

Sl. No.	Course Code	Course Name	Teaching Scheme					Examination Scheme							
			Instruction periods per week			Total Periods per semester	Credits	Continuous internal evaluation			Semester end examination				
			L	T	P			Mid Sem1	Mid Sem 2	Internal Evaluation	Max marks Min marks	Total Marks	Min marks for passing including internal		
1	18LT-501C	Industrial Management & Entrepreneurship	2.4	1.6	0	60	3	20	20	20	40	14	100	35	
2	18LT-502C	Analytical chemistry& Quality control in leather manufacture	2.4	1.6	0	60	3	20	20	20	40	14	100	35	
3	18LT-503C	Leather Dyeing and Finishing	2.4	1.6	0	60	3	20	20	20	40	14	100	35	
4	18LT-504E	ELECTIVE : I A.Estimating, Costing, Industrial promotion and Marketing	2.4	1.6	0	60	3	20	20	20	40	14	100	35	
5	18LT-505E	ELECTIVE : II A.Introductory Footwear Technology	2.4	1.6	0	60	3	20	20	20	40	14	100	50	
6	18LT-506P	Analytical Chemistry Lab	1	0	2	45	1.5	20	20	20	40	20	100	50	
7	18LT-507P	Quality control Lab	1	0	2	45	1.5	20	20	20	40	20	100	50	
8	18LT-508P	Leather finishing Lab	1	0	2	45	1.5	20	20	20	40	20	100	50	
9	18LT-509P	Programming in C Lab	1	0	2	45	1.5	20	20	20	40	20	100	50	
10	18LT-510P	Minor Project	1	0	2	45	1.5	20	20	20	40	20	100	50	
		Academic activities	0	0	7	105	2.5	0	0	Rubrics		--	-		
		TOTAL	17	8	17	630	25	200	200	200	400	150	1000		

INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Course Title : INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP (IME)	Course Code : 18LT-501C
Semester : V	Course Group : Core
Teaching Scheme in Hrs (L:T:P) : 3:1:0	Credits : 3
Type of course : Lecture + Assignments	Total Contact Hours : 45 Hrs/60 Pds
CIE : 60 Marks	SEE : 40 Marks

Course Outcome

On successful completion of the course, the students will be able to attain below Course Outcome (CO):

Course Outcome	
CO1	Able to understand terminology about Industry and management.
CO2	Distinguish Industries based on ownership, organisation. Understand the importance of Human Resource.
CO3	Apply PERT and CPM in cost saving production. Analyse material flow in Industry.
CO4	Understand the marketing strategies/methods.
CO5	Able to handle various problems associated with management and worker. Understand the importance of Quality in production.
CO6	Able to get the knowledge required for an Entrepreneur.

COURSE CONTENTS

1. Understand the principles and functions of management as applied to industry.

Definitions of Industry, Commerce, Trade and Business. Evolution of management theories. Principles of Scientific Management, functions of management. Difference of administration and management.

2. Know types of ownership, the organisation structure of an industry and human resource management.

Types of ownership – Sole proprietorship, Partnership, Private limited, public limited company, Industrial Cooperatives, Philosophy, types of Organisations, Line and Staff and functional organisations. Advantages and limitations, departments in a large scale industry. Effective organisation. Human Resource Management – selection, training, evaluation and motivation of human resource. Maslow's theory of motivation. Decision making. Importance of Communication in Organisation

3. Understand the production management and material management.

Production, planning and control, relation with other departments, need for planning and its advantages. Site selection – plant layout. Routing, scheduling, despatching, PERT and CPM, simple problems. Materials in industry, inventory control model, ABC Analysis, Safety stock, re-

order, level, Economic ordering quantity, Stores layout, Stores records, purchasing procedures, purchase records.

4. Understand marketing management

Sellers and Buyers markets, Marketing, Sales, Market conditions, monopoly, oligarchy, perfect competition, Cost Elements of Cost, Contribution, Break even analysis, Market Survey, preparation of Feasibility study reports, - different products – Mechanical, Electrical, Electronics, consumer items, Consumer desires etc. Marketing strategies

5. Industrial legislation and Quality management.

Employer – Employee relations, collective bargaining, Welfare activities, subsidies, Total Welfare concept, rights and responsibilities and Employers and employees. Salient features of Indian Factories Act, Important of Safety at work places, factories Act- Provisions, Safety Education, Hazards, causes of accidents, Cost of accidents.

Concept of quality discussed by B. Crosby W. Edward, Deming, Shigco Shingo.

Quality systems – Definitions of the terms used in quality systems like, quality management, quality systems, quality control and quality assurance.

Elements quality systems : Management responsibility, Quality system, contract review, design control, document control, purchasing, purchaser – supplied product, product identification and traceability, process control, Inspection and testing.

Principles of quality assurance – Definition of quality assurance.

Indian standards on quality systems – Main features of IS 14003: 1990.

5-S principles – importance – meaning – approach – benefits. Know the necessity of International standards – Evolution of ISO, Various standards under ISO – Outstanding features of ISO 9000 series of standards – ISO 9000 Phenomenon ISO 9000 series of quality systems – Constituents of ISO 9000 series of standards for quality systems. list the beneficiaries of ISO 9000 (Whom does ISO 9000 help)

6. Understand the Entrepreneurial Development and Role of Entrepreneur.

Concept, definition, role, expectation, entrepreneurship Vs Management, start-up,T-hub, promotion of S.S.I. Self – employment schemes. The importance and salient features of TS-IPASS. , Institutional support needed, financial assistance programmes.

Specific Learning Outcomes:

1.0 Understand the principles and functions of management as applied to industry.

- 1.1 Define industry, commerce (Trade) and business.
- 1.2 Know the need for management.
- 1.3 Understand the evolution of management
- 1.4 Explain the principles of scientific management.
- 1.5 Understand functions of Management.
- 1.6 Differentiate between management and administration.

2.0 Know types of ownership, the organisation structure of an industry and human resource management.

- 2.1 Understand different types of ownerships
- 2.2 Understand salient features of joint stock companies.
- 2.3 Understand the need for organisation structure in industry.
- 2.4 Understand the line, staff and Functional organisations.
- 2.5 List the advantages and limitations of line, staff and functional organisations.
- 2.6 List different departments in a large scale industry.
- 2.7 Explain the factors of effective organisation.
- 2.8 Understand organisational behaviour.
- 2.9 Understand the importance of job analysis.
- 2.10 Understand Human Resource and Human Resource Management (HRM).
- 2.11 Importance of Human Resource Management
- 2.12 Human Resource: selection, training, evaluation.
- 2.13 Know various skill development programmes – KMKVY, SANKALP, UDAAN, STAR, Polytechnic schemes,
- 2.14 National policy on Skill Development 2009 - Objectives
- 2.15 Importance of motivation
- 2.16 Understand Maslow's theory of motivation.
- 2.17 Explain the process of decision making.
- 2.18 Outline the communication process.

3.0 Understand the production management and material management.

- 3.1 Differentiate and integrate production, planning and control.
- 3.2 Relate the production department with other departments.
- 3.3 State the need for planning and its advantages.
- 3.4 Explain the stages of Production, planning and control.
- 3.5 Explain the method of site selection.
- 3.6 Outline the method of plant layout.
- 3.7 State routing, scheduling and dispatching methods.
- 3.8 Draw PERT/CPM networks and Identify critical path.
- 3.9 Explain the role of the materials in Industry.
- 3.10 Understand inventory control.
- 3.11 Explain ABC analysis.
- 3.12 Define safety stock.
- 3.13 Define reorder level.
- 3.14 Derive an expression for economic ordering quantity.
- 3.15 Explain stores layout.
- 3.16 List out stores records.
- 3.17 Explain purchasing procedures.
- 3.18 List out purchase records.

4.1 Understand marketing management

4.2 Explain marketing functions.

4.3 Explain Sales function.

4.4 List out market conditions.

4.5 Differentiate Sellers and Buyers' market.

4.6 Differentiate monopoly, oligarchy, and perfect competition.

4.7 Conduct market and demand surveys.

4.8 Explain the concept of cost.

4.9 List out the elements of cost.

4.10 Explain the concept of contribution.

4.11 Explain break-even analysis.

4.12 Preparation of feasibility study

4.13 Know various marketing methods/strategies.

5.0 Industrial legislation and Quality management

5.1 Describe employer and employee relations.

5.2 Explain the significance of collective bargain.

5.3 List out Welfare activities.

5.4 List out subsidy schemes.

5.5 Explain the total welfare concept.

5.6 List out the rights and responsibilities of employees and employers.

5.7 List out the salient features of Indian Factories Act.

5.8 Explain the importance of safety at Work place.

5.9 List out the important provisions related to safety.

5.10 List out different hazards in the Industry.

5.11 Explain the causes of accidents.

5.12 Explain the direct and indirect cost of accidents.

5.13 Understand the concept of quality.

5.14 Know the quality systems and elements of quality systems.

5.15 Know the principles of quality Assurance.

5.16 Know the Indian Standards on quality systems.

5.17 Discuss ISO standards and ISO 9000 series of quality systems.

5.18 State the constituents of ISO 9000 series of standards for quality systems.

5.19 List the beneficiaries of ISO 9000.

5.20 Understand 5-S principles and ZERO DEFECT.

6.0 Understand the Entrepreneurial Development and Role of Entrepreneur.

6.1 Outline the concepts of Entrepreneurship.

6.2 Define the word entrepreneur.

6.3 Understand the importance of Entrepreneurship in economic development.

6.4 Explain the traits of an entrepreneur.

- 6.5 Differentiate entrepreneurship and management.
- 6.6 Know start-up
- 6.7 start-up India Initiative.
- 6.8 Understand the role of T-hub in promoting start-up
- 6.9 Determine the role of entrepreneur in promoting Small Scale Industries.
- 6.10 Understand the importance of Entrepreneur in employment generation.
- 6.11 Describe the details of self-employment schemes.
- 6.12 National Policy on Skill Development and Entrepreneurship 2015 - objectives
- 6.13 Understand salient features of TS-IPASS.
- 6.14 List the financial assistance programmes.
- 6.15 List out the organisations that help an entrepreneur.

Suggested Student Activities:

Student activity like mini-project, surveys, quizzes, case studies etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned Course coordinator and Program Coordinator
2. Each group should conduct different activity and no repeating should occur.

- Preparing charts on organization structure of different Industries/companies/organizations.
- Preparing charts on departments of large scale Industries/companies/organizations.
- Case studies on motivation, decision making.
- Draw PERT and CPM networks.
- Analyse material flow of an Industry/organization/company/institution.
- Conduct market study on different products
- Conduct marketing strategy by different companies for similar type of product.
- Prepare a feasibility report on setting up an Industry at a selected location.
- Case study on industrial dispute or on industrial hazard.
- Case study on Entrepreneurs like Ola, Flipkart, Redbus, snapdeal, hike, zomato etc.
- Group Discussion on T-Hub, TS-IPASS, Skill Development programmes

REFERENCE BOOKS

1. Industrial Engineering and Management -by O.P Khanna
2. Production Management- by Buffa.
3. Engineering Economics and Management Science - by Banga & Sharma.
4. S.S.I Hand Book by S.B.P. Publishers.
5. Personnel Management by Flippo.
6. Entrepreneurship – by NITTT&R, Chennai.
7. Socio Economic Outlook – Government of Telangana.
8. <http://www.skilldevelopment.gov.in/>
9. <https://startupindia.gov.in/>

Mapping Course Outcomes with Program Outcomes:
(Course Outcome linkage to Cognitive Level)

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Able to understand terminology about Industry and management.	U, A	5,6,7,8,9,10	05
CO2	Distinguish Industries based on ownership, organisation. Understand the importance of Human Resource.	U, A	5,6,7,8,9,10	09
CO3	Apply PERT and CPM in cost saving production. Analyse material flow in Industry.	U, A	1,2,3,4,6,8,10	10
CO4	Understand the marketing strategies/methods.	U, A	4,5,7,8,9,10	05
CO5	Able to handle various problems associated with management and worker. Understand the importance of Quality in production.	U, A	5,6,7,8,9,10	16
CO6	Able to get the knowledge required for an Entrepreneur.	U, A	1,2,3,5,6,7,8,9,10	15
		Total Sessions		60

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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)	
6	VI				7,8	11(a)	
		11(b)				15(b)	
					10(b)	14(b)	
				12(a)	16(a)		
				12(b)	16(b)		
Total Questions		8		8	8		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

Model Paper for Mid Sem-I

BOARD DIPLOMA EXAMINATION, (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY-HYDERABAD

DLT-FIFTH SEMESTER, 18-LT-501C

INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Time: 1 hr.

Total Marks: 20 M

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART-A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.

The length of the answer shall not exceed 1/4 of page

1. Define scientific management?
2. List managerial skills?
3. List types of ownership?
4. List types of organization?

PART-B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks. The length of the answer shall not exceed 1 page

5. a) Distinguish between administration and management?
OR
b) state the principles of scientific management?
6. a) write three advantages and disadvantages of line & Staff organization?
OR
b) Distinguish between pvt Ltd and Public limited company?

PART-C

(2x5 = 10M)

Note: Answer the following questions. Each question carries 5 marks. The length of the answer shall not exceed 2 pages

7. a) Explain the functions of management?

OR
b) State the principles of management?
8. a) Explain the line and staff organization?

OR
b) Explain Maslow's Theory of motivation?.

Model Paper for Mid Sem-II

BOARD DIPLOMA EXAMINATION, (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY-HYDERABAD

DLT-FIFTH SEMESTER, 18-LT-501C

INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Time: 1 hr.

Total Marks: 20 M

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART-A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.

The length of the answer shall not exceed 1/4 of page

1. Write the types of production?
2. List any two difference between PERT and CPM ?
3. List out the elements of cost?
4. List various market conditions?

PART-B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks. The length of the answer shall not exceed 1 page

5. a) List out the objectives of production planning and control?

OR

- b) what are the advantages of PPC?.

6. a) Differentiate marketing and selling?
quality.

OR

- b) Compare buyers market and sellers market?

PART-C

(2x5 = 10M)

Note: Answer the following questions. Each question carries **5** marks. The length of the answer shall not exceed 2 pages

7. a) explain the ABC analysis with a Graph?.

OR

- b) Draw the network for the following project and identify the critical path and project duration?

Activity	0-1	1-3	1-2	2-3	1-4	3-4	4-5
Duration days	3	16	6	8	10	5	3

8. a) explain the various steps in preparing the feasibility report?

OR

- b) what is break even analysis? Illustrate graphically the concept of break even analysis?

Model Paper for SEE

BOARD DIPLOMA EXAMINATION, (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY-HYDERABAD

DLT-FIFTH SEMESTER, 18-LT-501C

INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Time :2 Hrs

Total Marks : 40

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A

(8x1 = 8M)

Note: Answer **ALL** the questions. Each question carries **1** mark.

The length of the answer shall not exceed 1/4 of page

1. Define management?
2. List types of production?
3. list the benefits of ISO 9000?
4. List the characteristics of an entrepreneur?
5. Define TQM?.
6. What are the limitations of ISO 9000 series?
7. what are the expectations of an entrepreneur?.
8. list the qualities of an Entrepreneurship?

PART- B

(4 x 3 = 12M)

Note: Answer the following questions. Each question carries **3** marks.

The length of the answer shall not exceed 1 page

9. (a) Distinguish between administration and management?

OR

- (b) List out 5-S principles?

10. (a) What are the advantages of PPC?

OR

- (b) Distinguish between seller market and buyer market?.

11. (a) state the benefits of ISO 9000?.

OR

- (b) List the beneficiaries' of ISO 9000?

12. (a) List the financial assistance program towards the entrepreneurs?

OR

- (b) State any three Roles of an Entrepreneur?.

