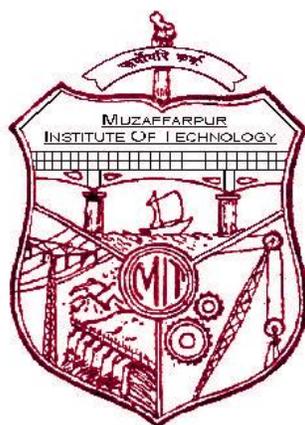


# MIT MUZAFFARPUR



## COURSE FILE OF Introduction to Leather Technology (071402)



**Faculty Name:**

**MITHILESH KUMAR RAI**

**ASSISTANT PROFESSOR, DEPARTMENT OF LEATHER  
TECHNOLOGY**



विज्ञान एवं प्रावैधिकी विभाग  
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 21<sup>st</sup> 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, chemical and footwear industries.

**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 of leather products 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 technology 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 technology 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:**

<b>Institute / College Name :</b>	MUZAFFARPUR INSTITUTE OF TECHNOLOGY		
<b>Program Name</b>	<b>B. Tech.Leather Technology</b>		
<b>COURSE CODE</b>	071402		
<b>COURSE NAME</b>	Introduction to leather Technology		
<b>Lecture / Tutorial / Practical (per week):</b>	3 – 0- 0	<b>Course Credits</b>	3
<b>Course Coordinator Name</b>	MITHILESH KUMAR RAI		

**Course objective:**

The objective of this course is to provide the knowledge about availability of hide and skin in India as well as in the World for production for leather. In this course the student will be familiar with the location of leather industries in India .This course will provide basic concept about chemical composition of hide and skin. The students can understand the basic principal of preservation of hide, pre tanning operation and post- tanning operation of leather production.

**Course outcomes (CO):**

**CO1:** Became familiar with availability of hide and skin for the production of leather.

**CO2:** Learn about the location of leather industries in India as well as world.

**CO3:** Understand the knowledge about structure of hide and their chemical constituents. Get knowledge about defects in hide and skin.

**CO4:** Understand the basic principal of preservation, pre tanning and post tanning operation.

**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:**

Topics	Number of Lectures	Weightage (%)
Live stock population, animal mortality and availability of hides and skins in India	5	12
Statistical analysis of leather Industries, Leather, Leather products (National & International Scenario).	12	30
Chemical constituents of hides and skins	5	12

General principles involved in raw hide and skin preservation, assortment and their processing, pre tanning, tanning and post tanning operations	12	30
Defects in leather, Microscopy & Bacteriology	5	12

## MUZAFFARPUR INSTITUTE OF TECHNOLOGY

**B.Tech. 4<sup>th</sup> Semester (2016 Batch) TIME TABLE WITH EFFECT FROM 12.02.2018**

4 <sup>th</sup> SEMESTER Leather technology					ROOM NO. LB-1			
	10:00 - 10:50	10:50 - 11:40	11:40 - 12:30	12:30 – 1: 20	1:20 – 1:50	1:50- 2:40	2:40 - 3:30	3:30 – 4:20
<b>MON</b>		I.L.T (M.K.R)			R			
<b>TUES</b>					E			
<b>WED</b>					C			
<b>THUR</b>			I.L.T (M.K.R)		E			
<b>FRI</b>					S	I.L.T (M.K.R)		
<b>SAT</b>					S			
FACULTY NAME:MKR: MITHILESH KUMAR RAI								

**STUDENT LIST:**

<b>Sl. No.</b>	<b>College Roll No.</b>	<b>AKU Reg. No.</b>	<b>Name</b>
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:** Introduction to the Principles of Leather Manufacture by -S.S Dutta**TB2:** Theory and practice of leather Manufacture By K.T.Sarkar**Reference Books:****RB1:****RB2:****COURSE PLAN**

