

Choice Based Credit System Syllabus  
(2019 Pattern)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** F. Y. B. Voc. (SEM – I)

**Subject:** Dairy Technology

**Course:** Dairy Development (Th)

**Course Code:** BDT-101

**Objective**

- To acquaint with properties and role of various constituents in foods, interaction and changes during processing.
- To acquaint with importance of various foods and nutrients in human nutrition.
- To acquaint with different groups of micro-organisms associated with food, their activities, destruction and detection in food.

**Unit-1:Dairy Development and Dairy Co-operatives in India:** History of Dairy Development and Co-operative Society in India, National Dairy Development Board, National Dairy Research Institute, Military dairy farm, IDC, Dairy Co-operatives, Milk Grid, Operation Flood.

**12 Periods**

**Unit-2:Government Policies and Incentives:** Schemes for Development of Dairying, Assistance to Cooperatives, Intensive Dairy Development Programme (IDDP), Incentive schemes for Farmers, youth and Entrepreneurs, Dairy/Poultry venture capital fund, Other Schemes for dairying

**12 Periods**

**Unit-3:Market Milk:** Definition, Factors affecting composition of milk, Clean milk production, Judging and grading of milk, Flavor defects of milk their causes and prevention, Uses of milk

**12 Periods**

**Unit-4:Animal Husbandry Practices and Health Care:**

Introduction to animal husbandry, Digestive system of ruminants and measures of feed energy. Nutrients requirements for growth and milk production. Feeding standards, Structure and function of mammary system. Milk secretion and milk let-down.

**12 Periods**

**Unit-5:Milk Procurement:** Clean and Hygienic milk production, milk procurement from the rural milk producer and its transportation and modes of payment.

**12 Periods**

**References:**

- Dairying in India, Khurody D. N. (1974) Asia Publishing House
- Cooperation Principles and Substance, Gokhale Institute of Politics, New Delhi
- Cooperatives in India, Mathur (1977) Sahitya Bhavan, Agra
- Dairy Management, Pandit Sunder Lal Sharma Institute of vocational guidance 1998

**Weightage:** 1=weaker or low relation, 2=moderate or partial relation, 3=strong or direct relation

	<b>Programme</b>
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Course Outcomes	Outcomes(POs)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3				3				
CO2	2								
CO3	3								
CO4		2				2			
CO5		3					2		
CO6			2						
CO7				2					

### Justification for the mapping

#### **PO1: Disciplinary Knowledge:**

CO1: Students will acquire foundational knowledge in the functioning of the dairy industry.

CO2: They will explore the historical evolution of the dairy sector in India.

CO3: They will understand various schemes implemented by the Indian Government in the dairy sector.

#### **PO2: Critical Thinking and Problem Solving:**

CO4: Students will demonstrate critical thinking skills by implementing clean milk production techniques.

CO5: They will engage in problem-solving by studying the development of a dairy plant.

#### **PO3: Social Competence:**

CO6: Students will develop social competence through understanding animal husbandry practices and healthcare in the dairy sector.

#### **PO4: Research-Related Skills:**

CO7: They will gain research-related skills by understanding the structure and function of the mammary system in animals.

#### **PO5: Personal and Professional Competence:**

CO1: Through understanding the fundamentals of the dairy industry, students will develop personal and professional competence.

#### **PO6: Effective Citizenship and Ethics:**

CO4: Students will engage in ethical practices by demonstrating clean milk production.

#### **PO7: Environment and Sustainability:**

CO5: They will explore the environmental aspect of the dairy sector by studying the development of a dairy plant.

