

LG-106 INTRODUCTORY LEATHER PRODUCTS TECHNOLOGY

Course Title	Introductory Leather Products Technology	Course Code	LG-106
Year	I	Course Group	Core
Teaching Scheme in Periods (L:T:P)	120:30	Credits	3
Methodology	Lecture+ Tutorials	Total Contact Periods	150
CIE	60 Marks	SEE	40 Marks

Pre-requisites

This course requires basic knowledge of Basic Physics and Mathematics at Secondary school level.

Course Outcomes

Upon completion of the course, the student shall be able to

CO	Course Outcomes
CO1	Explain the historical development of the footwear and leather goods industry and analyze its impact on employment and the national economy.
CO2	Identify various tools and machinery used in the fabrication of leather products and explain their functional applications.
CO3	Identify and classify different parts of footwear, including upper, lining, and bottom components.
CO4	Explain the classification of footwear based on styles and methods of bottom construction.
CO5	Explain the concept of shoe lasts and sizing systems and perform basic size conversions.
CO6	Explain the upper and bottom making operations involved in footwear manufacturing.

Course Content and Blue Print of Marks for SEE

Unit No.	Unit Name	Periods	Questions to be set for SEE				
			R		U	A	
1.	Historical review of the Footwear and Leather Goods industry and its Influence on economy	20	Q4	Q1		Q9(a)	Q13(a)
2.	Tools and machinery used in Fabrication of Footwear And Leather goods	30					
3.	Parts of Footwear	25		Q2		Q10(a)	Q14(a)
4.	Classification of Footwear	20					
5.	Introduction to Last, sizing system	25		Q3	Q5,Q6	Q9(b) Q11(a) Q11(b)	Q13(b) Q15(a) Q15(b)
6	Upper and Bottom making operations of Footwear Duration	30					
Total		75	8	8		8	

Course Contents

UNIT1: Historical review of the Footwear and Leather Goods industry and its influence on economy. Duration: 20 Periods (L16.0–T4.0)

Basic need of footwear – employment potential in footwear and leather goods industry – Impact of Industry on economy of the country – Historical review of the Footwear and Leather Goods industry.

UNIT2: Tools and machinery used in Leather Products Fabrication. Duration: 30 Periods (L24.0–T6.0)

Cutting tools – upper fitting tools – stitching tools – Lasting tools – Bottoming and finishing tools – list of clicking machines, pre fitting machinery – stitching machines – lasting machines – bottom making and finishing machines.

UNIT3: Parts of Footwear Duration: 25 Periods (L20.0–T5.0)

Identification of Upper parts – Vamp, quarter, counter, facing, foxing, back strap, tongue, apron, tab, mud guard, toe cap, wing cap, saddle.
 Identification of Lining parts – Vamp lining, quarter lining, Heel grip.
 Identification of Bottom components – Insole, sole, toe puff, stiffener, shank, heel, bottom filler, welt, runner, middle sole, in sock.

UNIT4: Classification of Footwear**Duration: 20 Periods (L16.0–T4.0)**

Open type and closed type – 7 Basic styles – Classification based on method of bottom construction.

UNIT5: Introduction to Last, sizing system**Duration: 25 Periods (L20.0–T5.0)**

Last – Different materials – different type of lasts – classification – last measurement.
Different sizing systems – English sizing system – Paris point – American sizing system – Mondo point sizing system – conversion from one sizing system to other sizing systems.

UNIT6: Upper and Bottom making operations of Footwear**Duration: 30 Periods (L24–T6)**

Stretch and tightness directions – properties of different area of leather – suitability to different component – requirement of different footwear components – methods of clicking – splitting – skiving – Pre fitting – Different type of Identification markings.
Bottoming operation – insole attaching – forepart – side – seat lasting operations – pounding – Heat setting – upper and sole preparation – sole attaching – sole finishing.

Reference Books

1. Manual of shoemaking-Clarks.
2. Textbook of Footwear manufacture-H.J. Thronton.
3. Introduction to the modern Footwear Technology-B. Venkatappaiah.
4. Comprehensive Footwear Technology– Somanath Ganguly.

