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LEATHER PROCESSING TECHNOLOGIST



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CBT CURRICULUM

National Vocational Certificate Level 3

Version 1 - November, 2019



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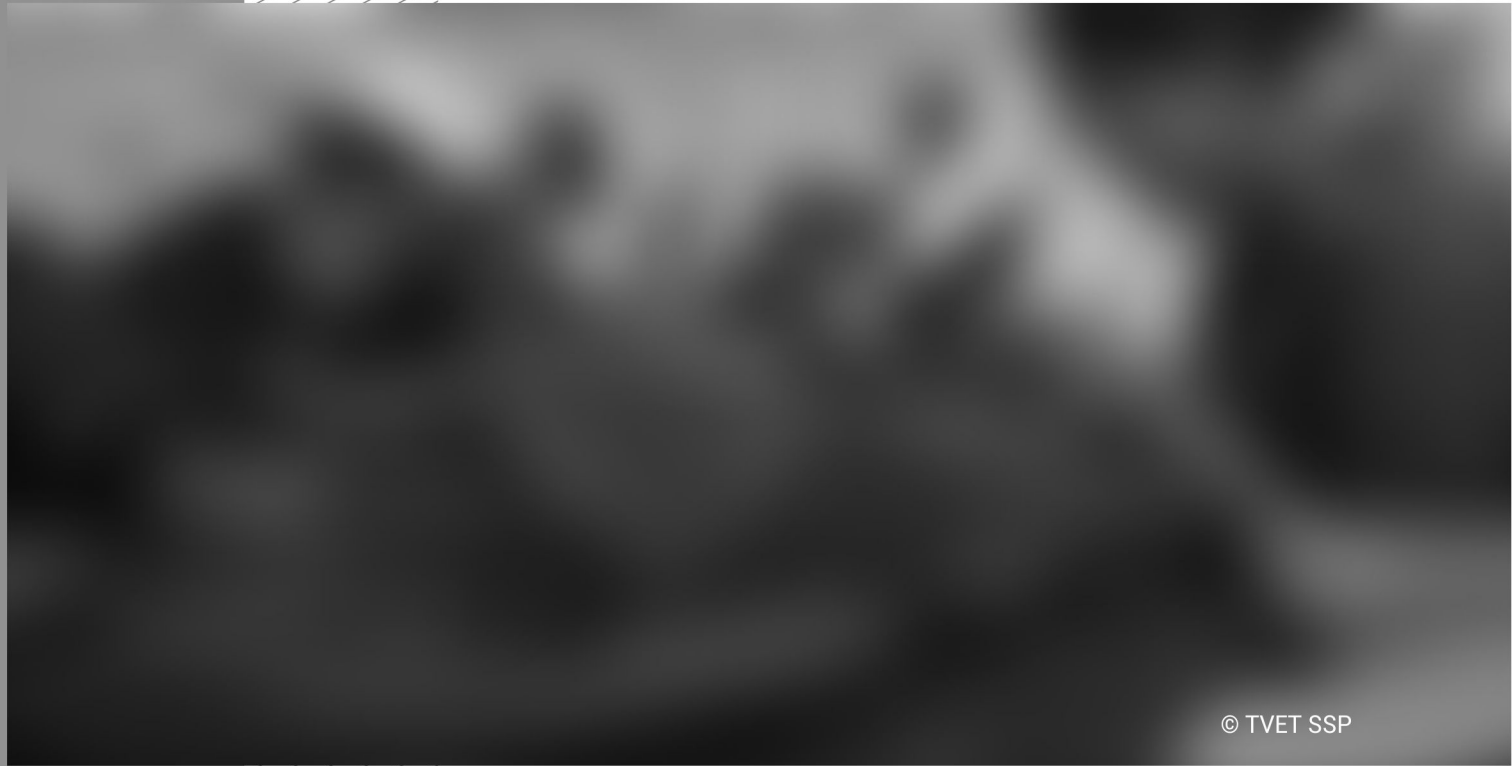
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Introduction

The Leather industry is a highly labour intensive industry; labour is extensively employed in the initial stages of the Leather tanning process while greater skills are required at the finishing stage. This Course is designed to focus the need, importance and understanding of Leather tanning & processing industry as per the current competitive environment. Companies can maintain a strategic competitive advantage and produce more valued goods after better processing of leather. Increasing demand for skilled, efficient and effective employees has created demand for this course.

This course will enable functional and technical skills for leather processing technologist. The material is taught as leather processing mechanical operator, tanning technician, leather processing & finishing and quality perspective with an emphasis on where and how specific tools can be used to improve the overall performance in the leather processing.