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**Mapping of Program Outcomes with Course Outcomes**

**Class:** F. Y. B. Voc. (SEM – I)

**Subject:** Dairy Technology

**Course:** Dairy Farm Management (Th)

**Course Code:** BDT-102

**Objectives-**

- To know the need and importance of dairy farm.
- To study the milking techniques, feed management and farm waste management

**Unit-1: Introduction to dairy farm management:** Dairy farm management- introduction, definition, principles, skills in Dairy farming, future scope of dairy management, constraints in dairy farming. **12 Periods**

**Unit-2: Introduction to Milking Techniques:** Types of milking techniques-Hand and Machine, steps of milking, milking management, testing of machines, maintenances of machines, cleaning routine of machine in parlour. **12 Periods**

**Unit-3: Feed Management:** Basic principles of feed and fodder management, important feed ingredients, feed mixing, feeding management, cultivation of fodder and nutrition of different fodder, shelter requirement and housing of dairy animals **12 Periods**

**Unit-4: Cattle Breed:** Distinguishing characteristics of India and exotic breeds of dairy animals and their performance. Systems of breeding and methods of selection of dairy animals. General dairy farm practices - Identification, dehorning, castration, exercising, grooming, weighing. Common disease problem in dairy animals, their prevention and controls **12 Periods**

**Unit-5:Dairy Management and Entrepreneurship:**Concept of entrepreneurship; entrepreneurial and managerial characteristics; managing an enterprise; motivation and entrepreneurship development; importance of planning, monitoring, evaluation and follow up; managing competition; entrepreneurship development programs; SWOT analysis of Dairy **12 Periods**

**References:**

- Livestock and Poultry Production, (1982) Singh Harbans and Moore Earl N.
- Livestock Production Management, (1999)Sastry N.S.R Kalyani Publishers
- ICAR , Handbook of animal Husbandary (2002)

**Weightage:** 1=weakorlowrelation,2=moderateorpartialrelation,3=strongordirectrelation

	<b>Programme</b>
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Course Outcomes	Outcomes(POs)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3								
CO2		2							
CO3				2					
CO4	3								
CO5	3					2			
CO6		2				3			
CO7		2							

**Justification for the mapping**

**PO1: Disciplinary Knowledge:**

**CO1:** Students will acquire in-depth knowledge about various cattle breeds.

**CO4:** They will comprehend the life cycle of dairy animals.

**CO5:** They will gain knowledge about different types of diseases in dairy animals.

**PO2: Critical Thinking and Problem Solving:**

**CO2:** Students will apply critical thinking in demonstrating various milking techniques.

**CO6:** They can utilize problem-solving skills to manage a dairy farm entrepreneurially.

**CO7:** They will develop skills for Dairy Farm Management, showcasing critical thinking in practical scenarios.

**PO4: Research-Related Skills:**

**CO3:** Students will be able to research and define feed and fodder management practices, including cultivation techniques.

**PO6: Effective Citizenship and Ethics:**

**CO5:** Students will understand different types of diseases in dairy animals, emphasizing ethical considerations in animal health and welfare.

**CO6:** They can manage a dairy farm as an entrepreneur, incorporating ethical practices in business operations.

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**Mapping of Program Outcomes with Course Outcomes**

**Class:** F. Y. B. Voc. (SEM – I)

**Subject:** Dairy Technology

**Course:** Dairy Chemistry (Th)

**Course Code:** BDT-103

**Objectives-**

- To understand the chemistry of milk and its products, composition, role of each component and their interactions.
- To understand preservatives and processing of milk.
- To study the adulteration in milk and milk products

**Unit-1:Introduction to dairy chemistry:** Definition and structure of milk, factors affecting composition of milk, Physico-chemical properties of milk Nutritive value of milk, colostrum, Coagulation of Milk with Heat, acid, enzymes and alcohol.

**12 Periods**

**Unit-2:Proteins:** Nomenclature and classification of milk proteins, casein,  $\alpha$ -Lactalbumin and  $\beta$  lactoglobulin, Immunoglobulin and other minor milk proteins and non-proteins nitrogen constituents of milk, Hydrolysis and denaturation of milk proteins under different physical and chemical environments, Milk enzymes with special reference to lipases, Xanthine Oxidase, phosphates, proteases and lactoperoxidase.

