

B.Sc. Dairy Science (Vocational Subject)
III Year VI Semester
DSE-IIA: Technology of Dairy Products - II
Practical Syllabus (1 Credit)

1. Preparation of butter.
2. Preparation of different varieties of ice cream.
3. Preparation of Indigenous milk products like
 - a) Khoa
 - b) Channa
 - c) Paneer
 - d) Kulfi
 - e) Ghee
 - f) Dahi
4. Visit to a Dairy plant to observe preparation of Concentrated milk and Dried milk.

Reference Books:

1. Outlines of Dairy Technology – Sukumar De.
2. Milk products preparation and quality control – C.P. Ananthakrishnan.
3. The technology of milk processing – C.P. Ananthakrishnan.
4. Modern Dairy products – Lincoln M. Lampert.
5. Milk and milk products – Eckles, Combs, Harold Macy.

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DSE-IIB: Dairy Microbiology

Theory Syllabus (4 Credits)

60 Lectures

Unit 1: (a) Types of microorganisms present in milk: acid producing, gas producing, protein splitting, fat splitting, pathogenic and inert organisms.

(b) Types of microorganisms based on temperature requirement: Psychrophilic, mesophilic, thermophilic and thermoduric microorganisms. (15)

Unit 2: (a) Chemical changes observed during storage of milk and abnormal fermentations observed in milk: Souring, gassy fermentation, proteolysis, lipolysis, ropiness and flavor fermentations.

(b) Sources of contamination of milk and their control: Exterior of the animal, interior of the udder, utensils, water, milker, flies and insects, soil and manure, milking barn, cattle shed and surroundings. (b) Methods of clean milk production. (15)

Unit 3: Microbiological examination of milk: Direct microscopic count, Standard plate count, Methylene blue reduction test, Resazurin reduction test and Coliform test. Milk borne diseases: bacterial, viral and other diseases. (15)

Unit 4: Cleaning and sanitization of dairy equipment: Desirable properties of detergents and sanitizers; commonly used detergents and sanitizers; Methods of cleaning and sanitization: (i) Hand washing (ii) Mechanical washing (iii) Cleaning in place. (15)

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DSE-II B: Dairy Microbiology

Practical Syllabus (1 Credit)

1. MBRT test of milk.
2. RRT test of milk.
3. Direct microscopic count of milk.
4. SPC of milk.
5. Coliform count of milk.
6. Thermoduric count of milk.
7. Thermophilic count of milk.
8. Psychrophilic count of milk.
9. Mesophilic count of milk.

Reference Books:

1. Dairy Microbiology – R.K. Robinson.
2. Milk products preparation and quality control – C.P. Ananthkrishnan.
3. Food microbiology – W.C. Frazier.

**B.Sc. III Year
Semester-VI
Paper 8: Optional**

GE-II (2 hrs/week)

(2 Credits) Lectures: 30

Food Hygiene and Quality Testing

Unit I: Introduction to Food Hygiene 15

- Food hygiene
- Food spoilage
- Food handling
- Special requirements for high-risk foods,
- Safe food cooking temperature and storage techniques.
- Hygiene and Sanitation in Food Service Institutions
- Cleaning and disinfection, Personal hygiene Pest control, Waste disposal

Unit II: Sensory Methods of Food Quality Testing 15

- Sensation of taste, smell, appearance and flavor,
- Sensory evaluation techniques
- Objective Methods of Food Quality Testing
- Physical test methods (moisture, acidity, water activity, texture, viscosity, colour)
- Simple methods of chemical analysis (protein, fat, water, ash)
- Microbiological sampling and testing.

Recommended Books:

1. Fellows P et al. Making Safe Food: A Guide to Safe Food Handling and Packaging for Small-scale Producers Practical. Action Publishing, 1998.
2. Frazier WC and Westhoff DC. Food Microbiology, TMH, New Delhi, 2004.
3. IFST. Food Hygiene Training: A Guide to its Responsible Management, UK: Institute of Food Science and Technology 1992.
4. Lawley R, Curtis L and Davis J. The Food Safety Hazard Guidebook , RSC Publishing, 2004.
5. Manay NS and Shadakshaswamy M. Food Facts and Principles, New Age International, 2004.
6. Marriott NG and Gravani RB. Principles of Food Sanitation, New York: Springer, 2006.
7. FAO Food and Nutrition Paper – 60. Food Fortification - Technology and Quality Control. 1996.
8. Suri S and Malhotra A. Food Science, Nutrition and Safety, Pearson India Ltd, 2014.