Choice Based Credit System Syllabus
(2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S. Y. B. Voc (SEM – III) **Subject**: Dairy Technology

Course: Dairy Processing Equipment (Th) **Course Code**: BDT- 301

Objectives-

- **To understand type of materials used for making equipment in dairy industry.**
- **To know about maintenance of Equipments.**
- **To understand the design and working of pumps, and other processing Equipments.**

Unit-1 Materials and sanitary features of the dairy & food equipment, Sanitary pipes and fittings, Pumps: Types, working principle, care & maintenance, Cleaning & Sanitation in Dairy & Food equipment: Cleaning & Sanitizing Agents, Cleaning in Place (CIP)

Unit-2 Homogenizer: Single & Two stage, homogenizing valve. Sterilizer, Pouch &Bottle filling machine,Carbonation unit.

Unit-3 Description, working and maintenance of milk reception equipment: Tipping tank, Storage tank, Can washer, bottle washers, crate washer

Unit-4 Study of Dairy & Food processing equipment: Pasteurizer: batch, HTST, FDV, Centrifugal Cream Separator, and Clarifier.

Unit-5 Boilers & steam generation: Modes of heat transfer, thermal conductivity, specific heat, temperature measuring instruments,. Properties of steam: Wet, dry saturated, superheated steam, Steam generators: Fire tube boilers, Water tube boilers. Boiler mountings and accessories

References:

- Dairy engineering Technology and engineering of Dairy Plant Operation- Anantkrishnan C.P. Simha N.N. (1987)
- Dairy Plant Engineering and Management (1990) Tufail Ahmad
- Food engineering and Dairy Technology- Kessler H.G. (1981)

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

	Programme Outcomes(POs)								
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3				3	3		3	

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

Justification for the mapping

PO1: Disciplinary Knowledge:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.

CO2: Acquire understanding about different pipes and pumps employed in the dairy industry.

CO3: Develop proficiency in assembling various parts of processing equipments.

CO4: Comprehend the working principles of machinery prevalent in the dairy industry.

CO5: Operate and maintain equipments effectively with technical expertise.

PO2: Critical Thinking and Problem Solving:

CO6: Analyze the design and functioning of processing equipments, fostering critical thinking skills.

CO7: Identify and differentiate between various types of processing equipments, promoting problem-solving abilities.

PO4: Research-Related Skills:

CO3: Develop proficiency in assembling various parts of processing equipments.

CO4: Comprehend the working principles of machinery prevalent in the dairy industry.

PO5: Personal and Professional Competence:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.

CO3: Develop proficiency in assembling various parts of processing equipments.

PO6: Effective Citizenship and Ethics:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.

CO2: Acquire understanding about different pipes and pumps employed in the dairy industry.

CO5: Operate and maintain equipments effectively with technical expertise.

PO8: Self-directed and Life-long Learning:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.

CO2: Acquire understanding about different pipes and pumps employed in the dairy industry.

CO3: Develop proficiency in assembling various parts of processing equipments.

CO4: Comprehend the working principles of machinery prevalent in the dairy industry.

CO5: Operate and maintain equipments effectively with technical expertise.

CO6: Analyze the design and functioning of processing equipments, fostering critical thinking skills.

CO7: Identify and differentiate between various types of processing equipments, promoting problem-solving abilities.

PO9: Trans-disciplinary Research Competence:

CO3: Develop proficiency in assembling various parts of processing equipments.
CO4: Comprehend the working principles of machinery prevalent in the dairy industry.

Choice Based Credit System Syllabus
(2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S. Y. B. Voc.(SEM – III) **Subject**: Dairy Technology

Course: Fermented milk products (Th) **Course Code**: BDT- 302

Objectives-

- **To learn basics of fermentations, starter cultures, and fermenters**
- **To learn making process of various fermented products**
- **To learn Principles of cheese making**

Unit-1- Introduction to fermentation

Definition, Concept, Types of fermentation, Fermenter, Importance of fermentation, Starter culture and its classification , types and importance, Nutritional importance and need and benefit of fermented products.

