



NOVEL TECHNOLOGIES FOR FOOD PROCESSING AND SHELF LIFE EXTENSION

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INTENDED AUDIENCE : Food Processing and Engineering, Food Science and Technology, Agricultural Engineering, Biochemical Engineering, Chemical Engineering, and related disciplines

INDUSTRIES APPLICABLE TO : Food industries such as Britannia Industries Ltd, Nestle, Hindustan Unilever Ltd, PepsiCo, FritoLay, General Mills, Glaxo, ITC, Jubilant foods, Coca Cola, Keventer Agro, Marico Cargill, etc.

COURSE OUTLINE :

Food processing which includes both fresh and packaged food involves handling of foods, preparation and storage through the subsequent stages so that the pathogens and toxic components present in food are destroyed and deactivated making the food safer and hygienic. It is the capability of the food processing sector to develop novel food processing and preservation technologies to manufacture and preserve food in an effective manner with a view to enhance their shelf life, improve quality as well as make them functionally more useful.

ABOUT INSTRUCTOR :

Prof. H N Mishra has over thirty years of experience in teaching and research. A professor of Food Technology in the Agricultural and Food Engineering Department and former President of the Association of Food Scientists & Technologists (India), Dr. Mishra is the former Chairman of the Post Harvest Technology Centre, IIT Kharagpur. Professor Mishra teaches Food Science & Technology, Food Product & Process Technology, Non Thermal Processing of Food, Industrial Processing of Foods & Beverages, and Food Chemistry. His research interests include RTE Health Foods & Nutraceuticals, Novel Food Product & Process Development, and Extension of Shelf Life of Perishable Foods.

COURSE PLAN :

Week 1: Introduction to food processing, preservation and quality; Basic principles & methods, water activity vs. food stability, structure-function relationship.

Week 2: Chemical changes in food during processing; Browning reactions protein interactions, carbohydrate interactions.

Week 3: High pressure processing and Membrane technologies in food processing.

Week 4: Food irradiation, RF & microwave heating; Super critical fluid extraction.

Week 5: Food extrusion technology, RTE snack foods, Textured vegetable protein, Rice and dal analogues.

Week 6: Hurdle technology concept, Natural antimicrobials & bacteriocin; Freeze drying.

Week 7: Controlled atmosphere storage of food grains; ozone, microwave treatment for disinfestation of grains

Week 8: Modified atmosphere packaging, Active packaging, and Edible coating of fruits & vegetables.

Week 9: Extraction and processing of oil; Mechanical expellers, solvent extraction, refining, hydrogenation, winterization.

Week 10: Shelf life extension of oils using natural antioxidants; Concept and measurement of rancidity.

Week 11: Microencapsulation of bioactive, and Technology of oil powder.

Week 12: Functional foods and Nutraceuticals, Ready-to-eat therapeutic food, micronutrient fortified high energy bar, gluten free bread, carbonated cereal beverage.