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| **COMPULSORY COURSES** |
| **FIRST YEAR 1. SEMESTER** |
| **NO** | **COURSE CODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **TDL101** | **TURKISH LANGUAGE 1** | **C** | **2** | **0** | **2** | **2** |
| In this course, the subjects of Language, Languages and Turkish Language, Grammar, Words, Word Types, Elements of Expression and Expression Types, Basic Principles of Proper and Effective Speech, phonology of Turkey Turkish will be discussed. |
|  **2.** | **AIT101** | **ATATURK'S PRINCIPLES AND HISTORY OF REVOLUTION 1** | **C** | **2** | **0** | **2** | **2** |
| Within the scope of this course, Basic Concepts, Reforms of the Ottoman State Before the Turkish Revolution, Preparation Period of the Turkish Revolutions, Turkish War of Independence will be discussed. |
| **3.** | **YDL101** | **ENGLISH 1** | **C** | **2** | **1** | **2,5** | **5** |
| As part of this course, Present simple ( to be ). Subject pronouns, Possessive Adjectives, Possessive Pronouns – Commands – Object pronouns – Modals (can )– Adjectives – Adverbs – Present simple (all forms) Let's.../ shal we ..... ?/ Why don't we .. .? /How about ...? What's the mather ...? Ordinal Numbers – Prepositions. Time Expressions – Adverbs of quantity – How many – How much. Countable / Uncoutable Nouns – Would like / would like to....? Present progressive ( all forms) – present progressive ( Future meaning) must / have to / need / should / - past simple topics will be discussed. |
|  **4.** | **GTB101** | **MATHEMATICS 1** | **C** | **3** | **0** | **3** | **4** |
| In this course, Numbers, Algebra, Inequalities and Equations, Functions, Logarithm, Trigonometry, Complex Numbers, Area-Volume in Solids are covered. |
| **5.** | **TBT101** | **BASIC INFORMATION TECHNOLOGIES 1** | **C** | **2** | **2** | **3** | **5** |
| In this course, Windows Operating System: Definition and use of desktop and objects, Start menu options; Microsoft Office: Opening, preparing, editing, preparing headers and footers with Word, cell, row, column, page operations with Excel, cell formatting and formula writing, slide preparation and operations with Power Point, Outlook with options such as calendar and diary. usage, mail control; Internet Explorer: The use of Explorer objects and searching the internet will be covered. |
| **6.** | **GTB103** | **GENERAL CHEMISTRY** | **C** | **3** | **0** | **3** | **3** |
| In this course, Matter and its Properties, Atom and its structure, periodic table, Chemical Reactions, Liquids, Solids, Gases will be discussed. |
|  **7.** | **GTB105** | **FOOD PROCESSING PRINCIPLES** | **C** | **2** | **0** | **2** | **2** |
| Basic properties of foods and principles used in production, raw material preparation machines, production machines and design of equipment used in the food industry, optimization of operating conditions, selection of processes suitable for the purpose in the food industry and basic principles in process development, introduction of equipment used in food processing and selection of food machines suitable for food processing topics will be covered in the course. |
|  **8.** | **GTB107** | **NUTRITIONAL PRINCIPLES** | **C** | **3** | **0** | **3** | **3** |
| Basic properties of foods and principles used in production, raw material preparation machines, production machines and design of equipment used in the food industry, optimization of operating conditions, selection of processes suitable for the purpose in the food industry and basic principles in process development, introduction of equipment used in food processing and selection of food machines suitable for food processing topics will be covered in the course. |
| **9.** | **DOY101** | **DIGITAL LITERACY** | **C** | **2** | **0** | **2** | **3** |
| Basic Concepts of Internet, Development Process of Internet, Web Browsers, Search Engines, E-Government, Portable Technologies, Features of Portable Technologies, Some Services and Protocols Related to Portable Technologies, Possibilities of Web 2.0 and Features of Social Networks, Social Networks About Different Purposes of Use, Media Literacy and Fluency in Social Networks, Technology Use and Lifestyle in Various Societies Throughout Human History , Technology Philosophies , Socialization and Self-Presentation Behaviors in Social Sharing Tools , Human Computer Interaction, Information Ethics, Technology and Lifelong Learning, Future Technologies knowledge is intended. |
