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LEATHER PROCESSING TECHNOLOGIST

CBT CURRICULUM

National Vocational Certificate Level 4

Version 1 - November, 2019

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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 4, in (Leather Processing Technologist) “Leather Processing & Quality Associate”

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 later 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 4, in Leather Processing Technologist "Leather Processing & Quality Associate"	Entry for assessment for this qualification is open. However, entry into formal training institute for this qualification is person having National Vocational Certificate level 3, in (Leather Processing Technologist) "Leather Tanning Technician". Or this person must have middle with 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.

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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 10 modules divided comprises of generic and technical competencies. The recommended delivery time is 600 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: Contribute to Work Related Health and Safety (WHS) Initiatives	6	24	30
Module 2: Analysis Workplace Policy and Procedures	6	24	30
Module 3: Perform Advanced Communication	6	24	30
Module 4: Develop Advance Computer Application Skills	8	32	40
Module 5: Manage Human Resource Services	4	16	20
Module 6: Develop Entrepreneurial Skills	6	24	30
Module 7: Carryout Post Tanning	24	96	120
Module 8: Carryout Dyeing	20	80	100
Module 9: Carryout finishing operation	20	80	100
Module 10: Manage quality control	20	80	100

Sequence of the modules

Summary – overview of the curriculum

Following is the sequence of the modules for Leather Processing Quality Associates (NVQF Level 4).

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 1: Contribute to Work Related Health and Safety (WHS) Initiatives **Aim:** This unit describes the skills and knowledge required to manage the identification, review, development, implementation and evaluation of effective participation and consultation processes as an integral part of managing work health and safety (WHS).	**LU1.** Contribute to initiate work-related health and safety measures **LU2.** Contribute to establish work-related health and safety measures **LU3.** Contribute to ensure legal requirements of WHS measures **LU4.** Contribute to review WHS measures **LU5.** Evaluate the organization's WHS system	6	24	30
Module 2: Comply with Workplace Policy and Procedures **Aim:** This unit describes the skills and knowledge required to 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.	**LU1.** Manage work timeframes **LU2.** Manage to convene meeting **LU3.** Decision making at workplace **LU4.** Set and meet own work priorities at instent **LU5.** Develop and maintain professional competence **LU6.** Follow and implement work safety requirements	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 3: Perform Advanced Communication **Aim:** This unit describes the performance outcomes, skills and knowledge required to develop communication skills used professionally. It covers plan and organise work and conduct trainings at workplace, along with demonstrating professional skills independently	**LU1.** Demonstrate professional skills **LU2.** Plan and Organize work **LU3.** Provide trainings at workplace	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 4: Develop Advance Computer Application Skills **Aim:** This unit provides an overview of Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards, i.e. Data Entry, Power Point Presentation and managing data base and graphics for Design It applies to individuals employed in a range of work environments who need to be able to present a set range of data in a simple and direct forms	**LU1.** Manage Information System to complete a task **LU2.** Prepare Presentation using computers **LU3.** Use Microsoft Access to manage database **LU4.** Develop graphics for Design	8	32	40