Definition/ Description of the training program for:

- National Vocational Certificate level 3, in (Leather Processing Technologist) “Leather Tanning Technician”

Purpose of the training program

The purpose of this training is to develop a range of skills and techniques, personal skills and attributes essential for successful performance in leather processing sector in accordance with industry requirements. It also enables the student to pursue a leather processing technologist career path with greater employment and entrepreneurial skills progress to related general and/or vocational qualifications

Overall objectives of training program

After completion of vocational training the graduates of the training program will have a good balance of knowledge, skills, attitude and work experiences, which are the essential elements of employability.

This course shall be facilitating the trainees to:

- Enhance their knowledge and skills to understand various aspects of the leather processing and finishing.
- Comprehend core values essential to work effectively on processes of leather mechanical operations, beam-house operations, tanning, and post tanning operations, dyeing, finishing and quality assurance.
- To work as leather processing technologist

Competencies to be gained after completion of course

Other than understanding leather processing functions, following competency will be gained after completion of the course:

- Able to apply occupational health & safety procedures at workplace
- Understand techniques and procedure of operating Fleshing machine
- Able to perform scudding on leather
- Understand procedures of operating splitting machine
- Able to operate shaving machine
- Understand techniques of sammying & setting out.
- Able to perform drying, staking and toggling of leather
- Can create embossing effects on leather and also measure it electronically
- Manage pre-pelt and post-pelt operations
- Understand techniques and procedures of different kind of tanning
- Prepare tanned leather for finishing
- Understand procedures and techniques of dyeing leather
- Prepare essential documents and reports for leather processing at different stages.
- Manage quality of leather by performing different physical, chemical & environmental tests

Possible available job opportunities available immediately and after level 4 in the future:

Trainer can work as the following, after completing this course

- Beam house Helper
- Skin/Hide Inspector
- Beam house Technician
- Beam house Expert
- Fleshing Machine Helper
- Fleshing Machine Operator
- Scudding Machine Operator
- Beam house Supervisor
- Tanning technician
- Tanning Expert
- Drum Operator
- Wet blue Selector
- Splitting Operator
- Splitting Machine Helper
- Dyeing Expert
- Dyeing Technician
- Dye Color Matcher
- Samm Set Operator
- Stacking Operator
- Toggle Operator
- Buffing Machine Operator
- Finishing Color Matcher
- Finishing Assistant
- Finishing In-charge
- Finishing Plant Operator
- Spray Plant Operator
- Floor Manager
- Quality Assuror
- Quality In-charge
- Lab Technician
- Lab Assistant
- Embossing Machine Operator
- Ironing Machine Carryout

- Measuring Machine Operator
- Vacuum Machine Operator

Trainee entry level

Title	Entry Requirements
National Vocational Certificate level 3, in Leather Processing Technologist “Tanning Technician”	Entry for assessment for this qualification is open. However, entry into formal training institute for this qualification is person having National Vocational Certificate level 2, in (Leather Processing Technologist) “Leather Processing Mechanical Operator”. Or this person must have Middle with fundamental knowledge of Leather Processing or 1-year experience of Leather Processing can also apply.

Minimum qualification of trainer

Trainer must possess 2 to 3 years diploma in leather/ Mechanical technology and have working experience of minimum 3 years level 3 to 4 of leather processing technology along 5 years’ experience in the field of leather processing.

Recommended trainer: trainee ratio

The recommended ratio of Trainer: Trainee should be 1:20

Medium of instruction i.e. language of instruction

Medium of instruction is English and Urdu

Duration of the course (Total time, Theory & Practical time)

This curriculum comprises 8 modules divided comprises of generic and technical competencies. The recommended delivery time is 460 hours. Delivery of the course could therefore be full time, 5 days a week, for 6 months. Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.

The full structure of the course is as follows:

Module	Theory hours	Workplace hours	Total hours
Module 1: Apply Work Health and Safety Practices (WHS)	6	24	30
Module 2: Identify and Implement Workplace Policy and Procedures	4	16	20
Module 3: Communicate at Workplace	6	24	30
Module 4: Perform Computer Application Skills	8	32	40
Module 5: Manage Personal Finances	6	24	30
Module 6: Carryout Pre-Pelt Operation	20	80	100
Module 7: Carryout Post-Pelt Operation	20	80	100
Module 8: Carryout Tanning	20	80	100

Sequence of the modules

Summary – overview of the curriculum

Following is the sequence of the modules for Leather Processing Tanning Technician (NVQF Level 3).

