

## Course Descriptions for MSc Programs

### **Advanced Food Chemistry 3 Cr.**

Use of enzymes in food industries; Mechanisms of browning reactions; enzymic and non-enzymic; Advanced mechanisms of photo oxidation; Chemistry of food colorants, flavors and hydrocolloids; New topics in food chemistry related to food safety.

### **Advanced Food Analysis 3Cr.**

Advanced liquid and gas chromatographic methods; Mechanisms of separation; Ion-exchange; Gel-permeation, Gel-filtration and molecular sieving; Spectroscopic methods; Molecular and atomic absorption and emission; X-ray diffraction, electrophoresis, ELISA and NMR methods.

### **Advanced Food Engineering 3 Cr.**

Design and performance evaluation of dryers; Pipeline design calculations for food fluids; Cooling requirements of food products, Cost analysis of food plants, Cold storage design; Definition, measurement and prediction of thermophysical properties.

### **Biophysical Properties of Agricultural Products 3 Cr.**

Physical, electrical, rheological, Thermal and optical properties of food products; Equipments and the methods of determination and application of above properties in food processing plants.

### **Advanced Food Technology 3 Cr.**

Thermal process calculations; Calculations of drying time; New product development; New topics in food science.

### **Advanced Dairy Technology 2 Cr.**

Reactions and interaction between milk components during processing. Emulsion and colloidal stability of milk and dairy product. Rheology and physical properties of milk and dairy products. Effect of process on milk flavor.

### **Advanced Cereal Science 2Cr.**

Qualitative characteristics of wheat flour; Enzymatic activity of flour; Flour improvers, leavening agents and their impact on dough.

### **Advanced Food Microbiology 2Cr.**

Rapid and new methods of Food Microflora identification, Bioremediation and its relationship with Food industry. Growth of microorganisms in extreme conditions. Predictive microbiology. HACCP.

### **Industrial Microbiology (Microbial Biotechnology) 3 Cr.**

Definition of fermentation; Identification, isolation and preservation of industrial microbes; Microbial culture media; Sterilization in fermentation process techniques kinetic of microbial growth; Fermentation processing methods; Downstream process; Enzymes (Production & Application)