

**T.C.
FIRAT ÜNİVERSİTESİ
KEBAN MESLEK YÜKSEKOKULU MÜDÜRLÜĞÜ**



**FOOD TECHNOLOGY PROGRAM
COURSE PLANS AND COURSE CONTENTS**

**Keban
ELAZIĞ**

T.R.
FIRAT UNIVERSITY
KEBAN VOCATIONAL SCHOOL
DEPARTMENT OF FOOD PROCESSING
FOOD TECHNOLOGY PROGRAM

COURSE PLANS

1ST CLASS FALL SEMESTER						
Course Code	Course Name	O*/E*	T*	P*	C*	ECTS*
TRD109	TURKISH LANGUAGE I	O	2	0	2	2
YDİ107	ENGLISH I	O	2	0	2	2
FU101	INTRODUCTION OF UNIVERSITY LIFE	O	2	0	2	2
MAT103	GENERAL MATHEMATICS	O	2	0	2	3
KİM101	GENERAL CHEMISTRY	O	2	0	2	3
KGP101	BASIC MICROBIOLOGY	O	2	2	3	5
KGP103	BASIC PROCESSES IN FOODS I	O	2	0	2	4
KGP105	FOOD CHEMISTRY	O	3	0	3	5
KGP107	FOOD ADDITIVES	O	2	0	2	4
Total			19	2	20	30

*O: Obligatory, E: Elective, T: Theoretical, P: Practice, K: Credit, ECTS: European Credit Transfer System.

1ST CLASS SPRING SEMESTER						
Course Code	Course Name	O/E	T	P	C	ECTS
TRD110	TURKISH LANGUAGE II	O	2	0	2	2
YDİ108	ENGLISH II	O	2	0	2	2
ENF102	USING OF BASIC INFORMATION TECHNOLOGIES	O	2	2	3	4
KGP102	Food MICROBIOLOGY	O	2	2	3	5
KGP104	BASIC PROCESSES IN FOODS II	O	2	0	2	4
KGP106	FOOD INDUSTRY MACHINES	O	2	1	3	5
KGP108	FOOD ANALYSIS	O	2	2	3	5
KGP110	BUSINESS MANAGEMENT	O	2	0	2	3
Total			16	7	20	30

2ND CLASS FALL SEMESTER						
Course Code	Course Name	O/E	T	P	C	ECTS
AİT209	ATATURK'S PRINCIPLES AND HISTORY OF REVOLUTION I	O	2	0	2	2
KGP201	GRAIN TECHNOLOGY I	O	2	1	3	3
KGP203	MEAT AND MEAT PRODUCTS TECHNOLOGY I	O	2	1	3	3
KGP205	FRUIT AND VEGETABLE TECHNOLOGY I	O	2	1	3	4
KGP207	MILK TECHNOLOGY I	O	2	1	3	3
KGP209	FOOD PRESERVATION AND PACKAGING	O	2	0	2	3
KGP211	FOOD SAFETY AND QUALITY MANAGEMENT	O	2	0	2	3
KGP213	VOCATIONAL PRACTICE	O	0	2	1	6
	ELECTIVE COURSE (*)		2	0	2	3
Total			16	6	21	30
ELECTIVE COURSES (*)						
KGP215	INDUSTRIAL CATERING	E	2	0	2	3
KGP217	ENTREPRENEURSHIP	E	2	0	2	3

* It is obligatory to choose one of the elective courses.

