ISTINYE UNIVERSITY

VOCATIONAL SCHOOL

FOOD TECHNOLOGY PROGRAMME

1th SEMESTER

INTRODUCTION TO FOOD TECHNOLOGY | ECTS (3+0) 3

Duties and responsibilities of the food technician, occupational ethics, the structure and properties of foodstuffs, the technological characteristics of foodstuffs, food processing and storage methods, basic food terms and technologies.

GENERAL CHEMISTRY | ECTS (2+2) 5

Basic concepts and properties of matter, atomic structure and properties, periodic table and its properties, classification of chemical reactions, equilibration of reaction equations, mole and molecular concepts, mol calculations, stoichiometric calculations, chemical reactions in aqueous solutions, gases, chemical bonds, laboratory applications.

PRINCIPLES OF NUTRITION | ECTS (3+0) 4

Definitions of nutrition and nutrition, historical development, daily energy requirement calculations, nutrition pyramid, food component; carbohydrates, lipids, proteins, water and minerals, vitamins, energy metabolism, digestion, absorption and transport, food groups, preparation, storage and processing of foods, nutrition in special situations.

GENERAL MICROBIOLOGY | ECTS (2+2) 5

Basic principles of microbiology, history and scope of microbiology, classification and definition of microorganisms, the structure of prokaryotic and eukaryotic cells and their differences, microbial development physiology and developmental stages, control of microbial growth, the relationship between microorganisms, beneficial and harmful effects of microorganisms, usege of microscope, media and isolation methods.

MATHMATICS | ECTS (3+0) 3

Arithmetic; Arithmetic terms and signs, numbers, multipliers and superscripts, ratio and proportion, averages and percentages, Algebra; evaluation of simple algebraic expressions,

four operations, parenthesized operations, linear equations, number systems, first order equations, second order equations, logarithm, Geometry; simple geometric constructions, space and volume, graphs, equation and function graphs, simple trigonometry, trigonometric relations.

2nd SEMESTER

FOOD MICROBIOLOGY | ECTS (2+2) 4

Microorganisms and antimicrobial agents important in the production of food, food poisoning, microbiological deterioration in meat and meat products, milk and milk products, eggs and products, fruits and vegetables and products, microbiological deterioration in canned and fermented foods. Determination of the microorganism burden in the soil, microorganism, mold, yeast counts; conformity to microbiological analyzes and standards in canned foods, in animal and vegetable-derived foods.

HYGIENE AND SANITATION | ECTS (3+0) 3

Definition of hygiene and sanitation, microorganism sanitation relationships, personnel, water, air, operational hygiene, cleaning and disinfection systems in food factories, quality safety and HACCP system.

CEREAL TECHNOLOGY | ECTS (2+2) 4

The importance of cereal technology, the structure of grains, the storage conditions of grains, the quality standards of wheat, the processing steps of wheat and the elements to be considered at this stage, other cereal grains, bread, pasta and biscuit technology.

READY TO SERVE FOOD TECHNOLOGY | ECTS (3+0) 3

Definition and classification of ready to serve food industry. Balanced nutrition, menu planning in making ready to serve meals, kitchen design and equipment, kitchen organization, storage, transportation and service techniques, hygiene and sanitation in mass feeding systems, quality assurance applications.

FERMENTATION TECHNOLOGY | ECTS (2+2) 4

Definition of fermentation, microorganisms performed in fermentation, wine, beer, production of high alcoholic beverages, pickles, vinegar, olives, boza, turnip production.

ELECTIVE INTERNSHIP OR VOCATIONAL DEVELOPMENT PROJECT | ECTS (0+10) 6

Students who choose to do internships complete their internship education by working ten work days alongside in public or private sector organizations working in the field of food. Students who choose to run a vocational work project complete their education by carrying out the project work to be given by their academic consultants regarding the food science and technology.

