

**I SEMESTER**  
**HARD CORE COURSES**

**FNH 401 FOOD SCIENCE**

**52 Hrs (13× 4 units)**

**Course Outcome:**

- Describe the knowledge regarding various nutritional classification of food grouping system
- Understand the structure of cereal grains, nutritional importance, processing and baking technology.
- Classify of fruits and vegetables including the nutritional importance, the methods of preservation and effect of cooking on nutritional composition.
- Identify the concept of milk processing, its composition and to assess the quality parameters of milk.
- Write down the compositions of meat and egg. Regulations and processing of meat in slaughtering operations and evaluating the egg quality.

**Unit I:** Introduction to Food Science: Food as a source of nutrients, Nutritional classification of foods, Food Group System (11 group and ICMR). Cereal and Pulses: Structure of a cereal grain. Nutritive value of cereals and pulses, milling of cereals (rice and wheat), parboiling, nutrient loss during parboiling. Baking technology; bread, biscuits, cookies, leavening agents (different types and methods). Breakfast cereals. Pulses- types and processing of different pulses. Processing of pulses- effects of decortications, soaking, germination and fermentation.

**Unit II:** Fruits and vegetables: Classification and Nutritive value, Principles of fruits and vegetable preservation (heat, sugar, salt, fermented and dried). Pre-processing of fruits and vegetables (peeling, cutting and blanching). Principles of storage; natural, ventilated, low temperature. Pectin substances, ripening of fruits. Vegetable cookery Preliminary preparation- Washing, Peeling and Blanching, Enzymatic and non enzymatic browning, its prevention. Fruit and vegetable juices, cordials, nectars, concentrates, jam, jellies, squash, syrups, marmalades, pickles. Theory of gel formation.

**Unit III:** Milk and milk products: Milk composition, factors affecting milk quality, physical and chemical properties of milk. Processing of milk- separation, centrifugation, pasteurization, sterilization, homogenization, effect of processing on nutritive value. Quality test for milk-platform test, adulterant test and other quality checks.

**Unit IV:** Meat, fish, poultry and egg: Meat- composition, slaughtering and related practices, ageing, and curing, smoking, tenderizing, colour changes during cooking. Fish - composition, quality factors, preservation, drying, salting, curing, smoking, fermented fish products and canning. Poultry- processing plant operation (slaughtering to packaging), cooking, flavor and colour changes. Eggs - composition, quality factors, pasteurization of eggs, egg substitutes and powdered egg, role of egg in cookery.

## REFERENCES

- Fabriani, G and Lintas C. 1988. Durum wheat chemistry and technology. American Association of Cereal Chemistry Inc.
- Winton and Winton 1991. Techniques of food analysis, Allied Scientific Publishers
- Pomeranz Yeshuraj, Food Analysis; theory and practice
- Matz A Samuel, Bakery Technology and Engineering
- Lavie A., 1979. Meat Handbook- AVI Publishing, Westport