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
<p>Module 1: Apply Work Health and Safety Practices (WHS) Aim: This unit describes the skills to work with safety and participate in hazard assessment activities, follow emergency procedures and participate OHS practices in process</p>	<p>LU1. Implement safe work practices at work place LU2. Participate in hazard assessment activities a work place LU3. Follow emergency procedures at workplace LU4. Participate in OHS consultative processes</p>	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
<p>Module 2: Identify and Implement Workplace Policy and Procedures</p> <p>Aim: This unit describes the skills and knowledge required to develop and implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.</p>	<p>LU1. Identify workplace policy & procedures</p> <p>LU2. Implement workplace policy & procedures</p> <p>LU3. Communicate workplace policy & procedures</p> <p>LU4. Review the implementation of workplace policy & procedures</p>	4	16	20

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
<p>Module 3: Communicate at Workplace Aim: This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.</p>	<p>LU1. Communicate within the organization LU2. Communicate outside the organization LU3. Communicate effectively in workgroup LU4. Communicate in writing</p>	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
<p>Module 4: Perform Computer Application Skills Aim: This unit describes the skills and knowledge required to use spreadsheet applications, prepare in page documents, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics.</p> <p>It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets, Microsoft office and computer graphics in under direct supervision or with limited responsibility</p>	<p>LU1. Prepare In-page documents as per required information LU2. Prepare Spreadsheets as per required information LU3. Use MS Office as per required information LU4. Perform computer graphics in basic applications LU5. Create Email account for communications</p>	8	32	40
<p>Module 5: Manage Personal Finances Aim: This unit of competency describes the outcomes required to manage develop, implement and monitor a personal budget in order to plan regular savings and manage debt effectively.</p>	<p>LU1. Develop a personal budget LU2. Develop long term personal budget Identify ways to maximize future finances</p>	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 6: Carryout Pre-PELT Operation Aim: After successful completion of this module, the student is competent in performing pre-pelt operation according to professional standards and by respecting safety and health regulations	LU1: Perform Hide/skin Inspection LU2: Preserve Hide/skin LU3: Prepare Pre-PELT Recipe LU4: Soak Hide LU5: Perform Painting on Skin LU6: Perform un-haring & liming	20	80	100
Module 7: Carryout Post-PELT Operation Aim: After successful completion of this module, the student is competent in performing post-pelt operation according to professional standards and by respecting safety and health regulations	LU1: Prepare Post-Pelt recipe LU2: Perform De-liming LU3: Perform Bating LU4: Perform Degreasing Maintain Post-Pelt Register	20	80	100
Module 8: Carryout Tanning Aim: After successful completion of this module, the student is competent in performing tanning operation according to professional standards and by respecting safety and health regulations	LU1: Prepare Tanning recipe LU2: Perform Pickling LU3: Perform Tanning LU4: Perform Basification LU5: Perform Grading Maintain Tanning Register	20	80	100
	Total	90	360	450

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Module-6
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Module 6: Carryout Pre-Pelt Operation

Objective of the module: After successful completion of this module, the student is competent in performing pre-pelt operation according to professional standards and by respecting safety and health regulations.

Duration: 100 Hours **Theory:** 20 Hours **Practical:** 80 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Perform Hide/skin Inspection	The trainee will be able to: <ul style="list-style-type: none"> • Receive Raw hide/skin from Supplier • Trim hide/skin • Segregate Hide/skin as per size • Grade Hide/skin according to quality • Tag graded Hide/skin 	<ul style="list-style-type: none"> • Define hide/skin • Define sources of hide/skin • Define morphology of hide/skin • Define histology of hide/skin • Describe trimming • Describe hide/skin defects • Describe sizing • Describe grading of hide/skin 	Total 10 Hours Theory: 2 Hours Practical: 8 Hours	Computer with Multimedia Hide Skin Knife – 8” Safety helmet & glasses Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance	Classroom with multimedia aid Training Tannery area
LU2: Preserve Hide/skin	The trainee will be able to:	<ul style="list-style-type: none"> • Explain requirement of storage area • Explain preservation • Types of preservation 	Total 10 Hours	Computer with Multimedia	Classroom with multimedia aid