Unit 2- Fermented Milks

Characteristics of fermented milk products, varieties of fermented milk products available in market Dahi, MishtiDahi, Lassi, Shrikhand, Yogurt.

Unit 3-Cheese

Starter cultures, Types of milk, Coagulants, Molds History, Definition, composition, classification, Principle and method of manufacture of cheddar cheese, Principle and method of manufacture of Mozzarella cheese, Principle and method of manufacture of Pasteurized processed cheese products.

Unit 4 –Butter

Definition, composition, nutritive value, Manufacturing, Theories of churning, Defects in butter and their causes and prevention

Unit-5 Processed cheese

Definition, composition, nutritive value, Manufacturing and types.

References:

1. Outlines of Dairy Technology, (1980) Sukumar De
2. Cultured milk products in CRC handbook (1982) Chandan R.C, Shahani K.K.
3. Yogurt Science and Technology (2004) Tamime A.Y. and Robinson R.K.

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

	Programme Outcomes(POs)								
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3							3	3
CO2	3				2			3	
CO3	3	2		3				3	
CO4	3	3		3				3	
CO5	1	3						3	
CO6	2	3			3			3	
CO7	2	2	1		3		3	3	

Justification for the mapping

PO1: Disciplinary Knowledge

CO1: Develop an understanding of the fermented class of milk products through practical exposure.

CO2: Evaluate and recognize the significance of fermented milk products in the context of nutrition and health.

CO3: Communicate information on the fermentation process and its products with clarity and precision.

CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.

CO5: Demonstrate comprehension of the role of microorganisms in dairy products and their impact on product quality..

CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO2: Critical Thinking and Problem Solving

CO3: Communicate information on the fermentation process and its products with clarity and precision.

CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.

CO5: Demonstrate comprehension of the role of microorganisms in dairy products and their impact on product quality..

CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO3: Social Competence - Exhibit thoughts and ideas effectively in writing and orally

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO4: Research-Related Skills

CO3: Communicate information on the fermentation process and its products with clarity and precision.

CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.

PO5: Personal and Professional Competence

CO2: Evaluate and recognize the significance of fermented milk products in the context of nutrition and health.

CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO7: Environment and Sustainability

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO8: Self-directed and Life-long Learning

CO1: Develop an understanding of the fermented class of milk products through practical exposure.

CO2: Evaluate and recognize the significance of fermented milk products in the context of nutrition and health.

CO3: Communicate information on the fermentation process and its products with clarity and precision.

CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.

CO5: Demonstrate comprehension of the role of microorganisms in dairy products and their impact on product quality..

CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO9: Trans-disciplinary Research Competence

CO1: Develop an understanding of the fermented class of milk products through practical exposure

Choice Based Credit System Syllabus
(2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S. Y. B. Voc.(SEM – III) **Subject**: Dairy Technology

Course: Nutrition Science (Th) **Course Code**: BDT- 303

Objectives-

1. **To understand nutrients and food component that supply nourishment to the body.**
2. **To know about the functions, deficiency and toxicity of nutrients**
3. **To understand malnutrition and its prevention**

Unit-1 Introduction to Nutrition Science, Food and Our Body and Recommended Dietary Allowances **12 Periods**

Unit-2 Food Constituents- Definition, Occurrence, Properties and metabolisms of Protein, Carbohydrates and lipids. **12 Periods**

Unit-3 Role of nutrients, Balance diet, Food exchange list and Principle of Meal Planning, Energy Balance- BMR, Recommended dietary allowances, Balanced diet for different age groups (infant to old age) **12Periods**

Unit-4 Nutrition for Fitness and Sports, Therapeutic diets and effective nutritional counseling, Diet during Energy Imbalance and Diet for different diseases **12 Periods**

Unit-5 Malnutrition Causes, types, symptoms and presentation of Assessment of Nutrition status of the community National Nutritional Policy **12 Periods**

References:

1. Bamji MS, Krishnaswamy K, Brahmam GNV (2009). *Textbook of Human Nutrition,* 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.
2. Srilakshmi (2007). *Food Science*, 4th Edition. New Age International Ltd. 29
3. Wardlaw MG, Paul M Insel Mosby (1996). Perspectives in Nutrition, Third Edition.
4. B. Srilakshmi (2007) Dietetics, Revised Fifth Edition, New Age International Publishers
5. B. Srilakshmi (2011) Nutrition Science, Third Edition, New Age International Publishers
6. Dr. M. Swaminathan (2006) Advanced Text book on Food and Nutrition, Volume 1 and 2, Second Edition, BAPPCO Publication.
7. Jim Mann and A. Stewart Truswell (2010) Essentials of Human Nutrition, Third Edition, Oxford Publication.
8. Michael J. Gibney, Hester H. Vorster and Frans J. Kok (2002) Introduction to Human Nutrition, First Indian Reprint, Blackwell Publishing.

9. Biochemistry of Foods-N.A.M Eskin, H.M. Henderson, R.J. Townsend.
10. Introduction to Biochemistry of Foods, Z. Berk

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

	Programme Outcomes(POs)								
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3		3		2			3	
CO2	2		3		2		3	3	
CO3	3		3		2		2	3	
CO4	2	3		3	2		3	3	
CO5	3		2	3	1		2	3	
CO6	3	3	3	3	1		3	3	
CO7	3		3		1	2	3	3	

Justification for the mapping

PO1:Disciplinary Knowledge

CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.

CO2: They will critically analyze and apply knowledge about various nutrients present in milk.

CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.

CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.

CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.

CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.

CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO2: Critical Thinking and Problem Solving

CO4: They will engage in research to comprehend the role of nutrients in the production of milk products

CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.

PO3: Social Competence, Exhibit thoughts, and ideas effectively

CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.
CO2: They will critically analyze and apply knowledge about various nutrients present in milk.
CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices

PO4: Research-Related Skills
CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship

PO5: Personal and Professional Competence
CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.
CO2: They will critically analyze and apply knowledge about various nutrients present in milk.
CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.
CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO6: Effective Citizenship and Ethics
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO7: Environment and Sustainability

CO2: Understanding the various nutrients in milk contributes to environmental awareness by considering the resources and processes involved in producing a nutrient-rich product.

CO3: Delving deeper into the detailed knowledge of milk nutrients can foster an understanding of the environmental impact of different nutrient production processes.

CO4: Recognizing the functions of nutrients in milk production can connect with sustainability by exploring efficient and eco-friendly methods of processing milk.

CO5: Understanding the impact of nutrients on human health is indirectly related to sustainability as it can influence dietary choices, potentially impacting the demand for specific agricultural practices.

CO6: Knowledge of nutrient deficiencies and toxicities can tie into sustainability by considering how agricultural practices impact nutrient content and safety.

CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO8: Self-directed and Life-long Learning

CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.

CO2: They will critically analyze and apply knowledge about various nutrients present in milk.

CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.

CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.

CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.

CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.

CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

Choice Based Credit System Syllabus
(2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S. Y. B. Voc.(SEM – III) **Subject**: Dairy Technology

Course: Dairy Processing Equipment (Pr) **Course Code**: BDT- 3.1

Objectives-

- **To understand type of materials used for making equipment in dairy industry.**
- **To know about maintenance of equipments.**
- **To understand the design and working of pumps, and other processing equipments**.

1. Study of sanitary pipes and fittings 3P
2. Study of sanitary milk pump 2P
3. Study of can washer 2P
4. Study of milk tanker, Storage tank & silos 2P
5. Study of cream separator 2P
6. Study of Milk homogenizer 2P
7. Study of different controls in HTST pasteurizer 2P
8. Study of fire tube and water tube boilers 2P
9. Study of construction of motors 2P
10. Study the construction and working of burden pressure gauge. Test and calibration of pressure gauges using dead weight tester 2P
11. Industrial Visit 3P

Reference Books & Suggested readings:

1. Dairy Technology & Engineering by H.G. Kessler
2. Dairy Plant Engineering & Management by Tufail Ahmed
3. Laboratory manual in Dairy Engineering-I by KhojareA.s.,Wasnik P.G., Kadu A.B. andWaseem M

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

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

CO7		3						3	

Justification for the mapping

PO1: Disciplinary Knowledge:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.
CO2: Acquire understanding about different pipes and pumps employed in the dairy industry.
CO3: Develop proficiency in assembling various parts of processing equipments.
CO4: Comprehend the working principles of machinery prevalent in the dairy industry.
CO5: Operate and maintain equipments effectively with technical expertise.