Suggested E-learning references

1. <http://icanmakeshoes.com>shoemaking>.
2. www.simpleshoemaking.com
3. <http://shoemakingcoursesonline.com>

Suggested Learning Outcomes

After completion of the course, the student shall be able to

CO1: Explain the Need of foreign exchange to India, the role of Footwear Industries as Foreign exchange earners and Footwear Industries impact on Indian economy

- 1.1 Explain the Basic needs of the Footwear.
- 1.2 Explain the need of Sports footwear.
- 1.3 Explain the need of Industrial and safety footwear.
- 1.4 Describe different forms of Primitive footwear.
- 1.5 List the materials used in Primitive footwear.
- 1.6 Distinguish Cottage, Small, medium scale, Export oriented sophisticated modern footwear industries.
- 1.7 Explain the evolution of modern footwear industries.
- 1.8 List different materials, Machines that has augmented the growth of the footwear industry.
- 1.9 Explain the influence of Fashion on footwear Industry.
- 1.10 Define foreign exchange.
- 1.11 Explain why country requires foreign exchange.
- 1.12 Explain how export oriented industries earn foreign exchange.
- 1.13 Explain the effect of export oriented leather/footwear industries on economy and

employment potential of the country.

1.14 Explain the effect of domestic oriented industries on economy and employment potential of the country.

CO2: Select the suitable hand tool in different stages of Footwear and Leather goods Manufacturing

2.1 Describe the following hand tools used in Leather goods and footwear manufacturing.

1. Steel rule.
2. Measuring tape.
3. Spring Divider.
4. Thickness guage.
5. Leather Thickness measuring guage.
6. Scissors.
7. Clicking knife.
8. Rampi.
9. Cutting board.
10. Sharpening tool.
11. Cuddapah slab.
12. Marking awl.
13. Zig Zag scissors.
14. Stitching awl.
15. Single hole punch.
16. Wooden mallet.
17. Revolving Punch.
18. Eyelet setter.
19. Press button setter.
20. Gootam.
21. Lasting pincers.
22. Tack lifter.
23. Mckay knife.
24. Shoe hammer.
25. Channelling tool.
26. Roughing tool.
27. Cutting nipper.
28. Seat wheeling tool.
29. Edge setting iron.
30. Paring knife.

2.2 State the functions, precautions to be taken while operating, maintenance procedure of following hand tools.

1. Steel rule.
2. Measuring tape.
3. Spring Divider.
4. Thickness guage.
5. Leather Thickness measuring guage.
6. Scissors.
7. Clicking knife.
8. Rampi.
9. Cutting board.
10. Sharpening tool.
11. Cuddapah slab.
12. Marking awl.
13. Zig Zag scissors.
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25. Channelling tool.
26. Roughing tool.
27. Cutting nipper.
28. Seat wheeling tool.
29. Edge setting iron.
30. Paring knife.

2.3 State the function of following Machines used in Footwear Manufacturing.

1. Swing arm clicking machine.
2. Beam clicking machine.
3. Splitting machine.
4. Skiving machine.
5. Strap cutting machine.
6. Flat bed sewing machine.
7. Post bed sewing machine.

8. Cylindrical bed sewing machine.
9. Stamping, Embossing machine.
10. Insole Moulding machine.
11. Insole tacking machine.
12. Toe puff attaching machine.
13. Counter moulding machine.
14. Contact mulling machine.
15. Forepart lasting machine.
16. Side and seat lasting machine.
17. Heat setting machine.
18. Pounding machine.
19. Upper Roughing machine.
20. Heat reactivator.
21. Sole attaching machine.
22. Chilling machine.
23. Upper cleaning machine.
24. Brushing machine.

CO3: List and Explain different Parts of footwear

3.1 Distinguish upper, bottom parts.

3.2 Describe, State the purpose of following upper parts.

1. Vamp.
2. Quarter.
3. Toe cap.
4. Wing cap.
5. Apron.
6. Tongue.
7. Tab.
8. Half saddle.
9. Full saddle.
10. Bar.
11. Back strap.
12. Mud guard.
13. Facing.
14. Foxing.
15. Counter.
16. Quarter lining.
17. Vamp lining.
18. Counter lining (Heel grip).

3.3 Describe, state the purpose of following Bottom components.

1. Insole.

2. Toe puff.
3. Stiffener.
4. Out sole.
5. Bottom filling.
6. Middle sole.
7. Shank.
8. Heel.
9. Heel lift.
10. Top piece.
11. Sock.
12. Eyelet.
13. Welt.

3.4 Identify and state the purpose of Reinforcements.

3.5 Explain what is Ornamentation.

CO4: Distinguish Seven Basic Styles of Footwear

4.1 Distinguish open type footwear and closed type footwear.

4.2 Describe open type footwear with examples like chappal.

4.3 Describe closed type footwear with examples like shoe and Boot.

4.4 Classify footwear as Seven basic styles based on its upper construction.

4.5 Describe oxford, derby styles.

4.6 Describe features and characteristics of Slip on, moccasins.

4.7 Describe features of Boot and court shoe.

4.8 Describe features of Chappal / Sandal.

4.9 Classify footwear based on method of bottom construction.

4.10 Explain following bottom construction methods.

- i. Direct stuck on construction.
- ii. Veldtschoen construction.
- iii. Welted construction.
- iv. Californian slip lasting construction.
- v. String lasting construction.
- vi. Vulcanising construction.
- vii. Injection Moulding P.V.C construction.
- viii. Injection Moulding P.U construction.