	<ul style="list-style-type: none"> • Prepare Storage Area • Apply Preserving agent as per Hide/skin condition • Pile Hide/skin flesh to flesh or grain to grain 	<ul style="list-style-type: none"> • Methods of preservation • Types of preserving agents • Explain grain side and flesh side of hide/skin 	<p>Theory: 2 Hours</p> <p>Practical: 8 Hours</p>	<p>Hide</p> <p>Skin</p> <p>Safety Gloves</p> <p>Safety Shoes</p> <p>Mask</p> <p>Pallets</p> <p>Apron (Rubber)</p> <p>Digital Weight Balance</p> <p>Pit</p> <p>Persevering Agents</p>	<p>Training Tannery area</p>
<p>LU3: Prepare Pre-PELT Recipe</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Assess Hide/Skin Condition • Weigh the weight of Hide/skin • Develop Pre-PELT Recipe according to requirement 	<ul style="list-style-type: none"> • Determine hide/skin condition • Define parameters of skin/hide conditions • Define types of Chemicals used in pre pelt operation • Define uses of chemicals used in pre pelt operation • Explain properties of chemical used pre pelt operation • Explain method of preparing pre-pelt recipe • Define compositions of pre-pelt 	<p>Total 10 Hours</p> <p>Theory: 02 Hours</p> <p>Practical: 08 Hours</p>	<p>Computer with Multimedia</p> <p>Hide</p> <p>Skin</p> <p>Digital Weight Balance</p> <p>Pen</p> <p>Paper</p> <p>Calculator</p>	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>

		recipe			
LU4: Soak Hide	The trainee will be able to: <ul style="list-style-type: none"> • Receive Hide/skin from Storage Area • Select Vessel for Soaking according hide/skin requirement • Perform washing • Perform Soaking as per Pre-Pelt recipe • Check pH value of float and condition of hide/skin as per Pre-Pelt recipe 	<ul style="list-style-type: none"> • Introduction to vessels; <ul style="list-style-type: none"> ○ Pit ○ Paddle ○ Drum • Explain washing • Procedure of washing • Define soaking • Describe purpose of soaking • Describe desalting before soaking process • Explain quality of water • Explain soaking and causes of soaking defects • Explain procedure of soaking • Explain pH and its parameters • Explain precautionary & remedial measures of soaking • Define procedure of checking pH values • Define parameters of rehydration 	Total 15 Hours Theory: 03 Hours Practical: 12 Hours	Computer with Multimedia Hide Skin Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack Plastic Containers pH value measuring instrument	Classroom with multimedia aid Training Tannery area
LU5: Perform Painting on skin	The trainee will be able to: <ul style="list-style-type: none"> • Explain painting • Describe Purpose of painting • Describe painting mixture 	<ul style="list-style-type: none"> • Explain painting • Describe Purpose of painting • Describe painting mixture 	Total 30 Hours	Computer with Multimedia	Classroom with multimedia aid

	<ul style="list-style-type: none"> • Prepare Painting mixture as per pre-pelt recipe • Apply Painting mixture on the flesh side of skin • Pile skin flesh to flesh side as per Pre-Pelt recipe • Remove hair from skin 	<ul style="list-style-type: none"> • Importance of painting • Method of applying painting mixture • Explain methods of removing hair • Explain precautionary & Remedial measures of painting 	<p>Theory: 06 hours</p> <p>Practical: 24 Hours</p>	<p>Hide Skin Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack Plastic Containers Jute Brush Painting mixture</p>	<p>Training Tannery area</p>
<p>LU6: Perform Un-hairing & Liming</p>	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> • Arrange Liming agent & auxiliaries as per pre-pelt recipe 	<ul style="list-style-type: none"> • Define unhairing • Describe purpose of unhairing • Explain liming • Describe purpose of liming • Importance of un-hairing & liming • Explain un-hairing & liming techniques 	<p>Total 25 Hours</p> <p>Theory: 5 Hours</p> <p>Practical:</p>	<p>Computer with Multimedia Hide Skin Safety Gloves</p>	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>

	<ul style="list-style-type: none"> • Mix Liming agent & auxiliary as per pre-pelt recipe • Execute Un-hairing & liming as per pre-pelt recipe • Check Pelt condition as per requirement 	<ul style="list-style-type: none"> • Un-hairing & Liming methods according to equipment used; <ul style="list-style-type: none"> ○ Pit liming ○ Paddle liming ○ Drum liming • Liming defects • Classification of liming defects • Explain precautionary & remedial measures of un-hairing & liming 	20 Hours	Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Slicker Pit Peddle Drum Pallet Jack Plastic Containers Liming & un-hairing agents & auxiliaries Baume Meter pH value measuring instrument	
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Module-7
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Module 7: Carryout Post-Pelt Operation

Objective of the module: After successful completion of this module, the student is competent in performing post-pelt operation according to professional standards and by respecting safety and health regulations.

