



GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI-25

STATE PROJECT COORDINATION UNIT

*(Established under Canada India Institutional Cooperation Project)*

CURRICULUM

Course Name	<b>LEATHER PROCESSING</b>
Course Code	LT/2020/004
Course Duration	320 Hours
Minimum Eligibility Criteria and Pre-requisites(if any)	10 <sup>th</sup> /+2/Diploma/Graduates
Course Objectives	<p>Training module has been designed to provide the participants</p> <ul style="list-style-type: none"> <li>• Understanding of Assortment and Grading of Hides/Skins</li> <li>• Understanding of Pre tanning Process</li> <li>• Understanding of various tanning techniques</li> <li>• Understanding of Post tanning process</li> <li>• Understanding of upgradation and Finishing process</li> </ul>
Course Outcomes	<p>At the end of training, the participants will be able to</p> <ul style="list-style-type: none"> <li>• Gain knowledge on Assortment and Grading of Hides/Skins</li> <li>• Gain knowledge on Pre tanning /tanning/post tanning Process</li> <li>• Gain knowledge on upgradation and Finishing process</li> </ul>
Expected Job Roles	Production supervisor in various departments of tanneries like Pre tanning and tanning, Post tanning and finishing Units.

TEACHING AND SCHEME OF EXAMINATION						
Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
LT/2020/004	<b>LEATHER PROCESSING</b>	Theory	60	10	20	3 Hours
		Practical	260	40	80	
		Total	320	50	100	

## LT/2020/004 – LEATHER PROCESSING

### DETAILED SYLLABUS

Unit No.	Modules	No. of Hours Theory / Practical
I	<b>Theory</b>	<b>60 Hours</b>
1	<b>Pre tanning and Tanning</b> Classification & Availability of Hides & Skins - Defects in hides and skins - Flaying of animals – Assortment and Grading of raw Hides & Skins - cow, buff, goat and sheep- Chemistry and principles involved in curing process- Soaking - Liming - Deliming - Bating - Pickling - Depickling and degreasing - Mechanical operations-Paddle,drum,Fleshing & unhairing-Tanning - objects of Tanning - Various type of tanning materials - Vegetable Tanning - Chrome Tanning - Alum and Aldehyde Tanning - Oil Tanning.	20
2	<b>Post tanning</b> Principles of Retanning – Principles of combination tannages - Chemistry and mechanism of combination tannages - Principle of Neutralization - Objectives - Effects of Various Neutralizing Agents - Degree of Neutralization-Semi-chroming – unit operations in the manufacture of semi-chrome leathers – stripping Souring – bleaching –object and necessity of each operations- Dyes - Definition - Classification of dyes- Fat liquors - Emulsions - Principles of fat liquoring process - Various type of fatliquors.	20
3	<b>Finishing</b> Principles of Leather finishing - Classification of finishes based on their effect - Leather finishing material - Pigments - Binders - Plasticizers - Finishing auxiliaries etc. - their application-Finishing formulation - Lacquer - Lacquer emulsions - Chemistry of Polyurethane lacquer and finishes - their properties – compact finishes.	20
II	<b>Practical Contents</b>	<b>260 Hours</b>
	1. Basic practice on various Pre tanning and post tanning machineries.	20
	2. Practice on manufacture of wet blue leathers.	20
	3. Practice on manufacture of EI leathers.	20
	4. Practice on manufacture of White crust Leather.	20
	5. Practice on manufacture of Full chrome Leather.	20
	6. Practice on manufacture of Semi-chrome Leather.	20
	7. Practice on manufacture of chrome Retan Leather.	20
	8. Basic practice on various finishing machines machine.	20
	9. Practice on Resin finishing.	20
	10. Practice on Aniline finishing.	20
	11. Practice on Semi Aniline finishing.	20
	12. Practice on antique finishing.	20
	13. Practice on Foil transfer finishing.	20
<b>Total Theory / Practical Hours</b>		<b>60/260</b>
<b>Total Hours</b>		<b>320</b>

## HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1.	Processing Drums
2.	Paddle
3.	Soak Pits/Liming Pits
4.	Fleshing Equipments/Fleshing Machine
5.	Splitting Machine
6.	Shaving Machine
7.	Setting Machine
8.	Buffing Machine
9.	Staking Machine
10.	Auto spray/Hand spray booth
11.	Embossing Machine
12.	Glazing Machine
13.	Polishing Machine
14.	Roller type Ironing Machine
15.	Toggling Board
16.	Area Measuring Machine
17.	Weighing Balance (For Chemicals and Leathers)

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	Theory and Practice of Leather Manufacture	K.T. Sarkar	Ajoy Sorcor, Chennai.
2	Lecture notes on dyeing and finishing of leathers	Koteswara Rao.C and Olivannan M.S	--
3	Introduction to the principles of Leather Manufacture	S.S. Dutta	Indian Leather Technologist Association, Culcutta
4	Practical aspects of the manufacture of upper Leather	Jyotirmay Dey	Indian Leather Technologist Association, Culcutta.

## ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training , certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnic.

## END EXAMINATION

### ALLOCATION OF MARKS

S.No	Description	Max.Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Pre tanning Process	14
	b)Post tanning Process	12
	c)Finishing	14
	d)Machinery operations	10
	e)Result	10
	f)Record	20
Total Marks		100

# THEORY MODEL QUESTION PAPER

LT/2020/004 – LEATHER PROCESSING

(Maximum Marks: 20)

(N.B: Answer any Twenty questions)

20x1= 20 Marks

1. What is Hides?
2. Write down few common defects in hides and skin
3. Write down the objective of curing process.
4. Why soaking process is important?
5. What are the chemicals used in liming process?
6. Write down the objective of bating process?
7. What are the chemicals used in pickling process?
8. Write the name of the few vegetable tanning materials.
9. What are the advantages in chrome tanning?
10. What is syntan?
11. What is combination tanning?
12. What are the chemicals used in neutralisation process?
13. Write down the types of dyes used in leather manufacturing
14. What is emulsion?
15. Write down the objective of fat liquoring process
16. What is wet blue?
17. Mention the name of some finishing auxiliaries
18. Why binders are used in leather finishing?
19. Why lacquers are used in leather finishing?
20. What is compact finish?
21. Mention the various types of fatliquors used in leather processing.
22. Write a note on organic pigments.
23. Write a note on red heat.
24. Write a note on salt stain.
25. Define heavy Leathers.