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 5: Manage Human Resource Services **Aim:** This unit describes the skills and knowledge required to plan, manage and evaluate delivery of human resource services, integrating business ethics. It applies to individuals with responsibility for coordinating a range of human resource services across an organization. They may have staff reporting to them..	**LU1.** Determine strategies for delivery of human resource services **LU2.** Manage the delivery of human resource services **LU3.** **LU4.** Evaluate human resource service delivery Manage integration of business ethics in human resource practices	4	16	20
Module 6: Develop Entrepreneurial Skills **Aim:** This Competency Standard identifies the competencies required to develop entrepreneurial skills, in accordance with the organization's approved guidelines and procedures. You will be expected to develop a business plan, collect information regarding funding sources, develop a marketing plan and develop basic business communication skills. Your underpinning knowledge regarding entrepreneurial skills will be sufficient to provide you the basis for your work.	**LU1.** Develop a business plan **LU2.** Collect information regarding funding sources **LU3.** Develop a marketing plan **LU4.** Develop basic business communication skills	6	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 7: Carryout Post Tanning Operation **Aim:** After successful completion of this module, the student is competent in performing post tannning operation according to professional standards and by respecting safety and health regulations	LU1: Prepare Post Tanning recipe LU2: Perform Neutralization LU3: Perform Re-tanning LU4: Perform Fat-Liquoring LU5: Perform Fixation for crust LU6: Maintain Post Tanning Register	24	96	120
Module 8: Carryout Dyeing **Aim:** After successful completion of this module, the student is competent in performing dyeing operation according to professional standards and by respecting safety and health regulations	LU1: Prepare Dyeing recipe LU2: Perform Wetback LU3: Perform Dyeing LU4: Perform Lubrication LU5: Perform Fixation for dyed crust LU6: Maintain Dyeing Register	20	80	100
Module 9: Carryout Finishing Operation **Aim:** After successful completion of this module, the student is competent in performing finishing operation according to professional standards and by respecting safety and health regulations	LU1: Prepare finishing recipe LU2: Perform staining LU3: Apply Base coat LU4: Apply Middle coat LU5: Apply Final coat LU6: Maintain finishing register	20	80	100

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 10: Manage Quality Control **Aim:** After successful completion of this module, the student is competent in managing quality according to professional standards and by respecting safety and health regulations	LU1: Carryout Physical Testing LU2: Carryout Chemical Testing LU3: Carryout Environment Testing LU4: Maintain Test Record	20	80	100
	Total	120	480	600

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Modules

Module 7: Carryout Post-Tanning

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

Duration: 120 Hours **Theory:** 24 Hours **Practical:** 96 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Prepare Post Tanning recipe	**The trainee will be able to:** • Assess Tanned leather condition as per requirement • Weigh Tanned leather • Develop Post tanning recipe as per requirement	• Define parameters of leather conditions • Define types of Chemicals used in post tanning operation • Define uses of chemicals used in post tanning operation • Explain properties of chemical used post tanning operation • Explain method of preparing post tanning recipe • Define compositions of post tanning recipe	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia tanned leather Safety Gloves Safety Shoes Mask	Classroom with multimedia aid Training Tannery area
LU2: Perform Neutralization	**The trainee will be able to:** • Perform washing as per Post Tanning recipe • Arrange Neutralizing	• Explain neutralization • Define purpose of neutralization • Explain procedure of neutralization • Explain assessment methods of neutralization	**Total** 25 Hours **Theory:** 05 Hours **Practical:**	Computer with Multimedia Tanned leather Safety Gloves Safety Shoes	Classroom with multimedia aid Training Tannery area

	agents & auxiliaries as per Post-Tanning recipe • Execute Neutralization as per post-tanning recipe • Examine Neutralization by pH value & cross section as per post-tanning recipe		20 Hours	Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum	
LU3: Perform Re-tanning	**The trainee will be able to:** • Arrange Re-tanning agents & auxiliaries as per Post-Tanning recipe • Execute Re-tanning as per recipe	• Explain re-tanning • Define purpose of re-tanning • Explain types of re-tanning • Explain procedure of re-tanning • Explain precautionary & remedial measures of re-tanning	**Total** 25 Hours **Theory:** 05 Hours **Practical:** 20 Hours	Computer with Multimedia Ttanned leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance	Classroom with multimedia aid Training Tannery area
LU4: Perform Fat-liquoring	**The trainee will be able to:** • Arrange Fat-liquoring agent & auxiliaries as	• Define fat liquoring • Purpose of liquoring • Types of fat-liquor • Fat liquoring process and methods • Explain precautionary & remedial	**Total** 25 Hours **Theory:**	Computer with Multimedia tanned leather Safety Gloves	Classroom with multimedia aid Training Tannery area

	per post Tanning recipe • Execute Fat-liquoring as per post-Tanning recipe	measures of fat-liquoring • Explain assessment method of fat liquoring	05 Hours **Practical:** 20 Hours	Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack Plastic Containers	
LU5: Perform Fixation for Crust	**The trainee will be able to:** • Arrange Fixing agents as per post-tanning recipe • Execute Fixation as per post tanning recipe • Examine Fixation by pH value as per Post-Tanning recipe • Pile Crust leather	• Define fixation • Define purpose of fixation • Explain procedure of fixation • Explain precautionary & remedial measures of fixation • Explain assessment method of fixation	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 hours	Computer with Multimedia tanned leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit	Classroom with multimedia aid Training Tannery area

