

**DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY**

**UNIVERSITY OF KASHMIR**

**Ph. D Programme**

**Paper I: Advances in the subject**

**Marks: 100**

**UNIT I: Advances in Food Processing/ Emerging Technologies in Food Processing**

- Pulse Electric Field; Principle, Mechanism, Application of PEF.
- Cold plasma technology: principle and applications in food safety and preservation.
- Supercritical fluid extraction: Principle and Application in food processing.
- Encapsulation: Method of encapsulation, applications in probiotics, and nutraceuticals.

**UNIT II Food Biotechnology**

- Nutrigenomics: Definitions, advances in the science and future perspectives.
- Genetically modified foods, their safety concerns: (Toxicity and genetic hazards).
- Food allergy: Major tree nut allergens and management of nut allergy.

**UNIT III Food Packaging:**

- Edible and biodegradable films: Filmability of biomaterials, Mechanical strength, active functions, and trends in the use of edible films and coatings.
- Biodegradable materials: Polyesters, poly lactide, polyhydroxy alkanates, starch, chitosan, alginate.
- Active Packaging: Antimicrobial agents for food packaging (essential oils, plant extracts, chitosan, bacteriocin), effect on mechanical and barrier properties of packaging.

**UNIT IV: Advances in food safety & quality**

- Metabolomics: Interventions for developing functional foods and nutraceuticals.
- Nucleic acid based techniques in food authentication: Applications in food industry

- Non destructive assessment of food quality: ultrasound as food processing and preservation technique and impact of food properties.