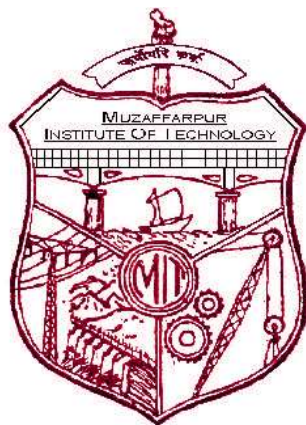


MIT MUZAFFARPUR



COURSE FILE OF Analytical Chemistry of Leather (071509)



Faculty Name:

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TECHNOLOGY**



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Department of Science and Technology
Government of Bihar

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VISION STATEMENT

- To emerge as a national leader in graduate level studies in all sub areas of leather field and to make significant contribution to the development of the society, industry, nation and the world.

MISSION STATEMENT

- Educate leather technology students to produce quality engineers who serve leading firms and different sectors of the industry and can work in multi-disciplinary environment to anticipate and address evolving challenges of the 21st century in tanning and footwear industry.
- Impart high performance knowledge in leather and footwear sector that are economic and environment friendly.
- To establish national leadership and provide technological support to the Indian leather industry.
- Improve fundamental knowledge of inter relationship between the built environment and natural systems.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

After successful completion of program, graduates will be able to

PEO1: Work in the Leather and chemical and footwear field.

PEO2: Pursue higher studies.

PEO3: Contribute in teaching, research and other developmental activities of Leather technology and its allied fields.

PEO4: Work in the multicultural and multidisciplinary groups for the sustainable development and growth of leather industry projects and profession.

PROGRAMME OUTCOMES (PO):

Students who complete the B.E. degree in leather technology will be able to:

1. An ability to apply knowledge of mathematics, science, and engineering,
2. The ability to conduct laboratory experiments and to critically analyze and interpret experimental data.
3. The ability to perform design in leather by means of design experiences integrated throughout the professional component of the curriculum.
4. An ability to function on teams, that must integrate contributions from different areas of leather technology towards the solution of multi-disciplinary projects.
5. An ability to identify, formulate, and solve Leather industries problems.
6. An understanding of professional practice issues in leather technology including professional and ethical responsibility.
7. An ability to write and speak effectively.
8. The broad education necessary to understand the impact of leather fields solutions in a global and societal context.
9. A recognition of the need for, and an ability to engage in life-long learning,
10. An ability to use the techniques, skills, and modern tools necessary for leather technology practices.
11. Possess a thorough understanding of techniques that are appropriate to environment and country.
12. Possess ability to estimate costs, estimate quantities and evaluate materials for leather manufacturing.

COURSE OBJECTIVE AND COURSE OUTCOMES:

Institute / College Name :	MUZAFFARPUR INSTITUTE OF TECHNOLOGY		
Program Name	B. Tech. Leather Technology		
COURSE CODE	0715		
COURSE NAME	ANALYTICAL CHEMISTRY OF LEATHER		
Lecture / Tutorial / Practical (per week):	3 – 0- 3	Course Credits	5
Course Coordinator Name	ARATI KUMARI		

Course objective:

The objective of this course is to have a clear concept to check the purity of leather chemicals. Also the objective of this course is to know the concentration and hence the quantity of the

different chemicals which are present in fresh and used processing liquors and also in pelt, wet blue, finished leather etc.

Course Outcomes (CO):

CO1: Became able to know the purity of different leather chemicals by method of titration. .

CO2: Became able to know the quantity of the ingredients which are present in waste water.

CO3: Became able to formulate a recipe for a new product while working in various research organizations such as CLRI etc.

CO4: Became able to model mathematically and analyze the alternative method of tanning such as eco- friendly tanning etc. Also it is helpful in presenting their papers in leather magazines and journals.

