

5th SEMESTER
VETERINARY TECHNOLOGY
(DAIRY TECHNOLOGY)
SKILL ENHANCEMENT COURSE (SEC)

DTC520S DAIRY TECHNOLOGY-II (DAIRY PRACTICES AND PRODUCTS)

CREDITS: THEORY: 2, PRACTICAL: 2

MAX MARKS: THEORY: 30, PRACTICAL: 30

MIN MARKS: THEORY: 12, PRACTICAL: 12

Learning Objective: To impart knowledge and skill about dairy operations and dairy plant sanitation

Learning Outcome: Knowhow and skill development about different dairy plant practices

THEORY (2 CREDITS)

Unit 1: Dairy practices

Layout, designing, operation and maintenance of dairy processing plant. Milk collection, handling, transportation, chilling, centrifugation, separation, clarification, bacto-fugation, homogenisation, pasteurization, ultra-high temperature processing and sterilisation etc. Storage and distribution of processed milk. Fortified, reconstituted and mild flavoured milk. Principles of packaging. Types of packaging material and their characteristics. Product characteristics affecting packaging requirements. Types of packaging methods used in milk and milk products.

Unit 2: Membrane processing and cleaning operations

Membrane processing and related techniques. Application of ultrafiltration, reverse osmosis, nanofiltration and microfiltration in the dairy industry. Current trends in cleaning and sanitization of dairy equipment, biological detergents, ultrasonic techniques in cleaning; bio-detergents. Disposal of dairy effluents.

PRACTICALS (2 CREDITS)

Plate form tests of milk. Determination of efficiency of pasteurisation. Analysis of milk in reference to FSSAI standards. Judging of different types of milk. Membrane processing techniques. Layout plan of milk plant. Cleaning and sanitation techniques of dairy plants. Layout of dairy effluent treatment plant. Visit to dairy processing plants.

BOOKS RECOMMENDED

1. Walstra P, Wouters JTM & Geurts TJ. 2006. *Dairy Science and Technology*, 2nd Ed. Taylor & Francis group.
2. Marth and Steele. 2001. *Applied Dairy Microbiology*. Second Edition. Marcel Dekker.
3. Mattila Sandholm and Saarela Maria. 2003. *Functional Dairy Products*. Woodhead Publishing Limited.
4. Kumar Vijay, *Byproduct Technology*. NDRI Kamal Publication.
5. Directorate General of Health Services, MoHFW, GoL New Delhi. 2005. *Manual Methods of Analysis of Foods (Milk and Milk Products)*.
6. A. Y. Tamime. 2009. *Milk Processing and Quality Management*. Blackwell Publishing Ltd. ISBN: 978-1-405-14530-5.
7. Milk India Foundation. *Analysis of Milk and Milk Products - A lab Manual*. 2nd ed. Biotech Books, Delhi - 110035