B. Sc 6th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE (DSE)
OPTION-I

FT620DA: FOOD SCIENCE & TECHNOLOGY: PROCESSING OF FOODS OF ANIMAL ORIGIN

CREDITS: THEORY-4, PRACTICAL -2

THEORY (4 CREDITS): 60 HOURS **MAXIMUM MARKS: 60, MINIMUM MARKS: 24**

Objectives/Expected Learning

To study the composition of milk and milk products.
To study the processing technology of milk and milk products.

Unit – 1 (15 MARKS)

- Sources and composition of milk, nutritive value.
- Chemistry of Milk-Milk fat, proteins, lactose, vitamins, minerals & salts
- Processing of market milk- standardization, toning of milk, homogenization, Pasteurization, Sterilization.

Unit – 2 (15 MARKS)

- Storage, transportation and distribution of milk.
- Milk products - Processing of cream, condensed milk, whole and skimmed milk, fermented milks; Butter and its manufacture.
- Cheese and its types,
- Production of Ice creams

Unit – 3 (15 MARKS)

- Introduction to Indian Meat, Fish and Poultry Industry.
- Scope and problems faced by meat industry in J&K.
- Structure of Muscle; Slaughtering of meat animals. Post mortem changes in meat.
- Tenderization and aging of meat.
- Different cuts of lamb and their uses.

Unit – 4 (15 MARKS)

- Preservation of meat by freezing, curing, pickling and smoking of meat.
- Traditional meat products of J&K.
- Structure, composition and nutritive value of eggs
- Preservation of fish by freezing, canning, smoking, irradiation and dehydration.
- Packaging requirements of meat and meat products.

PRACTICALS (2 CREDITS: 60 HOURS) **MAXIMUM MARKS: 30, MINIMUM MARKS: 12**

1. Market survey of meat and milk products.
2. Preparation of meat pickle.
3. Slaughtering of poultry and determination of meat to bone ratio.
4. Dressing of fish and calculation of dressing percentage.
5. Quality evaluation of eggs.
6. Evaluation of milk-total solids, fat.
7. Determination of acidity and specific gravity of milk.
8. Preparation of common milk products like Flavoured milks, Yoghurt, Butter.
9. Visit to local milk processing plant and slaughterhouse.

REFERENCES

1. Outlines of Dairy Technology by S. K. De
2. Chemistry and Testing of Dairy products by H.V. Atherton & J.A. Newlander
3. Milk and dairy Product Technology by Edger Spreer.
4. Dairy Chemistry by H.H. Sommer
5. Lawre. R. A. & Ledward, D. A. (2006). Lawres Meat Science 7th Ed. Woodhead Publishing Company, Cambridge, England.
6. Throntons Meat Hygiene.
7. Principles of Meat Science by Forest.
8. Developments in Meat Science by Lawrie.
9. Processed Meats by Pearsons.

B. Sc 6th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE (DSE)
OPTION-II

FT620D: FOOD SCIENCE & TECHNOLOGY: ADVANCES IN FOOD PROCESSING AND FOOD ANALYSIS

CREDITS: THEORY-4, PRACTICAL -2

THEORY (4 CREDITS): 60 HOURS **MAXIMUM MARKS: 60, MINIMUM MARKS: 24**

Objectives/Expected Learning

To provide knowledge about advanced methods of food processing and analysis.

Unit – 1 (15 MARKS)

- Microwave processing of foods-Principles, equipment and applications.
- Membrane processing-types and applications
- Irradiation-sources, effects on foods

Unit – 2 (15 MARKS)

- Ultrasound processing of foods.
- High Hydrostatic Pressure (HHP) processing.
- Extraction Techniques- Liquid-Liquid batch extraction, Continuous extraction, Discontinuous extraction, Counter-current extraction.

Unit – 3 (15 MARKS)

- Chromatography (Paper, Thin layer & Column)-Principle, working and application.
- Atomic Absorption Spectroscopy (AAS) and its application.
- Mass Spectroscopy (MS) and its application.

Unit – 4 (15 MARKS)

- Fluorimetry- Instrument components and applications.
- Electrophoresis- Principle, Types- Continuous & Discontinues, PAGE, AGAROSE Gel.
- Scanning Electron Microscopy.
- Texture Profile Analysis (TPA) of foods.

PRACTICALS (2 CREDITS: 60 HOURS) **MAXIMUM MARKS: 30, MINIMUM MARKS: 12**

1. Visit to Food Analysis Lab to perform following practicals.
2. SEM
3. PAGE
4. AAS
5. Rheometry
6. TPA
7. Microwave heating of foods

REFERENCES

1. Novel Food Processing Technologies *by* Gustavo V. Barbosa-Canovas, Maria S. Tapia, and M. Pilar Cano
2. New Methods of Food Preservation by G. W Gould, 2012*; Springer*
3. Food Analysis by S. Suzanne Nielsen
4. Advances in Food Diagnostics by Leo M. L. Nollet and Y.H Hui
5. Food Analysis by Pomeranz.