CO5: Measure feet, Last and convert Shoe size from one sizing system to other Sizing systems

5.1 Identify last as a mould for footwear manufacturing.

5.2 Classify Last based on material used.

5.3 Classify last based on method of Construction.

5.4 Explain Different types of Hinging.

5.4 Describe different parts of last.

- 5.5 Explain the relationship between toe spring, heel pitch of the last.
- 5.6 Explain different last measurements.
- 5.7 Explain different foot measurements.
- 5.8 Distinguish Last and feet.
- 5.9 Explain English sizing system.
- 5.10 Explain American sizing system.
- 5.11 Explain European sizing system.
- 5.12 Explain Mondo point sizing system.
- 5.13 Convert one sizing system into another sizing system.

CO6: List different Upper and bottom making operations involved in Footwear manufacturing

- 6.1 Explain Hand clicking procedure.
- 6.2 Explain Machine clicking procedure.
- 6.3 State the objective of Splitting operation.
- 6.4 Explain how to perform splitting operation.
- 6.5 State the objective of Skiving operation.
- 6.6 Explain different types of Skiving.
- 6.7 Explain different type of Identification markings.
- 6.8 Describe different type of edge treatments and distinguish English bond, French bond.
- 6.9 Distinguish Lock stitch, Chain Stitch.
- 6.10 Describe different type of Seams used in footwear and leather goods manufacturing.
- 6.11 List specific uses of Flat bed, Post bed, Cylinder bed sewing machines used in footwear fabrication.
- 6.12 Explain the purpose and procedure of Insole attaching operation.
- 6.13 Explain the purpose and procedure of Upper conditioning operation.
- 6.14 Explain the purpose and procedure of Forepart lasting operations.
- 6.15 Explain the purpose and procedure of Side and seat lasting operations.
- 6.16 Explain the purpose and procedure of Heat setting operations.
- 6.17 Explain the purpose and procedure of Pounding and wrinkle chasing operation.
- 6.18 Explain how to prepare different type of Uppers for sole attaching operations.
- 6.19 Explain how to prepare different type of soles for sole attaching operation.
- 6.20 Explain the purpose and procedure of sole attaching operation.
- 6.21 Explain the purpose and procedure of following bottom finishing operations.
 - a. Heel Paring.
 - b. Heel scouring.
 - c. Edge paring.
 - d. Edge setting.
 - e. Edge inking.
 - f. Heel inking.
 - g. Heel Burnishing.

h. Naumkaeing, Sole finishing.

6.22 Explain the purpose and procedure of following upper finishing operations.

- a. Upper cleaning.
- b. Upper conditioning.
- c. Upper filling.
- d. Shoe dressing.

Suggested Student Activities

1. Collection and study of different parts of Footwear.
2. Collection of Basic styles of Footwear and preparing the report.
3. Survey of Feet, shoe sizes, girth of different people from the Society, and prepare the report.
4. Paper / Poster presentation.
5. Quiz.
6. Group discussion.
7. Surprise Test.

CO-PO Mapping Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	-	3	2	2	2	1	1	2
CO2	3	2	2	2	1	1	2	1	1	-	1
CO3	3	2	2	1	1	-	1	1	-	-	1
CO4	3	2	2	1	2	-	1	1	-	-	1
CO5	3	2	1	1	1	1	2	1	-	-	1
CO6	3	3	3	2	2	1	2	1	1	-	1

QUESTION PAPER PATTERN FOR SEMESTER END EXAM

Sl.No	Description	Level	No of Questions	Marks for each question	Choice	TotalMarks
01	Part-A	Remembering(R)	8	1	NIL	8 Marks
02	Part-B	Understanding(U)	8	3	4	12 Marks
03	Part-C	Application(A)	8	5	4	20 Marks
Total Marks						40 Marks

S. No	Unit No.	Questions to be set for SEE				Remarks	
		R		U	A		
1	I	4	1		9(a)	13(a)	
2	II						
3	III		2		10(a)	14(a)	
4	IV						
5	V		3	5, 6	9(b)	13(b)	
					11(a)	15(a)	
					11(b)	15(b)	
6	VI			7,8	10(b)	14(b)	
		12(a)			16(a)		
		12(b)			16(b)		
Total Questions		8		8	8		

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA
DIPLOMA EXAMINATION (C-26)

I YEAR

MID-I EXAM

LG-106 Introductory Leather Products Technology

Model Question paper

Duration: 1 hour

Max. Marks: 20m

PART-A

Instructions: 1. Answer **ALL** questions.