PO2: Critical Thinking and Problem Solving:

CO6: Analyze the design and functioning of processing equipments, fostering critical thinking skills.
CO7: Identify and differentiate between various types of processing equipments, promoting problem-solving abilities.

PO4: Research-Related Skills:

CO3: Develop proficiency in assembling various parts of processing equipments.
CO4: Comprehend the working principles of machinery prevalent in the dairy industry.

PO5: Personal and Professional Competence:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.
CO3: Develop proficiency in assembling various parts of processing equipments.

PO6: Effective Citizenship and Ethics:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.
CO2: Acquire understanding about different pipes and pumps employed in the dairy industry.
CO5: Operate and maintain equipments effectively with technical expertise.

PO8: Self-directed and Life-long Learning:

CO1: Gain foundational knowledge of various equipments utilized in milk processing.
CO2: Acquire understanding about different pipes and pumps employed in the dairy industry.
CO3: Develop proficiency in assembling various parts of processing equipments.
CO4: Comprehend the working principles of machinery prevalent in the dairy industry.
CO5: Operate and maintain equipments effectively with technical expertise.
CO6: Analyze the design and functioning of processing equipments, fostering critical thinking skills.
CO7: Identify and differentiate between various types of processing equipments, promoting problem-solving abilities.

PO9: Trans-disciplinary Research Competence:

CO3: Develop proficiency in assembling various parts of processing equipments.
CO4: Comprehend the working principles of machinery prevalent in the dairy industry.

Choice Based Credit System Syllabus
(2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S. Y. B. Voc.(SEM – III) **Subject**: Dairy Technology

Course: Fermented milk products (Pr) **Course Code**: BDT- 3.2

Objectives-

- **To understand need and importance of fermented products**
- **To understand technology behind preparation of fermented milk products**

1. Preparation of Dahi 1P
2. Preparation of Mishti doi 1P
3. Preparation of Lassi 2P
4. Preparation of Yogurt 2P
5. Preparation of Shrikhand 2P
6. Preparation of Processed Cheese 4P
7. Preparation of Processed Cheese Spread 4P
8. Preparation of cheddar cheese 4P
9. Preparation of mozzarella cheese 2P
10. Visit to cheese factory 2P

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

	Programme Outcomes(POs)								
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3							3	3
CO2	3				2			3	
CO3	3	2		3				3	
CO4	3	3		3				3	
CO5	1	3						3	
CO6	2	3			3			3	
CO7	2	2	1		3		3	3	

Justification for the mapping

PO1: Disciplinary Knowledge

CO1: Develop an understanding of the fermented class of milk products through practical exposure.

CO2: Evaluate and recognize the significance of fermented milk products in the context of nutrition and health.
CO3: Communicate information on the fermentation process and its products with clarity and precision.
CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.
CO5: Demonstrate comprehension of the role of microorganisms in dairy products and their impact on product quality..
CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.
CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO2: Critical Thinking and Problem Solving
CO3: Communicate information on the fermentation process and its products with clarity and precision.
CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.
CO5: Demonstrate comprehension of the role of microorganisms in dairy products and their impact on product quality..
CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.
CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO3: Social Competence
CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO4: Research-Related Skills
CO3: Communicate information on the fermentation process and its products with clarity and precision.
CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.