2ND CLASS SPRING SEMESTER						
Course Code	Course Name	O/E	T	P	C	ECTS
AİT210	ATATURK'S PRINCIPLES AND HISTORY OF REVOLUTION II	O	2	0	2	2
KGP202	GRAIN TECHNOLOGY II	O	2	1	3	4
KGP204	MEAT AND MEAT PRODUCTS TECHNOLOGY II	O	2	1	3	4
KGP206	FRUIT AND VEGETABLE TECHNOLOGY II	O	2	1	3	3
KGP208	MILK TECHNOLOGY II	O	2	1	3	4
KGP210	AQUATIC PRODUCTS TECHNOLOGY	O	2	1	3	3
KGP212	SPECIALITY FOODS TECHNOLOGY	O	2	1	3	4
KGP214	HYGIENE AND SANITATION	O	2	0	2	3
	ELECTIVE COURSE (*)		2	0	2	3
Total			18	6	24	30
ELECTIVE COURSES (*)						
KGP216	COOKING OIL TECHNOLOGY	E	2	0	2	3
KGP218	OCCUPATIONAL HEALTH AND SAFETY	E	2	0	2	3

* It is obligatory to choose one of the elective courses.

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COURSE CONTENTS

COURSES (TERM I)	O/E	T	P	C	ECTS
TRD109 TURKISH LANGUAGE I	0	2	0	2	2
Language, languages, Turkish Language, grammar, phonetic features of Turkish, phonetic and structural features of Turkish, structural features of Turkish, sentence knowledge, spelling rules and punctuation marks, application of spelling rules, application of punctuation marks.					
YDİ107 ENGLISH I	0	2	0	2	2
Verb Be, statements and questions, countries and nationalities, present simple tense, statements, verbs for daily routines, present simple questions, free time activities, verb Have / Has, family tree, there is / there are, places in a town, present continuous tense, rooms and furniture, can / can't, months of the year, present simple tense, present continuous tense, jobs.					
FU101 INTRODUCTION OF UNIVERSITY LIFE	0	2	0	2	2
Areas of responsibility, city and campus promotion, student societies and movements, career center, departments, life on campus, career planning and time management, personal care and hygiene, healthy life and sports, disaster and emergencies and management, first aid, written and verbal communication, traffic and environmental awareness, academic title ranking and consultancy, domestic and international higher education and student mobility, quality policies, college activities, project information, student projects, student affairs automation, distance education, continuing education center, disciplinary affairs, regulations, directives and senate decisions, grading system, course passing, mobile technologies, short film techniques.					
MAT103 GENERAL MATHEMATICS	0	2	0	2	3
Ability to perform arithmetic and algebraic operations; calculate the exponent and root of a real number; solutions of radical and fractional equations and quadratic equations, real and complex numbers, quadratic equations with one unknown; root coefficient relations and solution of inequalities in quadratic equations; solution of equations and inequalities, trigonometric ratios, complex numbers, solution of determinant and linear equations, equation of a straight line in the plane, vectors, logarithm.					
KİM101 GENERAL CHEMISTRY	0	2	0	2	3
Substance, distinctive properties of the substance, mixtures, phase change, mixtures and separation methods, the basic rules of chemistry, the structure of the atom and the periodic table, mole concept, atomic masses and determination of chemical formulas, chemical bonds, chemical reactions, calculations related to chemical reaction equations, radioactivity, qualitative and quantitative analysis, solutions, solutions and concentration, dilution of solutions, titration, acids-bases and pH, gas rules.					
KGP101 BASIC MICROBIOLOGY	0	2	2	3	5