PART - C

(4x5 =20M)

Note: Answer the following questions. Each question carries 5 marks
The length of the answer shall not exceed 2 pages

13. (a) Explain the functions of management?

OR

(b) What are the advantages and disadvantages of ISO 9000 series?

14. (a) what is breakeven point and explain break even analysis?

OR

(b) Describe the details of self employment schemes?

15. (a) state the outstanding features of ISO 9000 series?

OR

(b) Explain term Quality control and Quality Assurance?

16.(a) List out the difference between entrepreneur style and technocrat style of management?

OR

(b) Explain the different types of self employment schemes?

ANALYTICAL CHEMISTRY AND QUALITY CONTROL IN LEATHER MANUFACTURE

Course Title	ANALYTICAL CHEMISTRY AND QUALITY CONTROL IN LEATHER MANUFACTURE	Course Code : 18LT-502C
Semester	: Semester V	Course Group : Core
Teaching Scheme in Hrs(L:T:P)	: 50:10:0	Credits : 3
Type of course	: Lecture + Assignments	Total Contact Hours : 60 periods
CIE	: 60 Marks	SEE : 40 Marks

Rationale:

The objective of this course is to provide students with the necessary knowledge to analyse the chemicals used in every stage of the process for selection of leather and to understand the necessity of quality control

Prerequisite: Basic knowledge of chemistry in secondary education and Leather chemistry.

Course Outcome:

A student who has completed this Course will be able to:

- CO1 : Determine the hardness, chlorides, sulphates and iron present in the water used in tanning industry.
- CO2 : Know the principles and analyse various pretanning materials
- CO3 : Explain the principle and analyse tanning and post tanning chemicals
- CO4 : Describe the methods for chemical analysis of tanned leathers
- CO5 : Know Quality control, Quality Control Agencies and Sampling
- CO6 : State the principle, describe the sample dimensions, instrument used for testing of leather.

COURSE CONTENTS

UNIT-1: Chemical Analysis of Water

Duration: 08 periods (L:08 –T:0)

water constituents-Hardness of water –Determination of: Hardness by EDTA-Chlorides by Argentimetry-Sulphates by Gravimetry-Iron traces in water-purity of salt-Estimating the preservatives

UNIT-2: Analysis of Pre-Tanning Materials

Duration: 12 periods (L:10 –T:2)

Lime-Total bases-preparation of sodium sulphide-Free alkali-lime liquor-Alkalinity-Kjeldahl method to estimate dissolved hide substance-Estimation ammonia content-Deliming agents-purity of ammonium salts-boric acid- Organic salts-drench liquor-bate material-Northrop's method of finding enzyme activity-pickle liquor—Estimation of hypo by dichometry-Masking agents-purity of sodium acetate

UNIT-3 : Analysis of Tanning and Post-Tanning Chemicals **Duration: 12 periods (L:10 –T:2)**

Analysis of Basic Chromium Sulphate-Aluminium tanning agents-Zirconium tanning agents-Vegetable tanning agents-Aldehyde tanning agents-Analysis of oils-Sulphated oils

UNIT-4 : Chemical Analysis of Tanned Leathers

Duration: 08 periods (L:6 –T:2)

Determination of – Moisture content, Total ash, Ash of Solubles, Ash of insolubles, Epsom salt, Glucose, Hide substance, Leather substance, Degree of Tannage, Differential number, fat content for various types of leathers.

UNIT-5: Quality Control, Quality Control Agencies and Sampling**Duration: 8 periods (L:6 –T:2)**

Quality of leather-Process capability-Machine capability-ISO-functions-ISO-9000 series-Installation procedure-BIS-Definition of terms-principle of sampling-inspection and testing-Basic principles of SQC-Sampling plans-simple-double-sequential sampling plans-sampling locations-Conditioning of test pieces

UNIT-6: Physical Testing of Leathers

Duration: 12 periods (L:10 –T:2)

Principle-Sample dimension-instrument used-procedure used-factors influencing for determination of-Strength properties of leathers- Tensile strength, Percent elongation,Tearing strength - Buckle,stitch, split and tongue tear, Grain crack and bursting strength,Abrasion and scuff resistance-Compactness and wear properties of leather-Compressibility and resiliency, Real and apparent density, Flexibility and Grain crack index, Hydrothermal stability, Water absorption and penetration – static, dynamic, Air and Water vapour permeability-Testing for finished leather- Flexural endurance, Water repellancy, Dry and Wet rub fastness, Light fastness, Heat fastness, Cold crack resistance- Perspiration resistance.

Specific Learning Outcomes :

Upon completion of the course, the student will have ability to

UNIT-1: Chemical Analysis of Water

- 1.1 Understand the necessity of quality control
- 1.1 Classify quality control methods-Volumetric, Gravimetric, Instrumental, Empirical
- 1.2 Mention the constituents of water like suspended matter, colloids, ionic substances, dissolved gases and microscopic matter
- 1.3 Define and categorise hardness of water
- 1.4 Understand principle and method of finding total hardness of water by EDTA method
- 1.6 Determine Chlorides in water by Argentimetry
- 1.7 Find the sulphates in water by Gravimetry
- 1.8 Test for iron traces in water sample.

UNIT-2: Analysis of Pretanning Materials

- 2.1 Understand the principle of estimating the preservatives
- 2.2 Evolve the principle of estimating the preservatives
- 2.3 Name the sources and types of lime.
- 2.4 Define available lime and total bases.
- 2.4 Determine the total bases.
- 2.5 Recapitulate the methods of preparing sodium sulphide
- 2.6 Differentiate between crystalline and commercial product in terms of purity.

- 2.7 Describe a method of finding the purity.
- 2.8 State the reason for use of external indicator.
- 2.9 Estimate the free alkali
- 2.10 Name the constituents of lime liquor.
- 2.11 Find the total alkalinity
- 2.12 Define and estimate mellowness
- 2.13 Analyse the total lime
- 2.14 Find the available sulphide
- 2.15 State the principle and describe Kjeldahl method for estimating dissolved hide substance.
- 2.16 Estimate ammonia content
- 2.17 Name various deliming agents.
- 2.18 State the principle and method of estimating the purity of ammonium salts.
- 2.19 Understand the drawback of titrating boric acid by alkalimetry.
- 2.20 Evolve a suitable method for finding purity of boric acid.
- 2.21 Know the principle of estimating organic acids by alkalimetry.
- 2.22 Name the constituents of drench liquor.
- 2.23 Estimate the volatile and non volatile acids of drench liquor.
- 2.24 Specify the importance of the constituents in a bate material.
- 2.25 Understand the principle of Northrop's method of finding enzyme activity
- 2.26 State the constituents of pickle liquor.
- 2.27 Find the reason for estimating the acid content prior to the salt content.
- 2.28 Describe the methods for estimation of acid and salt in pickle liquor.
- 2.29 Name the depickling agents.
- 2.30 Estimate the purity of hypo by dichrometry.
- 2.31 Name the masking agents.
- 2.32 Determine the purity of sodium acetate.

UNIT-3: Analysis of Tanning and Post tanning Chemicals

- 3.1 Explain the principle and describe methods for estimation of moisture content, pH of tan liquor, unreduced chromium, total chromium, acid combined value and calculate the basicity of Basic Chromium Salts.
- 3.2 Name various alum tanning agents.
- 3.3 Describe EDTA method of estimating aluminium content.
- 3.4 Name various zirconium tanning agents.
- 3.5 State the gravimetric method for zirconium content in a tan liquor.
- 3.6 State the qualitative tests for Pyrogallol and Catechol type tannings.
- 3.7 Describe analytical procedure for the quantitative estimation of vegetable tanning materials as per BIS.
- 3.8 Determine the free acidity and aldehyde content and calculate the purity of HCHO.
- 3.9 Classify the oils used in leather industry.
- 3.10 State the significance of acid value, saponification value, iodine value on the selection of an oil for specific end use.
- 3.11 Describe suitable methods for the estimation of moisture content, acid value, saponification value, Iodine value of oils.
- 3.12 Study the suitability of different oils for tanning, stuffing and for preparation of fat liquors.
- 3.13 Determine the free alkali in a fat liquor.
- 3.14 Determine the degree of sulphation of the oil in a fat liquor.

UNIT-4: Chemical Analysis of Tanned Leathers

- 4.1 Name the constituents of a leather sample.
- 4.2 Describe the methods for the determination of moisture content, total ash, Oils & fats (solvent soluble), Ash of solubles, Ash of insolubles, Fixed tannins, Epsom salt, Glucose, Hide substance, Leather substance, Degree of tannage, Differential number, Acid figure.

UNIT-5: Quality control, Quality Control Agencies and Sampling

- 5.1 To know why leather is tested
- 5.2 Define Quality
- 5.3 Process capability and machine capability

- 5.4 Differences between process capability and machine capability
- 5.5 ISO-Definition and functions
- 5.6 ISO-9000 quality system series-characteristics
- 5.7 Benefits of ISO-9000 certification
- 5.8 ISO-9000 series
- 5.9 Installation procedure for ISO-9000 quality system
- 5.10 BIS- definition and its series
- 5.11 Define the terms-Sample, Lot, Inspection, Sampling
- 5.12 State principle of sampling
- 5.13 Understanding inspection and testing
- 5.14 Know the basic principles of statistical quality control like (1) Random sampling, (2) Sample size (3) Acceptance and Rejection samples
- 5.15 Explain Single sampling plan
- 5.16 Explain double sampling plan
- 5.17 Explain Sequential sampling plan
- 5.18 Identify the sampling locations
- 5.19 Draw the sampling locations for whole hide/skin, butt, shoulders and belly
- 5.20 Understand the conditioning of test pieces

UNIT-6: Physical Testing of Leathers

- 6.1 State the principle, describe the sample dimensions, instrument used, procedure of test, factors influencing them.
- 6.2 *Strength properties of leather*
- 6.3 Tensile strength
- 6.4 Percent Elongation
- 6.5 Tearing strength-Tongue tear, Stitch tear, Split tear, Buckle tear
- 6.6 Grain crack and bursting strength
- 6.7 Abrasion resistance
- 6.8 Scuff resistance
- 6.9 *Compactness and Wear properties of leathers*
- 6.10 Compressibility and Resilency
- 6.11 Real and Apparent density
- 6.12` Hydrothermal stability
- 6.13 Water absorption and Penetration-Static and Dynamic
- 6.14 Air permeability
- 6.15 Water vapor permeability
- 6.16 Flexibility-Grain Crack Index
- 6.17 *Testing of Finished Leathers*
- 6.18 Flexural Endurance
- 6.19 Rub fastness-Dry and Wet
- 6.20 Heat fastness
- 6.21 Cold crack resistance
- 6.22 Water repellency
- 6.23 Light fastness
- 6.24 Perspiration resistance

Reference Books :

1. Methods of Physical Testing of Leathers, IS : 5914 – 1970 BIS, New Delhi.
2. S.Bangam Swamy, Technological Controls in Leather Manufacture, CLRI Publication
3. Methods of Chemical Testing of Leathers, Bureau of Indian Standards.
4. P.K.Sarkar, Analytical Chemistry of Leather Manufacture, ISLTC Publication, Calcutta.
5. Chemistry and Technology of Leather, O’Flaherty Vol. IV.
6. T.S.K.Mahadevan- Hand book of reference on chemical analysis and physical testing of leathers- Sankaran & Co, Madras

Suggested E - learning links:

<https://iupac.org/>

<https://www.youtube.com>

<https://www.khanacademy.org/>

<http://www.iltaonlineleather.org/jilta.html>

<https://www.clri.org/http://alcajournal.com/>

www.nptel.ac.in

CO PO Mapping Matrix

On Successful completion of the course, the student will be able to attain the following Course Outcomes (COs):

CO	Course outcome	CL	Linked PO	Teaching periods
CO1	Determine the hardness, chlorides, sulphates and iron present in the water used in tanning industry.	R/U/A	1,2,3,4,6,10	08
CO2	Know the principles and analyse various pretanning materials	R/U/A	1,2,3,4,10	12
CO3	Explain the principle and analyse tanning and post tanning chemicals	R/U/A	1,2,3,10	12
CO4	Describe the methods for chemical analyses of tanned leathers	R/U/A	1,2,3,4	08
CO5	Know Quality control, Quality Control Agencies and Sampling	R/U/A	1,2,4,5,6,9	08
CO6	State the principles, describe the sample dimensions, instruments used for testing of leather.	R/U/A	1,2,3,4,10	12

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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)	
6	VI				7,8	11(a)	
		11(b)				15(b)	
					10(b)	14(b)	
				12(a)	16(a)		
				12(b)	16(b)		
Total Questions		8		8	8		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

Model Paper for Mid Sem-I

BOARD DIPLOMA EXAMINATION, (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY-HYDERABAD

DLT-FIFTH SEMESTER, 18-LT-502C

ANALYTICAL CHEMISTRY AND QUALITY CONTROL IN LEATHER MANUFACTURE

Time: 1 hr.

Total Marks: 20 M

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART-A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.

The length of the answer shall not exceed 1/4 of page

8. What is temporary hardness of water?
9. List two examples of dissolved gases in water .
10. Define available lime.
11. Write the use of external indicator .

PART-B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks. The length of the answer shall not exceed 1 page

12. a) Write about the test for iron.
OR
b) Classify quality control methods.
13. a) Outline the principle in estimation of boric acid.
OR
b) Show that 1ml of N/10 NaOH = 0.00535 gm. NH_4Cl

PART-C

(2x5 = 10M)

Note: Answer the following questions. Each question carries 5 marks. The length of the answer shall not exceed 2 pages

14. a) Describe the analysis of total hardness of water by EDTA method.

OR

- b) Explain the method to find sulphates in water by Gravimetry.
8. a) Suggest a method to determine total bases of lime..

OR

- b) Describe Kjeldahl method for estimating dissolved hide substance.

Model Paper for Mid Sem-II

BOARD DIPLOMA EXAMINATION, (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY-HYDERABAD

DLT-FIFTH SEMESTER, 18-LT-502C

ANALYTICAL CHEMISTRY AND QUALITY CONTROL IN LEATHER MANUFACTURE

Time: 1 hr.

Total Marks: 20 M

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART-A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.

The length of the answer shall not exceed 1/4 of page

9. Write the formula of quick lime.
10. List out any two properties of sodium sulphide.
11. Define degree of tannage.
12. What is ash of soluble?

PART-B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks. The length of the answer shall not exceed **1** page

13. a) Write the importance of iodine value.

OR

- b) Classify vegetable tanning agents.

14. a) Explain the significance of differential number in determining leather quality.

OR

- b) List the parameters used in the chemical analysis of leather.

PART-C

(2x5 = 10M)

Note: Answer the following questions. Each question carries **5** marks. The length of the answer shall not exceed **2** pages

15. a) Describe the method for estimation of total chromium .

OR

- b) Explain the quantitative analysis of vegetable tannins.

16. a) Describe the procedure for the estimation of Epsom salt in a given leather.

OR

- b) How the (i) hide substance and (ii) leather substance estimated in a given leather?

Model Paper for SEE

BOARD DIPLOMA EXAMINATION, (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY-HYDERABAD

DLT-FIFTH SEMESTER, 18-LT-502C

ANALYTICAL CHEMISTRY AND QUALITY CONTROL IN LEATHER MANUFACTURE

Time :2 Hrs

Total Marks : 40

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A

(8x1 = 8M)

Note: Answer **ALL** the questions. Each question carries **1** mark.

The length of the answer shall not exceed 1/4 of page

1. What is an external indicator ?
2. List two qualities of good fat liquor
3. Define Quality
4. List two zirconium tanning agents.
5. Define Lot.
6. State the principle of sampling.
7. Define tensile strength.
8. Define resiliency.