<b>Topic No.</b>	<b>Topic</b>	<b>No. of Lecture/ lecture no.</b>	<b>Text book</b>
<b>1.</b>	<b>Live stock population-</b> In this topic population of cattle and animal for leather production will be covered.	<b>1-2</b>	<b>TB1</b>
	Animal mortality and availability of hides and skins in India	3-5	<b>TB1</b>
<b>2.</b>	<b>Statistical analysis of leather Industries-</b> This topic includes the location of leather industries in India	6-10	<b>TB1</b>
	Leather, Leather products (National & International Scenario)	11-17	<b>TB1</b>
<b>3.</b>	<b>Chemical constituents of hides and skins-</b> This topic includes the percentage of water , proteins, fat content and other materials in hides.	18-22	<b>TB1</b>
<b>4</b>	<b>General principles involved in raw hide and skin preservation-</b> This will cover the curring operation	23-25	<b>TB1</b>

	for preservation of hide and skin ( different type of curring like- wet salting, dry salting, sun drying)		
	<b>Assortment and their processing-</b> In this topic the method of assortment for hide and skin will be covered.	26-28	<b>TB1</b>
	<b>Pre tanning-</b> In this topic all the pre tanning operation(like curring, soaking, liming, deliming, bating, pickiling )will be covered.	<b>29-31</b>	<b>TB1</b>
	<b>Tanning-</b> This topic will cover the tanning operation like chrome tanning and vegetable tanning in brief.	32-34	<b>TB1</b>
	<b>Post tanning operations-</b> All the post tanning operation will be described in brief like( neutralization, basification, retanning, dyeing fatliquiring, and finishing operation in brief)	35-37	<b>TB1</b>
<b>5.</b>	<b>Defects in leather-</b> it will include the ante-mortem and post- mortem defects	38-40	<b>TB2</b>
	<b>Microscopy &amp; Bacteriology-</b> It will cover the different type of microscope and working principal.	41-42	<b>TB2</b>

**DETAILS OF ASSIGNMENTS:**

<b>S.No.</b>	<b>Assignment</b>	<b>Topic No.</b>
1	Assignment 1	1,
2	Assignment 2	2
3	Assignment 3	3
4	Assignment 4	4,5

**Introduction to leather Technology - (071402)**

**Assignment -1**

Q.1 Write down the population of cattle in India for leather production.

Q.2 Describe the animal mortality and availability of hides and skins in India.

**Introduction to leather Technology - (071402)**

**Assignment -2**

Q.1 What is the chemical composition of hide and skin?

Q.2 Describe the different type of water present in hide.

Q.3 Write down the different types of proteins present in hide and skin.

**Introduction to leather Technology - (071402)**

**Assignment -3**

Q.1 Write down the statistical analysis of leather Industries in India .

Q.2 Explain about different leather products and their manufacturing industry in India.

## **Introduction to leather Technology - (071402)**

### **Assignment -4**

Q.1 Explain the process of curring. Explain different methods for curring in leather industry.

Q.2 Explain Pre- tanning operation in short.

Q.3 What is liming process? Explain the control of liming process.

Q.4 Write down the defects in hide and skin.

**B.Tech IV sem. Leather Technology**  
**Mid semester examination-2018**

**Subject: Introduction to Leather technology      Code: LT-071402**

**Max .mark:20**

**Time :2 Hours**

**Note: Attempt any Four questions. All questions have equal marks. Assume any missing data.**

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- Q.1** Describe the different type of defects in Leather.
- Q .2** Write down the chemical constituents of hides and skins.
- Q.3** What is the status of live stock population of animal in India?
- Q.4** Describe pre tanning operations in brief.
- Q.5** Describe the different methods for hide and skin preservation.
- Q. 6** What is current status of leather industries in India?

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Code : 071402

B.Tech. Leather Technology 4th Semester  
Exam., 2016

INTRODUCTION TO LEATHER  
TECHNOLOGY

Time : 3 hours

Full Marks : 70

Instructions :

- (i) The marks are indicated in the right-hand margin.
- (ii) There are **NINE** questions in all.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question No. 1 is compulsory.

1. Answer in short any seven of the following :

2×7=14

- (a) Distinguish hide and skin.
- (b) What are amino acids?
- (c) What are glycine and proline?
- (d) What are histidine and lysine?
- (e) What are Aspartic and Glutamic acid?
- (f) What is isoelectric point?
- (g) Write about Zwitter ion concept.
- (h) What are proteins?

