

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.