Definition and scope of microbiology, procaryotic protists (bacteria, viruses), eucaryotic protists (fungi, algae, protozoa), naming and morphology of microorganisms, nutrition, growth and proliferation of microorganisms, microbial metabolism, control of microorganisms, sampling to microbiological analysis, hygiene control samples, sterilization, medium types and medium preparation, dilution series preparation, planting, incubation.					
KGP103 BASIC PROCESSES IN FOODS I	0	2	0	2	4
Dry cleaning, wet cleaning, filtering, precipitation process, centrifuge process, separation, sifting, distillation, extraction, grinding, shredding, homogenization, concentration methods, mixing liquids, mixing solids and making emulsions, ensuring storage conditions, cold applications in food preservation, cold storage of vegetables, fruits and meat, calculation of cooling loads. , freezing methods, thawing.					
KGP105 FOOD CHEMISTRY	0	3	0	3	5
The importance and functions of water, carbohydrates, proteins, lipids, enzymes, mineral substances, vitamins, phenolic substances, natural flavor substances, toxic and contaminant substances found in foods.					
KGP107 FOOD ADDITIVES	0	2	0	2	4
Definition of food additives, purposes of use, relevant legal regulations, antioxidants, acidity regulators, stabilizers, emulsifiers, preservatives (acetic acid and acetates, benzoic acid and its salts, sorbic acid and its salts, propionic acid and its salts, parabens, sulfur dioxide and sulfites, nitrate and nitrites, dimethyl dicarbonates, protective gases, antibiotics, etc.), flavoring agents, colorants, chelating agents, sweeteners, enhancers, starters, enzymes, anti-caking agents, flour processing agents, bulking agents, foaming agents, leavening agents, solvents.					
COURSES (TERM II)	O/E	T	P	C	ECTS
TRD110 TURKISH LANGUAGE II	0	2	0	2	2
Reading with comprehension and pleasure, acquiring the habit of reading, evaluating the text read, written expression, limiting a subject, making plans on this subject, writing sentences as paragraphs, written expression techniques and their application, introduction and application of written expression types, preparation of scientific review articles, verbal expression, ways to be successful in oral expression, forms and application of oral expression, types and application of oral expression.					
YDİ108 ENGLISH II	0	2	0	2	2
Past simple, verb BE, events and places to go, past simple actions, school subjects, past simple questions, parts of the body, future tense, be + going to, travel, countable and uncountable nouns, foods, clothes, weather, adjectives, comparatives adjectives, superlatives adjectives, geographical features.					
ENF102 USING OF BASIC INFORMATION TECHNOLOGIES	0	2	2	3	4
Computer architecture, motherboard, processor, monitor, keyboard, RAM, ROM, hard disk, printer, serial-parallel port, usb. CD-ROM, sound card, floppy, software concept and types; programming languages; operating systems. Ability to perform basic functions in Windows and Linux operating systems. Ability to use office programs at a basic level, Use of electronic mail management and electronic commerce. Installing, updating, deleting programs. Ability to write technical articles and draw graphics. Ability to use office devices and convert formats between them. Scanner, document scanner, network camera, etc. using photos, documents, etc. Ability to create shapes like. Ability to recognize modems, printers, ethernet and SSCI cards, sound cards and TV cards. Ability to create a new computer by combining all the hardware of the computer. Computer networks and communications Database creation. Creating an e-mail address, sending and receiving e-mail. Preparing a personal website.					