Duration: 100 Hours **Theory:** 20 Hours **Practical:** 80 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Prepare Post-Pelt recipe	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Assess PELT condition Weigh the PELT weight Develop Post-Pelt recipe as per requirement 	<ul style="list-style-type: none"> Explain pelt condition Define parameters of pelt conditions Define types of Chemicals used in post pelt operation Define uses of chemicals used in post pelt operation Explain properties of chemical used post pelt operation Explain method of preparing post-pelt recipe Define compositions of post-pelt recipe 	<p>Total 20 Hours</p> <p>Theory: 04 Hours</p> <p>Practical: 16 Hours</p>	Computer with Multimedia Hide Skin Digital Weight Balance Pen Paper Calculator	Classroom with multimedia aid Training Tannery area
LU2: Perform De-liming	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Receive Pelt from Fleshing area Arrange De-Liming agent & auxiliaries as 	<ul style="list-style-type: none"> Define de-liming Explain de-liming process/techniques Explain purpose of de-liming Importance of de-liming Define washing Describe de-liming process parameters Explain cross section 	<p>Total 30 Hours</p> <p>Theory: 06 Hours</p> <p>Practical: 24 Hours</p>	Computer with Multimedia Hide Skin Safety Gloves Safety Shoes	Classroom with multimedia aid Training Tannery area

	Post-Pelt recipe <ul style="list-style-type: none"> • Execute De-Liming • Examine De-Liming by cross-section 	<ul style="list-style-type: none"> • Explain precautionary & remedial measures of de-liming process 		Mask Pallets Apron (Rubber) Digital Weight Balance Pit Ph paper Knife cutter Peddle Drum Pallet Jack Plastic Containers Jute Brush Painting mixture	
LU3: Perform Bating	The trainee will be able to: <ul style="list-style-type: none"> • Arrange Bating agents as per post-pelt recipe • Execute Bating as per post-pelt recipe 	<ul style="list-style-type: none"> ○ Explain bating ○ Purpose of bating ○ Procedure of bating ○ Factors effecting bating process ○ Temperature ○ pH ○ bating agents ○ Explain bating tests ○ Explain procedures of bating tests ○ Explain precautionary & remedial measures of bating process 	Total 20 Hours Theory: 04 Hours Practical: 16 Hours	Computer with Multimedia Hide Skin Safety Gloves Safety Shoes Mask	Classroom with multimedia aid Training Tannery area

	<ul style="list-style-type: none"> Perform Washing as per post-pelt recipe 			Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack Plastic Containers	
LU4: Perform Degreasing	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Arrange degreasing agent & auxiliaries as post-pelt recipe Execute Degreasing as per Post-pelt recipe Perform washing as per Post-pelt recipe 	<ul style="list-style-type: none"> Define degreasing Purpose of degreasing Standard limits of degreasing Techniques of degreasing <ul style="list-style-type: none"> Aqueous degreasing Combination degreasing Solvent degreasing Enzymatic degreasing Explain precautionary & remedial measures of degreasing process 	<p>Total 20 Hours</p> <p>Theory: 04 Hours</p> <p>Practical: 16 Hours</p>	Computer with Multimedia Hide Skin Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit	Classroom with multimedia aid Training Tannery area

				Peddle Drum Pallet Jack	
LU5: Maintain Post-Pelt Register	The trainee will be able to: <ul style="list-style-type: none"> Record Post-pelt operation entries in register Record damages during Post-pelt operation 	<ul style="list-style-type: none"> Introduction to machine register Define procedure of recording entries in register Importance of register 	Total 10 Hours Theory: 02 Hours Practical: 08 Hours	Computer with Multimedia Recording Register	Classroom with multimedia aid Training Tannery area

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Module-8
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Module 8: Carryout Tanning

Objective of the module: After successful completion of this module, the student is competent in performing tanning operation according to professional standards and by respecting safety and health regulations.

Duration: 100 Hours **Theory:** 20 Hours **Practical:** 80 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Prepare Tanning recipe	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Assess pelt condition Weigh the pelt Develop Tanning recipe as per requirement 	<ul style="list-style-type: none"> Introduction of tanning Define parameters of pelt conditions Define types of Chemicals used in tanning operation Define uses of chemicals used in tanning operation Explain properties of chemical used tanning operation Explain method of preparing tanning recipe Define compositions of tanning recipe 	<p>Total 20 Hours</p> <p>Theory: 04 Hours</p> <p>Practical: 16 Hours</p>	Computer with Multimedia	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>
LU2: Perform Pickling	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Select vessel for Pickling as tanning recipe Execute Pickling as 	<ul style="list-style-type: none"> Define pickling Purpose of pickling Explain pickling process Explain pH values as per type of tanning Define precautionary & remedial measures of pickling 	<p>Total 20 Hours</p> <p>Theory: 04 Hours</p> <p>Practical: 16 Hours</p>	<p>Computer with Multimedia</p> <p>Hide</p> <p>Skin</p> <p>Safety Gloves</p> <p>Safety Shoes</p>	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>

