LECTURE SCHEDULE

Department: Dairy Microbiology

Course No. - DTM-221

Course Title: Starter Culture and Fermented Milk Products Credit Hrs-3 (2+1)

Course Teacher: Dr. Sonia Kumari

Theory

S. No.	Topics to be covered	No. of Classes
1	Types, Metabolism and Propagation of Starter cultures: Definition, History, Classification and Importance of Starter cultures in Dairy Industry, Types of starter culture: Single, Multiple, Defined and Mixed starters.	02
2	Probiotic and Special culture like Exopolysaccharide Production.	02
3	Propagation of starter cultures concentrates-Direct bulk and Direct Vat Set (DVS) starter cultures, Factors affecting Propagation of starter culture.	02
4	Metabolism of Starter cultures, Carbohydrates, Protein, Citrate, Production of Metabolites and antibacterial substances.	02
5	Methods of production of starter distillates, their merits and demerits.	02
6	Activity, Purity, Preservation of starters and Starter failure: Quality and Activity tests for Dairy Starters and their Preservation Methods viz. Liquid, Spray drying, Vacuum drying, Freeze drying, Frozen concentrate, Concentrate dried cultures, Merits and Demerits.	02
7	Factors affecting the survival of cultures during preservation	02
8	Defects in starter culture and their control, Starter failure, Effect of Antibiotic Residues, Sanitizers and Bacteriophage.	02
9	Bacteriophages, life cycle, Sources, Prevention, Chemical and Mechanically Protected Systems.	02
10	Role of starters in Fermented milks :Role of Starters in preparation of various fermented milk, types of fermented milk- Dahi, Yoghurt, Acidophilus Milk, Different types of Dahi and yoghurt preparation, Defects and their control.	02
11	Kefir and Coumiss. Origin and Characteristics, Microbiology of kefir grains, Bulgarian Milk, Cultured butter milk, Leban, Villi and Yakult their nutritional and therapeutic significance.	02
12	Cheese starters :Classification, Desirable properties, Artisanal and adjunct cheese cultures.	02
13	Primary and Secondary flora of cheese, Biochemical changes during ripening.	01
14	Bacterial and Mold ripened chesses, Soft, Semisoft, Hard, Semi hard Brick and Brie Cheese, Camembert and Roquefort Cheese.	02

15	Rennet: Rennet substitutes, Microbial rennet and Recombinant chymosin.	01
16	Students Assignments delivery and Exams.	02
	Total	30

Practical (DTM-221)

S. No.	Practical to be covered	No. of Classes
1	Testing purity of starter culture by Gram's staining, and Catalase test.	02
2	Effect of physical factors like Temperature and pH on Dairy Starter.	02
3	Effect of Salt and Sugar on Dairy Starter.	01
4	Effect of presence of antibiotic residues in milk on starter activity.	02
5	Microbiological examination of Dahi, and Yoghurt.	02
6	Microbial examination of cultured butter milk.	02
7	Analysis of cheeses for total spore count in cheese.	02
8	Analysis of anaerobic spore counts in cheese.	02
9	Assignment.	02
	Total	17