KGP102 FOOD MICROBIOLOGY	0	2	2	3	5
Possible microorganisms that may be present in foods, sources of microbial contamination in foods, cross contamination, internal and external factors affecting microbial development, danger zone, indicator microorganisms in foods, preventing microbial growth, killing microorganisms, various foods (meat, milk, eggs, fruits - vegetables, etc.).) microbiological spoilage, foodborne microbial diseases, microbiological food poisoning and prevention methods.					
KGP104 BASIC PPROCESSES IN FOODS II	0	2	0	2	4
Drying and drying systems, water activity, evaporation, crystallization, extrusion, boiling, cooking, thermization, pasteurization, sterilization, acid - alcohol fermentation.					
KGP106 FOOD INDUSTRY MACHINES	0	2	1	3	5
Cleaning of raw materials, weighing and measuring instruments, transportation and transmission systems, washing and sorting machines, sieve systems and classification machines, separation and filtration systems, mixing and mixing machines, homogenizers, tubular and plate heat exchangers, evaporators, dryer systems, mills, presses, cutting and chopping machines, packaging types, washing - filling and closing machines, aseptic packaging systems.					
KGP108 FOOD ANALYSIS	0	2	2	3	5
Definition of the laboratory, rules to be followed in the laboratory, laboratory accidents and first aid, introduction of tools and equipment used in laboratories, solutions and solution preparation, sampling, transportation and preservation of samples to the laboratory, classification of food analyses, basic physical, chemical, sensory and microbiological analyzes (dry matter, moisture, fat, acidity, protein, water activity, refractive index, ash determinations, cultivation and bacterial counting methods), titration, combustion methods, extraction methods, specific gravity, pH measurement, evaluation of analysis results, various oil analyzes (free oil acids, refractive index, determination of iodine numbers, etc.).					
KGP110 BUSINESS MANAGEMENT	0	2	0	2	3
Analyzing microeconomic and macroeconomic data, following the gaps in the market, choosing the most suitable investment alternative, carrying out feasibility studies, knowing the environment of the business, demand analysis, determining the place of establishment and legal structure of the business, determining the capacity of the workplace and the total investment cost, calculating estimated income and expenses, making a production plan, carrying out the installation procedures of the investment, creating the appropriate structure and opening the workplace, ensuring coordination and control, planning human resources, career planning, job evaluation and pricing, stock planning, determining the target market, product development, policies for getting place in the market and distribution, managing resources and income and expense accounts..					
COURSES (TERM III)	O/E	T	P	C	ECTS
AİT209 ATATURK'S PRINCIPLES AND HISTORY OF REVOLUTION I	0	2	0	2	2
Definitions of the terms revolution and history, world revolutions and the place of the Turkish revolution within them, characteristics of the Turkish revolution, Armenians under the Ottoman Empire, The Ottoman Empire in I. World War and the results of the war, the Armistice of Mudros and the occupation of the Empire, the beginning of the War of Independence, Atatürk's place and goal in the War of Independence, the Amasya circular, National congresses, Istanbul-Anatolia relations, the opening and first works of the Turkish Grand National Assembly, internal rebellions prevention, wars on the Eastern front, national fronts (Kuvayı milliye), Western front, the first international agreements made by the Turkish Grand National Assembly, the Lausanne Peace Treaty.					
KGP201 GRAIN TECHNOLOGY I	0	2	1	3	3
Definition of grain and its importance in our nutrition, structures of grains, grain types and classification, moisture-respiration control in grains, storage and preservation of grains, ensiling, warehouses and machines used in the grain industry, grain market, cleaning and classification, storage, tempering and blending of wheat, purification, wheat milling, flour rescript, bread flour and special flours (whole flour, brown flour, etc.), flour blending, mill by-products, raw materials used in bread making, bread production, oven types and usage techniques, relevant rescripts and quality controls.					
KGP203 MEAT AND MEAT PRODUCTS TECHNOLOGY I	0	2	1	3	3
Composition of meat, resting the carcass and rigor mortis, meat marks, disassembly, terms related to butchered animal meat, cooling and freezing of meat, machines used in meat processing, tests applied to meat, production of fresh meat products, production of fresh, frozen and processed frozen meat products, slaughterhouse by-products, poultry meat and products, preservation methods of meat and products, relevant rescripts and quality controls.					
KGP205 FRUIT AND VEGETABLE TECHNOLOGY I	0	2	1	3	4
Composition of fruits and vegetables, general principles in the processing of fruits and vegetables, deterioration of fruits and vegetables and preservation methods, preliminary processes applied to fruits and vegetables (washing, sorting and sorting, stem and head - end removal, removing seeds, peeling, chopping, boiling). , cold storage of fruits and vegetables, freezing of fruits and vegetables, storage in controlled and modified atmosphere, drying of fruits and vegetables, relevant rescripts and quality controls.					
KGP207 MILK TECHNOLOGY I	0	2	1	3	3
The importance of milk in nutrition, milk and its properties, nutrients in milk (water, protein, carbohydrate, fat, mineral substance, vitamin), properties of milk fat, cells in milk, abnormal milk, colostrum, drinking milk technology (pasteurized drinking milk, sterilized drinking milk), milk powder production, cheese technology, white cheese, cheddar (kasar) cheese, processed cheeses, curd cheese, whey, deteriorations and prevention measures in these products, relevant rescripts and quality controls.					
KGP209 FOOD PRESERVATION AND PACKAGING	0	2	0	2	3
Preservation methods, cold storage, freezing preservation, freezing, preservation by heat treatment, preservation by drying, preservation by acids, preservation by radiation, preservation by preservatives, paper-based packaging materials, metal-based packaging materials, tin cans, aluminum packaging and their areas of use, glass packaging. Information about containers, plastic packaging, multi-layer combinations, aseptic packaging, wooden packaging, use of protective gases in food packaging (modified and controlled atmosphere), strip code system in packaging, migration, information about the regulation regarding packaging and labeling.					
KGP211 FOOD SAFETY AND QUALITY MANAGEMENT	0	2	0	2	3
The concept of quality, standard and standardization, the importance of the standard in the production and service sector, management quality and standards, resource management system, risk management system, quality management system models, the importance of food safety, food law, information about food safety legislations, food contaminants and spoilage factors, sources of microbiological contamination in foods, food-borne health risks (risks caused by bacteria, viruses and moulds), food-borne health risks (parasites, natural food contaminants of animal and vegetable origin, risks caused by chemical contaminants), HACCP food safety program, adulteration, imitation, GMP - good manufacturing practices-, information about ISO 22000 standard.					
KGP213 VOCATIONAL PRACTICE	0	0	2	1	6
Preparing and presenting a presentation about the internship, examining the prepared internship notebook and evaluating it with questions.					
KGP215 INDUSTRIAL CATERING	E	2	0	2	3