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( Turn Over )

Question bank;

( 2 )

- (i) What are Polypeptides?
- (j) What is Corium?
2. Discuss the regional classification of Indian Cow, Buffalo, Goat and Sheep skins. 14
3. Describe the chemical constituents of hides and skins. 14
4. Which sector is largest in the leather Industry? Write a note on it. 14
5. Discuss principles of Raw hide preservation. 14
6. What are the common defects in leather? Describe them. 14
7. Distinguish chrome tanning and vegetable tanning. 14
8. What is Deliming, Bating and Pickling? 14
9. With a neat sketch describe a compound Microscope. 14

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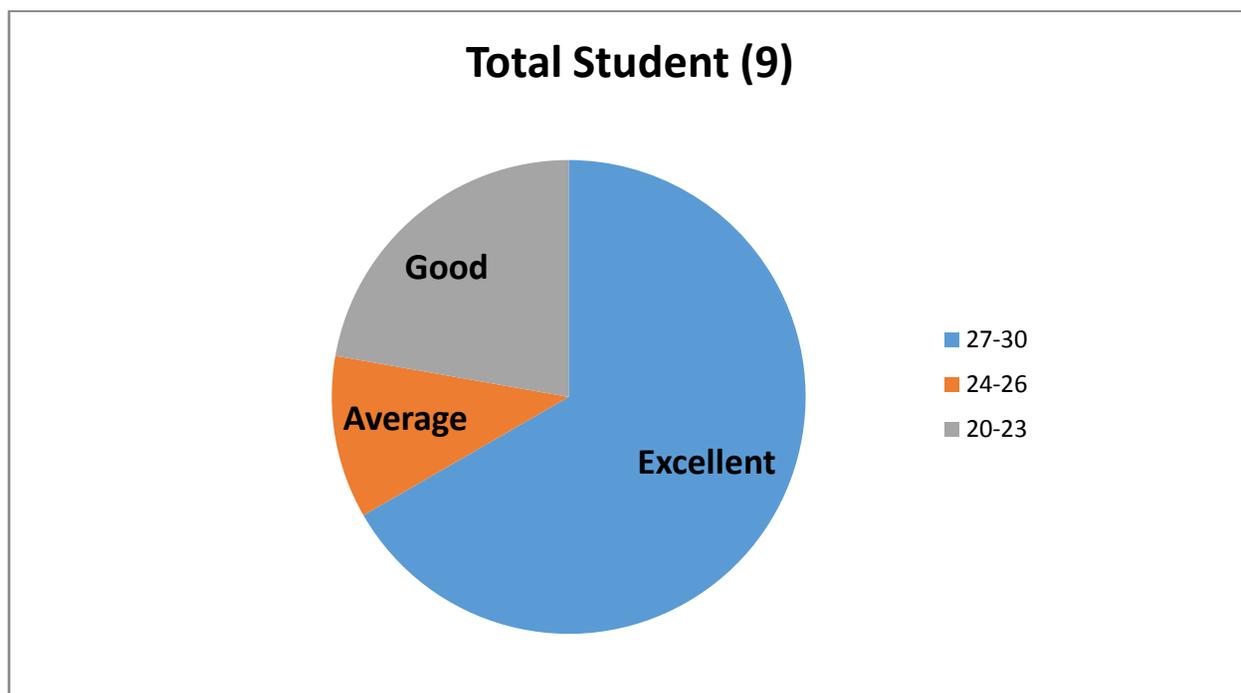
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Code : 071402

### Result of the students

Roll No	Name	Marks of attendance	Class test	Mid semester exam	Total
16LT08	ARCHANA KUMARI	5	5	19	29
16LT20	RAVINDRA RAM	4	5	13	22
16LT15	SURBHI SAURAV	5	5	18	28
16LT11	AMAN SHRIVASTAVA	5	5	18	28
16LT05	VIKASH KUMAR	5	5	19	29
16LT19	DEEPSHI	5	5	19	29
16LT16	RAKESH KUMAR SAH	5	5	16	26
16LT14	RAKESH KUMAR	5	5	12	22
16LT17	KRITIKA VAGMI	5	5	19	29

### RESULT ANALYSIS



<b>Number of student (9)</b>	<b>Marks obtained (30)</b>	<b>Performance</b>
6	27-30	Excellent
2	24-26	Good
1	20-23	Average