

## **DEPARTMENT OF LIVESTOCK PRODUCTS TECHNOLOGY**

### **SEMESTER- V**

#### **MILK AND MILK PRODUCTS TECHNOLOGY**

**LPT- 311**

**Credit Hours 1+1=2**

##### **THEORY**

Milk Industry in India. Layout of milk processing plant and its management, Composition and nutritive value of milk and factors affecting composition of milk. Physico-chemical properties of milk. Microbiological deterioration of milk and milk products. Collection, chilling, standardization, pasteurization, homogenization, bacteriostatic. Principles of dehydration. Preparation of butter, paneer/channa, ghee, khoa, lassi, dahi, ice-cream, Cheddar cheese and dairy byproducts, Good Manufacturing Practices. Implementation of HACCP. Toxic/pesticides residues in milk and milk products. Packaging, transportation, storage and distribution of milk and milk products. Organic milk food products. Legal and BIS standards of milk and milk products. Sanitation in milk plant

##### **PRACTICAL**

Sampling of milk, estimation of fat, solid not fat (S.N.F.) and total solids. Platform tests. Cream separation. Detection of adulteration of milk. Determination of efficiency of pasteurization. Microbiological quality evaluation of milk and milk products. Preparation of milk products like curd, ghee, paneer/channa, khoa, ice-cream, milk beverages. Visit to Modern milk processing and milk manufacturing plants.

##### **REFERENCE BOOKS**

1. Outline of Dairy Technology by Sukumar De (1985) – Oxford University Press, Delhi.
2. The Technology of Milk Processing by Anantha Krishnan C.P., Khan A.Q., Padmanabhan P.N. (1991) – Shri Lakshmi Publication, Chennai.
3. Milk Products Preparation and Quality Control by Anantha Krishnan C.P., Khan A.Q., Padmanabhan P.N. (1993) – Shri Lakshmi Publication, Chennai.
4. Milk and Dairy Products properties and processing by Rosenthal I (1991), VCH New York.
5. Milk and Milk processing by Herrington BL (2000). Greenworld Publ., New Delhi.

### **SEMESTER-V**

#### **ABATTOIR PRACTICES AND ANIMAL PRODUCTS TECHNOLOGY**

**LPT-312**

**Credit Hours 1+1=2**

##### **THEORY**

Layout and management of rural, urban and modern abattoirs. BIS standards on organization and layout of abattoirs, Pre-slaughter care, handling and transport of meat animals including poultry. Ante-mortem and post-mortem examination. Slaughtering and dressing of carcasses. Evaluation, grading and fabrication of dressed carcasses including poultry.

Abattoir byproducts: meat, bone, fish meal and byproducts of pharmaceutical value. Skin and hides: methods of flaying, defects and preservation Management of organic wastes emanating from animal industries, fallen animals and abattoir effluent. HACCP concepts in abattoir management. Introduction to wool, fur, pelt and specialty fibers with respect to processing industry. Glossary of terms of wool processing. Basic structure and development of wool follicle. Post shearing operations of wool, classification and grading of wool, physical and chemical properties of wool. Impurity of wool, factors influencing the quality of wool. Brief outline of processing of wool, tests for Identification of wool.

#### **PRACTICAL**

Methods of ritual and humane slaughter, flaying and dressing of food animals including poultry. Carcass evaluation. Determination of meat yield, dressing percentage, meat bone ratio and cut up parts. Preparation of different abattoir byproducts. Visit to leather processing unit and slaughterhouses/meat plants.

Wool sampling techniques, determination of fleece density, fiber diameter, staple length, crimp and modulation percentage, scouring/clean fleece yield. Visit to wool production/processing centre.

### **SEMESTER -VI**

#### **MEAT SCIENCE**

**LPT-321**

**Credit Hours 1+1 = 2**

#### **THEORY**

Retrospect and prospect of meat Industry in India, Structure and composition of muscle (Including poultry muscle), conversion of muscle to meat, nutritive value of meat. Fraudulent substitution of meat, preservation of meat and aquatic foods - drying, salting, curing, smoking, chilling, freezing, canning, Irradiation, antibiotic and chemicals. Ageing of meat Modern processing technologies of meat and meat products. Packaging of meat and meat products. Formulation and development of meat and sea foods -kabab, sausages, meat balls/patties, tandoori chicken, soup, pickles, surimi, smoked fish. Physico-chemical and microbiological quality of meat and aquatic food and food products. Basics of sensory evaluation of meat products. Nutritive value, preservation, packaging of egg and egg products. Laws governing national international trade of meat and meat products. Organic meat food products. Food products of genetically modified animal and marine origin.

#### **PRACTICAL**

Chilling/freezing of meat, meat products and aquatic foods. Ageing of meat preservation and packaging of meat aquatic foods and shell eggs and their products. Determination of microbial loads in various animal food products, estimation of deteriorative changes in meat and meat products. Preparation of ready-to-eat meat/poultry products. Evaluation of external and internal egg quality, preservation technique of eggs.

## **REFERENCE BOOKS**

1. Meat Hygiene for Developing countries by Joshi BP (1994) – Almora Book Depot, UP.
2. Processing and utilization of animal by-products by Mann I (1962) – FAO Rome.
3. Animal Blood Processing & Utilization by Divakaran S (1982) – FAO Rome
4. Meat Hygiene (10<sup>th</sup> ed.) by Gracey JF, Collins DS and Huey RJ (2000) – WB Saunders Co. Ltd.
5. Meat Science – An Introductory Text by Warris PD (2000) – CABI Publ. Co., UK.
6. Principles of Meat Science (3<sup>rd</sup> Ed) by Hedrick HB, Aberle ED, Forrest JC, Judge MD and Markel RA (1994) – WH Freeman & Co., New York.
7. Meat Science (6<sup>th</sup> Ed.) by Lawrie RA (2002). – Pergmon Press UK.
8. The Technology of Food Preservation (Fist Edition) Desrosier MW and Desrosier JN – CBS Publ. N.Delhi.