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| **FIRST YEAR 2. SEMESTER** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **TDL102** | **TURKISH LANGUAGE 2** | **C** | **2** | **0** | **2** | **2** |
| Within the scope of this course, Sentence, Sentence Types and Application; Ways of Gaining Accumulation in Written and Oral Expression will be discussed. |
| **2.** | **AIT102** | **ATATURK'S PRINCIPLES AND HISTORY OF REVOLUTION 2** | **C** | **2** | **0** | **2** | **2** |
| Uprisings in the National Struggle Period and the Treaty of Sèvres, Military and Political Struggle, Establishment of the Republic of Turkey, Ataturk's Domestic and Foreign Policies, Reforms After the Establishment of the Republic of Turkey, Ataturk's Principles will be covered in the course. |
| **3.** | **YDL102** | **ENGLISH 2** | **C** | **2** | **1** | **2,5** | **5** |
| In this lesson, Adverbs of location – Noun clauses - prefer / would rather Adverbs of manner – comparative / superlative Forms. Will / goig to – modals with Present Progressive and past forms – passive voice – the same as / different from. Adverbial clauses of purpose / reason /result will be discussed. |
| **4.** | **TBT102** | **BASIC INFORMATION TECHNOLOGIES 2** | **C** | **2** | **2** | **3** | **4** |
| Advanced level of MS Word, MS Excel usage, Power Point programs and computer protection from harmful programs will be covered in the course. |
| **5.** | **GTB102** | **MATHEMATICS 2** | **C** | **3** | **0** | **3** | **4** |
| Indefinite integral, methods of integration, Properties of definite integral, related theorems, Applications of definite integral (Area, arc length, volume calculation, surface area calculation) Generalized integrals and their properties, Multivariable functions. |
| **6.** | **GTB104** | **FOOD CHEMISTRY** | **C** | **3** | **0** | **3** | **5** |
| Within the scope of this course, general biochemical components of foods, proteins, carbohydrates, lipids, vitamins, enzymes, their determination methods, deterioration, preservation and storage of foods, processing and digestion will be discussed. |
| **7.** | **GTB106** | **BIOTECHNOLOGY** | **C** | **3** | **0** | **3** | **4** |
| This course covers the production of animal and plant food or microorganism culture with desired properties by using genetic information or enzyme technology. |
| **8.** | **GTB108** | **INTRODUCTION TO FOOD TECHNOLOGY** | **C** | **3** | **0** | **3** | **4** |
| Duties and responsibilities of food technician, professional ethics, structure and properties of foodstuffs, technological properties of foodstuffs, food processing and storage methods, basic food terms and technologies. |
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| **SECOND YEAR 3. SEMESTER** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB201** | **ORGANIC CHEMISTRY** | **C** | **2** | **0** | **2** | **3** |
|  Basic principles of organic chemistry, reactions, types of processes and reaction stages in organic reactions. |
| **2.** | **GTB203** | **LABORATORY TECHNIQUES 1** | **C** | **2** | **2** | **3** | **5** |
|  Before various analysis courses and applications, introduction of laboratories, ensuring general and personal safety, preparation of adjusted standard solutions, use of laboratory tools and equipment will be covered within the scope of the course. |
| **3.** | **GTB205** | **PROFESSIONAL ENGLISH 1** | **C** | **3** | **0** | **3** | **4** |
|  The aim of this course is to improve students' level of English and at the same time to help them understand and use international business English and business terms. It is aimed that students who take this course will be able to communicate verbally and in writing using basic English in business life.  |
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| **4.** | **GBT207** | **FOOD BIOLOGY** | **C** | **3** | **0** | **3** | **4** |
| Subject and parts of biology, living things and environment, cell science, tissues, organs and systems, reproduction in living things, reproductive system, nutrition and digestive system in living things, circulation, excretory, nervous, respiratory systems, nucleic acids, hormones and endocrine system, enzymes, microorganisms , factors affecting growth in plants in the pre-harvest period, milk formation physiology and udder anatomy, factors affecting meat and carcass quality. |
