



## Course Descriptor

**FSHNF 415**

**Dairy Technology**

<b>Proposed Academic Year</b>	2021-22	<b>Last Reviewed Academic Year</b>	
<b>Course Code</b>	FSHNF415	<b>Course Title</b>	Dairy Technology
<b>Credit hours</b>	03	<b>Level of study</b>	Bachelor of Science
<b>College / Centre</b>	CAHS	<b>Department</b>	FSHN
<b>Co-requisites</b>		<b>Pre-requisites</b>	Must have completed 6 semesters or 80 credits

### 1. COURSE OUTLINE

Milk: production statistics, importance, standards, major constituents and properties. Factors influencing raw milk quality. Milk handling: manual and machine milking, farm cooling, collection, reception, analyses at different levels, transportation. Unit operations in milk processing: cream separation, bacto-fugation, filtration, thermization, standardization, homogenization, pasteurization, sterilization, **UHT**, aseptic packaging, storage, distribution, effect on milk constituents. Technology of industrial products: evaporated, condensed and powder milks, butter, yogurt, cheese, ice cream. Milk by-products: dried whey, casein

### 2. AIMS

On successful completion of the course, the students will be able to:

1. Demonstrate a broad and coherent body of knowledge of milk source and composition
2. Gain an in-depth understanding of biochemical and microbiological changes taking place during dairy products manufacture
3. Develop an understanding of the role of functional dairy foods in human nutrition
4. Demonstrate hands-on skills in manufacturing selected dairy products in a pilot plant setting

### 3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

<b>Learning Outcomes (Definitive)</b>	<b>Teaching and Learning methods</b>	<b>Assessment (Indicative)</b>
1. To understand milk constituents, standards and properties	Lectures and seminars	<i>In-class tests, quizzes and Written Examination</i>
2. To familiarize with raw milk quality and milk handling from farm to industry, cold chain process	Lectures and seminars	<i>In-class tests, quizzes and Written Examination</i>
3. Deacscribe unit operation in milk processing	Lectures and seminars	<i>Class Presentation, Case Study report</i>



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4. To understand the technology of industrial milk products.	Lectures and powerpoint presentations	Assignments, Written Examination
5. To determine quality of milk and milk products and adulteration tests.	Lab work	Written lab Examination

## 4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignments	15
Quizzes	20
Mid-Term Exam	25
Final Exam	40
<b>TOTAL</b>	<b>100%</b>

## 5. ACHIEVING A PASS

Students will achieve 4 credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%**

6. COURSE CONTENT (Indicative)		
WEEK	LECTURE TOPIC	TIME (HOURS)
1	Milk: production statistics, importance, standards, major constituents	4
2	Factors influencing raw milk quality	4



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<b>6. COURSE CONTENT (Indicative)</b>		
<b>WEEK</b>	<b>LECTURE TOPIC</b>	<b>TIME (HOURS)</b>
3	Milk handling from farm to industry( manual and machine milking, farm cooling, collection, reception, analyses at different levels	4
4	Cold chain process	4
5	Unit operations in milk processing: cream separation, bacto-fugation, filtration, thermization	4
6	Unit operations in milk processing: standardization, homogenization, pasteurization	4
7	Unit operations in milk processing: sterilization, <b>UHT</b> , aseptic packaging	4
8	Technology of industrial products: evaporated, condensed and powder milks	4
9	Technology of industrial products: Butter	4
10	Technology of industrial products: Yogurt	4
11	Technology of industrial products: Cheese	4
12	Technology of industrial products: Ice cream	4
13	Technology of industrial products: Whey powder	4
14	Technology of industrial products: Casein	4
15-16	Codex standards for milk and milk products.	4
	<b>TOTAL HOURS</b>	<b>64</b>
1 - 16	LAB Plus <b>RECOMMENDED INDEPENDENT STUDY HOURS</b>	<b>36</b>
	<b>TOTAL COURSE HOURS</b>	<b>100</b>

**7. RECOMMENDED READING**

**Core text:**

1. Walstra P., Wouters J.T.M. and Guerts T.J. 2006. Dairy science & technology. CRC Press Taylor & Francis Group, Boca Raton, Florida, USA.
2. Winton A.L. and Winton K.B. 2006. Milk and milk products. Agrobios, Agro House, New Delhi, India
3. Alfa Laval/Tetra Pak. 2003. Dairy processing handbook. Tetra Pak Processing System, Lund, Sweden

OER Link: <https://openlibrary.org/>



