

LECTURE SCHEDULE

Department: Dairy Microbiology

Course No. - DTM-121

Course Title: Microbiology of Fluid Milk

Credit Hrs-2 (1+1)

Course Teacher: Dr. Sonia Kumari

Theory

S. No.	Topics to be covered	No. of Classes
1	Concept of Clean Milk Production: Definition of hygienic milk (Clean milk), Principle of clean milk production, Sources of contamination in milk.	01
2	Management Practices for clean milk production. Microbiological aspects of milk produced in organized and unorganized sectors in India and comparative information in developed country.	02
3	Microbial contamination in raw milk supplies, their sources during various stages of production viz. Milking, Chilling, Storage and Transportation with special reference to Psychrotrophic microorganisms and their preventive measure.	02
4	Microbes associated with raw milk: Different groups of microorganisms based on temperature requirement viz. Mesophilic, Psychrophilic, Psychrotrophs, Thermophilic and Thermotolerant.	02
5	Morphological and biochemical characteristic and classification of Microorganisms associated with milk.	01
6	Microbiological changes in bulk refrigerated raw milk.	01
7	Types of Microbial Spoilage Souring, Curdling, Bitty cream, Proteolysis, Lipolysis, Abnormal flavour, discolouration and their control.	02
8	Mastitis Milk: Types , Causative agents, Compositional and microbiological changes during mastitis infection, their processing and public health.	02
9	Micro flora of aseptically drawn milk and its natural antimicrobial system: Immunoglobulins, Lactoferrins Lysozymes, and Lactoperoxidase system (LP system).	02
10	Microbiological aspects of fluid milk: Pasteurization, Boiling, Sterilization, UHT, Non thermal (pulse field), Microfiltration, Bactofugation, Standardization and Homogenization.	02
11	Significance of heat resistance and post processing contaminants of fluid milk with special reference to protease and lipase enzyme and their role in spoilage process.	01
12	Biofilm formation and their control.	01

13	Public health aspect of fluid milk: Milk born diseases –Food infection, Intoxication and toxoinfection caused by <i>E.Coli</i> , <i>Salmonella typhii</i> , <i>Staphylococcus aureus</i> , <i>Bacillus cereus</i> , <i>Listeria monocytogenes</i> , <i>Shigella sps</i> , <i>Campylobacter</i> etc.	02
14	Microbiological grading and legal standards of raw and processed milk.	01
	Total	22

Practical (DTM-121)

S. No.	Practical to be covered	No. of Classes
1	Morphological examination of common dairy microorganisms (size and shape arrangement).	02
2	Estimation of Microbial load in raw milk by SPC method and Dye reduction tests.	02
3	Estimation of Microbial load in market milk by total viable count and coliform count.	02
4	Enumeration of Psychrotrophs, Thermophilic, Thermoduric bacteria in raw and market milk.	02
5	Detection of sources of contamination for Air, Water, Utensils, Equipments and Personnel line testing.	02.
7	Spoilage of milk caused by microorganisms, Souring, Curdling, Gassiness, Lipolysis, Roppiness, Proteolysis and Discolouration.	02
8	Detection and estimation of Coliform, Presumptive, Confirmed and Completed test.	02
	Total	16