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