

### **Unit 1: Food and Food Groups**

Food production and consumption trends in India and their consequences on nutrition situation. Cereals, millets, pulses, oilseeds, vegetables, fruits, milk, eggs, meat and other animal foods. Nutritional value of these food groups and their contribution towards nutrients in Indian diets.

### **Unit 2: Food Preservation and Packaging**

Principles and methods of food preservation and storage. Preservation of fruits, vegetables, meat, milk and milk products. Food packaging, packaging material, labelling, food laws and regulation. International food standards and codex alimentarius, FSSAI, 2011

### **Unit 3: Cooking methods and Food Processing**

Food processing-physical and chemical changes in foods during processing including cooking and preservation with special reference to sensory characteristics and nutritional value. Traditional methods of processing such as parboiling, germination, malting and fermentation and their nutritional advantages. Food colours, flavours and enzymes, and their importance. Food additives: need for food additives and types of additives.

### **Unit 4: Food Safety**

Food safety-natural toxicants, pesticide residues, common adulterants and mycotoxins, their harmful effects on health, and methods of eliminating their harmful effects. Food borne diseases and their prevention. Food spoilage: perishable, semi-perishable and non-perishable.

### **Unit 5: Macro and Micro Nutrients in Human Nutrition**

Macro and micro-nutrients in human nutrition. Carbohydrates, lipids, proteins, vitamins, minerals and trace elements. Requirements, sources, functions and effects of deficiency. Energy-methods of assessing energy requirement and factors influencing requirement. Qualitative differences in food proteins and methods of assessing protein quality. Factors influencing availability of minerals. Nutrients inter-relationships. Importance of fibre in human nutrition. Water and electrolyte balance. Metabolism of carbohydrates, proteins and lipids. Roles of vitamins and hormones in metabolism.

### **Unit 6: Community Nutrition**

Major nutrition problems in India – causes, magnitude and distribution. Nutritional problems of vulnerable segments – pregnant and lactating women, and pre-school children. Food nutrition programmes to combat malnutrition-strategies, targets and progress. Assessment of community nutritional status-anthropometry, diet survey, biochemical and clinical methods. Indicators/parameters and standards used for assessment by different methods. Growth norms for pre-school children and importance of growth monitoring.

## **Unit 7: Nutrition during Life Cycle**

Nutritional requirements of pregnant and lactating women and pre-school children. Consequences of chronic nutritional deficiencies in these groups. Infant and child feeding practices in India and importance of promoting good feeding practices. Nutrition for elderly.

## **Unit 8: Clinical Therapeutic Nutrition**

Relationships between clinical biochemical results and nutritional status. Drug nutrient interaction. Nutrition in disease, therapeutic modifications of normal diets, and their use in treatment of diabetes, cancer, obesity, burns, fever and infections and diseases of gastro-intestinal tract, cardio-vascular, renal, hepatic. Metabolic and febrile disorders.

## **Unit 9: Institutional Food service management**

Menu planning for industrial canteen, hospital canteen, snack bar, residential hostel, fast food outlets and cafeteria. Food safety, safety hazards and risks, food related hazards, microbiological considerations in food safety, effect of processing and storage on microbial safety, microbiological methodology, HACCP as method to prevent food borne illness, chemical hazards associated with foods.

## **Unit 10: Food Analysis**

Principles and methods of proximate analysis- moisture, ash, crude fiber, crude fat, crude protein and carbohydrates by difference, Basic Principles of HPLC, GLC, spectrophotometry, electrophoresis, refractometry, densitometry, minerals and vitamins estimations. Methods for determining physical and rheological properties of foods.