PART- B

(4 x 3 = 12M)

Note: Answer the following questions. Each question carries **3** marks.

The length of the answer shall not exceed 1 page

9. (a) Write the principle of EDTA method for water hardness determination.

OR

- (b) Compare inspection and test methods

10. (a) Write the test for Pyrogallol tannins?

OR

- (b) Illustrate the types of tearing strength tests.

11. (a) Distinguish between process capability and machine capability.

OR

- (b) Write any three functions of ISO-9000.

12. (a) Explain the method to determine light fastness of finished leather.

OR

- (b) Outline the method to find wet rub fastness of finished leather.

PART - C

(4x5 =20M)

Note: Answer the following questions. Each question carries 5 marks
The length of the answer shall not exceed 2 pages

13. (a) Describe Northorp's method of bate analysis...

OR

(b) Explain single sampling plan.

14. (a) Explain the procedure for the estimation of glucose in given leather

OR

(b) How the water proofness of leather is determined in static and dynamic conditions.?

15. (a) Draw sample location for testing the quality of Butt and shoulders of a leather

OR

(b) Explain the installation procedure for ISO-9000 quality system.

16.(a) Write notes on i) Flexural Endurance and ii) Cold crack resistance.

OR

(b) Describe the procedure to find percent elongation and factors influencing on this.

LEATHER DYEING AND FINISHING

Course Title : LEATHER DYEING AND FINISHING	Course Code : 18LT-503C
Semester : Semester V	Course Group : CORE
Teaching Scheme in Hrs(L:T:P) : 49:11:0	Credits : 3
Type of course : Lecture + Assignments	Total Contact Hours : 60 periods
CIE : 60 Marks	SEE : 40 Marks

Pre Requisites:

This course requires the basic knowledge of pre-tanning operations, tanning, post-tanning operations done in leather processing

Course outcomes:

On successful completion of the course the student will be able to :

Course outcomes		Teaching Hours	Linked POs
CO1	List various chemicals used for neutralisation and retanning. Explain the methods of neutralisation and retanning for making different type of leathers	8	P1,P2
CO2	List various dyes and fatliquors used for doing dyeing and fatliquoring and explain the methods of dyeing and fatliquoring for making different type of leathers	12	P2, P3
CO3	List various chemicals used for Stuffing, Stripping and Bleaching. Explain the methods of Stuffing, Stripping and Bleaching for making different type of leathers	8	P2,P3,P4
CO4	Understand and Explain the various Machine Operations involved in leather manufacture	12	P2,P3
CO5	Explain the different methods of leather finishing based on crust selection	13	P1,P2 ,P6
CO6	Make use of neutralisation, re-tanning, dyeing, fatliquoring, stuffing, machine operations and finishing in leather manufacture	07	P2,P6
		60	

COURSE CONTENT:

Unit –I : Neutralization & Retanning :

Duration: 08 Periods (L: 08 – T:0)

The chemicals used in neutralization, extent of neutralization, using of masking salts.

Retanning-Purpose, Materials-Methods for upper, garment, printed, E.I., and white leathers

Unit – II : Dyeing and fatliquoring:

Duration: 12 Periods (L:12 – T:0)

Dye, colour, colour mixing and matching, different dyes and types of dyeing, fat liquoring and Stuffing, different materials used for fat liquoring, recipes and methods for fatliquoring

Unit – III : stuffing, Stripping and Bleaching:

Duration: 08 Periods (L:08 – T:0)

Different materials used for stuffing, recipes and methods for stuffing and difference between stuffing and fat liquoring- Chemicals used for stripping, bleaching and extent of stripping and bleaching

Unit – IV : Machine Operations:

Duration: 12 Periods (L:12 – T:0)

Different machine operation involved in finishing leather – Sammying, setting, drying, saw dusting and staking - Buffing and Snuffing, objectives of buffing and snuffing, types of buffing machine, difference between snuffing and buffing

Unit – V : Finishing :

Duration: 13 Periods (L:13 – T:0)

Different types of finishing, impregnation - Splits and defected leathers finishing, improving methods by two tone and antique finishing

The assortment of leathers – the need – the defects observed selection of skins for particular type of leather – size and defects.

Unit – VI : Application of neutralisation, re-tanning, dyeing, fatliquoring, stuffing, machine operations and finishing:

Duration: 07 Periods (L:07 – T:0)

Application of neutralisation, re-tanning, dyeing, fatliquoring, stuffing, machine operations and finishing in manufacture of different types of leathers

SPECIFIC LEARNING OUTCOMES:

Unit I: Neutralization & Retanning

- 1.1 Explain Neutralization of the leather for fat liquoring and dyeing
 - 1.1.1 Outline the purpose of neutralization
 - 1.1.2 Different chemicals used for neutralization
 - 1.1.3 Describe the Utilization of masking salt in neutralization
 - 1.1.4 List Order of preference of neutralizing chemicals in manufacturing of different types of leather
 - 1.1.5 Explain pH control of leather during neutralization for different types of leather
 - 1.1.6 Understand the effect of over neutralization on the properties of finished leather
- 1.2 Retanning
 - 1.2.1 State purpose of retanning
 - 1.2.2 List different retanning materials
 - 1.2.3 Describe method of retanning for chrome leathers for making upper, garment. And printed leathers
 - 1.2.4 Describe method of retanning E.I. Leathers
 - 1.2.5 Describe method of retanning for white leathers

Unit II: Dyeing and fatliquoring

- 2.1 Explain Behaviour of dyes towards leathers
 - 2.1.1 List Primary and complementary colours
 - 2.1.2 Explain Theory of colour mixing
 - 2.1.3 Make use of Colour matching
 - 2.1.4 List Mordents
 - 2.1.5 Explain Natural dye stuffs
 - 2.1.6 List Metallic strikers
 - 2.1.7 Explain Methods of dyeing leathers
 - 2.1.8 Explain Fixing of dye to leather
 - 2.1.9 Explain Different recipes of dyeing for different end products
- 2.2 Fat liquoring
 - 2.2.1 Explain Fat liquoring of different types of leather
 - 2.2.2 Explain Different types of oils, fats, waxes and emulsions used in fat liquor
 - 2.2.3 Explain Different recipes of fat liquor, for manufacture of different types of leathers
 - 2.2.4 Explain Fixing of fat liquors

Unit III: stuffing, Stripping and Bleaching

- 3.1.1 List Different types of oils, fats and waxes used in stuffing
- 3.1.2 Explain Different recipes for stuffing
- 3.1.3 Explain methods of stuffing the leathers
- 3.1.4 compare the difference between stuffing and fat liquoring
- 3.1.5 List of chemicals used in stripping and in their order to preference
- 3.1.6 List of chemicals used in bleaching and in their order to preference
- 3.1.7 outline the extent of stripping and bleaching for different types of leathers

Unit IV: Machine Operations

- 4.1 Explain Performing different machine operations for finishing different leathers
 - 4.1.1 Sammying and setting
 - 4.1.2 Compare Difference between Sammying and setting
 - 4.1.3 Explain Different types of setting leather
 - 4.1.4 Tell Purpose of setting leather
 - 4.1.5 Explain Different types of drying the leather
 - 4.1.6 Explain Drying of vegetable tanned leather
 - 4.1.7 Explain Drying of chrome tanned leather
 - 4.1.8 Drying of soft leather
 - 4.1.9 Explain Paste drying
 - 4.1.10 Explain Drying by nailing and toggle
 - 4.1.11 Explain Vacuum drying
 - 4.1.12 Outline methods of saw dusting
 - 4.1.13 Explain method of staking and purpose of staking
- 4.2.1 Buffing and Snuffing

- 4.2.2 List Objectives of buffing
- 4.2.3 List Objectives of snuffing
- 4.2.4 Compare difference between buffing and snuffing
- 4.2.5 List different types of buffing machine
- 4.2.6 List different emery papers used for different purpose

Unit V: Finishing

- 5.1 Finishing of different types of leather
 - 5.1.1 Explain classification of finishes
 - 5.1.2 Explain Pigment finish and composition
 - 5.1.3 Explain Aniline and semi aniline finish and composition
 - 5.1.4 Explain Glaze finish and composition
 - 5.1.5 Explain Fixing of different types of finishes
 - 5.1.6 Explain Impregnation of leather
 - 5.1.7 Explain Corrected grain finishing for upper leather.
 - 5.1.8 Explain Full grain resin finishing for upper leather.
 - 5.1.9 Explain Finishing of garment leather.
 - 5.1.10 Explain Foil finishing.
 - 5.1.11 Explain Metallic finish.
 - 5.1.12 Explain Finishing of oil pull up leathers.
 - 5.1.13 Explain Crackle finish.
 - 5.1.14 Explain Brush-off finish.
 - 5.1.15 Explain Patent leather finishing.
 - 5.1.16 Explain Finishing of burnish able leather.
 - 5.1.17 Explain Finishing of glove and lining leathers.
 - 5.1.18 Explain Finishing milled cow nappa leather, glazed nappa leather.
 - 5.1.19 Explain Finishing white leathers.
 - 5.1.20 Explain Easy care finish.
- 5.2 Explain Splits and Lower Ends Finishing
- 5.3 Explain Finishing of splits for upper
 - 5.2.1 Explain Improving the value of defected leather by finishing techniques such as two tone finish, antique finish

Unit – VI : Application of neutralisation, re-tanning, dyeing, fatliquoring, stuffing, machine operations and finishing:

- 6.1.0 Explain application of different neutralisation chemicals to get required properties in final leather
- 6.2.0 Explain application of acid dyes, direct dyes, metal complex dyes, basic dyes
- 6.3.0 Explain application of different re-tanning materials
- 6.4.0 Explain application of different fatliquors- anionic and cationic fatliquors
- 6.5.0 Explain application of different stuffing oils, fats and waxes
- 6.6.0 Explain application of different machine operations in leather manufacture
- 6.7.0 Explain application of different finishing methods to different types of leathers

SUGGESTED LIST OF STUDENT ACTIVITIES:

Note: The following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

1. Each student should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned Teacher and HOD.
2. Each student should conduct different activity and no repeating should occur

REFERENCE BOOKS :

- 1) Modern practice of retanning, dyeing and finishing by K.T.Sarkar – Chennai.
- 2) Leather Technician Hand Book by J.H.Sharp House,
- 3) Leather Producers Association – North Hampton – 1995.
- 4) C.Koteswara Rao and M.S.Olivannan Lecture Notes on Dyeing and Finishing of Leathers –CLRI – Chennai – 20.
- 5) C.L.R.I Publication – Madras – 20
- 6) Practical Leather Technology by J.Thornstein, E.Krieger Publishing Company – Malabar – Florida – 1993.

SUGGESTED E- LEARNING REFERENCES:

1. <http://www.iltaonleather.org/jilta.html>
2. <https://www.clri.org/http://alcajournal.c>

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

C-18LT-503C

BOARD DIPLOMA EXAMINATION, (C-18) MIDSEM – I FIFTH SEMESTER EXAMINATION LEATHER DYEING AND FINISHING

TIME: 1 Hour

TOTAL MARKS: 20

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART - A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.
The length of the answer shall not exceed 1/4 of page

1. Write the indicator used in neutralization?
2. Write the neutralization pH of upper leathers?
3. List the primary and complimentary colours?
4. Define Dye?

PART- B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks.
The length of the answer shall not exceed 1 page

- 5 (a). Write the objectives of neutralization?
(OR)
- (b). Write the effects of over neutralization?

- 6 (a). Draw the colour triangle?

(OR)

(b). write the advantages of using cationic fatliquors?

PART-C

(2×5=10M)

Note: Answer the following questions. Each question carries 5 marks
The length of the answer shall not exceed 2 pages

7 (a). Explain the the method of neutralization for garment Leathers?

(OR)

(b). Explain the various chemicals used in neutralization?

8 (a). Explain the different methods of Dyeing?

(OR)

(b). Explain the method of fatliquoring?

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C-18LT-503C

BOARD DIPLOMA EXAMINATION, (C-18)
MIDSEM – I
FIFTH SEMESTER EXAMINATION
LEATHER DYEING AND FINISHING

TIME: 1 Hour

TOTAL MARKS: 20

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART - A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.
The length of the answer shall not exceed 1/4 of page

1. What is stuffing?
2. Write the objectives of fatliquoring?
3. What is meant by setting?
4. Why staking is done?

PART- B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks.
The length of the answer shall not exceed 1 page

5 (a). List different types of oils fats, and wax used in stuffing?

(OR)

(b). List some of the chemicals used in stripping?

6 (a). Compare between sammying and setting?

(OR)

(b). Write a note on vacuum drying?

PART-C

(2×5=10M)

Note: Answer the following questions. Each question carries 5 marks
The length of the answer shall not exceed 2 pages

7 (a). Explain the different recipes for stuffing?

(OR)

(b). compare the difference between stuffing and fatliquoring?

8 (a). Explain the methods of conditioning the leathers?.

(OR)

(b). Explain the different methods of Drying?

** *** **

. C-18LT-503C

**BOARD DIPLOMA EXAMINATION, (C-18)
END EXAMINATION
FIFTH SEMESTER EXAMINATION
LEATHER DYEING AND FINISHING**

TIME: 2 Hour

TOTAL MARKS: 40

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A

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

8X1=08M

1. What is neutralisation?.
2. List different types of fats used in stuffing?
3. What is aqueous finish?
4. List the properties of direct dye?
5. Name some upgradation finishes?
6. What is easy care finish?
7. Where metal complex dyes are used?
8. What is the purpose of stuffing?

PART – B

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

4X3=12M

- 9(a). How will you fix the fatliquor?
(or)
9(b). Classify the Leather Finishes?
- 10(a). Compare sammying and setting operations?
(or)
10(b). Distinguish between fatliquoring and stuffing?
- 11(a). Write the purpose of Impregnation?
(or)
11(b). Compare organic and inorganic pigments?
- 12(a). write the advantages of synthetic fatliquors?
(or)
12(b). Write the names of some retanning agents?

PART – C

4X5 = 20M

- Instructions: 1. Answer the following questions.
2. Each question carries **FIVE** marks.

- 13(a). Explain the method of neutralization for grain garment Leathers?
(or)
13(b). Describe the aniline finishing procedure for buff calf upper leathers?
- 14(a). Explain the different methods of bleaching the Leathers?
(or)
14(b).. Explain the different machine operations in crusting of Leathers?
- 15(a). . Explain the method of corrected grain resin finish for rejection grade leathers?
(or)
15(b). Explain the metallic finish procedure for goat upper Leathers?
- 16(a). . Explain the application of different fatliquors to the leathers?
(or)
16(b). Describe the different methods of stuffing?

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Course Title :	Estimating, Costing, Industrial Promotion and Marketing	Course Code	18LT-504E-A
Semester	V	Course Group	Elective
Teaching Scheme in Periods(L:T:P)	3:1:0	Credits	3
Methodology	Lecture + Assignments	Total Contact Periods :	60Pds
CIE	60 Marks	SEE	40 Marks

Legend: R: Remember, U: Understand A: Application An: Analyze

Rationale:

The objective of this course is to make student to understand costing principles, estimate costing of finished articles, under stand basic accounting terminology, principles of accounting, preparing financial accounts statements, familiar about export, import policies, international marketing terminology and sales promotion techniques.

Pre requisites

Basic knowledge of Industrial management and entrepreneurship, basic mathematics.

Course Outcomes

- CO1 : Analyzing elements of cost, various costs involved in finished products, Overheads
- CO2 : Estimate material consumption requirement for various footwear articles and Cost of Finished articles
- CO3 : Understand the accounting principles, terminology, evaluate final financial accounts statements
- CO4 : Understand the growth of Leather and leather products sector, Identify different organisation's and its role in research and development of leather products sector, know the concept of international marketing
- CO5 : Understand the marketing Concept, Sales promotion techniques, sales tax, GST and role of advertising media on sales promotion
- CO6 : Identify various instruments of exchange and understand their characteristics.

