

**I SEMESTER**  
**HARD CORE COURSES**  
**FNH 401 FOOD SCIENCE**

**52 Hrs (13× 4 units)**

**Course Outcome:**

*At the end of the course the students will acquire the knowledge of -*

- CO 1. Various nutritional classification of food grouping system
- CO 2. Structure of cereal grains, nutritional importance, processing and baking technology.
- CO 3. Classification of fruits and vegetables, their nutritional importance, the methods of preservation and effect of cooking on nutritional composition.
- CO 4. Concept of milk processing, its composition and to assess the quality parameters of milk.
- CO 5. Composition of meat and egg, regulations and processing of meat in slaughtering operations and evaluation of egg quality.

**Unit I:** Introduction to Food Science: Food Group System (5/11 groups and ICMR). 3hrs  
Cereals and Pulses: Nutritive value of cereals and pulses. Cereals – structure of a cereal grain, milling of cereals (rice and wheat), parboiling and 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.

9hrs

**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- Filtration, Clarification, separation, centrifugation, pasteurization, fortification, sterilization, homogenization, effect of processing on nutritive value. Quality test for milk-platform test, adulterant test and other quality checks. Fermented and non-fermented milk products.

**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