| **5.** | **GTB209** | **GENERAL MICROBIOLOGY 1** | **C** | **2** | **2** | **3** | **5** |
| Basic principles of microbiology, history and scope of microbiology, important biological molecules, microscopes used in microbiology, classification and definition of microorganisms, structure and differences between prokaryotic and eukaryotic cells, differences between gram-positive and gram-negative bacteria, external and internal organelles in eukaryotic cells, microbial developmental physiology and developmental stages, control of microbial growth, relationship between microorganisms, beneficial and harmful effects of microorganisms, isolation methods and definition of immunology. |
| **Note: C: Compulsory Courses, E: Elective Courses, T: Theoretical Course Hour; P: Weekly Practice Course Hour, C: Course Credit, ECTS: European Credit Transfer System Credit of the Course.** |
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| **SECOND YEAR 4. SEMESTER** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB202** | **ANALYTICAL CHEMISTRY** | **C** | **2** | **0** | **2** | **3** |
|  Chemical analysis and analysis methods, water in chemical analysis and its properties, errors in chemical analysis, statistical evaluation of analysis results, aqueous solution chemistry, solubility balance calculations and controlled precipitation, gravimetric analysis, titrimetric analysis, pH calculations in acids, bases and salts, buffer solutions, oxidation, reduction and precipitation titrations. |
| **2.** | **GTB204** | **LABORATORY TECHNIQUES 2** | **C** | **2** | **2** | **3** | **5** |
|  Before various analysis courses and applications, introduction of laboratories, ensuring general and personal safety, preparation of adjusted standard solutions, use of laboratory tools and equipment will be covered within the scope of the course. |
| **3.** | **GTB206** | **PROFESSIONAL ENGLISH 2** | **C** | **3** | **0** | **3** | **4** |
|  The aim of this course is to improve students' level of English and at the same time to help them understand and use international business English and business terms. It is aimed that students who take this course will be able to communicate verbally and in writing using basic English in business life. |
| **4.** | **GTB224** | **FOOD BIOCHEMISTRY** | **C** | **2** | **0** | **2** | **3** |
|  Chemistry and reactions of macro (water, carbohydrates, proteins, lipids) and micro (vitamins, minerals, pigments, taste and fragrance substances, organic acids) building blocks in foods and the effects of changes that may occur in these components on food. |
| **5.** | **GTB210** | **GENERAL MICROBIOLOGY 2** | **C** | **2** | **2** | **3** | **5** |
| Scope and application areas of microbiology. Cultural characteristics and morphology of microorganisms. Cell structure and metabolism. Replication forms. Isolation of microorganisms, reproduction and factors affecting their development. Fungi. Viruses. algae. Protozoa. |
| **6.** | **GTB212** | **READY FOOD PRODUCTION TECHNOLOGY** | **C** | **2** | **0** | **2** | **3** |
|  Within the scope of this course, ready-made food industry, its historical development and classification, traditional and modern applications in the ready-to-eat food industry; Collective Nutrition System and its management, strategic planning, basic operations and organization; basic description of the process, budget planning and control; buy; warehousing and supply chain management; menu and production planning and material control, workforce planning, defining personnel criteria, personnel training, production service area design and equipment principles; ensuring worker health and suitable working conditions; sanitation; food safety system; Quality management system issues will be discussed. |
| **Note: C: Compulsory Courses, E: Elective Courses, T: Theoretical Course Hour; P: Weekly Practice Course Hour, C: Course Credit, ECTS: European Credit Transfer System Credit of the Course.** |
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| **THIRD YEAR 5. SEMESTER** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB301** | **CEREAL PROCESSING TECHNOLOGY** | **E** | **3** | **2** | **4** | **5** |