	<p>per recipe</p> <ul style="list-style-type: none"> Examine Pickling by pH value & cross-section as per Tanning recipe 			<p>Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack</p>	
LU3: Perform Tanning	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Arrange Tanning agents as per Tanning recipe Execute Tanning as per Tanning recipe Examine Tanning by cross section 	<ul style="list-style-type: none"> Define tanning Purpose of tanning Classification of tanning <ul style="list-style-type: none"> Vegetable tanning Chrome tanning Other tanning Explain mechanism of tanning Explain assessment method of tanning Define precautionary & remedial measures of tanning 	<p>Total 20 Hours</p> <p>Theory: 04 Hours</p> <p>Practical: 16 Hours</p>	<p>Computer with Multimedia Hide Skin Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance</p>	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>

				Pit Peddle Drum Pallet Jack Plastic Containers	
LU4: Perform Basification	The trainee will be able to: <ul style="list-style-type: none"> • Arrange Basification agent and auxiliaries as per Tanning recipe • Execute Basification as per Tanning recipe • Assess Leather Basification as per Tanning recipe • Pile Tanned Leather for ageing 	<ul style="list-style-type: none"> • Explain basification • Purpose of basification • Describe assessment method of leather basification • Explain ageing • Explain purpose of ageing • Define precautionary & remedial measures of basification 	Total 20 Hours Theory: 04 Hours Practical: 16 Hours	Computer with Multimedia Hide Skin Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack	Classroom with multimedia aid Training Tannery area

				Plastic Containers	
LU5: Perform Grading	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Grade Tanned leather as per quality Tag graded Tanned leather 	<ul style="list-style-type: none"> Explain Grading Explain Purpose of grading Explain classification of grades 	<p>Total 10 Hours</p> <p>Theory: 02 Hours</p> <p>Practical: 08 Hours</p>	<p>Computer with Multimedia</p> <p>Hide</p> <p>Skin</p> <p>Safety Gloves</p> <p>Safety Shoes</p> <p>Mask</p> <p>Pallets</p> <p>Apron (Rubber)</p>	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>
LU6: Maintain Tanning register	<p>The trainee will be able to:</p> <ul style="list-style-type: none"> Record Tanning operation entries in register Record Graded Leather in register 	<ul style="list-style-type: none"> Introduction to machine register Define procedure of recording entries in register Importance of register 	<p>Total 10 Hours</p> <p>Theory: 02 Hours</p> <p>Practical: 08 Hours</p>	<p>Computer with Multimedia</p> <p>Recording Registers</p>	<p>Classroom with multimedia aid</p> <p>Training Tannery area</p>

General assessment guidance for Leather Processing Technologist

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

Sessional assessment is going on all the time. Its purpose is to provide feedback on what students are learning:

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

Sessional assessment is going on all the time. Its purpose is to provide feedback on what students are learning:

- To the student: to identify achievement and areas for further work
- To the teacher: to evaluate the effectiveness of teaching to date, and to focus future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy

Final assessment is the assessment, usually on completion of a course or module, which says whether or not the student has "passed". It is – or should be – undertaken with reference to all the objectives or outcomes of the course, and is usually fairly formal. Considerations of security – ensuring that the student who gets the credit is the person who did the work – assume considerable importance in final assessment.

Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student's performance.

Examples for direct assessment of a Leather Processing Technologist include:

- Work performances, for example preparing tanning recipe for given pelt.

- Demonstrations, for example demonstrating post pelt operations, such as bating, degreasing of pelt.
- Direct questioning, where the assessor would ask the student what precautions should be taken during post pelt operations.
- Paper-based tests, such as multiple choice or short answer questions on pre-pelt operations, dyeing operations, carryout fleshing, and carryout splitting.

Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Examples for indirect assessment of a Leather Processing Technologist include:

- Work products, pelt, wet blue, dyed crust
- Workplace documents, such as a register for recoding staking operations.

Indirect assessment should only be a second choice. (In some cases, it may not even be guaranteed that the work products were produced by the person being assessed.)

Principles of assessment

All assessments should be valid, reliable, fair and flexible:

Fairness means that there should be no advantages or disadvantages for any assessed person. For example, it should not happen that one student gets prior information about the type of work performance that will be assessed, while another candidate does not get any prior information.

Validity means that a valid assessment assesses what it claims to assess. For example, if shaving skills are to be assessed and certificated, the assessment should involve performance criteria that are directly related to that shaving activity. An interview about the effect of the shaving processes on different type of raw material would not meet the performance criteria.

Reliability means that the assessment is consistent and reproducible. For example, if the work performance of carryout scudding has been assessed, another assessor (eg the future employer) should be able to see the same work performance and witness the same level of achievement.

Flexibility means that the assessor has to be flexible concerning the assessment approach. For example, if there is a power failure during the assessment, the assessor should modify the arrangements to accommodate the students' needs.