On successful completion of the course, the students will be able to attain below Course Outcomes:

COURSE CONTENT

UNIT 1

Principles of Estimating & Costing
T:03)

Duration:11 Periods (L: 08–

Classification of cost-Elements of cost-Distinguish estimating and costing-Overheads-Depreciation and causes for depreciation-Depreciation calculation methods-simple problems total cost calculation

UNIT2

Costing of Finished Articles

Duration: 06 Periods (L: 04– T:02)

Calculation of quantities of material required for the manufacturing of different types of Footwear-Estimation of cost of manufacture of different types of Footwear :Chappal, shoe upper-full shoe-boot

UNIT3

Financial accounting, Elements of book keeping, preparation of profit and loss account, balance sheet

Duration: 14 Periods (L: 10– T:04)

Importance of financial management-Functions and objectives of Financial accounting, book keeping- Merits of book keeping and accountancy to businessmen and government-Different terms of accounts, basic accounting principles-Types of accounts, fundamental concepts and basic rules for debit and credit-Double entry system of accounting and its advantages-Define journal, ledger and cashbook-Posting of journal entries and problems on journal-Techniques involved in ledger posting and simple problems (illustration)-Cash book and state types of cash books-Assets & Liabilities with examples-Trial balance sheet-Trading account-Profit and loss account-Balance sheet.

UNIT 4

Growth and contribution of Footwear Industry, Different Agencies Promoting Leather Product Industries, Export and Import Policies

Duration : 08 Periods (L: 06– T:02)

Growth of Leather, Footwear Industry-Role of Organisations /institutions and their nature of work :Central Leather Research institute (CLRI)-Council of Leather Exports (CLE)-Central Footwear Training Institute (CFTI)-Footwear Design and Development Institute (FDDI) -Restrictions on import and export of Goods-International Marketing basic concepts-International Price quotations terminology.

UNIT5

Sales planning and control, sales promotion Techniques

Duration:13 Periods (L: 10–

T: 03)

Market demand-Differentiate Buyers and Sellers market-Type of markets-Functions of marketing- Planning and forecasting of marketing trends-Fore casting techniques-Inventory control-Type of inventories and objectives of inventory management-Importance, objectives and functions of purchasing-Methods of purchasing and purchase procedure- Sales tax-GST-Functions of sales department-Sales promotion methods-Functions of salesman, qualities required for a good salesman-Role of advertising in the sales promotion- Role of advertising media such as news papers, magazines, direct mail and television etc.

UNIT 6

Instruments of Exchange

Duration: 08 Periods (L:06 – T02)

Various instruments of exchange-Cheques, Hundi, Bill of Exchange, invoice- Features of Cheque and explain how to draft a cheque-Types of crossing cheque-Features of Bills of Exchange-Kinds of bills and distinguish inland bill of exchange and foreign bill of exchange-Trade bill Vs Financial bill-Distinguish cheque and bill of exchange- Feature of promissory notes-hundies- Forms of Invoice

Specific Learning Outcomes

Upon completion of the course the student should be able to

1.0 Principles of Estimating & Costing

1.1 Define the cost

1.2 State the objective of costing

1.3 Explain the necessity of cost control

1.4 Mention the type of costs

1.5 Classify the cost into direct and indirect costs

1.6 Classify the cost in association with the product

1.7 Classify the cost in to fixed costs and variable costs

1.8 Explain estimating

1.9 Distinguish estimating & costing

1.10 State the elements of cost

1.11 State the various costs to be taken into account while calculating

the total cost

1.12 Define depreciation, Depreciation fund, Causes for depreciation

1.13 State the various methods involved in calculating depreciation such as straight line method, annuity method, sinking fund method, sum of the year digits method etc

1.14 Solve simple problems on depreciation by straight line method.

1.15 Compute the total cost and solving the simple problems

2.0 Costing of Finished Articles

2.1 Know the different materials used in footwear and their costs

2.2 Understand the materials consumption calculation

2.3 Estimate the Total cost of manufacturing for the following finished footwear articles

2.3.1 Chappal

2.3.2 Shoe Upper

2.3.3 Full shoe

2.3.4 Boot

3.0 Financial accounting, Elements of book keeping, preparation of profit and loss account, balance sheet

3.1 Functions and objectives of Financial accounting

3.2 State the objectives of book keeping

3.3 Know the merits of book keeping and accountancy to businessmen and government

3.4 Know Different accounting terminology.

3.5 State the basic accounting principles

3.6 State the types of accounts

3.7 Understand fundamental concepts and basic rules for debit and credit

3.8 Explain the double entry system of accounting and its advantages

3.9 Define journal, ledger and cashbook

3.10 Know the positing of journal entries and problems on journal

3.11 Distinguish Journal & Ledger

3.12 Explain the techniques involved in ledger posting and simple problems (illustration)

3.13 Define Cash book and state types of cash books

3.14 Simple problems on Single column Cash book

3.15 Define assets & Liabilities with examples

3.16 Define trial balance and state the characteristics of trial balance.

3.17 Write the trial balance sheet proforma.

3.18 Know the errors revealed and not revealed by trial balance.

3.19 State and explain the objectives of most important final financial accounts.

3.20 Know the method of preparation of trading account and draw the pro forma of the trading account.

- 3.21 Define and explain the importance of Profit and loss account.
- 3.22 Know various items that appear in profit and loss account.
- 3.23 Illustrate pro forma of profit and loss account.
- 3.24 Define balance sheet.
- 3.25 Prepare the balance sheet.
- 3.26 Solving the problems related to above three final financial accounts.

4.0 Growth and contribution of Leather and Footwear Industry, Different Agencies Promoting Leather Product Industries, Export and Import Policies

- 4.1 Explain the growth of Leather , Footwear Industry in India
- 4.2 Strengths and weaknesses of different Indian footwear industry competitors
- 4.3 Know the role of following institutions and their nature of work
 - a) Central Leather Research institute (CLRI)
 - b) Council of Leather Exports (CLE)
 - c) Central Footwear Training Institute (CFTI)
 - d) Footwear Design and Development Institute (FDDI)
- 4.4 Know the restrictions on import and export of Goods by Government
- 4.5 Know about following international marketing basic information.
 - a. Basic work.
 - b. Mode of export.
 - c. Method of correspondence.
 - d. Payment receipt procedure.
 - e. Selection of importers.
 - f. Trade loss.
 - g. Helping hands.
 - h. Trade barriers.
- 4.6 Understand International price quotations Terminology
 - a. F.O.B.
 - b. C.I.F.
 - c. Letter of credit.
 - d. Free trade zone.
 - e. Dumping.
 - f. Forwarding agency.
 - g. Bill of loading.
- 4.7 Know the difference between domestic market and International marketing

5.0 Sales planning and control, sales promotion Techniques

- 5.1 Understand the market demand.
- 5.2 Differentiate Buyers and Sellers market
- 5.3 State the type of markets
- 5.4 Explain the functions of marketing
- 5.5 Explain the planning and fore casting of marketing trends
- 5.6 Explain the importance of fore casting and state the limitations of fore casting
- 5.7 State and explain fore casting techniques

- 5.8 Define Inventory
- 5.9 State the type of inventories and objectives of inventory control and management
- 5.10 State the importance, objectives and functions of purchasing
- 5.11 Explain the methods of purchasing and purchase procedure
- 5.12 Understand about sales tax, GST
- 5.13 Single point and multi point Sales tax system
- 5.14 Explain the functions of sales department
- 5.15 Explain the sales promotion methods
- 5.16 State the functions of salesman, qualities required for a good salesman
- 5.17 Explain the role of advertising in the sales promotion
- 5.18 Explain the role of advertising media such as news papers, Magazines, direct mail and television etc.

6.0 Instruments of Exchange

- 6.1 State the various instruments of exchange
- 6.2 Define cheques, Hundi, Bill of Exchange invoice
- 6.3 State the features of cheque and explain how to draft a cheque
- 6.4 Explain the types of crossing cheques
- 6.5 Explain the features of Bills of Exchange
- 6.6 State the kinds of bills and distinguish inland bill of exchange and foreign bill of exchange, Trade bill Vs Financial bill
- 6.7 Distinguish cheque and bill of exchange
- 6.8 State the feature of promissory notes
- 6.9 State the concept and types of hundies .
- 6.10 Explain the features of Invoice

Suggested Student Activities

ACTIVITIES

1. Collect price quotations from different footwear materials vendors.
2. Collect GST rates information related to all footwear materials and finished articles.
3. Prepare feasibility report for setting up of small footwear repair centre.
4. Collect Profit & loss account statement for the past two years of any organisation and infer the results.

Reference Books

1. Industrial Engineering and Management -by Dr.O.P Khanna
2. Production Management- by Buffa.
3. Engineering Economics and Management Science - by Banaga& Sharma.
4. S.S.I Hand Book by S.P.B. Publishers.
5. Personnel Management by Flippo.
6. Industrial Management and Entrepreneurship by ZakriaBaig.
7. Entrepreneurship – by TTTI, Madras
8. Financial Management by Kuchal
9. Industrial Management & Entrepreneurship. by Laxminarayana.

Suggested E-Learning references

10. <http://www.skilldevelopment.gov.in/>

11. <https://startupindia.gov.in/>

CO PO Mapping Matrix

On Successful completion of the course, the student will be able to attain the following Course Outcomes (COs):

Course Outcome		CL	Linked PO	Teaching Periods
CO1	Analyzing elements of cost, various costs involved in finished products, Overheads	R/U	1,2,8	11
CO2	Estimate material consumption requirement for various footwear articles and Cost of Finished articles	U/A	1,2,3,4,5, 8	06
CO3	Understand the accounting principles, terminology, evaluate final financial accounts statements	R/U/A	2,3,7,8	14
CO4	Understand the growth of Leather and leather products sector, Identify different organisation's and its role in research and development of leather products sector, know the concept of international marketing	U/A	1,2,3,4,5,6	08
CO5	Understand the marketing Concept, Sales promotion techniques, sales tax, GST and role of advertising media in sales promotion.	R/U/A	1,2,3,4,5,7,9,10	13
CO6	Identify various instruments of exchange and understand their characteristics	R/U/A	1,2,9	08

CO/PO mapping

[illegible]

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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)	
6	VI				7,8	11(a)	
		11(b)		15(b)			
		10(b)		14(b)			
				12(a)	16(a)		
				12(b)	16(b)		
Total Questions		8		8	8		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

**MID SEM-I
FIFTH SEMESTER EXAMINATION**

Subject Name : Estimating, Costing, Industrial Promotion and Marketing

Subject Code : 18LT-504E-A

[Time Duration : 1 Hour]

[Total marks :20]

PART-A

Answer ALL Questions and each question carries 01 marks

4 x 1= 4 marks

1. Define Cost.
2. What is depreciation?
3. Mention different upper materials used in fabrication of Chappal.
4. Name the various bottom parts/components used in Full shoe fabrication.

PART-B

Answer any TWO Questions s and each question carries 03 marks 2 x 3 = 6 marks

5. a) Identify various Sales and Distribution Over heads.

(OR)

- b) Differentiate fixed cost and variable cost.
6. a) Explain the method of calculating leather consumption for Shoe upper.

(OR)

- b) Explain how to estimate over head costs for estimating cost of finished articles.

PART-C

Answer any TWO Questions and each question carries 05 marks 2 x 5= 10 marks

7. a) Discuss how to calculate selling price of a product.

(OR)

- b) Classify various types of Overheads.
8. a) Estimate the cost of Derby shoe upper size8 (adults).

(OR)

- b) Estimate the cost of Simple open type footwear(Gents Chappal).

BOARD DIPLOMA EXAMINATIONS (C-18) 18LT-504E-A
MID SEM-II
FIFTH SEMESTER EXAMINATION

Subject Name : Estimating, Costing, Industrial Promotion and Marketing

Subject Code : 18LT-504E-A

[Time Duration : 1 Hour]

[Total marks :20]

PART-A

Answer ALL Questions and each question carries 01 marks

4 x 1= 4 marks

1. Define Account.
2. State the types of cashbooks.
3. Mention the Competitors of Indian Footwear industry.
4. What is F.O.B?

PART-B

Answer any TWO Questions s and each question carries 03 marks
marks

2 x 3 = 6

5. a) Explain the objectives of Preparing Balance sheet.

(OR)

- b) Differentiate Journal and Ledger.
6. a) Discuss the objectives of CLE .

(OR)

- b) Explain the strengths and weakness of Indian footwear industry.

PART-C

Answer any TWO Questions and each question carries 05 marks
10 marks

2 x 5=

7. a) Discuss the liabilities of an enterprise.

(OR)

- b) Illustrate Profit and Loss account statement.
8. a) Write the Circumstances under which Exports/Imports can be restricted by the Government of India.

(OR)

- b) Discuss the role of CLRI in the development of Leather and Footwear sector in India.

C18-LT-504E-A

BOARD DIPLOMA EXAMINATION, (C-18)

LEATHER GOODS & FOOTWEAR TECHNOLOGY

ESTIMATING, COSTING, INDUSTRIAL PROMOTION AND MARKETING

[Total Marks: 40

08X01=08

1. State the objectives of Cost control.
2. What is letter of Credit?
3. Define inventory.
4. What is Estimating?
5. State types of Markets.
6. What is Multi point Sales tax system?
7. Write the advantages of crossing Cheques.
8. List various negotiable instruments.

04X03=12

12. (a) Specify the circumstances under which a Cheque can be dishonored.
(or)
12. (b) Outline the Points to be keep in mind while drafting a cheque.

PART-C

04X5=20

- Instructions :**
1. Answer any **FOUR** questions.
 2. Each question carries **FIVE** marks.

13. (a) Estimate Prime cost, Factory cost, Production cost, Total cost and Selling price

from the following. Assume that the firm wants to have 10% profit on total cost.

Raw material cost	Rs. 50,000
Labour cost	Rs. 9,000
Direct expenses	Rs. 1,500
Factory Overheads	Rs. 7,000
Distribution expenses	Rs. 2,500
Selling expenses	Rs. 8,000
Administrative expenses	Rs. 6,000 .

(or)

13. (b) Examine various methods of Purchasing and suggest suitable method of purchase for procuring raw materials in Footwear industry.

14. (a) Discuss the objectives of preparation of Trial balance sheet and list the errors to be revealed and not to be revealed by trial balance.

(or)

14. (b) Explain the Parties and Essential features of Promissory notes.

15. (a) Differentiate Buyers market and Sellers market.

(or)

15. (b) Discuss the role of advertising media such as direct mail and Magazines in sales promotion.

16. (a) Classify the bills into inland and foreign bills and discuss its characteristics .

(or)

16. (b) Distinguish Cheque and Bill of exchange.

PROFESSIONAL ETHICS & INDIAN CONSTITUTION

Course Title : Professional Ethics & Indian Constitution	Course Code : 18LT- 504E-B
Semester : Semester V	Course Group : ELECTIVE
Teaching Scheme in Hrs(L:T:P) : 35: 10:15	Credits : 3
Type of course : Lecture + Assignments+ Role play	Total Contact Hours : 60 periods
CIE : 60 Marks	SEE : 40 Marks

Rationale: The objective of this course is to provide students in leather technology to create an awareness on Engineering Ethics and Human Values, to instil Moral and Social Values and Loyalty. Create awareness among engineers about their social responsibilities. To know features of our constitution

Prerequisite : Basic knowledge of Professional Ethics & Indian Constitution in diploma final year.

