

# Faculty of Science

Bachelor of Science (B.Sc.)

## SUBJECT: INDUSTRIAL MICROBIOLOGY

B.Sc. II Semester

Core Paper - Major 3

Dairy Technology

### Course Outcomes

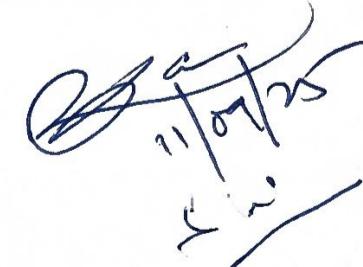
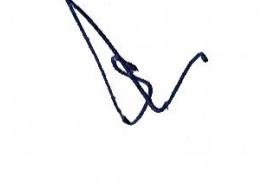
CO. No.	Course Outcomes	Cognitive Level
<b>On completion of this course learners will able to:</b>		
CO 1	understand and define Indian traditional knowledge	U,R
CO 2	understand and define Dairy Microbiology	U,R, A
CO 3	understand and define Dairy Chemistry	U,R, A
CO 4	understand and define Dairy Technology	U,R, A
CO 5	understand and define Dairy Buisness	U,R, A

### Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
Theory	4	30	70	100
Practical	2	30	70	100
Total		200		

### Evaluation Scheme

	Marks	
	Internal	External
Theory	3 Internal Exams of 15 Marks (two written test and one assignment) (Best 2 will be taken)	1 External Exams (At the End of Semester)
Practical	Quiz (10 marks), Assignment (15 marks), Attendance (5 marks)	1 External Exams (At the End of Semester)


**B.Sc. I Semester Industrial Microbiology**  
 Tools and techniques in Microbiology  
 Core course Major 1  
**Format for Syllabus of Theory Paper**

Program: Certificate		Part A- Introduction		
		Class: B.Sc.	Semester: II	Session: 2025-26
Subject: Industrial Microbiology				
1	Course Code	Dairy technology Core Course Major 3		
2	Course Title			
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)			
4	Pre-requisite (If any)	To study this course, a student must have had the subject Biology in Class 12 <sup>th</sup> .		
5	Course Learning Outcomes (CLO)	On completion of this course the students will be able to understand and define- <ul style="list-style-type: none"> <li>• Indian traditional knowledge</li> <li>• Dairy Microbiology</li> <li>• Dairy Chemistry</li> <li>• Dairy Technology</li> <li>• Dairy Business</li> </ul>		
6	Credit Values	4		Min. Passing Marks: 35
7	Total Marks	Max. Marks: 30+70		
Part B- Content of the Course				
Total No. of Lectures- Tutorials- Practical (in hours per week): 60 Hrs				
L-T-P:	Unit	Topics	No. of Lectures	
	1	<b>Indian Dairy Technology</b> 1.1 Indian traditional knowledge of Microbiology, Natural or Spontaneous ferments 1.2 Traditional Indian dairy products and fat rich dairy products like Buttermilk, Yoghurt, Ghee, Cheese, Paneer, Khoya, Rabdi, Kheer, Ice Cream, Condensed Milk and Dried Milk. 1.3 Starter cultures and fermented milk products in dairy 1.4 Fundamental processes in dairy such as pasteurization and homogenization 1.5 Marker milk <b>Activity:</b> Quiz on Indian Traditional Knowledge of dairy and dairy products.	12 Hrs	
	2	<b>Dairy microbiology</b> 2.1 Fundamentals of dairy microbiology 2.2 Microbiology of fluid milk 2.3 Microbiology of dairy products. 2.4 Importance of maintaining a clean environment in dairy plant <b>Activity:</b> PPT presentation on related topics	12 Hrs	
	3	<b>Dairy chemistry</b> 3.1 Chemical composition of milk and dairy products 3.2 Physical chemistry of milk 3.3 Biochemistry of dairy products	12 Hrs	

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	3.4 Chemical quality assurance of milk and dairy products <b>Activity:</b> Visit on milk production procurement taken up in state dairy federation or nearby dairy or any other private dairy plant or ice cream factory.	
4	<b>Dairy technology</b> 4.1 Dairy machine design 4.2 Dairy plant design and layout 4.3 Quality control and safety monitoring of dairy industry 4.4 Dairy plant hygiene and sanitation <b>Activity:</b> Poster and charts presentation on dairy machine design and layout of dairy plants	<b>12 Hrs</b>
5	<b>Dairy business</b> 5.1 Milk production management and dairy development 5.2 ICT in dairy industries and optional research 5.3 Entrepreneurship development and industrial consultancy financial management and cost accounting related to Indian dairy technology and dairy products 5.4 Packaging management related to dairy <b>Activity:</b> Assignment on above dairy business	<b>12 Hrs</b>

#### Part C - Learning Resources

##### Text Books, Reference Books, Other resources

##### Suggested readings:

- ❖ Parihar, P. (Year). \*Dairy Microbiology\*. Agrobios (India).
- ❖ Patil, S. H., Jamadar, D. D., & Ingawale, M. V. (Year). \*Food and Dairy Microbiology\*. Kopykitab.
- ❖ Mathews, K. (Year). \*Food and Dairy Microbiology\*. IIS (Deemed to be University), Jaipur.
- ❖ Suggestive digital platforms/ web links:

<http://ecoursesonline.iasri.res.in/mod/resource/view.php?id=101481>

#### Part D – Assessment and Evaluation

##### Suggested Continuous Evaluation Methods:

Maximum Marks: 100

Continuous Comprehensive Evaluation (CCE): 30 marks

Main Exam (ME): 70 marks

<b>Internal Assessment:</b> Continuous Comprehensive Evaluation (CCE): 30	Class Test Assignment/Presentation	15 15
<b>External Assessment:</b> Main Exam Section:	Section (A): Five objective Questions (50 words each) Section (B): Five Short Questions (200 words each) Section (C): Five Long Questions (500 words each)	<b>Total : 70</b>

   
  
  
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