

20FT010 - ADVANCES IN DAIRY TECHNOLOGY

Hours per week			
L	T	P	C
3	1	-	4

Total hours:		
L	T	P
45	15	-

WA/RA	SSH/HS	CS	SA	S	BS
15	30	-	5	5	-

Course Description and Objectives:

This course deals with handling, processing, preservation of milk and milk products. The objective of this course is to impart knowledge about milk, milk processing methodologies, processing equipments, byproduct utilization and to bestow skills in the application of biological, chemical, biochemical, and engineering sciences in processing and preservation of milk and milk product.

Course Outcomes:

Upon successful completion of this course student should be able to:

- Understand and describe the inherent compositional variability of milk composition
- Learn milk and milk product processing technologies
- Gain knowledge about the various milk processing equipments
- Understand the production of various products and its by products.

UNIT-I

Introduction: Milk - composition, food and nutritive value, Physicochemical properties. Buying and collection of milk – transportation of milk – milk reception –contaminants - Quality and Quantity tests at reception

UNIT-II

Milk Processing: Milk processing flow sheet – Filtration / clarification, Storage of milk, Standardization– simple problems in standardization, Homogenization, Pasteurization, Cream separation. Equipments used in each process Bottle and pouch fillers, Milk Chillers, Plant piping, Pumps.

Activities

- ✓ Perform platform test and adulteration test on milk and milk products
- ✓ Study on various regulatory standards implemented in dairy unit.

UNIT-III

Manufacture of Dairy Products: Manufacture of Cream, Butter, Ghee, Milk, powder, Cheese – Types and Defects in such products. Quality aspects and equipments used for manufacture of each products.

UNIT-IV

Manufacture of Ice Cream and other Dairy Products like paneer, Toned Milk, Sweetened Condensed milk, Khoa., Yoghurt, Curd, acidophilus milk, butter milk: Chemistry and technology – Microbiology of products – Quality aspects.

UNIT – V

Dairy plant sanitization – Cleaning in place – bottle and can washing, cleaning of tankers and silos –Detergents and sanitizers used. Energy use in Dairy plant - sources and cost of energy, Control of energy losses and Energy conservation.

REFERENCE BOOKS:

1. Arthur W. Farral: Engineering of Dairy and food Products (II Edition 1970)Robert E. Krieger Publishing Co. New York
2. Garret Smit: Dairy Processing (Improved Quality) Woodhead Publishing Ltd. CRC Press (2003).
3. W.M. Clunie Harvey and Harry Hill: Milk Products Bio Tech Books, New Delhi (1999) Department of Food Processing Engineering
4. Prof. H.G. Kessler: Food Engineering and Dairy Technology Verlag Kessler Publishing House, Germany (1981).