				Peddle Drum Pallet Jack Plastic Containers	
LU6: Maintain post tanning register	**The trainee will be able to:** • Record Post Tanning operation entries in register • Record damages during Post Tanning	• Introduction to machine register • Define procedure of recording entries in register • Importance of register	**Total** 5 Hours **Theory:** 1 Hours **Practical:** 4 Hours	Computer with Multimedia Recording Register	Classroom with multimedia aid Training Tannery area

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Module 8: Carryout Dyeing

Objective of the module: After successful completion of this module, the student is competent in performing dyeing 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 Dyeing recipe	**The trainee will be able to:** • Assess Crust leather condition as per requirement • Weigh the Crust leather • Develop Dyeing recipe as per requirement	• Define dyeing • Define parameters of crust conditions • Define types of Chemicals used in dyeing operation • Define uses of chemicals used in dyeing operation • Explain properties of chemical used dyeing operation • Define types of dyes used in dyeing operation • Explain method of preparing dyeing recipe • Define compositions of dyeing recipe	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia crust leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack	Classroom with multimedia aid Training Tannery area
LU2: Perform Wetback	**The trainee will be able to:** • Arrange wetback	• Explain wetback • Purpose of wetback • Methods of wetback	**Total** 20 Hours	Computer with Multimedia crust leather	Classroom with multimedia aid

	agent as per dyeing recipe • Execute wetback as per dyeing recipe • Perform washing as per dyeing recipe	• Procedure of wetback	**Theory:** 04 Hours **Practical:** 16 Hours	Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum	Training Tannery area
LU3: Perform Dyeing	**The trainee will be able to:** • Arrange dye and their auxiliaries as per dyeing recipe • Execute Dyeing as per dyeing recipe • Examine dye penetration by cross section	• Define dyeing • Define purpose of dyeing • Explain dyes and its auxiliaries • Explain procedure of dyeing • Explain penetration of dye • Explain top dye process • Explain precautionary & remedial measures of dyeing • Explain assessment method of dyeing	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia crust leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle	Classroom with multimedia aid Training Tannery area

				Drum Pallet Jack Plastic Containers	
LU4: Perform Lubrication	**The trainee will be able to:** • Arrange Lubricant & their auxiliaries as per dyeing recipe • Execute Lubrication as per dyeing recipe	• Define lubrication • Define purpose of lubrication • Types of lubricants • Procedure of lubrication • Explain precautionary & remedial measures of lubrication	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia Crust leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack Plastic Containers	Classroom with multimedia aid Training Tannery area
LU5: Perform Fixation for dyed crust	**The trainee will be able to:** • Arrange Fixing agents as per dyeing	• Define fixation • Define purpose of fixation • Procedure of fixation • Explain precautionary & remedial measures of fixation	**Total** 15 Hours **Theory:**	Computer with Multimedia crust leather Safety Gloves	Classroom with multimedia aid Training Tannery area

	recipe • Execute Fixation as per dyeing recipe • Examine Fixation pH value	• Explain assessment method of fixation	03 Hours **Practical:** 12 Hours	Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance Pit Peddle Drum Pallet Jack Plastic Containers	
LU6: Maintain Dyeing Register	**The trainee will be able to:** • Record Dyeing operation entries in register • Record damages during Dyeing	• Introduction to machine register • Define procedure of recording entries in register • Importance of register	**Total** 05 Hours **Theory:** 01 Hours **Practical:** 04 Hours	Computer with Multimedia Recording Register	Classroom with multimedia aid Training Tannery area

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Module 9: Carryout Finishing