Course Outcome : On successful completion of the course, the students will have ability to attain below Course Outcomes (CO):

CO	Course outcome
CO1	Practice the moral values that ought to guide the Engineering profession.
CO2	Discover of the set of justified moral principles of obligation, ideals that ought to be endorsed by the engineers and apply them to concrete situations
CO3	Know the definitions of risk and safety also discover different factors that affect the perception of risk.
CO4	Appreciate the Ethical issues and Know the code of ethics adopted in various professional body's and industries.
CO5	Justify the need for protection of human rights and to know about concept of women empowerment.
CO6	Know the successful functioning of democracy in India .

COURSE CONTENT

UNITI: HUMAN VALUES

Duration : 10 periods (L:10 ,T:0)

Professional Ethics-Objectives of study of professional ethics-Human values- Definition of Morals and Ethics-Difference between Morality and Ethics-Values-Definition-Types of values- Definition of Integrity- Concept of Work Ethic- Service Learning- Definition Virtues-DefinitionCivic Virtue-Duties and Rights - Respect for Others – Attitude and values, opinions-changing attitude-beliefs-Reliability-Living Peacefully-Means to be adopted for leaving peacefully-CaringSharing-Honesty-ValuingTime-Co-operation-Commitment-Empathy-Self-ConfidenceSpirituality.

UNITII: ENGINEERING ETHICS

Duration : 12 periods (L:09 ,T:3)

Engineering ethics-Definition-Approach-Senses of Engineering Ethics-variety of moral issues– Inquiry-Types-Moral dilemmas-Steps to solve dilemma-Moral autonomy –Definition-consensus & controversy – Profession-Definition–Ethical theories-Theories about right action Personality– Self control- Self-interest –Self respect.

UNITIII: SAFETY, RESPONSIBILITIES OF ENGINEERS

Duration : 07 periods (L:7 ,T:0)

Safety and risk-definition- - assessment of safety and risk - risk benefit analysis and reducing risk – Personal risk-Public risk-Reducing risk-Voluntary Risk-Collegiality and loyalty–AuthorityTypes-collective bargaining -occupational crime –Responsibility of engineers–Types-Social responsibility-Professional responsibility-confidentiality-conflicts of interest-liability

UNIT IV:ETHICAL ISSUES IN ENGINEERING PRACTICE

Duration : 08 periods (L:08 ,T:0)

Ethical issues–Industrial standards-Environmental ethics –Solid waste like: Leather shavings, fleshing - waste disposal -Industrial waste disposal-Human centred environmental ethics- Disposal in safe way like: Solid waste management methods-Treatment and disposal of liquid waste in to streams -Engineers as managers-Codes of ethics-Sample code of Ethics like -CLRI.

UNIT V: HUMAN RIGHTS

Duration : 09 periods (L:09 ,T:0)

Human Rights-Definition-constitutional provisions-right to life and liberty-Human Rights of Women-Discrimination against women- steps that are to be taken to eliminate discrimination against women in Education, employment, health care, Economic and social life, Women in rural areas- Status of Women in India - Constitutional Safeguards - Dowry Prohibition act 1961- Domestic violence act 2005- Sexual harassment at work place bill 2006-Human Rights of Children- Who is a child- list the Rights of the Child- Right to education--Protection of Children from Sexual Offences Act(POCSO)-2012- National Human Rights Commission- Constitution- Powers and function of the Commission-Employee rights-Provisions made-Contractual-Non contractual employee rights-Whistle blowing-definition-Aspects-Intellectual Property Rights (IPR)–Meaning-Need for protection- Briefly description of concept of patents, Copy right, Trade mark.

UNIT VI: INDIAN CONSTITUTION

Duration : 14 periods (L:14 ,T:0)

Introduction to constitution of India-Formation and Composition of the Constituent Assembly Salient features of the Constitution-Preamble to the Indian Constitution Fundamental Rights- Fundamental Duties-Directive principles of state policy. Parliamentary system of governance- Structure of Parliament- Lokhasabha and Rajyasabha - Functions of parliament- Legislative ,Executive, Financial Function, Powers of Loksabha and Rajya Sabha- Procedure followed in parliament in making law-Structure of union executive- Power and position of President, Vice President, Prime minister and council of ministers. Structure of the judiciary: Jurisdiction and functions of Supreme Court, high court, and subordinate courts Federalism in the Indian constitution, Division of Powers- Union list, State list and concurrent list, Structure of state legislation, Legislative assembly and Legislative council, Functions of state legislature, Structure of state executive-Powers and positions of Governor, ,Speaker, Deputy Speaker, Chief Minister and council of minister. Local self government- meaning-Three tiers system- Village panchayath-Taluk panchayath Zilla panchayath-Local bodies-Municipalities and Corporations, Bruhath mahanagara Palike. Functions of Election commission, UPSC, KPSC.

SPECIFIC LEARNING OUTCOMES:

On completion of the study of the course the student will be able to

UNIT I: HUMAN VALUES

- 1.1. Professional Ethics-
- 1.2. Objectives of study of professional ethics-Human values
- 1.3. Definition of Morals and Ethics-Difference between Morality and Ethics
- 1.4. -Values-Definition-Types of values
- 1.5. Definition of Integrity
- 1.6. Concept of Work Ethic
- 1.7. Service Learning- Definition Virtues
- 1.8. -Definition Civic Virtue-Duties and Rights
- 1.9. Respect for Others Attitude and values, opinions
- 1.10. changing attitude-beliefs-Reliability
- 1.11. Living Peacefully
- 1.12. Means to be adopted for leaving peacefully
- 1.13. Caring Sharing-Honesty
- 1.14. Valuing Time
- 1.15. Co-operation-Commitment
- 1.16. Empathy-Self-Confidence, Spirituality.

UNIT II: ENGINEERING ETHICS

- 2.1. Engineering ethics-Definition
- 2.2. -Approach-Senses of Engineering Ethics
- 2.3. -variety of moral issues
- 2.4. Inquiry-Types
- 2.5. -Moral dilemmas-Steps to solve dilemma-Moral autonomy
- 2.6. -Definition-consensus & controversy
- 2.7. -Profession-Definition
- 2.8. -Ethical theories-Theories about right action Personality
- 2.9. Self control- Self-interest -Self respect.

UNIT III: SAFETY, RESPONSIBILITIES OF ENGINEERS

- 3.1. Safety and risk-definition-
- 3.2. assessment of safety and risk
- 3.3. risk benefit analysis and reducing risk
- 3.4. –Personal risk-Public risk-Reducing risk-Voluntary Risk
- 3.5. -Collegiality and loyalty–AuthorityTypes
- 3.6. collective bargaining -occupational crime
- 3.7. –Responsibility of engineers–Types-Social responsibility
- 3.8. -Professional responsibility
- 3.9. -confidentiality-conflicts of interest-liability

2.

UNIT IV: ETHICAL ISSUES IN ENGINEERING PRACTICE

- 4.1. Ethical issues–Industrial standards-Environmental ethics
- 4.2. –Waste Disposal–Solid waste like: Leather shavings, fleshing
- 4.3. -Industrial waste disposal-Human centred environmental ethics-
- 4.4. Disposal in safe way like: Solid waste management methods
- 4.5. -Treatment and disposal of liquid waste in to streams
- 4.6. -Engineers as managers-Codes of ethics-Sample code of Ethics like -CLRI.

UNIT V: HUMAN RIGHTS

- 5.1. Human Rights-Definition
- 5.2. -constitutional provisions-right to life and liberty
- 5.3. -Human Rights of Women-Discrimination against women
- 5.4. - steps that are to be taken to eliminate discrimination against women in Education, employment, health care, Economic and social life, Women in rural areas- Status of Women in India
- 5.5. - Constitutional Safeguards - Dowry Prohibition act 1961
- 5.6. - Domestic violence act 2005- Sexual harassment at work place bill 2006
- 5.7. -Human Rights of Children- Who is a child- list the Rights of the Child- Right to education--Protection of Children from Sexual Offences Act(POCSO)-2012
- 5.8. - National Human Rights Commission- Constitution- Powers and function of the Commission
- 5.9. -Employee rights- Provisions made-Contractual-Non contractual employee rights-Whistle blowing-definition
- 5.10. -Aspects-Intellectual Property Rights (IPR)–Meaning-Need for protection- Briefly description of concept of patents, Copy right, Trade mark.

UNIT VI: INDIAN CONSTITUTION

- 6.1. Introduction to constitution of India
- 6.2. -Formation and Composition of the Constituent AssemblySalient features of the Constitution
- 6.3. -Preamble to the Indian Constitution Fundamental Rights
- 6.4. - Fundamental Duties-Directive principles of state policy.
- 6.5. Parliamentary system of governance- Structure of Parliament- Lokhasabha and Rajyasabha - Functions of parliament- Legislative ,Executive, Financial Function, Powers of Loksabha and Rajya Sabha- Procedure followed in parliament in making law
- 6.6. -Structure of union executive- Power and position of President, Vice President, Prime minister and council of ministers.
- 6.7. Structure of the judiciary: Jurisdiction and functions of Supreme Court, high court, and subordinate courts
- 6.8. Federalism in the Indian constitution, Division of Powers- Union list, State list and concurrent list,
- 6.9. Structure of state legislation, Legislative assembly and Legislative council, Functions of state legislature,

- 6.10. Structure of state executive-Powers and positions of Governor, ,Speaker, Deputy Speaker, Chief Minister and council of minister.
- 6.11. Local self government- meaning-Three tiers system-Village panchayath-Taluk panchayath Zilla panchayath
- 6.12. -Local bodies-Municipalities and Corporations, Bruhath mahanagara Palike. Functions of Election commission, UPSC, TSPSC.

SUGGESTED BOOKS FOR REFERENCE:

1. “Constitution of India, Professional Ethics and Human Rights” by Praveenkumar Mellalli
2. “Human Rights VSI (Very Short Introductions)” by Andrew Clapham
3. “Human Dignity, Human Rights, and Responsibility – The New Language of Global Bioethics and Biolaw (Basic Bioethics)” by Yechiel Michael Barilan
4. “Constitution of India and Professional Ethics” by Raja Ram
5. “Politics and Ethics of the Indian Constitution” by Bhargava and Rajeev
6. “Constitution of India and Professional Ethics” by G B Reddy and Mohd Suhaib
7. “Democratic Professionalism: Citizen Participation and the Reconstruction of Professional Ethics, Identity, and Practice” by Albert W Dzur
8. “Human Governance Beyond Earth (Space and Society)” by Charles S Cockell
9. “Ethics for Governance: Reinventing Public Services” by B P Mathur
10. “Political Ethics and European Constitution (Springer Briefs in Law)” by Paulo Ferreira da Cunha

Suggested Student Activities

1. Student visits Library to refer to Text books, reference books and manuals to find their specifications
2. Quiz
3. Group discussion
4. Seminar
5. Surprise test

E - learning links:

<https://iupac.org/>

<https://www.youtube.com>

<https://www.khanacademy.org/>

www.nptel.ac.in

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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)	
6	VI				11(a)	15(a)	
		11(b)			15(b)		
		7,8		10(b)	14(b)		
			12(a)	16(a)			
				12(b)	16(b)		
Total Questions		8		8	8		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

BOARD DIPLOMA EXAMINATION, (C-18)
MIDSEM – I
FIFTH SEMESTER EXAMINATION
PROFESSIONAL ETHICS & INDIAN CONSTITUTION

TIME: 1 Hour

TOTAL MARKS: 20

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART - A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.
The length of the answer shall not exceed 1/4 of page

1. Define the Term professionalism?
2. Define integrity?
3. What is meant by self interest?
4. Define human values?

PART- B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks.
The length of the answer shall not exceed 1 page

- 5 (a). write a note on concept of work ethics?
(OR)
(b). what is meant by cooperation and commitment?
- 6 (a). Outline the variety of moral issues?
(OR)
(b). Out line the concencess and controvercy?

PART-C

(2×5=10M)

Note: Answer the following questions. Each question carries **5** marks
The length of the answer shall not exceed 2 pages

- 7 (a). What is civic virtue? And Explain Duties and Rights?
(OR)
(b). Explain the Means to be adopted for living peacefully?
- 8 (a). Explain Different Types of inquiry?
(OR)
(b). Explain about the ethical theories?

BOARD DIPLOMA EXAMINATION, (C-18)
MIDSEM – II
FIFTH SEMESTER EXAMINATION
PROFESSIONAL ETHICS & INDIAN CONSTITUTION

TIME: 1 Hour

TOTAL MARKS: 20

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.
The length of the answer shall not exceed $\frac{1}{4}$ of page

1. Define risk?
2. What is meant by social responsibility?
3. Define environmental ethics?
4. Define a industrial waste?

PART- B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks.
The length of the answer shall not exceed **1** page

- 5 (a). How will you assess safety at work place?
(OR)
(b). Distinguish between a personal risk and public risk?
- 6 (a). Mention some of the industrial standards of ethics?
(OR)
(b). Write a note on sample code of ethics?

PART-C

(2x5=10M)

Note: Answer the following questions. Each question carries **5** marks
The length of the answer shall not exceed **2** pages

- 7 (a). Explain the the responsibility of engineers for society?
(OR)
(b). Explain the treatment and disposal of liquid waste in to streams?
- 8 (a). Explain the disposal of leather shavings and fleshings?
(OR)
(b). Explain some ethical issues in engineering practice?

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BOARD DIPLOMA EXAMINATION, (C-18) C-18LT-504E-B
END EXAMINATION
FIFTH SEMESTER EXAMINATION
PROFESSIONAL ETHICS & INDIAN CONSTITUTION

TIME: 2 Hour

TOTAL MARKS: 40

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A

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

8X1=08M

1. What is professional ethics?
2. Define voluntary risk?
3. Define human rights?
4. Who is the first citizen of india?
5. What is a fundamental right?
6. Who is a whistle blower?
7. Define federalism?
8. What is meant by local self govt?

PART – B

Instructions: 1. Answer the following questions.

4X3=12M

- 9(a). write a note on moral dilemmas?
(or)
9(b). Write a note on domestic violence act 2005?
- 10(a). explain engineers as managers of ethics?
(or)
10(b). write the functions of TSPSC?
- 11(a). Explain about the sexual harassment at work place bill 2006?
(or)
11(b). write the functions of National Human rights commission?
- 12(a). write salient features of constitution?
(or)
12(b). Explain the functions of Supreme Court of India?

PART – C

4X5 = 20M

Instructions: 1. Answer the following questions.
2. Each question carries **FIVE** marks.

- 13(a). Explain about the various actions of engineer leading to dis honesty?
(or)
13(b). Explain the human rights of women?
- 14(a). Explain about occupational crime?

(or)

14(b) Explain the Powers of Chief minister of a state?

15(a) Explain about the employee rights?

(or)

15(b). Explain the concept of patents and copy rights?

16(a). Explain the functions of parliament?

(or)

16(b). Explain the function of state assembly?

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Introductory Footwear Technology

Course Title :	Introductory Footwear Technology	Course Code	18LT-505A
Semester	I	Course Group	:Core
Teaching Scheme in pd(L:T:P)	40:20:0	Credits	: 3
Methodology	Lecture + Assignments	Total Contact periods	60Pds
CIE	60 %	SEE	40 %

Pre requisites

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

Course Outcomes

On Successful completion of the course the students will be able to attain CO:

Course outcomes		CL	Linked PO	Teaching Hrs
CO1	Explain the Need of foreign exchange to India, and the role of Footwear Industries as Foreign exchange earners and Footwear Industries impact on Indian economy	U	1,2	8.34
CO2	Operate hand tools Used in Footwear and Leather goods Manufacturing.	U/A	1,2,3,4	8.34
CO3	Describe Upper, Bottom	U/A	1,2,3	13.34

	Parts of the Footwear			
CO4	Distinguish 7 basic styles of Footwear	U/A	1,2	11.67
CO5	Measure Feet, Last, Convert one sizing system in to another sizing system.	U/A	2,3,4,5,8	8.34

Course Content

UNIT 1 - Historical review of the Footwear and Leather Goods industry and its influence on economy. Duration: 10 Periods(L6.0-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 Fabrication of Footwear and Leather goods.

