

# AMFT19 FOOD PROCESSING AND PRESERVATION

## UNIT-1 PRINCIPLES OF MASS AND ENERGY BALANCE

- 1.1 Transport phenomena with respect to foods;
- 1.2 Factors affecting heat and mass transfer;
- 1.3 Study of heat transfer and its application in the design of thermal processes and freezing.
- 1.4 Thermal processing; calculation of process time temperature-schedules.

## UNIT-2 CANNING OF FOOD PRODUCTS

- 2.1 Newer methods of thermal processing;
- 2.2 Batch and continuous;
- 2.3 Application of infra-red microwaves; ohmic heating;
- 2.4 Control of water activity;
- 2.5 Preservation by concentration and dehydration; osmotic methods.

## UNIT-3 DRYING PROCESS FOR TYPICAL FOODS

- 3.1 Rate of drying for food products;
- 3.2 Design parameters of different type of dryers; properties of air water mixtures.
- 3.3 Psychrometric chart, freezing and cold storage.
- 3.4 Freeze concentration, dehydrofreezing, freeze drying, IQF;
- 3.5 Calculation of refrigeration load, design of freezers and cold storages.

## UNIT-4 NON-THERMAL METHODS

- 4.1 Super Critical Technology for Preservation
- 4.2 Chemical preservatives, preservation by ionizing radiations, ultrasonics, high pressure, fermentation, curing, pickling, smoking, membrane technology.
- 4.3 Hurdle technology,

## UNIT-5 FOOD PACKAGING

- 5.1 Basic packaging materials, types of packaging, packaging design,
- 5.2 Packaging for different types of foods,
- 5.3 Retort pouch packing,
- 5.4 Costs of packaging and recycling of materials.

## References Books

- 1 Rahman, M. Shafiur. "Handbook of Food Preservation". Marcel & Dekker, 2006.
- 2 Zeuthen, Peter and Bogh-Sarensen, Leif. "Food Preservation Techniques". CRC / Wood Head Publishing, 2003.