Objective of the module: After successful completion of this module, the student is competent in performing finishing 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 Finishing recipe	**The trainee will be able to:** • Receive dyed crust from dyed mechanical operation (DMO) • Assess dyed crust condition according to sample • Develop Finishing recipe as per requirement	• Define finishing • Define purpose of finishing • Define parameters of dyed crust conditions • Define types of Chemicals used in finishing operation • Define uses of chemicals used in finishing operation • Explain properties of chemical used finishing operation • Explain types of finishing agents used in finishing operation • Explain procedure of preparing finishing recipe • Define compositions of finishing recipe	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia Leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance	Classroom with multimedia aid Training Tannery area
LU2: Perform Staining	**The trainee will be able to:** • Select Staining procedure as per requirement • Prepare Staining mixture as per	• Define staining • Explain purpose of staining • Explain liquid dyes & its types • Describe staining plant • Explain procedure of staining • Explain procedure of color matching	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia leather Safety Gloves Safety Shoes Mask	Classroom with multimedia aid Training Tannery area

	Finishing recipe • Set Staining plant as per Finishing recipe • Apply Staining mixture as per Finishing recipe • Match color as per sample • Pile stained leather			Pallets Apron (Rubber) Digital Weight Balance	
LU3: Apply Base coat	**The trainee will be able to:** • Set machine for Base coat as per requirement • Prepare Base coat mixture as per Finishing recipe • Pad up Base coat on leather as per Finishing recipe • Pile leather	• Define base coat • Explain purpose of base coat • Explain pigments & its types • Explain waxes & its types • Explain binders & its types • Explain methods of base coat • Explain procedure of base coat	**Total** 20 Hours **Theory:** 04 Hours **Practical:** 16 Hours	Computer with Multimedia Leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance	Classroom with multimedia aid Training Tannery area
LU4: Apply Middle coat	**The trainee will be able to:** • Set machine for Middle coat as per	• Define middle coat • Explain purpose of middle coat • Explain procedure of middle coat • Explain spray plant	**Total** 20 Hours **Theory:** 04 Hours	Computer with Multimedia leather Safety Gloves	Classroom with multimedia aid Training Tannery area

	requirement • Prepare Middle coat mixture as per Finishing recipe • Spray Middle coat mixture on leather as per Finishing recipe • Pile leather		**Practical:** 16 Hours	Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance	
LU5: Apply Final Coat	**The trainee will be able to:** • Set machine for Final coat as per requirement • Prepare Final coat mixture as per recipe • Spray Final coat mixture on leather as per recipe • Pile Finished leather	• Define final coat • Explain purpose of final coat • Explain lacquer & its types • Explain procedure of final coat	**Total** 15 Hours **Theory:** 03 Hours **Practical:** 12 Hours	Computer with Multimedia Leather Safety Gloves Safety Shoes Mask Pallets Apron (Rubber) Digital Weight Balance	Classroom with multimedia aid Training Tannery area
LU6: Maintain Finishing Register	**The trainee will be able to:** • Record Finishing operation entries in register • Record damages	• Introduction to finishing register • Define procedure of recording entries in finishing register • Importance of finishing register	**Total** 05 Hours **Theory:** 01 Hours **Practical:**	Computer with Multimedia Leather Safety Gloves Safety Shoes	Classroom with multimedia aid Training Tannery area

	during Finishing		04 Hours	Mask Pallets Apron (Rubber) Digital Weight Balance	

Module 10: Manage Quality Control

Objective of the module: After successful completion of this module, the student is competent in manage quality control 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: Carryout Physical Testing	**The trainee will be able to:** • Perform Tensile & elongation test of leather • Perform Tear strength test of leather • Perform Rub fastness test (Dry and Wet) • Perform Finish adhesion test • Evaluate the physical testing results	• Define physical test • Define Purpose of physical test • Explain Types of physical test • Explain Methods of physical test • Describe environmental condition for physical testing and its importance • Describe equipment of physical test • Describe procedure of physical tests	**Total** 30 Hours **Theory:** 06 Hours **Practical:** 24 Hours	Computer with Multimedia Leather Press Cutter Set of cutting Dies for physical test specimen Tensile Tester with accessories Tear strength tester with accessories Finish Adhesion Tester with accessories Digital Weight Balance	Classroom with multimedia aid Training Tannery area
LU2: Carryout Chemical	**The trainee will be able to:**	• Define chemical test • Define Purpose of chemical test • Explain Types of chemical test	**Total** 30 Hours	Computer & multimedia	Classroom with multimedia aid