MAPPING OF COs AND POs

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	✓		✓	✓			✓				✓
CO2	✓	✓		✓	✓	✓		✓	✓		✓	
CO3	✓	✓		✓	✓			✓	✓	✓		✓
CO4	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓

Correlation level: 1- slight (Low) 2- moderate (Medium) 3-substantial (High)

COURSE SYLLABUS:

Topic No.	Topic	No. of Lecture	Weightage (%)
1.	Analysis of lime	3	5
	Principles underlying determination of following in lime :- a) Available lime b) Total bases by titration method c)Iron by colorimetric method		
2.	Analysis of Na₂S	2	5
	Principles underlying analysis of Na ₂ S by official international method		

3.	Analysis of lime liquors (Fresh & Used)	3	10
	Principles underlying determination of following in lime liquor :- a) Total Alkalinity b) Total lime c) Total nitrogen d) Hide substance e) Amino-acids		
4.	Analysis of limed pelt	3	5
	Principles underlying determination of following in limed pelt:- a) Total Alkalinity b) Total Ammonia c) Hide substance		

5.	Analysis of Boric acid	1	5
6.	Analysis of deliming agent (Amm. Chloride and Amm. sulphate)	1	5
7.	Analysis of Enzyme bates	2	5
8.	Analysis of used pickle liquors for following:	2	5
	a) Determination of acid b) Determination of salt		
9.	Analysis of sodium formate	1	3
10.	Analysis of used chrome liquor to determine:	4	10
	a) Basic Chromium b) Basicity of chrome liquor c) Degree of Olation		
11.	Analysis of basic chrome sulphate for following:	2	5
	a) Moisture b) Chromium		
12.	Analysis of acids & salts in vegetable tannin extracts by different methods	2	3
13.	Analysis of zirconium and aluminium tanning agents, analysis of formaldehyde	2	1
14.	Analysis of chrome tanned leather for following:	3	6
	Moisture, ash, chromic oxide content, solvent extractable substances, water soluble matter and difference figure		
15.	Analysis of veg. tanned leather for following:	3	3
	Moisture, ash, water soluble matter, solvent extractable substances and difference figure, Degree of tannage		

16.	Analysis of alum. tanned leather for following:	1	1
	Moisture, Total ash, water solvent extractable substances, Aluminium as alumina		
17.	Analysis of Zirconium tanned leather for following:	1	1
	Moisture, ash, solvent extractable substances, zirconium content		
18.	Analysis of combined tanned leather for following:	3	5
	Moisture, ash, chromic oxide content, solvent extractable substances, water soluble matter and difference figure, Degree of tannage		
19.	Analytical Chemistry of Post-tanning and Finishing agent	8	17
1.	Analysis of lipids for following:		
	a) Acid value b) saponification value by reflux method c) iodine value by Hanus method d) unsaponifiables by extraction method e) Analysis of sulfated oils and ready made fatliquors.		
2.	Principles underlying examination and analysis of dyes used in leather manufacture		
3.	Principles underlying examination and analysis of readymade finishes and finishing materials used in leather manufacture		
	Total no. of lectures	47	100%

MUZAFFARPUR INSTITUTE OF TECHNOLOGY
B.Tech. 5th Semester (2016 Batch) PROVISIONAL TIME TABLE WITH EFFECT
FROM 10.07.2018

5 th SEMESTER Leather technology					ROOM NO. LB-1			
	9:00 - 10:00	10:00 - 11:00	11:00 – 12:00	12:00 – 1: 00	1:00 – 2:00	2:00- 3:00	3:00 - 4:00	4:00 – 5:00
MON					R E C E S S			
TUES		ACOL(AK)						
WED			ACOL(AK)					
THUR						ACOL LAB (AK)		
FRI								
SAT	ACOL(AK)			ACOL(AK)				
FACULTY NAME: AK: ARATI KUMARI PAPER NAME: ACOL: ANALYTICAL CHEMISTRY OF LEATHER								

STUDENTS LIST:

Sl. No.	College Roll No.	AKU Reg. No.	Name
1	16LT08	16107107001	ARCHANA KUMARI
2	16LT20	16107107003	RAVINDRA RAM
3	16LT15	16107107004	SURBHI SAURAV
4	16LT11	16107107005	AMAN SHRIVASTAVA
5	16LT05	16107107007	VIKASH KUMAR
6	16LT19	16107107008	DEEPSHI
7	16LT16	16107107009	RAKESH KUMAR SAH
8	16LT14	16107107010	RAKESH KUMAR
9	16LT17	16107107011	KRITIKA VAGMI

