

FT 3101	Introduction to Food Technology	3 credits
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Prerequisites:	BS 1005 Principles of Biology BS 1001 General Chemistry
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The role of the food industry in relation to modern societies; Scientific principles and operations involve in the preservation and manufacture of foods. The composition, ingredients labeling and marketing of a representative range of commercial foods; current consumer issues such as the safety of food additives, food irradiation, consumer protection, new product development, food regulations and future trends in our food supply.

FT 3102	Food Engineering	3 credits
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Prerequisites:	BS 2009 Analytical Chemistry, BT 3013 Introduction to Bioprocessing Engineering
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Materials and energy balance. Theory of momentum transfer and heat transfer and their application to biological and food materials and processes. Applied problems cover fractionation, filtration, reverse osmosis, three phase mass transfer, liquid and gas chromatography and extrusion.

FT 3103	Food Microbiology	3 credits
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Prerequisite:	BS 2011 Introduction to Microbiology
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Microorganisms in food safety, spoilage, and production, food-borne disease agents and their control. Growth parameters of food spoilage agents. Destruction of microbes in food. The development of microbes as a resource for the food industry. Methods for the microbiological examination of foods.

FT 3104	Human Nutrition	2 credits
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Prerequisite:	BS 2010 Basic Biochemistry
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The nature and function of different nutrients in primary nutritional diseases. The role of nutrients in the maintenance of life; growth and the normal function of the human body; the impact of technology on the nutrients in foods.

FT 3106	Industrial Food Processing I	3 credits
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Prerequisite:	FT 3101 Introduction to Food Technology
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Commercial processing of foods including theory and use of heat exchangers, separators, air and solar dryers,

freezers, evaporators. Physicochemical changes in osmotic pressure, vapor pressure, pH, surface tension, viscosity, emulsification and colloidal dispersions in processed foods will be discussed.

FT 3107	Food Chemistry and Analysis	4 credits
Prerequisite:	BS 2009 Analytical Chemistry	

Water, carbohydrates, lipids, proteins, vitamins, and minerals in foods: biochemical and functional properties, enzymes, food additives (emulsifiers, pigments, colors, flavors, preservatives, and sweeteners) and texture as related to properties in food systems and during processing.

FT 4108	Industrial Food Processing II	3 credits
Prerequisite:	FT 3106 Industrial Food Processing I	

Commercial Processing of foods including theory and use of membrane separation, electro dialysis, emulsion formers, extruders and irradiators. Processing, packaging and waste disposal will also be discussed.

FT 4110	Food Marketing and Management	3 credits
Prerequisite:	BG 2403 Introduction to Economics	

The principles and problems involved in the transfer of food products to the consumer. Psychological factors in food purchases. Production and distribution policies, costing and pricing, sales promotion and the improvement of marketing efficiency. Also includes the production management concepts associated with the food industry, with emphasis on manpower management, facilities management, quality management, materials management, product and process management.

FT 4112	Food Quality Control	3 credits
Prerequisites:	BG 2200 Statistics II FT 3103 Food Microbiology	

Food production as a systematic and controllable process; analysis and control during processing, handling and storage. Good Manufacturing Practices (GMP's), principles of Hazard Analysis of Critical Control Points (HACCP), ISO 9000. Instrumental and sensory methods for evaluating product quality; identity and wholesomeness and their integration into grades and standards of quality.

FT 4113	Food Product Development	3 credits
Prerequisite:	BG 2403 Introduction to Economics	

A study of the corporate research and development function for the improvement of existing products and development of new, economically feasible and marketable food products. Application of chemical-physical characteristics of ingredients to produce optimum quality products; cost reduction, consumer evaluation, equipment and package development.

FT 4120	Food Additive	3 credits
Prerequisite:	FT 3107 Food Chemistry and Analysis	

The use of different types of both natural and synthesized additives and their significance in commercial food processing. These additives include: amino acids, antioxidants antimicrobial agents, enzymes, polysaccharides, food colors and food flavors.

FT 4123 Food Sanitation 3 credits

Prerequisite: BS 2011 Introduction to Microbiology

Discussion of factors relating to sanitary control of food processing including: water treatment, chemical and physical sanitizing agents, principles of cleaning and hard surface detergency, metal corrosion, concepts in the disposal of wastes and the government sanitary regulations.

FT 4125 Beverage 3 credits

Prerequisite: FT 3106 Industrial Food Processing I

Technology for the production of carbonated and non-carbonated alcoholic beverages. Role of beverages in human life. The manufacturing processes and quality control for production of safe beverages.

FT 4190 Special Project 3 credits

Project involving an aspect of food technology. Design of the study, collection and analysis of experimental data will be done under faculty supervision. Submission of a written report and presentation of a seminar on the research work is compulsory.

FT 4191 Field Trip 1 credit

Visit to food or agro-industrial production facilities to view specific aspects of food processing and management. Students will be required to submit a written report of the tour.

FT 4192 Seminar 1 credit

Current issues in food science and technology. Students will be required to prepare and present seminars on selected topics.