Testing	• Perform shrinkage temperature test • Perform Fat Content test • Perform Chrome Content test in leather • Perform Chrome VI test in leather • Perform pH value test • Evaluate the chemical testing results	• Explain Methods of chemical test • Describe environmental condition for chemical testing lab and its importance • Describe equipment, apparatus & glassware of chemical test • Describe procedure of chemical tests	**Theory:** 06 Hours **Practical:** 24 Hours	Leather Temperature & humidity Control Chamber Rub Fastness Tester with accessories (Crock, veslie, circular) Gray Scales Set Shrinkage temperature Kit Digital pH meter Digital TDS Meter Soxhlet apparatus and related glassware Heating mental Chrome Testing apparatus & glassware Oven (0-250C) Desiccator Digital Weight Balance Fuming Chamber	Training Tannery area
LU3: Carryout	**The trainee will be able**	• Define environmental issues	**Total**	Computer &	Classroom with

Environment Test	**to:** • Perform total dissolve solid (TDS) test • Perform oil & grease content test • Perform chrome content test in effluent • Evaluate the Environmental testing results	• Define environmental test • Purpose of environmental test • Types of environmental test • Methods of environmental test • Describe environmental condition for environmental testing lab and its importance • Describe equipment, apparatus & glassware of environmental test • Describe procedure of environmental tests	30 Hours **Theory:** 06 Hours **Practical:** 24 Hours	multimedia Leather Temperature & humidity Control Chamber Gray Scales Set Digital pH meter Digital TDS Meter Soxhlet apparatus and related glassware Heating mental Chrome Testing apparatus & glassware Oven (0-250C) Desiccator Digital Weight Balance Fuming Chamber	multimedia aid Training Tannery area
LU4: Maintain Test record	**The trainee will be able to:** • Record Physical test results • Record Chemical test results	• Introduction to test records • Define procedure of recording test results • Importance of presentation and maintaining test records	**Total** 10 Hours **Theory:** 02 Hours **Practical:**	Computer with Multimedia Printer Pen Paper	Classroom with multimedia aid Training Tannery area

	• Record Environment test results		06 Hours	Recording Register	

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 could be the 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 10 modules:

- Module 1: Contribute to Work Related Health and Safety (WHS) Initiatives
- Module 2: Analysis Workplace Policy and Procedures
- Module 3: Perform Advanced Communication
- Module 4: Develop Advance Computer Application Skills
- Module 5: Manage Human Resource Services
- Module 6: Develop Entrepreneurial Skills
- Module 7: Carryout Post Tanning
- Module 8: Carryout Dyeing
- Module 9: Carryout finishing operation
- Module 10: Manage quality control

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

Complete list of tools and equipment

List of Machinery

Sr. #	Description	Quantity
1.	Trial Steel Drum Automated, 300mm x 800mm	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 Knifes	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 (1grm to	2

	5000grm)	
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 Sisulphate	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-4 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: Contribute to Work Related Health and Safety (WHS) Initiatives	30	3
2	Module 2: Analysis Workplace Policy and Procedures	30	3
3	Module 3: Perform Advanced Communication	30	3
4	Module 4: Develop Advance Computer Application Skills	40	4
5	Module 5: Manage Human Resource Services	20	2
6	Module 6: Develop Entrepreneurial Skills	30	3
7	Module 7: Carryout Post Tanning	120	12
9	Module 8: Carryout Dyeing	100	10
10	Module 9: Carryout finishing operation	100	10

S.no.	**Competency Standards**	**Estimated Hours**	**Credit Hours**
11	Module 10: Manage quality control	100	10

National Vocational and Technical Training Commission (NAVTTC)

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
+92 51 9044 322
+92 51 9044 322
info@navttc.org
www.navttc.org