DAIRY AND FOOD PROCESS AND PRODUCTS TECHNOLOGY

PROF. TRIDIB KUMAR GOSWAMI
Department of Agricultural and Food Engineering
IIT Kharagpur

INTENDED AUDIENCE : Agricultural Engineering, Food Technology, Food Engineering, Chemical Engineering, Biotechnological Engineering, Thermal Engineering, Biotechnology

INDUSTRIES APPLICABLE TO : Any Processing Industry such as Britannia, ITC, Hindustan Lever, Mother Dairy, Amul, etc.

COURSE OUTLINE :

This course will cover basics of dairy (liquid food) food processing and preservation technologies required in any dairy and food processing industries. The basic knowledge ondairy food processing is intermingled with most of the unit operations at some or other stage of processing. Since, this basic aspect of food processing and preservations not taught in most of the Agricultural engineering institutions elaborately, a comprehension of these aspects of processing andpreservation will enrich the knowledge base of the students in general.

ABOUT INSTRUCTOR :

Prof. Tridib Kumar Goswami, a NAAS, ISAE, IE, AABS Fellow, did his B.Sc. in Chemistry (Hons) from University of Calcutta, B.Tech. in Food Technology and Biochemical Engineering from Jadavpur University, Ph.D. from IIT Kharagpur. After serving Kwality Ice Cream, Bombay for 1 years, he joined IIT Kharagpur in 1989 and is still continuing as a Professor. He has earned 5 Indian Patents, published 104 papers in peer reviewed reputed journals, 55 conference proceedings. He has written 4 books and 14 book chapters published by International publishers. He has travelled around the world for presenting papers and was specially invited by Jeonbuk National University, Korea with full sponsorship in 2009. He has guided 14 Ph.D., out of which 3 theses have been awarded the prestigious Jawaharlal Nehru Award offered by ICAR. One of his papers was awarded the prestigious N.N. Mohan Memorial Award for 2009 conferred by AIFPA, New Delhi for Best Paper of the year. He has also received several National and International awards. He has completed several sponsored research & consultancy projects as PI and co-PI. He is the first faculty from Agricultural Engineering discipline in India to contribute to the National program on technology enhanced learning.

COURSE PLAN :

Week 1 : Basic principles and methods of food processing and preservation. EmergingTechnologies in food processing. Food additives and preservatives.

Week 2 : Food lawsand standards. Effect of processing on acceptability and nutritive value offood.

Week 3 : Physico-chemical properties and structure of milk and milk constituents.

Week 4 : Chemical and microbial spoilage of milk and milk products; Fluid milkProcessing, packaging and distribution.

Week 5 : Common dairy processes – creamseparation (standardization),pasteurization, sterilization andHomogenization.

Week 6 : Process technology for manufacture of evaporated milk, condensedmilk, dried milk, malted milk, infant and baby foods, ice-cream, cheese, butter,fermented milk and indigenous dairy products.

Week 7 : Methods and procedures forsampling and testing of milk and milk products. Laws and standards for milk andmilk products.

Week 8 : Technological processes for industrially manufactured foods of commercial importance, from plant and animal origin.

Week 9 : Cereals, vegetables,fruits, meats, poultry and egg products; Bakery, pasta and confectionaryproducts, ready to eat foods, fermented foods, alcoholic and non- alcoholicBeverages, tea, coffee and cocoa, fabricated foods.

Week 10 : Packaging materials;Characteristics, properties and their design. Packaging requirement forDifferent processed and unprocessed foods.

Week 11 : Working Principles of various typeof fillers : form-fill- seal machine.

Week 12 : Gas packaging and modified atmospherePackage design. Shelf life prediction of foods in packages. Quality control inFood packaging. Product safety and packaging regulations.