEfoz6d4	 Overview on Leather Industry and Generic Skills
2. Preparation materials and machines for stitching operations	Prepare the materials, tools and Equipment	Easiest Way to use Industrial Sewing Machine	https://www.youtube.com/watch?v=21riK8f4nng	 Easiest Way to use Industrial Sewing Machine
3. Perform hand stitching process on leather and non-leather footwear	Carry out hand stitching process	How to sew shoe Manually	https://www.youtube.com/watch?v=nki6lv2J6xM	 How to sew shoe Manually
4. Carry out machine stitching operations in footwear	Check the tools and equipment	Threading Process	https://www.youtube.com/watch?v=C9tWc9UM1xc	 How to Thread a post sewing machine
		Bobbin threading & insertion	https://www.youtube.com/watch?v=S1R8SUCBq5I	 Front Load Bobbin Case Threading & Insertion Tutorial

	Carry out machine stitching process	Double Needle Heavy Duty sewing machine		 <p>Double Needle, Post Bed, Heavy Duty Sewing Machine</p>
5. Contribute to achieving product quality in stitching operations on footwear	Perform quality check on materials and equipment	Easiest Way to use Industrial Sewing Machine	https://www.youtube.com/watch?v=21rik8f4nng	 <p>Easiest Way to use Industrial Sewing Machine</p>

NOS/ Module Name	Unit Name	Topic Name	URL	QR Code
6. Maintain health, safety & security, a clean work area & equipment, use optimized resources at the workplace, and comply with industry & organizational Requirements	Compliance with health, safety, and security requirements	Avoiding Workplace Fire Accidents In India	https://www.youtube.com/watch?v=2oxOlV0Oke4	 5 Causes Of Workplace Fire Accidents In India
	Maintain hygiene and sanitation	Personal Health Hygiene and Grooming	https://www.youtube.com/watch?v=UxskKQ9WOTE	 Personal Health Hygiene and Grooming
	Maintain the work area	How to keep your work area clean in office	https://www.youtube.com/watch?v=q_zOUecw2Xg	 How to keep your work area clean in office
	Compliance with industry, regulatory and organizational requirements	Top 10 labour laws in India for Employees	https://www.youtube.com/watch?v=QcVPILsV84Q	 Top 10 labour laws in India for Employees
	Material conservation practices, Energy/electricity conservation practices	Top 5 Energy Saving Tips for Manufacturing	https://www.youtube.com/watch?v=iVnnEGC--vQ	 Top 5 Energy Saving Tips for Manufacturing

	Effective waste management/recycling practices	An Abstract of Industrial Waste Management	https://www.youtube.com/watch?v=aS-U8xsvZ-4	 <p>An Abstract of Industrial Waste Management</p>
7. Employability Skills	Employability Skills	Employability Skills	https://eskillindia.org/NewEmployability	 <p>Employability Skills</p>



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