3rd SEMESTER

LIPID TECHNOLOGY | ECTS (2+2) 4

General compositions and structures of vegetable, animal fats and oils, oil raw materials, crude oil from olive and oil seeds, animal fat, fish oil technology, oil refining, oil hardening and margarine production, ıncreased resistance to oil degradation and deterioration.

INSTRUMENTAL FOOD ANALYSIS | ECTS (2+2) 4

Definition of ınstrumental analysis, refractometry, spectroscopic methods, chromatographic methods, thermal analysis methods, electrochemical methods

MEAT TECHNOLOGY | ECTS (2+2) 4

Composition of meat, structure of meat and tissues, glycolysis, post mortem mechanism, conversion of muscle to meat and factors that affecting meat quality during this conversion, meat quality, cooling and freezing of meat, storage conditions, techniques of meat products processing, cured and dryed meat products, fermented and emulsified meat products, additives, materials and equipments that used in meat technology, problems and solutions about meat products, adapting theoretical knowledge about meat technology to the practical usage by using meat pilot plant, learning analyses about determination of meat and meat products quality.

FOOD PACKAGING TECHNOLOGY | ECTS (3+0) 3

Defines the relationship between food packaging materials, packaging and packaging materials, food deterioration and protection functions. Food packaging materials (glass, paper, cardboard, corrugated board, wood, aluminum, tin, plastic and plastic based packages,

multilayer combinations) and aseptic packaging. Modified atmosphere packaging. Barcode. Smart packaging. Recommendations for food packaging.

4th SEMESTER

FRUIT AND VEGETABLE TECHNOLOGY | ECTS (2+2) 4

Fruit and vegetable biochemistry, pre-processing, fruit juice production technology, canned food production process, paste production process, jam production process, frozen fruits and vegetables, dried fruit and vegetable production.

MILK TECHNOLOGY | ECTS (2+2) 4

Milk and milk products production and trade in Turkey and in the world; definition of milk, milk composition and factors affecting composition; physicochemistry of milk components and technological prominence, milk coagulation mechanisms; milk microbiology, sanitation in dairy establishments and starter cultures used in dairy products; collection of raw milk; pre-treatment, pasteurization, sterilization. A brief description of yogurt, cheese, butter and ice cream production techniques.

FOOD LEGISLATION AND OCCUPATIONAL ETHIC | ECTS (2+0) 3

Definition and historical development of quality, quality system documents (TS ISO EN 9001-2000, TS ISO 22000, TS ISO EN 14001, TS 18001), certification, quality-efficiency relationship, law 5179 on the production consumption and ınspection of foods and related regulations, examining the results of the turkish food codex and ıts annexes (product notifications), expertise and other professional laws, ethical theories, examination of professional ethics, professional corruption and unethical behavior in professional life.

FOOD ADDITIVES | ECTS (3+0) 3

Definition of food additives. examination of additives used in food industry.

SENIOR PROJECT | ECTS (0+8) 5

Students will prepare a project proposal in the field of food, conduct a scientific research on the selected subject, and deliver the results in a report.

AREA ELECTIVE COURSES

FOOD INDUSTRY MACHINES | ECTS (3+0) 5

Drying Equipment, Evaporation Processes, Cooling/Freezing Systems. Separation, Washing, Filtration, Centrifugation, Conveying Systems, Mills, Presses, Evaporators, Dehydrators, Etc. Cooling/freezing storage of foodstuffs, weighing, conveying and conveying equipment, food pre-proponessing, classification, food processing and heat treatment equipment, microwave applications, drying processes and drying equipment, evaporation processes, cooling/freezing systems. Separation, washing, filtration, centrifugation, conveying systems, mills, presses, evaporators, dehydrators, etc.

FOOD TOXICOLOGY | ECTS (3+0) 5

Definition of toxic food components, factors affecting toxicity, definition of dose, toxicological evaluation of foods. Natural toxins in food, foodborne microbial toxins, food sensitivity, toxic components formed during food processing, food additives and reliability of food packaging materials, heavy metal and other environmental contaminants, pesticides and veterinary drugs, food irradiation and genetic modification applications, toxicological assessments national and international regulations.