Course Descriptions for PhD Programs

Food Formulation 2 Cr.
Developing new products from idea to product launching; Programming a food product development; Formulation and optimization of products using mathematical methods; Scale up of a new product; shelf-life determination and cost management of a food product development.

Effect of Process on Food Quality 2 Cr.
New methods of food processing. Calculation of process in rigid; Semi rigid and flexible packaging. Ingredient interactions during processing. Positive and negative effect of processing on food products.

Effects of stress on microorganism 2 Cr.
Types of stress; Basics of stress adaptations in food bacteria, adaptation of food borne pathogens to stress from exposure to physical treatments; Adaptation to preservatives; Adaptation of Lactic Acid Bacteria, Molecular basis of stress adaptation

Advanced Food Packaging 2Cr.
Food packaging materials and their characterization; Polymers & biopolymers; Interaction of food and packaging materials, edible films.

Biotechnology in Food in Industries 3Cr.
History and background; Fermentation technology; Downstream process in biotechnology; Bioreactors; Microbial kinetics; Single cell protein; Amino acid protection; Plant and animal cells; Probiotics and prebiotics

Mechanisms of chemical reactions in foods 2Cr.
Mechanisms of fat oxidation and emulsification of proteins and hydrolysis. Acid and alkaline degrationary sugar, coordination chemistry and colour compound, olfactory and taste theories. Pyrols, reductions, pyrones and pyrazine formation in foods. Natural toxicants. Mechanisms of activities and vitamins.

Advanced Food Rheology 2Cr.
Overview of rheological properties of food materials and food products; Rheological models; Rheological Instruments for liquid and semisolid foods; Tube and rotational viscometry; Rheological properties measurement of Newtonian; Power law and plastic food materials.