**12 Periods**

**Unit-3:Carbohydrates:** Carbohydrates and its classification, Milk carbohydrates their status and importance. Physical and chemical properties of lactose, processing related degradation of lactose

**12 Periods**

**Unit-4:Lipids:** Definition, general composition and classification of milk lipids. Nomenclature and general structure of glycerides, Structure of FG, Chemistry of FGM, factors affecting the fatty acid composition. Milk phospholipids and their role in milk products, Rancidity and its control

**12 Periods**

**Unit 5:Vitamins and Minerals:** Unsaponifiable matter and fat soluble vitamins, Milk Salts: Mineral in milk (a) major mineral (b) Trace elements, physical equilibria among the milk salts and Milk contact surfaces and metallic contamination.

**12 Periods**

**References:**

- Principles of dairy chemistry (1959) Jenness R and Patton S. John Wiley's, USA
- Fundamentals of Dairy chemistry, (1979) Webb B.H.
- Test book of Dairy Chemistry (1999) ICAR

**Weightage:** 1=weakerlowrelation,2=moderateorpartialrelation,3=strongordirectrelation

Course Outcomes	Programme Outcomes(POs)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3								
CO2		3							
CO3				2					
CO4		3							
CO5					3				
CO6					2				
CO7		2							

### Justification for the mapping

#### **PO1: Disciplinary Knowledge:**

CO1: Students will comprehend the chemical composition of milk.

#### **PO2: Critical Thinking and Problem Solving:**

CO2: They will analyze various aspects of clean milk production.

CO4: They will familiarize themselves with the properties of milk.

CO7: They will comprehend the correlation of different components of milk.

#### **PO4: Research-Related Skills:**

CO3: Students will assess the composition of milk.

#### **PO5: Personal and Professional Competence:**

CO5: They can explain the crucial parameters of milk.

CO6: They will understand the physico-chemical properties of colostrum.

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**Mapping of Program Outcomes with Course Outcomes**

**Class:** F. Y. B. Voc. (SEM – I)

**Subject:** Dairy Technology

**Course:** Dairy Farm Management (Pr)

**Course Code:** BDT-1.1

**Objectives:**

- To know the need and importance of dairy farm.
  - To study common practices carried out at a dairy farm.
1. Identification of different milk breeds of cattle, buffalo, goats and external anatomy of dairy animals 4P
  2. Housing of animals and maintenance of hygienic conditions at farm 2P
  3. Clean milk production 3P
  4. Detection of starch in milk 1P
  5. Detection of cane sugar in milk 2P
  6. Detection of Glucose in milk 2P
  7. Detection of Urea in milk 2P
  8. Detection of Ammonium sulphate in milk 2P
  9. Detection of Sodium carbonate or bicarbonate as a neutralizer in milk 2P
  10. Field or farm visit 4P
  11. Activity – Visit to farm (Identification of feed and fodder, their report, photograph collection on farm visit)

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CO1	3								
CO2		3							
CO3				3					
CO4		2			2	2	3	3	
CO5	3							2	
CO6	3							3	
CO7								3	

**Justification for the mapping**

**PO1: Disciplinary Knowledge:**

CO1: Students will demonstrate knowledge of milk quality assessment.

CO5: Students will acquire knowledge about the anatomy of milking animals.

CO6: Students will identify different breeds of milch animals.

**PO2: Critical Thinking and Problem Solving:**

CO2: Students will critically analyze and identify different adulterants in milk.

CO4: Students will apply hygienic practices in the dairy farm.

**PO4: Research-Related Skills:**

CO3: Students will conduct and demonstrate adulteration tests for milk.

**PO5: Personal and Professional Competence:**

CO4: Students will apply hygienic practices in the dairy farm.

**PO6: Effective Citizenship and Ethics:**

CO4: Students will apply hygienic practices in the dairy farm.

**PO7: Environment and Sustainability:**

CO4: Students will apply hygienic practices in the dairy farm.

**PO8: Self-directed and Life-long Learning:**

CO4: Students will apply hygienic practices in the dairy farm.

CO5: Students will know about the anatomy of milking animals.

CO6: Students will identify different breeds of milch animals.

CO7: Students will study housing of animals.





## **Justification for the mapping**

### **PO1: Disciplinary Knowledge:**

CO1: Students will acquire comprehensive knowledge of chemicals used in milk analysis.