Duration: 10 Periods(L6.0-T4.0)

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.

UNIT 3 –.UpperParts of Footwear

Duration: 8 Periods(L4.8-T3.2)

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.

UNIT 4 :Bottom parts of Footwear

Duration: 8 Periods(L4.8-T3.2)

Identification of Bottom components,- Insole, sole, toe puff, stiffener, shank, heel, bottom filler, welt, runner, middle sole, in sock,

UNIT 5 : Classification of Footwear

Duration: 14 Periods(L8.4-T5.6)

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

UNIT 6 : Introduction to Last, sizing system

Duration: 10 Periods(L6.0-T4.0)

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, Engineering applications of Unit 1, 2, 3, 4, 5

Historical review of the Footwear and Leather Goods industry and its influence on 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.

2.0 Tools and machinery used in Fabrication of Footwear and Leather goods.

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.
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.

2.3 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. Fore part 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.

3.0 Upper 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. Mudguard.
13. Facing.
14. Foxing.
15. Counter.
16. Quarter lining.
17. Vamp lining.
18. Counter lining (Heel grip)

4.0 Bottom parts of Footwear

4.1 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.

4.2 Identify and state the purpose of Reinforcements.

4.3 Explain what is Ornamentation.

5.0 **Classification of Footwear**

- 5.1 Distinguish open type footwear and closed type footwear.
- 5.2 Describe open type footwear with examples like chappal.
- 5.3 Describe closed type footwear with examples like shoe and Boot.
- 5.4 Classify footwear as Seven basic styles.
- 5.5 Describe oxford, derby styles.
- 5.6 Describe features and characteristics of Slip on, moccasins.
- 5.7 Describe features of Boot and court shoe.
- 5.8 Describe features of Chappal/Sandal.
- 5.9 Classify footwear based on method of bottom construction.
- 5.10 Explain following bottom construction methods.
 - 1. Direct stuck on construction.
 - 2. Veldtschoen construction.
 - 3. Welteed construction.
 - 4. Californian slip lasting construction.
 - 5. String lasting construction.
 - 6. Vulcanising construction.
 - 7. Injection Moulding P.V.C. construction.
 - 8. Injection Moulding P.U construction.

6.0 **Introduction to Last and sizing system**

- 6.1 Identify last as a mould for footwear manufacturing.
- 6.2 Classify Last based on material used .
- 6.3 Classify last based on method of Construction.
- 6.4 Explain Different types of Hinging and shortening the length of the last.
- 6.5 Describe different parts of last.
- 6.6 Explain the relationship between toe spring, heel pitch of the last.
- 6.7 Explain different last measurements.
- 6.8 Explain different foot measurements.
- 6.9 Distinguish Last and feet.
- 6.10 Explain English sizing system.
- 6.11 Explain American sizing system.
- 6.12 Explain European sizing system.
- 6.13 Explain Mondo point sizing system.
- 6.14 Convert one sizing system in to another sizing system.
- 6.15 Engineering applications of Unit 1, 2, 3, 4, 5

SUGGESTED LIST OF STUDENT ACTIVITIES

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Each student should do any one of the following type activity or any other similar activity related to the course and before conducting , get it approved from concerned Teacher and HOD.

1	Collection of different parts of Footwear and preparation of the report
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.

REFERENCES:

- 1) Manual of shoe making - Clarks.
- 2) Text book of Footwear manufacture - H.J.Thronton.
- 3) Introduction to the modern Footwear Technology - B. Venkatappaiah.
- 4) Lectures notes on Footwear Technology - SomanathGanguly. (Series of Articles in JILTA)

Suggested E-Learning references

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

CO-PO Mapping Matrix

Course outcomes		CL	Linked PO	Teaching Hrs
CO1	Explain the Need of foreign exchange to India, and the role of Footwear Industries as Foreign exchange earners and Footwear Industries impact on Indian economy	U	1,2	8.34
CO2	Operate hand tools Used in Footwear and Leather goods Manufacturing.	U/A	1,2,3,4	8.34
CO3	Describe Upper, Bottom Parts of the Footwear	U/A	1,2,3	13.34
CO4	Distinguish 7 basic styles of	U/A	1,2	11.67

	Footwear			
CO5	Measure Feet, Last, Convert one sizing system in to another sizing system.	U/A	2,3,4,5,8	8.34

CO/PO mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	✓	✓									1,2
CO2	✓	✓	✓	✓							1,2,3,4
CO3	✓	✓	✓								1,2,3
CO4	✓	✓									1,2
CO5		✓	✓	✓	✓			✓			2,3,4,5,8

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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)	
6	VI				11(a)	15(a)	
		11(b)			15(b)		
		10(b)		14(b)			
		7,8	12(a)	16(a)			
				12(b)	16(b)		
Total Questions		8		8	8		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

BOARD DIPLOMA EXAMINATIONS (C-18)
MID SEM-I
FIFTH SEMESTER EXAMINATION

Subject Name : **Introductory Footwear Technology**

Subject Code : 18LT-505A

[Time Duration : 1 Hour]

[Total marks :20]

PART-A

Answer ALL Questions and each question carries 01 marks

4 x 1= 4 marks

9. What is Foreign Exchange?.
10. Define Footwear.
11. Name the tools used for Cutting and Skiving operation.
12. Write the purpose of lasting Pincer.

PART-B

Answer any TWO Questions s and each question carries 03 marks

2 x 3 = 6 marks

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

(OR)

- b) Explain the need of special footwear used for sports.
 14. a) Identify various machines used in lasting and bottom making of footwear.
- (OR)
- b) Classify the sewing machines used in leather products manufacturing based on its shape of work bed..

PART-C

Answer any TWO Questions and each question carries 05 marks

2 x 5= 10 marks

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

(OR)

- b) Explain the functions of footwear.
16. a) Explain different tools required and how to fix eyelets by using them.

(OR)

- b) Explain purpose and how to use the following hand tools.
 - a) marking awl
 - b) Gootam
 - c) Rampi

d) Revolving punch

e) Stitching awl

BOARD DIPLOMA EXAMINATIONS (C-18)
MID SEM-II
FIFTH SEMESTER EXAMINATION

Subject Name : **Introductory Footwear Technology**

Subject Code : 18LT-505A

[Time Duration : 1 Hour]

[Total marks :20]

PART-A

Answer ALL Questions and each question carries 01 marks

4 x 1= 4 marks

1. Draw the neat sketch of shoe with toe cap and vamp.

2. What is Mud guard?
3. What is Mid sole?
4. Write the purpose of Shank.

PART-B

Answer any TWO Questions s and each question carries 03 marks

2 x 3 = 6 marks

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

(OR)

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

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

(OR)

- b) Classify the heels based on its shape.

PART-C

Answer any TWO Questions and each question carries 05 marks

2 x 5= 10 marks

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

(OR)

- 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)

- b) Explain how to reinforce the shoe at Toe and counter area.

18LT-505A

BOARD DIPLOMA EXAMINATION, (C-18)

Introductory Footwear Technology – V SEMESTER EXAMINATION

Introductory Footwear Technology

Time : 2 Hours]

[Total Marks: 40

PART-A

08X01=08M

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

9. Draw the neat sketch of Single piece Footwear.
10. Distinguish Tongue and Tab.

11. Draw the cross sectional diagram of Weltded construction Footwear.
12. What is Heel grip?
13. What is Open type Footwear?
14. Explain Moccasin Footwear Style.
15. Explain how to measure Fitting girth of the Last.
16. Draw the neat sketch of the last and identify Toe spring, Heel pitch.

PART-B

04X03=12M

- Instructions :**
1. Answer any **FOUR** questions.
 2. Each question carries **THREE** marks.
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) With suitable examples explain Closed type Footwear.
 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

04X5=20M

- Instructions :**
1. Answer any **FOUR** questions.
 2. Each question carries **FIVE** marks.
13. (a) Suggest the modification required to make orthopaedic shoe for a person having legs of different length so that the person will feel comfortable.
(or)
 13. (b) Explain how to make Veldtschoen 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 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 want to buy shoe in France he should ask for what size in Footwear shop in France.

Course Title : LEATHER AUXILIARIES	Course Code : 18LT-505E(B)
Semester : Semester V	Course Group : ELECTIVE
Teaching Scheme in Hrs(L:T:P) : 49:11:0	Credits : 3
Type of course : Lecture + Assignments	Total Contact Hours : 60 periods
CIE : 60 Marks	

LEATHER AUXILIARIES

	SEE : 40 Marks
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Rationale:

The objective of this course is to provide students with the necessary knowledge to understand and *He has to handle and use various leather auxiliaries in processing of leathers*

Prerequisite: Knowledge of Various leather manufacturing operation in Leather processing and chemicals used for it .

Course Outcome:

A student who has completed this Course will be able to:

CO 1: Differentiate between a Chemical and a Auxiliaries

CO2: *use the* water proofing agents at various stages in leather manufacture

CO3: Identify the syntans how it can be prepared and used in the Leather making

CO4 : Explain the Fatliquoring, Dyeing agents and its auxiliaries and the properties obtained by using it

CO5: Select and prepare the finishing season by using the ingredients

CO6: Select and prepare the solution for Top coat by using the ingredients

COURSE CONTENT:

1. Unhairing and bating agents

The chemicals used in liming and bating

2. Wetting agents and water proofing agents

Types of wetting agents, types of water proofing agents

3. Dyeing & Fat liquoring Auxiliaries

Oils and fats – Extraction – Fat liquoring preparations. Sulphation, sulphonation and sulphitation, synthetic fat liquors multi charge fat liquors, solvent fat liquors- Auxiliaries used in dyeing - Dye levelling agents, mordents, fixing agents

4. Retanning and Synthetic Tanning Agents

Vegetable tanning agents, synthetic tanning agents, other retanning agents.

5. Pigments,

Chemistry of organic and inorganic pigments preparation of pigment paste, properties of pigments difference between organic and inorganic pigments-

6 Binders & Lacquers

Binders - Protein – Binders, casein, shellac, albumins and linseed etc – Preparation and properties, advantages and disadvantages. Different types of plasticizers used in finishing - Resin binders - Preparation and properties – Advantages and disadvantages, polyurethane binders and vinyl resin binders- Lacquer - Lacquer Emulsions and Thinners - Production of N.C Lacquer, thinner formulations, lacquer emulsions, evaluation and quality control

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Specific Learning outcomes:

On completion of the course, the student will have ability to

1.0 Unhairing and bating agents

- 1.1 List the Chemicals used in unhairing and bating
- 1.2 Select the unhairing agents for different types of leathers
- 1.3 Select the bating agents for different types of leathers
- 1.4 Differentiate between acid and alkaline bates
- 1.5 Prepare unhairing agents
- 1.6 Prepare bating agents

2.0 Wetting agents and water proofing agents

- 2.1 Importance of wetting agents
- 2.2 Types of wetting agents
- 2.3 Properties of various wetting agents and their application
- 2.4 Importance of water proofing agents
- 2.5 Types of water proofing agents
- 2.6 Application of water proofing agents at various stages in leather manufacture

3.0 Retanning & Synthetic Tanning Agents

- 3.1 List of various vegetable tanning agents
- 3.2 List the Advantages and disadvantages of various vegetable tanning materials
- 3.3 Tell what is meant by Mixed syntans
- 3.4 Explain the Types of synthetic tanning agents and their utility to process different leathers
- 3.5 List the various mixed syntans
- 3.6 Tell the Chemical nature of mixed syntans
- 3.7 Explain the Application of mixed syntans
- 3.8 Tell the necessity of using Pure syntans
- 3.9 List the various pure syntans
- 3.10 Tell the Chemical nature of pure syntans
- 3.11 Explain the Application of pure syntans
- 3.12 Combination syntans

- 3.13 List some Combination syntans
- 3.14 Tell the Chemical nature of combination syntans
- 3.15 Explain the Application of combination syntans
- 3.16 Explain the Multifunction syntans and their application

4.0 Dyeing & Fat liquoring Auxiliaries

- 4.0 Tell what is meant by a Fat Liquoring Chemicals
- 4.1 Tell how the Extraction of natural oils and fats are done from various source
- 4.2 Classify oils and fat
- 4.3 Explain the Preparation of sulphated oil
- 4.4 Explain the Preparation of sulphonated oils
- 4.5 Explain the Preparation of sulphited oil
- 4.6 Explain the Preparation of synthatic oil
- 4.7 List some of the multicharged fat liquor
- 4.8 List some of the solvent fat liquor
- 4.9 Tell the Advantages and disadvantages of various fats liquors
- 4.10 Auxiliaries used in dyeing
- 4.11 List of dye levelling agent
- 4.12 List of mordants and their applicatio
- 4.13 List of dye fixing agents

5.0 Pigments,

5.0.0 Why Pigments are use in finishing

- 5.0.1 Tell the Chemical nature of inorganic pigment
- 5.0.2 Tell the Chemical nature of organic pigments
- 5.0.3 List Constituents present in the pigment pastes
- 5.0.4 Explain the Preparation of pigment pastes
- 5.0.5 Explain the Properties of pigments
- 5.0.6 List the Advantages and disadvantages of inorganic pigments
- 5.0.7 List the Advantages and disadvantages of organic pigments
- 5.0.8

6.1 Binders and Lacquers

- 6.1.1 Classification of binders
- 6.1.2 Preparation of casein binders its properties, uses and importance
- 6.1.3 Preparation of shellac, its properties uses and importanc
- 6.1.4 Preparation of albumin, its properties uses and importance
- 6.1.5 Preparation of linseed mucilage, its properties uses and importance
- 6.1.6 Monomers for acrylic binders
- 6.1.7 Preparation of resin binders, properties, uses and their application
- 6.1.8 Solvent plasticizers
- 6.1.9 Non-solvent plasticizers
- 6.1.10 Advantages and disadvantages of protein and resin binders
- 6.1.11 Preparation of polyurethane and vinyl resin binders, properties uses and their application

6.2 Lacquers, Lacquer emulsions and thinners

- 6.2.1 Preparation of N.C Lacquers
- 6.2.2 Ingredients of N.C Lacquers
- 6.2.3 Various diluents used in N.C lacquers
- 6.2.4 Names of various thinners used and their boiling points
- 6.2.5 Preparation of solvent soluble and water soluble lacquers
- 6.2.6 Advantages and disadvantages of solvent dilutable lacquers
- 6.2.7 Advantages and disadvantages of water dilutable lacquers
- 6.2.8 Reasons for moisture blushing

Suggested Student Activities

1. Student visits Library to refer to Text books, reference books and manuals to find their specifications
2. Student inspects the available chemicals in the tannery to familiarize with them.
3. Quiz
4. Group discussion
5. Seminar
6. Surprise test

REFERENCE BOOKS:

1. K.Venkata Raman – Chemistry of Synthetic Dyes – Academic Press – Newyork and London – 1971
2. A.David Solin and B.M.Miluid Sky Synthetic Detergents – Leonard Hill Book – London – 1967
3. R.R.Myers and J.S.Long Treatise and Coatings marcel Dekkar – Newyork – 1975
4. Alton. E. Bailey – Industrial Oil and Fat Products Inter Science Publishers in C.N.Y.1951

Suggested E - learning links:

<http://www.iltaonleather.org/jilta.html>

<https://www.clri.org/http://alcajournal.com/>

www.nptel.ac.in

CO PO Mapping Matrix

On Successful completion of the course, the student will be able to attain the following Course Outcomes (COs):

CO	Course outcome	CL	Linked PO	Teaching periods
CO1	Differentiate between a Chemical and a Auxiliaries	R/U/A	1,2,3,10	10
CO2	use the water proofing agents at various stages in leather manufacture	R/U	1,2,3,6	10
CO3	Identify the syntans how it can be prepared and used in the Leather making	R/U/A	1,2,3,10	8
CO4	Explain the Fatliquoring, Dyeing agents and its auxiliaries and the properties obtained by using it	R/U	1,2,5	12

CO5	Select and prepare the finishing season by using the ingredients	R/U/A	1,2,9	10
CO6	Select and prepare the solution for Top coat by using the ingredients	R/U/A	1,2,3	10
				60

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl 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)	
6	VI				11(a)	15(a)	
		7,8		10(b)	14(b)		
			12(a)	16(a)			
			12(b)	16(b)			
Total Questions		8		8	8		

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

BOARD DIPLOMA EXAMINATION, (C-18)
MIDSEM – I
FIFTH SEMESTER EXAMINATION
LEATHER AUXILIARIES

TIME: 1 Hour

TOTAL MARKS: 20M

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART - A

(4x1 = 4M)

Note: Answer **ALL** the questions. Each question carries **1** mark.
The length of the answer shall not exceed 1/4 of page

1. List the chemicals used in unhairing?
2. What is an auxiliary?
3. Write the importance of wetting agents?
4. Write some of the water proofing agents?