| In this course, classification of cereals, production-consumption statistics and their importance in nutrition; Physical, chemical and biological properties; storage; grinding; Processing into products such as bread, pasta, bulgur, biscuits, crackers, wafers, cakes, breakfast and snack cereals, Wet grinding; Topics such as quality criteria and measurement will be covered. |
| **2.** | **GTB303** | **FRUIT AND VEGETABLE PROCESSING TECHNIQUES** | **E** | **3** | **2** | **4** | **5** |
| Within the scope of this course, physical, chemical and biological properties of fruits and vegetables, Pre-treatments applied in the preservation of fruits and vegetables, Freezing preservation of fruits and vegetables, Canned production technology, Tomato paste production technology, Jam-marmalade and jelly production technology, Drying technology, Fruit juice production technology, quality analysis of fruits and vegetables and their products will be discussed. |
| **3.** | **GTB305** | **ECONOMY** | **E** | **3** | **0** | **3** | **4** |
| Basic concepts of economy, market types, price formation, consumer behavior theory, production theory, distribution theory, national income, employment, money and bank, foreign trade. |
| **4.** | **GTB307** | **FOOD ANALYSIS 1** | **E** | **2** | **2** | **3** | **5** |
| In this course, sampling, preparation of samples for analysis, general analysis methods used in food businesses; The subjects of transferring and applying the principles of some analyzes in subjects such as moisture (water) and total dry matter determination, water-soluble and insoluble dry matter determination, ash determination, pH and titration acidity determination, carbohydrate (sugar determination), fat, protein, and ascorbic acid determination. It will be discussed. |
| **5.** | **GTB309** | **FOOD MİCROBIOLOGY 1** | **E** | **2** | **2** | **3** | **5** |
| In this course, microorganisms in foods, their classification and importance, food-borne diseases, functions of microorganisms in foods, contaminations that may occur in foods and ways to prevent them, indicator microorganisms in foods, food preservation methods will be discussed |
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| **THIRD YEAR 6. SEMESTER** |
| **N0** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB302** | **SPECIAL FOODS** | **C** | **3** | **0** | **3** | **5** |
| The establishment and development of the sugar industry in Turkey; production of sugar and sugar raw materials; cocoa and chocolate technology; cocoa, cocoa powder and cocoa butter, chocolate, chocolate types and making, confectionery technology; confectionery types and characteristics (marshmallows, nougat, starch and pectin jellies, hard candies, fac, caramel, creams, coated candies); tea technology (black tea and soluble tea); coffee technology (bean coffee and soluble coffee). |
| **2.** | **GTB304** | **FOOD QUALITY CONTROL AND LEGISLATION** | **C** | **3** | **0** | **3** | **4** |
| Definition of quality, total quality concept, total quality management system and ISO-9000 standards, functions of Quality Assurance Department and its relations with other departments, definition of Critical Control Points, HACCP, GMP systems, classification of food quality characteristics, definition and objective evaluation of sensory properties of foods, sensory testing techniques, control of nutrients, composition analysis of foods, statistical quality control tools |
| **3.** | **GTB306** | **FOOD ADDITIVES AND TOXICOLOGY** | **C** | **3** | **0** | **3** | **5** |
| In this course, the definition of food additives, the points to be considered in the use of food additives, the classification of additives used in the food industry (antioxidants, acidity regulators, emulsifiers, gums, preservatives, flavoring agents, flavor enhancers, colorants, chelating agents, sweeteners, anti-caking agents, flour processing agents, bulking agents, propellants, baking agents, foaming agents, anti-foaming agents, humectants, polishing agents, firming agents and stabilizers) and their investigation will be discussed. |
| **4.** | **GTB308** | **FOOD MICROBIOLOGY 2** | **C** | **2** | **2** | **3** | **5** |
| Foodborne pathogens, microorganisms causing food spoilage, poisoning caused by food pathogens, precautions to be taken to prevent the contamination of food by pathogens, analysis methods used for isolation of pathogens from food, classical and new methods used for microbiological preservation of food. |