PO5: Personal and Professional Competence
CO2: Evaluate and recognize the significance of fermented milk products in the context of nutrition and health.
CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO7: Environment and Sustainability

CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO8: Self-directed and Life-long Learning

CO1: Develop an understanding of the fermented class of milk products through practical exposure.
CO2: Evaluate and recognize the significance of fermented milk products in the context of nutrition and health.
CO3: Communicate information on the fermentation process and its products with clarity and precision.
CO4: Conduct research to comprehend the processing of cheese and other fermented products in the dairy industry.
CO5: Demonstrate comprehension of the role of microorganisms in dairy products and their impact on product quality..
CO6: Reflect on and appreciate the ethical considerations in cheese making and the production of fermented products.
CO7: Explore the environmental implications of fermentation, starter culture usage, and fermentors in the dairy industry.

PO9: Trans-disciplinary Research Competence

CO1: Develop an understanding of the fermented class of milk products through practical exposure

Choice Based Credit System Syllabus
(2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: S. Y. B. Voc.(SEM – III) **Subject**: Dairy Technology

Course: Nutrition Science (Pr) **Course Code**: BDT- 3.3

Objectives-

- **To prepare different nutrient rich products**

1) Identification of food sources for various nutrients
2) Introduction to diet planning using food exchange list
3) Diet Planning of adult male / female
4) Assessment of weight and height of self and calculation of BMI
5) Planning of Protein and Energy rich Product.
6) Planning of Vitamin A rich Product.
7) Planning of Vitamin B1 rich Product.
8) Planning of Vitamin B2 rich Product.
9) Planning of Vitamin B3 rich Product.
10) Planning of Vitamin C rich Product.
11) Planning of Calcium rich Product.
12) Planning of Iron rich Product.
13) Record diet of self-using 24 hour dietary recall
14) Evaluation of own diet and weight status

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

	Programme Outcomes(POs)								
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3		3		2			3	
CO2	2		3		2		3	3	
CO3	3		3		2		2	3	
CO4	2	3		3	2		3	3	
CO5	3		2	3	1		2	3	
CO6	3	3	3	3	1		3	3	
CO7	3		3		1	2	3	3	

Justification for the mapping

PO1:Disciplinary Knowledge

CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.

CO2: They will critically analyze and apply knowledge about various nutrients present in milk.
CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.
CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO2: Critical Thinking and Problem Solving
CO4: They will engage in research to comprehend the role of nutrients in the production of milk products
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.

PO3: Social Competence, Exhibit thoughts, and ideas effectively
CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.
CO2: They will critically analyze and apply knowledge about various nutrients present in milk.
CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices

PO4: Research-Related Skills
CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship

PO5: Personal and Professional Competence

CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.
CO2: They will critically analyze and apply knowledge about various nutrients present in milk.
CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.
CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO6: Effective Citizenship and Ethics

CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.

PO7: Environment and Sustainability

CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.
CO2: Understanding the various nutrients in milk contributes to environmental awareness by considering the resources and processes involved in producing a nutrient-rich product.
CO3: Delving deeper into the detailed knowledge of milk nutrients can foster an understanding of the environmental impact of different nutrient production processes.
CO4: Recognizing the functions of nutrients in milk production can connect with sustainability by exploring efficient and eco-friendly methods of processing milk.
CO5: Understanding the impact of nutrients on human health is indirectly related to sustainability as it can influence dietary choices, potentially impacting the demand for specific agricultural practices.
CO6: Knowledge of nutrient deficiencies and toxicities can tie into sustainability by considering how agricultural practices impact nutrient content and safety.

PO8: Self-directed and Life-long Learning

CO1: Students will demonstrate a comprehensive understanding of the nutritional composition of milk.
CO2: They will critically analyze and apply knowledge about various nutrients present in milk.
CO3: Students will communicate effectively, orally and in writing, about the intricate details of nutrients in milk.

CO4: They will engage in research to comprehend the role of nutrients in the production of milk products.
CO5: Students will develop insights into the impact of nutrients on the human body, fostering personal and professional competence.
CO6: They will explore the ethical dimensions of nutrient functions, deficiencies, and toxicities, promoting responsible citizenship.
CO7: Students will consider the environmental aspects of nutrient-related issues in milk production, contributing to sustainability practices.