Information about the catering industry, organization and task distribution in catering factories, tools and equipment used in catering factories, storage in ready-made food systems, goods acceptance procedures and sampling, hygiene and sanitation in ready-made food systems, food safety, safe food preparation techniques, shipping and service according to food safety rules, meal menu planning, cost calculations, examination of customer complaint samples, quality practices in food factories (HACCP, etc.).

KGP217 ENTREPRENEURSHIP **E** **2** **0** **2** **3**

Information on entrepreneurship, self-knowledge of the entrepreneur, testing of entrepreneurial characteristics, innovation and invention, business idea development and creativity exercises, (brainstorming), starting a business, business plan concept and elements (market research, marketing plan, marketing techniques, making promotions with the right tools, production plan, management plan, financial plan), studies to consolidate the business plan elements (market research, marketing plan, production plan, management plan, financial plan), points to be considered in writing and presenting the business plan, filling out KOSGEB documents.

COURSES (TERM IV) **O/S** **T** **P** **C** **ECTS**

AİT210 ATATURK'S PRINCIPLES AND HISTORY OF REVOLUTION II **O** **2** **0** **2** **2**

Declaration of the Republic, the first constitution, Atatürk's principles and revolutions (revolutions in social, economic, administrative, cultural and other fields), Turkey and the world states during the period of single-party governments, the Republican period, internal rebellions, the foreign policy of the Government of the Republic of Turkey, treaties, the Orient and the Armenian issue, attempts at transition to the multi-party era, Atatürk's death, II. World War and Türkiye, developments in Türkiye's foreign policy, the Middle East and the Republic of Türkiye, Türkiye's principles and goals in the period of rapid progress.

KGP202 GRAIN TECHNOLOGY II **O** **2** **1** **3** **4**

Semolina and bulgur production, starch production, pasta production, preservation and rescript, biscuit production and standard, cake production and control, microbiological spoilage in bakery products, cereal types for breakfast and production, legume types and production control, relevant rescripts and quality controls.