2. Each question carries **ONE** mark. 4x1= 4 marks

1. What is Foreign Exchange?
2. Define Footwear.
3. Name the tools used for Cutting and Skiving operation.
4. Write the purpose of lasting Pincer.

PART-B

Instructions: 1. Answer **ALL** questions.

2. Each question carries **THREE** marks. 2x 3=6marks

5(a) Outline the benefits due to the growth of domestic footwear oriented industries to our Country.

(OR)

5(b) Explain the need of special footwear used for sports.

6(a) Identify various machines used in lasting and bottom making of footwear.

(OR)

6(b) Classify the sewing machines used in leather products manufacturing based on its shape of work bed.

PART-C

Instructions: 1. Answer **ALL** questions.

2. Each question carries **FIVE** marks. 2x5=10marks

7(a) Discuss the influence of growth of Export oriented footwear industry to Indian economy.

(OR)

7(b) Explain the functions of footwear.

8(a) Explain different tools required and how to fix eyelets by using them.

(OR)

8(b) Explain purpose and how to use the following hand tools.

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA
DIPLOMA EXAMINATION (C-26)

I YEAR

MID-II EXAM

LG-106 Introductory Leather Products Technology

Model Question paper

Duration: 1 hour

Max.Marks: 20m

PART-A

Instructions: 1. Answer **ALL** questions.

2. Each question carries **ONE** mark. 4x1= 4 marks

1. Draw the neat sketch of shoe with toe cap and vamp.
2. What is Mudguard?
3. What is Mid sole?
4. Write the purpose of Shank.

PART-B

Instructions: 1. Answer **ALL** questions.

2. Each question carries **THREE** marks. 2x 3=6marks

5(a) Distinguish Apron and Vamp wing with neat sketch..

(OR)

5(b) Explain the footwear with half saddle, full saddle, buckle and bar.

6(a) Identify various bottom parts/components of footwear.

(OR)

6(b) Classify the heels based on its shape.

PART-C

Instructions: 1. Answer **ALL** questions.

2. Each question carries **FIVE** marks. 2x5=10marks

7(a) Style the footwear by dividing the quarter into facing, foxing, quarter and counter.

(OR)

7(b) Explain the objectives of various upper parts of footwear with neat sketches.

8(a) Discuss the role of bottom filling material in making the sole shape convex.

(OR)

8(b) Explain how to reinforce the shoe at toe and counter area.

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA
DIPLOMA EXAMINATION (C-26)

I YEAR

END EXAM

LG-106 Introductory Leather Products Technology
Model Question paper

Max.Marks:40

Duration: 2hours

PART-A

Instructions: 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

08 × 01 = 08

1. Draw the neat sketch of Single piece Footwear.
2. Distinguish Tongue and Tab.
3. Draw the cross-sectional diagram of Weltd construction Footwear.
4. What is Heel grip?
5. What is Open type Footwear?
6. Explain Moccasin Footwear Style.
7. Explain how to measure Fitting girth of the Last.
8. Draw the neat sketch of the Last and identify Toe Spring, Heel pitch.

PART-B

Instructions: 1. Answer **ALL** questions.
2. Each question carries **THREE** marks.

4X3=12

9(a) Draw the neat sketch of Football shoe and explain the Characteristics required for it.
(OR)

9(b) Distinguish shoe and Boot.

10(a) Explain the difference between Vamp, Vamp wing.
(OR)

10(b) Explain different materials used in Last making.

11(a) Explain the difference between Ankle boot, knee boot, Calf boot.
(OR)

11(b) Explain Closed type Footwear with suitable examples.

12(a) Explain how to measure the Waist girth of the last.
(OR)

12(b) Explain how to measure the Instep girth of the Last.

PART-C

Instructions: 1. Answer **ALL** questions.

2. Each question carries **FIVE** marks.

4X5 = 20 Marks

13(a) Suggest the modification required to make orthopedic shoe for a person having legs of different length so that the person will feel comfortable.

(OR)

13(b) Explain how to make Veldschoen Construction Footwear with ribbed Insole.

14(a) Explain how to make increase the appearance of the Footwear by ornamentation and Mock stitching.

(OR)

14(b) Explain different uses, Applications of Lasting last, Finishing Last.

15(a) Develop Different Footwear Designs of Slip on style.

(OR)

15(b) Develop Different Footwear Designs of Court shoe style.

16(a) Explain Mondo point, American and Footwear sizing systems.

(OR)

16(b) If a person's footwear size is 8 Adults in England and if he goes to France and he wants to buy shoe in France he should ask for what size in Footwear shop in France