Text Books:

TB1: ANALYTICAL CHEMISTRY OF LEATHER BY P. K. SARKAR

COURSE PLAN

Topic No.	Topic	No. of Lecture/ lecture no.	Text book
1.	Analysis of lime	3	TB1
	Principles underlying determination of following in lime :- a) Available lime b) Total bases by titration method c) Iron by colorimetric method	1-3	
2.	Analysis of Na₂S	2	TB1
	Principles underlying analysis of Na ₂ S by official international method	4-5	
3.	Analysis of lime liquors (Fresh & Used)	3	TB1
	Principles underlying determination of following in lime liquor :- a) Total Alkalinity b) Total lime c) Total nitrogen d) Hide substance e) Amino-acids	6-8	
4.	Analysis of limed pelt	3	TB1
	Principles underlying determination of following in limed pelt:- a) Total Alkalinity b) Total Ammonia c) Hide substance	9-11	

5.	Analysis of Boric acid	1(12)	TB1
6.	Analysis of deliming agent (Amm. Chloride and Amm. sulphate)	1(13)	TB1
7.	Analysis of Enzyme bates	2(14-15)	TB1
8.	Analysis of used pickle liquors for following:	2	TB1
	a) Determination of acid b) Determination of salt	16-17	

9.	Analysis of sodium formate	1(18)	TB1
10.	Analysis of used chrome liquor to determine:	4	TB1
	b) Basic Chromium b) Basicity of chrome liquor c) Degree of Olation	19-22	
11.	Analysis of basic chrome sulphate for following:	2	TB1
	b) Moisture b) Chromium	23-24	
12.	Analysis of acids & salts in vegetable tannin extracts by different methods	2(25-26)	TB1
13.	Analysis of zirconium and aluminium tanning agents, analysis of formaldehyde	2(27-28)	TB1
14.	Analysis of chrome tanned leather for following:	3	TB1
	Moisture, ash, chromic oxide content, solvent extractable substances, water soluble matter and difference figure	29-31	
15.	Analysis of veg. tanned leather for following:	3	TB1
	Moisture, ash, water soluble matter, solvent extractable substances and difference figure, Degree of tannage	32-34	
16.	Analysis of alum. tanned leather for following:	1	TB1
	Moisture, Total ash, water solvent extractable substances, Aluminium as alumina	35	
17.	Analysis of Zirconium tanned leather for following:	1	TB1
	Moisture, ash, solvent extractable substances, zirconium content	36	
18.	Analysis of combined tanned leather for following:	3	TB1
	Moisture, ash, chromic oxide content, solvent extractable substances, water soluble matter and difference figure, Degree of tannage	37-39	
19.	Analytical Chemistry of Post-tanning and Finishing agent	8	TB1
1.	Analysis of lipids for following:	40-44	
	b) Acid value b) saponification value by reflux method c) iodine value by Hanus method d) unsaponifiables by extraction method e) Analysis of sulfated oils and ready made fatliquors.		

2.	Principles underlying examination and analysis of dyes used in leather manufacture	45	
3.	Principles underlying examination and analysis of readymade finishes and finishing materials used in leather manufacture	46-47	
	Total no. of lectures	47	

DETAIL OF ASSIGNMENTS:

S.No.	Assignment
1	Assignment 1
2	Assignment 2
3	Assignment 3
4	Assignment 4

Analytical Chemistry of Leather (071509)

Assignment -1

- Q.1 Define available lime. Mention the recipe for liming.
- Q.2 Write down the method of analysis of available lime.

Analytical Chemistry of Leather (071509)

Assignment - 2

- Q.1 Mention the objectives of pickling.
- Q.2 Write down the method of analysis of pickle liquor.

Analytical Chemistry of Leather (071509)

Assignment -3

- Q. 1 What do you mean by proctor basicity and % basicity?
- Q. 2 Mention the reactions involved in analysis of chrome liquor to determine basic chromium.