Assessment strategy for *Leather Processing Technologist*

This curriculum consists of 8 modules:

- Module 1: Apply Work Health and Safety Practices (WHS)
- Module 2: Identify and Implement Workplace Policy and Procedures
- Module 3: Communicate at Workplace
- Module 4: Perform Computer Application Skills
- Module 5: Manage Personal Finances
- Module 6: Carryout Pre-Pelt Operation
- Module 7: Carryout Post-Pelt Operation
- Module 8: Carryout Tanning

Sessional assessment

The sessional assessment for all modules shall be in two parts: theoretical assessment and practical assessment. The sessional marks shall contribute to the final qualification.

Theoretical assessment for all learning modules must consist of a written paper lasting at least 15-20mins per module. This can be a combination of multiple choice and short answer questions.

For practical assessment, all procedures and methods for the modules must be assessed on a sessional basis. Guidance is provided below under Planning for assessment.

Final assessment

Final assessment shall be in two parts: theoretical assessment and practical assessment. The final assessment marks shall contribute to the final qualification.

The final theoretical assessment shall consist of 15-20min paper.

For the final practical assessment, each student shall be assessed over a period of two days, with one 8-hour sessions on each day. This represents a total of two sessions totaling 16 hours of practical assessment for each student. During this period, each student must be assessed on his/her ability to prepare a pelt, wet blue, dyed crust or Finished Leather.

There is no final practical assessment for Module 1: Apply Occupational Health & Safety Procedures at Workplace; Module 15: Maintain Safe Work Environment; or Module 23: Develop Professionalism. Practical work for these modules shall be assessed on a sessional basis only.

The assessment team

The number of assessors must meet the needs of the students and the training provider. For example, where two assessors are conducting the assessment, there must be a maximum of five students per assessor. In this example, a group of 20 students shall therefore require assessments to be carried out over a four-day period. For a group of only 10 students, assessments would be carried out over a two-day period only.

Planning for assessment

Sessional assessment: assessors need to plan in advance how they will conduct sessional assessments for each module. The tables on the following pages are for assessors to use to insert how many hours of theoretical and practical assessment will be conducted and what the scheduled dates are.

Final assessment: Training providers need to decide ways to combine modules into a cohesive two-day final assessment programme for each group of five students. Training providers must agree for practical assessments in advance

List of tools and equipment for complete qualification

List of Machinery

Sr. #	Description	Quantity
1.	Trial Steel Drum + wooden drum Automated, 300mm x 800mm	6 + 3
2.	Fleshing Machine (4")	1
3.	Splitting Machine	1
4.	Shaving Machine	1
5.	Sammying-Setting Out Machine	1
6.	Vacuum Dryer	1
7.	Staking Machine + (Chakrram Machine)	1+1
8.	Toggling Chamber	1
9.	Buffing Machine	1
10.	Embossing Machine	1
11.	Hydraulic Press Machine	1
12.	Measuring Machine	1
13.	Spray Unit with compressor	1
14.	Finishing guns with accessories	1
15.	De-dusting Machine	1
16.	Ironing Machine	1
17.	Dry Milling Drum	1
18.	Fini-flex Machine	1

List of Tools & Equipment's

Sr. no.	Tools & Equipment	Quantity
1.	Knife – 8"	10
2.	Pallets (3'x4')	10
3.	Digital Weight Balance (up to 50Kg)	2
4.	Pit (5'x4'x3')	1
5.	Peddle (5'x4'x3')	1
6.	Jute Brush	5
7.	Plastic Container for mixing (5kg Capacity)	5
8.	Pallet Jack	2
9.	Baume Meter	2
10.	Graduated Measuring Cylinder (250ml)	1
11.	Curve Knives	5
12.	Curve Stand for Scudding	5
13.	Table with Tube light (Selection Table)	2
14.	Pile Horse	10
15.	Thickness Gauge Meter	2
16.	Knife Cutter	5
17.	Air Blower	4
18.	Digital Weight Balance (1gram to	2