CO4: Students will gain exposure to the instruments employed in milk analysis.

CO7: Students will be able to prepare chemicals of different normality used for milk analysis.

### **PO2: Critical Thinking and Problem Solving:**

CO2: Students will critically analyze standard values of quality parameters in milk.

CO3: Students will develop the ability to examine and evaluate the quality of milk.

CO6: Students will demonstrate critical thinking skills by performing different platform tests for milk.

### **PO4: Research-Related Skills:**

CO1: Students will engage in research by acquiring knowledge of chemicals used in milk analysis.

CO2: Students will conduct research by understanding standard values of quality parameters in milk.

### **PO5: Personal and Professional Competence:**

CO3: Students will develop competence in examining the quality of milk.

CO4: Exposure to instruments will contribute to personal and professional competence.

### **PO8: Self-directed and Life-long Learning:**

CO5: Students will understand the functions of all the chemicals used for milk analysis.

CO6: Performing different platform tests for milk will encourage self-directed learning.

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**Mapping of Program Outcomes with Course Outcomes**

**Class:** F. Y. B. Voc. (SEM – I)

**Subject:** Dairy Technology

**Course:** Soft Skill Development (Pr)

**Course Code:** BDT-1.3

**Objectives-**

- To acquaint with communication skill of English language in corporate world.
- To know the writing skill of scientific report (Seminar/In-Plant training/Project Report) and other project proposals for finance

**Unit 1 Fluency in Grammar Usage**

**4P**

- 1) Tenses
- 2) Verbs
- 3) Active & Passive Voice
- 4) Reported Speech
- 5) Prepositions
- 6) Conjunctions
- 7) Effective Sentence-Construction
- 8) Vocabulary

**Unit 2 Fundamentals**

**4P**

- 1) Greeting and taking leave
- 2) Introducing yourself
- 3) Introducing people to one another
- 4) Making requests and asking for directions
- 5) Congratulating, expressing sympathy and offering condolence
- 6) Making suggestions and offering advice
- 7) Making and accepting an apology

**Unit 3 Situational dialogues**

**4P**

**Unit 4 Personality development**

**4P**

**Unit 5 Interview and Group discussion**

**4P**

**Unit 6 Writing and comprehension skills**

**4P**

- 1) Letter (Formal) and Email
  - 2) Report
  - 3) Summarizing reports, articles, editorials
  - 4) Making an abstract
  - 5) Review writing
  - 6) Writing resume
- Activity – (Square talks, back and back conversations, listening and writing)

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CO1	3							3	
CO2	3							3	
CO3	3							3	
CO4		3				2		3	
CO5			2					3	
CO6			3		3			3	
CO7				3			2	3	3

### Justification for the mapping

#### PO1: Disciplinary Knowledge:

CO1: Students will acquire knowledge and skills necessary for stage daring.

CO2: They will comprehend and apply effective communication strategies fluently.

CO3: They will understand and adhere to the professional format of conversation in their discipline.

#### PO2: Critical Thinking and Problem Solving:

CO4: Students will demonstrate the ability to create a substantial impact with verbal communication, showcasing critical thinking skills.

#### PO3: Social Competence:

CO5: They will distinguish between formal and informal communication, showcasing social competence.

CO6: Students will develop their personality through effective communication practices.

#### PO4: Research-Related Skills:

CO7: They will explore and utilize formal communication mediums for research purposes.

#### PO5: Personal and Professional Competence:

CO6: Students will develop their personality through effective communication practices, contributing to personal and professional competence.

#### PO6: Effective Citizenship and Ethics:

CO4: They will be able to create a significant impact with verbal communication while adhering to ethical principles.

#### PO7: Environment and Sustainability:

CO7: They will explore and utilize formal communication mediums ethically, contributing to environmental sustainability.

#### PO8: Self-directed and Life-long Learning:

All Cos come under this PO

#### PO9: Trans-disciplinary Research Competence:

CO7: They will explore formal communication mediums, fostering trans-disciplinary research competence

