Unit I

**Historical Development and Eras of Modern Food Processing:** Recent Advances in Baking Industry. Evaluation and Optimization of Thermal Heating, Aseptic Processing, UHT Processing.

**Application of Extrusion Cooking in Food Industry:** Effect of Process variables on the physicochemical and Nutritional Characteristics of Extruved Foods. Thermoplastic Extrusion Cooking- Preparation of Meat Analogues and Advantages of Meat Analogue over Natural Meat.

Unit II

**Advances in Non Thermal Processing of Foods:**
- Biopreservation
- Ultrasonification
- High Hydrostatic Pressure Processing
- Pulsed Electric Processing
- Ohmic Heating

Unit III

**Advances in Fortification (Complementation and Supplementation):**
- Techniques of Food Fortification

**Advances in use of Radiation and Microwaves in Processing of Food Neutraceuticals, GM Food**

Unit IV

**Encapsulation:** Design and Structure of Microcapsules
- Technique of Micro Encapsulation, Advantages and Application of Encapsulation

Unit V

**Fractionation of Fat**

**Supercritical Carbon Dioxide Extraction**

**Introduction to Food Biotechnology:** Application an Food Processing
Food Packaging

Unit I

**Introduction:** Functions (Containment, Protection, Convenience, Communication), Principles in Development of Protective Packaging, Terminology and Operations.

**Different Forms of Food Packages:** Primary Packaging and Secondary Packaging

Unit II

**Materials Used for Packaging:** Different types of Paper, Paperboard, Co Extrusion, Lamination and Thermo Formed Semi Rigid Containers, Aluminum Cans, Glass Containers and PET

**Various Processes of Packaging and Packaging Equipment:** FFS Systems, Aseptic Packaging, Shrink Wrapping, Overwraps

Unit III

**Process of Secondary Packaging:** Shipping Containers, Pallets, Containerization (Refrigerated and Non Refrigerated Containers), Containers used in Road, Rail, Sea and Air Transport

Unit IV

**Quality Control:**
Evaluation of Packaging Materials, Toxicity, Corrosion Prevention, Shelf Life Testing, Minimization of Transport Losses, Hazards in Handling and Storage and Packaging and their minimization

Unit V

**Packaging Laws and Regulations**

**Latest Advancement in Food Packaging:** A general Overview.

1. Active Packaging (2) Intelligent Packaging (3) Bar Code
   (4) Modified Atmospheric Packaging (5) Controlled Atmospheric Packaging

**Lab Course on Food Packaging ( Practical )**

- Research Documentation
- Application of Software for Statistical Analysis
- Development of Product
- Food Labelling
- Testing of Tin Plates
- Testing of packaging films
- Determination of Shelf Life
- Determination of Water Activity
- Use of Word Processing Software for Creating Reports
- Introduction to Computer Using PC Tutor

**FT 404 Project Evaluation and Presentation**