	5000gm)	
19.	Plastic Mugs	10
20.	Thermometer	2
21.	Hair Dryer	2
22.	Scissors	5
23.	Scraper Fiber	5
24.	Hanging clips	50
25.	Toggle clips	100
26.	Fan	2
27.	Wrench Pana	5
28.	Buffer Papers (180-1200)	50ft each paper
29.	Lab Coat	5
30.	Filter Cloth	10
31.	Plastic Jar	10
32.	Stirrer	1
33.	Hydro press plates (Plain)	1
34.	Hydro press plates (hair-cell)	1
35.	Hydro press plates (milled)	1
36.	Large Wooden Scraper	2
37.	Wooden Table	2
38.	Measuring tape	5
39.	Press Cutter	1
40.	Set of cutting Dies for physical test	1

	specimen	
41.	Tensile Tester with accessories	1
42.	Tear strength tester with accessories	1
43.	Temperature & humidity Control Chamber	1
44.	Rub Fastness Tester with accessories (Crock, vestige, circular)	1
45.	Finish Adhesion Tester with accessories	1
46.	Gray Scales Set	1
47.	Shrinkage temperature Kit	1
48.	Digital pH meter	1
49.	Digital TDS Meter	1
50.	Soxhlet apparatus and related glassware	3
51.	Heating mental	3
52.	Chrome Testing apparatus & glassware	1
53.	Digital Weight Balance (0.0001gm to 310gm)	2
54.	Oven (0-250C)	1
55.	Desiccator	1
56.	Fuming Chamber	1

List of consumable supplies

List of Consumables

Sr. no.	Tools & Equipment	Quantity
1.	Common Salt	10kg
2.	Soaking Agent Detergent	250gm
3.	pH paper (Ranging 1-14)	100
4.	Sodium Sulphide	400gm
5.	Lime	500gm
6.	China Clay	500gm
7.	Biocides	100gm
8.	Soda Ash	100gm
9.	Hide	As per required
10.	Skin	As per required
11.	Ammonium Salt	250gm
12.	Sodium Meta Sulphate	100gm
13.	Bating Agent	100gm
14.	Detergent	100gm
15.	Brine Solution	50gm
16.	Degreasing Agent	25gm
17.	Sodium Formulate	100gm

18.	Formic Acid	500gm
19.	Sulfuric Acid	50gm
20.	pH indicator	3 types
21.	Chrome Salt	5 kg
22.	Sodium Bicarbonate	150gm
23.	fungicide	50gm
24.	BCG indicator	500gm
25.	Neutralizing Agent	200gm
26.	Sodium formate	200gm
27.	Soda bi carbonate	1000gm
28.	Resins	200gm
29.	Fillers	200gm
30.	Veg Re-tainnices	200gm
31.	Sytans	500gm
32.	Synthetic oil	500gm
33.	Foil Oil	200gm
34.	Emulsifier	200gm
35.	Blend Oil	200gm
36.	Lecithin oil	200gm
37.	Dye	200gm
38.	Lubricants	200gm
39.	Re-Tan Auxiliary	100gm
40.	Fixing Agent	100gm

41.	Casein Binder	500gm
42.	aniline liquid Dye (different colors)	100gm each
43.	Solvent	200gm
44.	Pigment (different colors)	100gm each
45.	Acrylic & Co-acrylic binders	200gm each
46.	Polyurethane binder	200gm
47.	Waxes	1box
48.	Nitro Cellulose Lacquer	5kg
49.	PU lacquer	5kg
50.	Feel Modifier	5kg
51.	Chemicals for lab tests	1kg

List of Personal Protective Equipment

Sr. #	Description	Specifications	Quantity
1.	First AID Box	Standard	2
2.	Fire Extinguisher Cylinder	Co2- 5 Kg	5
3.	Fire Blanket	Standard	2
4.	Fire Bucket	Standard	2
5.	Safety Gloves	Standard	5
6.	Safety Goggles	White	5
7.	Safety Shoes	Standard	5
8.	Safety Belt	Standard	5

List of Stationary

Sr. #	Description
1.	Handbooks / Registers
2.	Pencils/ pens
3.	Rubbers
4.	Sharpeners
5.	Paper Cutter
6.	Seizers
7.	Colors
8.	White charts
9.	Brown sheets
10.	White board markers
11.	Permanent markers
12.	File cover and files
13.	Tag cards
14.	Small Knife and blades

Credit values

The credit value of the National Certificate Level-3 in Leather Processing Technologist is defined by estimating the amount of time/ instruction hours required to complete each competency unit and competency standard. The NVQF uses a standard credit value of 1 credit = 10 hours of learning (Following Higher Education Commission (HEC) guidelines).

The credit values are as follows:

S.no.	Competency Standards	Estimated Hours	Credit Hours
1	Module 1: Apply Work Health and Safety Practices (WHS)	30	3
2	Module 2: Identify and Implement Workplace Policy and Procedures	20	2
3	Module 3: Communicate at Workplace	30	3
4	Module 4: Perform Computer Application Skills	40	4
5	Module 5: Manage Personal Finances	30	3
6	Module 6: Carryout Pre-Pelt Operation	100	10
7	Module 7: Carryout Post-Pelt Operation	100	10
9	Module 8: Carryout Tanning	100	10