PART- B

(2 x 3 = 6M)

Note: Answer the following questions. Each question carries **3** marks.
The length of the answer shall not exceed 1 page

- 5 (a). Differentiate between an acid bate and alkali bate?
(OR)
(b). How will you select an unhairing agent for upper Leather?

- 6 (a). Outline the different types of wetting agents?
(OR)
(b). Classify waterproofing agents?

PART-C

(2x5=10M)

Note: Answer the following questions. Each question carries **5** marks
The length of the answer shall not exceed 2 pages

- 7 (a). List some of the chemicals and auxiliaries used in Leather manufacture?
(OR)
(b). Explain the preparation of bating agents?
- 8 (a). Explain the importance of water proofing agents?
(OR)
(b). Explain the application of the waterproofing agents at various stages of leather manufacture?

MIDSEM – II
FIFTH SEMESTER EXAMINATION
LEATHER AUXILIARIES

TIME: 1 Hour**TOTAL MARKS: 20**

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A**(4x1 = 4M)**

Note: Answer **ALL** the questions. Each question carries **1** mark.
The length of the answer shall not exceed $\frac{1}{4}$ of page

1. List some auxiliaries used in vegetable tanning?
2. Mention some of the combination syntans?
- 3.
4. Write some auxiliaries used in fatliquoring?
5. What is a dye leveling agent?

PART- B**(2 x 3 = 6M)**

Note: Answer the following questions. Each question carries **3** marks.
The length of the answer shall not exceed **1** page

- 5 (a). Write the advantages of wattle extract?

(OR)

- (b). Mention some of the mixed syntans?

- 6 (a). Explain the extraction of natural oils fats from various sources?

(OR)

- (b). Write advantages of solvent fatliquors?

PART-C**(2x5=10M)**

Note: Answer the following questions. Each question carries **5** marks
The length of the answer shall not exceed **2** pages

- 7 (a). Explain the application of mixed syntans?

(OR)

- (b). Explain the the types of syntans and their utility to process different Leathers?

- 8 (a). Explain various auxiliaries used in dyeing?

(OR)

- (b). Explain the preparation of sulphated oils?

*** **

C-18LT-505E-B

BOARD DIPLOMA EXAMINATION, (C-18)
END EXAMINATION
FIFTH SEMESTER EXAMINATION
LEATHER AUXILIARIES

TIME: 2 Hour

TOTAL MARKS: 40

Important Note: Wherever any question has choice, marks will be allotted only to first attempted question. **No marks will be allotted for extra questions answered**

PART – A

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

8X1=08

1. Name some of the leather auxiliaries?.
2. List some syntans used in Leather Manufacture?
3. Write the properties of pigments?
4. What is a casein Binder?
5. List some natural pigments?
6. Why pigment is used in finishing?
7. What is shellac?
8. Why top coat is necessary in finishing?

PART – B

- Instructions: 1. Answer the following questions.
2. Each question carries **THREE** marks.

4X3=12

- 9(a). Demonstrate the importance of wetting agents in leather manufacture?
(or)
9(b). Write tha advantages of the organic pigments?
- 10(a). Classify iols and fats?
(or)
10(b). Classify the binders?
- 11(a). List the constituents present in the pigment paste?
(or)
11(b). Outline the chemical nature of inorganic pigments?
- 12(a). write a note on solvent plasticizer?
(or)
12(b). Write the properties of acrylic resin binders?

PART – C

4X5 = 20

- Instructions:
1. Answer the following questions.
 2. Each question carries **FIVE** marks.

13(a). Explain the chemical and their auxiliaries used in Leather manufacture?
(or)

13(b). Explain the preparation of pigment paste?

14(a). Explain the preparation of protein binders?
(or)

14(b).. Explain the preparation of PUs And Vinyl resin binders?

15(a). How will you choose the good quality pigments?
(or)

15(b). Explain the Different ingredients used in the pigment preparation?

16(a). . Explain the advantages and disadvantages of protein and resin binders?
(or)

16(b). Describe the method of preparation of resin binders?

*** ** ***

ANALYTICAL CHEMISTRY LAB

Course Title : ANALYTICAL CHEMISTRY LAB	Course Code : 18LT- 506P
Semester : Semester V	Course Group : Core
Teaching Scheme in Hrs(L:T:P) : 15:0:30	Credits : 1.5
Type of course : Lecture+ Practical	Total Contact Hours : 45 periods
CIE : 60 Marks	SEE : 40 Marks

RATIONALE:

Leather processing involves use of several chemicals. Input chemical quality influences the quality of final leather. Practical knowledge of their analysis enables a student to utilize it in quality assessment

Pre requisites: Basic High school science and knowledge in Leather Technology

Course outcomes:

On successful completion of the course, the students will be able to

- CO1** Know the basic techniques of analysis.
- CO2** Select a suitable method for analysis
- CO3** Adopt suitable sampling procedure
- CO4** Explain the reaction scheme
- CO5** Explore the use of other methods
- CO6** Calculate the purity or a defined parameter of the product

LIST OF EXPERIMENTS

S. No.	List of experiments	No. of Periods
1.	Determination of water hardness-Temporary, Permanent and Total Hardness	03
2.	Determination of available lime and total bases in lime powder	03
3.	Determination of purity of sodium sulphide	03
4.	Determination of purity of NH_4Cl	03
5.	Analysis of pickle liquor for acid and salt contents	03
6.	Determination of purity of formaldehyde	03
7.	Analysis of chrome liquor	03
8.	Analysis of aluminum tan liquor by EDTA method	03
9.	Analysis of vegetable tannins [Demonstration only]	06

10.	Determination of acid value, saponification value and iodine value of oils	06
11.	Determination of BOD and COD	03
12.	Analysis of tanned leather	06
Total		45

The student will be given any one experiment from the above unit for 40 marks

References:

1. B.S malik – Practical Manual of Veterinary Bacteriology, Mycology and Virology – Tata McGrawhill Co.
2. F.W. Tanner, Practical Bacteriology, John Wiley.

Suggested E - learning links:

<http://www.iltanleather.org/jilta.html>

<https://www.clri.org/http://alcajournal.com/>

www.nptel.ac.in

Suggested Student Activities

1. Collect various sources of water and find hardness
2. Compare the various lime liquors and prepare a report
3. Collect different tanning agents and measure their pH.

MODEL QUESTION PAPER

BOARD DIPLOMA END-SEMESTER EXAMINATIONS (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY, H.S.DARGA, HYDERABAD

DLT –V -SEMESTER

18LT-506P – ANALYTICAL CHEMISTRY LAB

Duration:3 Hours

Maximum Marks: 40

Answer any One of the following Questions.

1. Analyse the given water sample by EDTA method for its hardness.
2. Determine the composition of pickle liquor for acid content and salt content.
3. Estimate the purity of sodium sulphide by using standard $ZnSO_4$ solution.
4. Estimate the available lime and total bases in a lime powder sample.

Determine the free acidity and purity of formaldehyde solution.

QUALITY CONTROL LAB

Course Title : QUALITY CONTROL LAB	Course Code : 18LT- 507P
Semester : Semester V	Course Group : Core
Teaching Scheme in Hrs(L:T:P) : 15:0:30	Credits : 1.5
Type of course : Lecture+ Practical	Total Contact Hours : 45 periods
CIE : 60 Marks	SEE : 40 Marks

Pre requisites

This course requires the Basic Knowledge of Physical properties of the Leather.

Rationale:

The course is designed to make student to perform various physical tests of leather to evaluate its quality.

Course outcomes

On successful completion of the course, the students will be able to attain below Course Outcome

CO1	Determine the Tensile strength of the leather by Performing Tensile strength test on leather.
CO2	Determine the Stitch tear strength of the of the leather by Performing Stitch tear strength test on leather.
CO3	Determine the Tongue tear strength of the leather by Performing Tongue tear strength test on leather.
CO4	Perform Lastometer test on the leather.
CO5	Determine the flex performance of the leather by Performing Flexural endurance test on the leather.
C06	Determine the quality of the leather finish by performing Dry rub and wet rub fast ness test on the leather.

Course Contents (Exercises)

1. Location of Sampling Position on given leather.

2. Tensile strength of leathers,
3. Stitch tear strength of the leather.
4. Tongue tear strength of the leather .
5. Lastometer test.
6. Dynamic water proofness test on upper leather.
7. Flexural endurance test on leather.
8. Dry rub fastness test on leather.
9. Wet rub fastness test on leather..

Specific Learning Outcomes

1. Location of Sampling position on given leather.
 - 1.1 Locater the sampling position for Physical testing on given leather.
 - 1.2 Locater the sampling position for Chemical analysis on given leather.
2. Tensile strength of leathers,
 - 2.1 Determine the Tensile strength of the leather by performing the test using Tensile tester.
 - 2.2 Determine the % of elongation at break of given leather by performing the test using Tensile tester.
3. Stitch tear strength of the leather.
 - 3.1 Determine the Stitch tear strength of the leather by performing the test using Tensile tester.
4. Tongues tear strength of the leather.
 - 4.1 Determine the Tongue tear strength of leather by performing the test using Tensile tester.
5. Lastometer test.
 - 5.1 Determine the following of given leather by performing the test using the lastometer.
 - a. Grain crack strength.
 - b. Distension at grain crack.
 - c. Grain bursting strength.
 - d. Distension at grain bursting.
6. Dynamic water proofness test on upper leather.
 - 6.1 Able to determine the following of given leather by performing dynamic water proofness test.
 - a. Penetration time.
 - b. Amount of water absorbed by the given leather.
 - c. Amount of water Transmitted by the Leather
7. Flexural endurance test on leather.

7.1 Able to perform Flexural endurance test on the given leather to evaluate the flex crack performance of the given leather.

8. Dry rub fastness test on leather.

8.1 Able to perform Dry rub fastness test on given leather to evaluate its quality.

9. Wet rub fastness test on leather..

9.1 Able to perform Wet rub fastness test on given leather to evaluate the quality.

REFERENCES

1. Work manual for Testing of Footwear - SATRA,U.K.
2. Work manual for Quality Checking Points in shoe manufacturing - Bally International & CLE Publications.
3. Physical Testing of Leather - S.S. Datta
4. ISI Standard book on Leather Testing
5. Lecturer Notes - IqbalHussain, APGILT

E Learning Resources

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

Suggested Student Activities

- 1.Performing Tensile strength test on synthetic material.
2. Performing Stitch tear strength test on synthetic material.
- 3.Performing Tongue tear strength test on given material

CO/PO Mapping

Course Outcome		Linked Exercises	CL	Linked PO	Teaching Hours
CO1	Determine the Tensile strength of the leather by Performing Tensile strength test on leather.	2	U/A	3,4,9,10	6
CO2	Determine the Stitch tear strength of the leather by Performing Stitch tear strength test on leather.	3	U/A	3,4,9,10	6
CO3	Determine the Tongue tear strength of the leather by Performing Tongue tear strength test on leather.	4	U/A	3,4,9,10	6
CO4	Perform Lastometer test on the leather.	5	U/A	3,4,9,10	6
CO5	Determine the flex performance of the leather by Performing Flexural endurance test on the leather.	7	U/A	3,4,9,10	6
CO6	Determine the quality of the leather finish by performing Dry rub and wet rub fast ness test on the leather.	8.9	U/A	3,4,9,10	9

MODEL QUESTION PAPER

BOARD DIPLOMA END-SEMESTER EXAMINATIONS (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY, H.S.DARGA, HYDERABAD

DLT –V -SEMESTER

18LT-507P- QUALITY CONTROL LAB

Duration:3 Hours

Maximum Marks: 40

Answer any One of the following Questions.

- Determine the tensile strength, elongation at break of given leather using tensile tester.
- Determine the Grain crack strength and grain busting strength using lasto meter.
- Determine the Flexual endurance of leather using FE tester.
- Determine the dry rub fastness of given leather.
- Determine the Wet rub fastness of given leather.

LEATHER FINISHING LAB

Scheme	:	C - 18
Course Title	:	Leather finishing lab
Semester	:	V
Course Code	:	18LT-508P
Periods per week	:	03
Total periods per semester	:	45

Pre requisites: pre-tanning of leathers practice, post -tanning of leathers practice

Course outcomes:

At the end of the course the student will have the ability to

CO 1: Demonstrate selection of suitable crust for doing required type of finish

CO 2: Experiment with finishing of different leathers like upper leather, lining leather and garment leather

CO 3: Differentiate the physio- chemical changes that take place in finishing and list the chemicals discharged in to the environment

CO 4: List the different proprietary finishing chemicals available in the market

Course contents

- 1.0 Protein Finishing of buff calf upper leather
- 2.0 Protein Finishing of goat upper leather
- 3.0 Full grain resin finishing of cow upper leather
- 4.0 Corrected grain resin finishing of cow upper leather
- 5.0 Two tone finishing by rubbing method
- 6.0 Two tone finishing by spraying method
- 7.0 Two tone finishing by snuffing method
- 8.0 Metallic finishing of goat nappa leather
- 9.0 Metallic finishing of cow upper leather
- 10.0 Finishing Split leather with foils
- 11.0 Finishing Split leather by resin finish
- 12.0 Plating of different finished leather
- 13.0 Glazing of protein finished leather
- 14.0 Measuring of different finished leather

Specific learning outcomes

OBJECTIVES:

Upon the completion of study of this subject the student will be able to do finishing of different leathers like upper leather, lining leather and garment leather

Leather finishing lab		
Name of the Experiment	competencies	Key Competencies

1.0	Protein Finishing of buffalo upper leather	• To prepare the season for protein finish • To measure the quantities • Protein binder • Wax emulsion • I P A • Ammonia • Fixing with formaldehyde	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The ratios of binder to pigment
2.0	Protein Finishing of goat upper leather	• To prepare the season for protein finish • To measure the quantities • Protein binder • Wax emulsion • I P A • Ammonia • Fixing with formaldehyde	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The ratios of binder to pigment
	3) Full grain resin finishing of cow upper leather	• To prepare the season for resin finish • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia • Top coat with N.C Lacquer emulsion	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The ratios of binder to pigment
	4) Corrected grain resin finishing of cow upper leather	• Snuffing the grain • To prepare the season for resin finish • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia • Top coat with N.C Lacquer emulsion	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The ratios of binder to pigment