KGP204 MEAT AND MEAT PRODUCTS TECHNOLOGY II **O** **2** **1** **3** **4**

Additives used in the meat industry, curing, marination, smoking, emulsion type meat products (sausage, salami), production of further processed meat products (sucuk, pastrami, canned, roasted, ham, smoked tongue, jellied tripe) and quality characteristics, spoilage in meat and meat products, production of fresh and canned seafood, relevant rescripts and quality controls.

KGP206 FRUIT AND VEGETABLE TECHNOLOGY II **O** **2** **1** **3** **3**

Fruit juice production technology, jam production technology, tomato paste production technology, canning technology, pickle production technology, vinegar production technology, quality characteristics of these products, relevant rescripts and quality controls.

KGP208 MILK TECHNOLOGY II **O** **2** **1** **3** **4**

Local cheese varieties (Tulum cheese production, Civil cheese production, Mihaliç cheese production, Halloumi cheese production, Van herby cheese production), starter cultures used in dairy products, yoghurt technology, ayran production, cream production, butter technology, thickened milk production, ice cream technology, kefir technology, deteriorations in these products and ways to prevent them, relevant rescripts and quality controls.

KGP210 AQUATIC PRODUCTS TECHNOLOGY **O** **2** **1** **3** **3**

Present and future of aquaculture processing technology, biochemical ratios of various aquatic products and factors affecting these ratios, chemical, physical, microbiological and sensory changes that occur after hunting, pre-processing technology in aquatic products (filleting etc.), cooling, freezing, smoking, canning, salting, drying, marinade, surimi and packaging technologies in aquatic products, fermented fish products, valuation of fish and shellfish waste, applications of these techniques in various aquatic products, relevant rescripts and quality controls.

KGP212 SPECIALITY FOODS TECHNOLOGY **O** **2** **1** **3** **4**

Honey, pekmez (thickened mulberry sherbet) production technology, sugar and confectionery production technologies, cocoa and chocolate production technology, tea processing technology, coffee processing technology, Turkish delight production, tahini and tahini halva production, confectionery production technology, ketchup and mayonnaise production, powdered food products production, quality characteristics of these products, relevant rescripts and quality controls.

KGP214 HYGIENE AND SANITATION **O** **2** **0** **2** **3**

Definition of hygiene and sanitation, cleaning and disinfection concepts, cleaning and sanitation in food businesses, business entrances and exits, changing rooms in the workplace, toilet and hand washing areas, work clothes and protective materials, properties of detergents and disinfectants used in the food industry, cleaning and disinfection in food businesses methods, water and air hygiene, tools used in cleaning and disinfection, combating pests and rodents, residual and waste materials and their rendering harmless, points to be considered in sanitation practices, cleaning in place (CIP) system, personnel hygiene, health checks and periods required according to food legislations, general food hygiene.

KGP216 COOKING OIL TECHNOLOGY **E** **2** **0** **2** **3**

The importance of edible oils in our nutrition, the formation of vegetable oils, the chemical structure of oils, the properties of fatty acids, commercially important vegetable oils, oilseed purchasing criteria, storage of oilseeds, methods of obtaining crude oil, refining of crude oil, production technologies of olive oil and other vegetable oils, deterioration in oils and prevention measures, solidification of oils, margarine production technology, rescripts and quality controls regarding oils.

KGP218 OCCUPATIONAL HEALTH AND SAFETY **E** **2** **0** **2** **3**

The concept of occupational safety, the economic importance of occupational safety studies, employer and employee duties and responsibilities, Occupational Health and Safety Law No. 6331, definition of occupational accidents, their causes and prevention methods, fire and fire extinguishing methods, occupational health and safety in hand tools, physical, chemical and biological risks, hazards and types of hazards, methods and solutions in accident investigations, occupational health and safety application principles, appropriate job placement, evaluation of workplace environmental factors, analysis of occupational health and safety risks, intermittent control examination, basic first aid knowledge, occupational diseases. and legal liability, emergency plans.

NOTE: A 30-day internship is required during the spring semester summer term of the first year.