

## **Syllabus for Food Technology PGQP08 (xiii)**

### **Food Packaging**

- Active and Intelligent packaging, MAP, Aseptic Packaging, Retort Packaging, paper packaging, Plastic and metal packaging.

### **Food Microbiology**

- Putrefaction, sanitization and waste water disposal practices in Food industry, BOD, dairy and nondairy fermentation, bioreactors, FSSAI standards for dairy and nondairy products, Food borne pathogens. Water activity

### **Cereals, Pulses and oil seeds**

- Parboiling, dry and wet milling, pasta and bread making, hydrogenation, transesterification,
- Nutritive values of pulses, refining of oil, various types of cereals processing, puffing, roasting. Extrusion Technology

### **Food Chemistry and additives**

- Flavours, colours, flour improving agents, chemistry of carbohydrates, lipids and proteins, Anti-nutrients, food allergens, various food additives and preservatives, acidulates, lipid oxidation and free radical chemistry, antioxidants. Non enzymatic Browning reactions in foods, caramelization, NPU

### **Dairy Technology:**

- Definition, composition, classification, methods of manufacture, cheddar, Gouda, cottage and processed cheese, evaluation and defects in cheese.
- FSSAI standards for Traditional dairy products, Milk Powder, condensed milk, etc.
- Classification, composition and defects of cream, technology of butter manufacturing, special milks such as flavoured, sterilized, recombined & reconstituted toned & double toned.
- Definition, composition and standards, nutritive value, classification, methods of manufacture, evaluation and defects in ice cream.

### **Fruits and Vegetables**

- Processing for pulp, puree and concentrates,
- Technology for processed products like pickles, chutneys, sauces particularly from raw mango, lime and other regional fruits and vegetables of importance.
- Processing of fruits for jams and jellies, squashes and syrups. Dehydration of fruits and vegetables using various drying technologies, osmo-air drying, tunnel drying, fluidized bed drying, freeze drying, convectional and adiabatic drying. Blanching, trends in drying technologies for fruits and vegetables

### **Meat, Fish and poultry**

- Meat composition from different sources.
- Spoilage in meats, Modern abattoirs, typical layout and features, Ante-mortem handling and design of handling facilities; Hoisting rail and traveling pulley system; stunning methods; steps in slaughtering and dressing; inedible by-products; operational factors affecting meat quality; effects of processing on meat tenderization; abattoir equipment and utilities Chilling and freezing of carcass and meat; curing and smoking; prepared meat products, intermediate moisture and dried meat products; lab Grown Meat

### **Food Processing**

- Membrane technology: Introduction to pressure activated membrane processes: micro-filtration, UF, NF and RO. Supercritical fluid extraction: Concept, property of near critical fluids NCF and extraction methods. Microwave and radio frequency processing:
- Definition, Advantages, mechanism of heat generation, application in food processing: microwave blanching, sterilization and finish drying.
- Hurdle technology: Types of preservation techniques and their principles.
- High Pressure and Ultrasonic processing.
- High intensity light, pulse electric field, ohmic heating, IR heating, inductive heating and pulsed X-rays in food processing and preservation.

### **Food Safety**

- Quality Management; GMP/GHP; GLP, GAP; Sanitary and hygienic practices; HACCP; Quality manuals, documentation and audits;
- Indian & International quality systems and standards like ISO and Food Codex. Food Safety Management Systems, Codex, Concepts of quality management: Objectives, importance and functions of quality control. ISO 2000:2018

### **Food Engineering**

- Principles of thermodynamics and heat transfer applied to food engineering; fundamentals of heat and analogy to mass transfer in food processing.
- Method for thermal process evaluation - Commercial sterility, pasteurization and sterilization methods.
- Food chilling and freezing – Pre-cooling and cold storage; CA and MA; Properties of frozen foods; freezing point depression; general introduction to enthalpy change during freezing; Cryogenic freezing and IQF; design of food freezing equipment such as air blast freezers, plate freezers and immersion freezers.