Department of Botany and Microbiology
St. Aloysius College Jabalpur (Autonomous)
Reaccredited A ++ by NAAC with CGPA 3.58/4.0, College with Potential for Excellence (CPE)
DST-FIST supported and DBT College Scheme

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
On completion of this course learners will able to:		
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	**6**	**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)

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B.Sc. I Semester Industrial Microbiology

Tools and techniques in Microbiology

Core course Major 1

Format for Syllabus of Theory Paper

Part A- Introduction			
Program: Certificate	**Class: B.Sc.**	**Semester: II**	**Session: 2025-26**
Subject: Industrial Microbiology			
1	**Course Code**	**Dairy technology**	
2	**Course Title**	**Core Course Major 3**	
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 12th.**	
5	**Course Learning Outcomes (CLO)**	On completion of this course the students will be able to understand and define- • Indian traditional knowledge • Dairy Microbiology • Dairy Chemistry • Dairy Technology • Dairy Business	
6	**Credit Values**	**4**	
7	**Total Marks**	Max. Marks: 30+70	Min. Passing Marks: 35

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	**Indian Dairy Technology** 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 **Activity**: Quiz on Indian Traditional Knowledge of dairy and dairy products.	**12 Hrs**
2	**Dairy microbiology** 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 **Activity**: PPT presentation on related topics	**12 Hrs**
3	**Dairy chemistry** 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 **Activity**: 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	**Dairy technology** 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 **Activity**: Poster and charts presentation on dairy machine design and layout of dairy plants	**12 Hrs**
5	**Dairy business** 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 daily technology and daily products 5.4 Packaging management related to dairy **Activity**: Assignment on above daily business	**12 Hrs**

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

Internal Assessment: Continuous Comprehensive Evaluation (CCE): 30	Class Test Assignment/Presentation	15 15
External Assessment: 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)	**Total : 70**

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