5) Two tone finishing by rubbing method	• To prepare the season for two tone finish • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia • Uneven rubbing to develop two tone finish	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The application of pullup oil
6) Two tone finishing by spraying method	• To prepare the season for two tone finish • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia • Uneven spraying to develop two tone finish	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders
7) Two tone finishing by snuffing method	• To prepare the season for two tone finish • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia • Uneven snuffing to develop two tone finish	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The ratios of binder to pigment
8) Metallic finishing of goat nappa leather	• To prepare the season for Metallic finish • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The ratios of binder to pigment ❖ plating operation
9) Metallic finishing of cow upper leather	• To prepare the season for Metallic finishing • To measure the quantities • Protein binder • Resin binder • Wax emulsion • I P A • Ammonia	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The quantity of pigment used

10) Finishing Split leather with foils	- To prepare the adhesive coat - Attaching foil to leather - Pressing with hydraulic press	❖ Knowledge of binder ❖ The types of foils ❖ plating operation
11) Finishing Split leather by resin finish	- To prepare the season for split leather finish - To measure the quantities - Protein binder - Resin binder - Wax emulsion - I P A - Ammonia	❖ Knowledge of various ingredients ❖ Mixing proportion ❖ The order of mixing ❖ Make up to one litre ❖ Filtration ❖ Colour matching ❖ The quantities of different binders ❖ The quantity of pigment used
12) Plating of different finished leather	- Knowledge of plating machine - Controls in plating like temperature and pressure - Properties of leather after plating	❖ Plating machine control adjustment ❖ Type of plate fixed in hydraulic press ❖ plating the leather
13) Glazing of protein finished leather	- Knowledge of glazing machine - Controls in glazing machine like height and pressure - Properties of leather after glazing	❖ glazing machine control adjustment ❖ glazing the leather
14) Measuring of different finished leather	- Knowledge of measuring machine - Controls in measuring machine	❖ Knowledge of various measuring machine ❖ Measure the area of leather

References:

1. Practical Leather Technology – J H .Sharpouse
2. C L R I publications

CO and PO Mapping

CO	PO1	PO2	PO 3	PO 4	PO5	PO6	PO7	PO8	PO9	PO10	MAPPING OF POs WITH CO
CO 1	1	2	3		-	-	-	-	-	-	1,2,3,
CO 2	2	2	3	3	-	-	-	-	-	-	2,3,4,6
CO 3	2	2	-	-	-	2	-		-	-	1,2,6
CO 4	3	3	3	-	-	-	-	3	-	-	1,2,8,10

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

MODEL QUESTION PAPER

BOARD DIPLOMA END-SEMESTER EXAMINATIONS (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY, H.S.DARGA, HYDERABAD

DLT –V -SEMESTER

18LT-508P- LEATHER FINISHING LAB

Duration:3 Hours

Maximum Marks: 40

Answer any One of the following Questions.

Do the given experiment as per allotted to you from the given WETBLUE/EI / crust Leather

- 1.0 Protein Finishing of buff calf upper leather
- 2.0 Protein Finishing of goat upper leather
- 3.0 Full grain resin finishing of cow upper leather
- 4.0 Corrected grain resin finishing of cow upper leather
- 5.0 Two tone finishing by rubbing method
- 6.0 Two tone finishing by spraying method
- 7.0 Two tone finishing by snuffing method
- 8.0 Metallic finishing of goat nappa leather
- 9.0 Metallic finishing of cow upper leather
- 10.0 Finishing Split leather with foils
- 11.0 Finishing Split leather by resin finish
- 12.0 Plating of different finished leather
- 13.0 Glazing of protein finished leather
- 14.0 Measuring of different finished leather

PROGRAMMING IN 'C' LAB PRACTICE

Course Title :	Programming in 'C' lab Practice	Course Code	18LT-509P
Semester	V	Course Group	Core
Teaching Scheme in Periods(L:T:P)	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Hours :	45Pds
CIE	60 Marks	SEE	40 Marks

Pre requisites

Knowledge of Computer Operation.

Course outcomes

Course Outcome

CO1	Write programs using input/output statements, variables and operators
CO2	Demonstrate decision making, branching and loop statements
CO3	Construct programs on arrays and strings
CO4	Develop programs using functions, structures and unions

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

List of Programmes:

1. Input/output statements, variables and operators

1. Exercise on structure of C program
2. Exercise on Keywords and identifiers
3. Exercise on constants and variables
4. Execution of simple C program
5. Exercise on operators and expressions
6. Exercise on special operators
7. Exercise on input and output of characters
8. Exercise on formatted input and output

2. Decision making, branching and loop statements

1. Exercise on simple if statement
- 2.. Exercise on if..else statement
- 3.. Exercise on else..if ladder statement
4. Exercise on switch statement
5. Exercise on conditional operator
6. Exercise on while statement
7. Exercise on for statement
8. Exercise on do...while statement

3. Arrays and strings

1. Exercise on one dimensional arrays
2. Exercise on two dimensional arrays
3. Exercise on strings

4.Functions, Structures and Unions

1. Exercise on user-defined function
2. Exercise on recursion
3. Exercise on structure
4. Exercise on array of structures

REFERENCE BOOKS

1. Let Us C -- Yeshwanth Kanetkar BPB Publications
2. Programming in ANSI C -- E. Balaguruswamy Tata McGrawHill
3. C The complete Reference -- Schildt Tata McGraw Hill

E-learning links

1. <http://www.tutorialspoint.com/cprogramming/>
2. http://www.indiabix.com/online-test/c-programming_Test/
3. <https://fresh2refresh.com/c-programming/>
4. <http://www.learn-c.org/>
5. <https://www.javatpoint.com/c-programming-language-tutorial>
6. <https://www.cprogramming.com/tutorial/c-tutorial.html>

CO-PO Mapping Matrix

Course Outcome		CL	Linked PO	Teaching periods
CO1	Write programs using input/output statements, variables and operators	R, U, A	1,2,3,4,8,9,10	5
CO2	Demonstrate decision making, branching and loop statements	R, U, A	1,2,3,4,8,9,10	15
CO3	Construct programs on arrays and strings	R,U, A	1,2,3,4,8,9,10	10
CO4	Develop programs using functions, structures and unions	U, A	1,2,3,4,8,9,10	15
CO5	Write programs using input/output statements, variables and operators	R, U, A	1,2,3,4,8,9,10	5
Total Sessions				45

MODEL QUESTION PAPER

BOARD DIPLOMA END-SEMESTER EXAMINATIONS (C-18)

GOVERNMENT INSTITUTE OF LEATHER TECHNOLOGY, H.S.DARGA, HYDERABAD

DLT –V -SEMESTER

18LT-509P- PROGRAMMING IN C LAB

Duration:3 Hours

Maximum Marks: 40

Answer any One of the following Questions.

1. Write programs using variables and operators
2. Demonstrate decision making, branching and loop statements

3. Construct programs on arrays and strings
4. Develop programs using functions, structures and unions
5. Write programs using input/output statements,

SCHEME OF INSTRUCTIONS AND EXAMINATION

18LT-510P-MINOR PROJECT

V SEMESTER

S. No	Subject	Duration	Items	Max Marks	Remarks
1	MINI PROJECT	6 Months	1. Mini project I spell (Abstract submission)	25	
			2. Mini project II spell (Final submission)	25	
			3) Record of work Done	30	
			4.a) Seminar	10	
			b) Viva Voce	10	
Total :				100	

The Mini Project shall carry 100 marks and pass marks is 50% a candidate failing to secure the minimum marks should repeat the Project work.

STUDENT ACTIVITIES

Suggested Student Activities for 18LT-501C

Student activity like mini-project, surveys, quizzes, case studies etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned Course coordinator and Program Coordinator
2. Each group should conduct different activity and no repeating should occur.

1. Preparing charts on organization structure of different Industries/companies/organizations.
2. Preparing charts on departments of large scale Industries/companies/organizations.
3. Case studies on motivation, decision making.
4. Draw PERT and CPM networks.
5. Analyse material flow of an Industry/organization/company/institution.
6. Conduct market study on different products
7. Conduct marketing strategy by different companies for similar type of product.
8. Prepare a feasibility report on setting up an Industry at a selected location.
9. Case study on industrial dispute or on industrial hazard.
10. Case study on Entrepreneurs like Ola, Flipkart, Redbus, snapdeal, hike, zomato etc.
11. Group Discussion on T-Hub, TS-IPASS, Skill Development programmes

Suggested Student Activities for 18LT-502C

1. Collect the water samples from different sources and compare their physical properties and hardness and submit a report. **(PO- 8)**
2. Visit nearby school and explain the students about leather processing and how the pelt converts to different colourful leather goods. Submit a report with photos. **(PO-5)**
3. Categorise the tanning agents. Collect the data from internet about the impact of these chemicals in water pollution Submit a report with alternative measures. **(PO- 6)**
4. Give a seminar presentation on ISO-9000 and BIS their characteristics and functions. **(PO- 7,9)**
5. Quiz on a given topic. **(PO-1, 8)**
6. Collect different tanned leather samples and test for their static and dynamic waater proof capacity. **(PO- 8)**
7. Visit the nearby industry and prepare a report about the merits you observed by implementing ISO-9000 and any other certification. **(PO- 10)**
8. Prepare graphical power point presentation on sampling locations. **(PO- 9)**

Suggested Student Activities for 18LT-503C

Dyeing and finishing

ACTIVITIES:

- 1) Collect different dyes classify them as per usage and prepare a chart with their characteristics—P8
- 2) List different processing defects in upper leather. Observe the different defects present in it. Submit a record with necessary photos—P8
- 3) Discuss in a group about the job prospects in leather industry and give a presentation with necessary documents-P8, P9
- 4) Collect different glazed upper leather samples and prepare a chart with their characteristics—P8
- 5) Survey on different raw material prices for making upper leathers and submit a report—P8, P10
- 6) Visit a nearby tannery and prepare a flow chart about the finishing of lining leather with necessary photos of machinery and chemicals –
- 7) Visit a nearby tannery making wet blue and prepare a flow chart about the processing of effluents discharged into the environment—P5, P6, P8
- 8) Give a seminar presentation on purpose of preferring protein finished leathers over Resin finished leathers by using power point presentation—P8
- 9) Give a seminar presentation on two tone finishes by using power point presentation—P8.
- 10) Collect literature of different fat liquors and submit a comparison report—P8
- 11) Collect from journals the recent finishing techniques adopted in tanneries to make upper and garment leathers and submit a report—P8, P10
- 12) Prepare a chart about the menace of traffic congestion in Hyderabad city- P7, P8

Suggested Student Activities for 18LT-504E-A

1. Collect price quotations from different Leather chemicals, raw hides and skins vendors.
2. Collect GST rates information related to all Leather chemicals and finished Leathers.
3. Prepare feasibility report for setting up of small Leather processing unit (Raw to wet blue)
4. Collect Profit & loss account statement for the past two years of any organisation and infer the results.

Suggested Student Activities for 18LT-504E-B

- 1) Give a seminar presentation on PROFESSIONAL ETHICS by using power point presentation—P8.
- 2) Collect literature of different laws on traffic rules and submit a comparison report—P8
- 3) Collect from journals the recent women protection act and submit a report—P8, P10
- 4) Prepare a chart about the steps to reduce global warming- P7, P8
- 5.) How will you solve the mosquito menace in your locality? Act as you are a panchayat president?

Suggested Student Activities for 18LT-505E-A

1. Perform a seminar on different footwear p9
2. Collection of different parts of Footwear and preparation of the report P2
3. Collection of Basic styles of Footwear and preparing the report. P3
4. Survey of Feet, shoe sizes, girth of different people from the Society, and prepare the report. P5
5. Student visits near by industry to see the hand tools used by them. P4
6. Collect different open type footwear sketches. P5

LEATHER AUXILIARIES 18 LT-505B ACTIVITIES:

- 1) Collect the literature of dyeing auxiliary of a particular firm and prepare a chart with their characteristics—P8
- 2) List different leather auxiliaries used in making upper leather and Submit a record with their function —P8
- 3) Discuss in a group about the higher education prospects in leather field and give a presentation with necessary documents-P8, P9
- 4) Collect different samples of binders obtained from industry and prepare a chart with their characteristics—P8
- 5) Survey on different auxiliary chemical prices for making upper leathers and submit a report—P8, P10
- 6) Give a seminar presentation on purpose of preferring auxiliary over regular chemical by using power point presentation—P8

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	RUBRICS FOR ACTIVITY - (VISIT) PO-08					
Dimension	Exemplary	Good	Satisfactory	Developing	Unsatisfactory	REMARKS
	5	4	3	2	1	
Attitude towards visit	Very eager about the about	Showing very much interest when opportunity comes	Showing interest under compulsion	Showing less interest	Reluctant	
Observation at the visit place	Very enthusiastic to know new things	Shows interest on existing things	Observation with less interaction	Observation without interaction	Not observing any thing	
Interaction with new persons at the visit place	Easily mingle and make friendship	Easily mingle	Less mingle	Reserved in nature	Not at all mingle	
Presentation about the visit	Excellent report with good presentation	Good report with fair presentation	Satisfactory report with fair presentation	Sufficient report with poor presentation	Insufficient report and not in order	

	RUBRICS FOR ACTIVITY - (Collection) Individual & Team work, Life long learning P-08,P-10					
Dimension	Exemplary	Good	Satisfactory	Developing	Unsatisfactory	
	5	4	3	2	1	
Subject/ Topic coordination	Concept linked to topic with advanced knowledge	Concept linked to topic with little knowledge	Concept linked to topic only	Concept not linked and not clear	Not at all linked with topic	

Sources used for the topic	Different sources with latest information	Different sources with sufficient information	Single source with limited information	Reproduced matter	Copied from others	
Quality and Quantity of the material /model /sample	Excellent in quality with enough quantity	Good quality with enough quantity	Appreciable in quality and quantity	Insufficient in quality and quantity	Irrelevant to the assigned topic/ Not submitted	
<u>Presentation</u> <u>ORAL/DOCUMENT</u>	Highly receptive/ Highly Exemplary	Receptive/ Exemplary	Moderately receptive/ Moderate	Mediocre/ Not in orientation	Non receptive Abstract/ Distorted	
	RUBRICS FOR SEMINAR / INDIVIDUAL PRESENTATION P-08,09					
Dimension	Exemplary	Good	Satisfactory	Developing	Unsatisfactory	
	5	4	3	2	1	
Personal Disposition	Poise	Disposition	Stance	Gait	Un pleasant	
Diction	vocabulary	continuous	confident	Lipsing	gibberish	
content	Thought Provoking	Alacrity	placid	Good	Insufficient inputs	
Interaction	Profound Reply	Ability to satisfy	Ability to respond	Misleading	evading	

	RUBRICS FOR GROUP DISCUSSION P-08,P-09,P-10					
Dimension	Exemplary	Good	Satisfactory	Developing	Unsatisfactory	
	5	4	3	2	1	
Participation towards the Topic	Initiative & Extempo	Contradictory	Pro initiative	Passive	Non inclined	
Dessimation of information	Updated presentation	Chronological	Only established facts	Misinterpretation of Facts	Distorted Dessimation	
Presence of mind	Focussed	Confident	Wavered	Confused	Vague	
Summation	Trouble shooter	Balanced	Convincing	In coherent	Mute spectator	

	RUBRICS FOR Group Discussion/seminar PO-05 & PO-06 ENVIRONMENT & SOCIETY					
Dimension	Exemplary	Good	Satisfactory	Developing	Unsatisfactory	
	5	4	3	2	1	
Awareness about the environment	Compassion	Concern	Responsibility	Compulsive	Irresponsible	
Concern towards the environment	Eco friendly	Close to nature	Recycle	Ignorant	Negligent	
Implementation	Penchant(craving)	Involvement	Commitment	No self motivation	Disinterested	
sustainability	Innovative	Incorporative	Practicing	Non reliable	irresponsible	