| **5.** | **GTB310** | **SCIENTIFIC RESEARCH METHODS** | **C** | **2** | **0** | **2** | **4** |
| Science and basic concepts (fact, knowledge, absolute, etc.), basic information about the history of science, the structure of scientific research, scientific methods and different views on these methods, problem, research model, universe and sample, data collection and data collection methods (quantitative and qualitative data collection techniques), recording, analysis, interpretation and reporting of data. |
| **Note: C: Compulsory Courses, E: Elective Courses, T: Theoretical Course Hour; P: Weekly Practice Course Hour, C: Course Credit, ECTS: European Credit Transfer System Credit of the Course.** |
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| **FOURTH YEAR 7. SEMESTER** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB401** | **FOOD ANALYSIS 2** | **C** | **2** | **2** | **3** | **5** |
|  This deck includes sampling, preparation of samples for analysis, general analysis methods used in food businesses; The subjects of transferring and applying the principles of some analyzes in subjects such as moisture (water) and total dry matter determination, water-soluble and insoluble dry matter determination, ash determination, pH and titration acidity determination, carbohydrate (sugar determination), fat, protein and ascorbic acid determination are discussed, will be taken. |
| **2.** | **GTB403** | **MEAT AND PRODUCTS PROCESSING TECHNOLOGY** | **C** | **2** | **2** | **3** | **5** |
| In this course, the histological, physical, chemical and biochemical properties of meat, quality factors in meat products, quality control in meat and its products, quality of meat products according to legal regulations, cheats and errors in the final product. Technological processes applied in meat preservation, reactions after slaughter, production technologies of bacon, sausage, salami and other meat products, demonstration of the production of some products in enterprises producing meat products will be discussed.. |
| **3.** | **GTB405** | **MILK AND PRODUCTS PROCESSING TECHNOLOGY**  | **C** | **3** | **2** | **4** | **5** |
| In this course, the determination and learning of the characteristics of milk, the conversion of milk into products with appropriate processes and the production of quality milk and products will be discussed. |
| **3.** | **GTB407** | **FOOD PACKAGING PRINCIPLES** | **C** | **2** | **0** | **2** | **3** |
| Within the scope of this course, expectations from packaging, the relationship between food spoilage and the protective functions of packaging. Glass, paper, wood, metal, plastic based packaging. Aseptic packaging, modified atmosphere packaging, migration and active and smart packaging will be covered. |
| **4.** | **GTB409** | **GRADUATION THESIS 1** | **C** | **0** | **2** | **1** | **5** |
| Within the scope of this course, studies will be carried out on the student's study, research, reporting and oral presentation of a subject related to her profession in accordance with the rules and ethics of scientific work. |
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| **FOURTH YEAR 8. SEMESTER** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB402** | **INSTRUMENTAL FOOD ANALYSIS** | **C** | **3** | **0** | **3** | **5** |
| Basic principles of spectroscopy, ultraviolet and visible region spectroscopy, UV-VIS spectrophotometers, analytical applications, fluorescence and fluorescence spectroscopy methods, refractometric and polarimetric methods and measurements, atomic absorption and flame emission spectroscopy, chromatography: principles and analytical applications, paper chromatography, liquid and gas chromatography, HPLC and GC applications.. |
| **2.** | **GTB404** | **OIL PROCESSING TECHNOLOGY** | **C** | **3** | **0** | **3** | **5** |
| With this course, it is aimed to provide students with the competence to produce oil from oil seeds, refining, margarine and olive oil production in accordance with Turkish Food Codex and TS Standards. |
| **3.** | **GTB406** | **FERMENTATION TECHNOLOGY**  | **C** | **2** | **2** | **3** | **5** |
| Definition of fermentation, fermentation microorganisms, fermentation kinetics, alcohol fermentation and other fermentations, distilled spirits technology, wine technology, beer technology, vinegar technology, lactic acid fermentations. |
| **4.** | **GTB408** | **STATISTICS** | **C** | **3** | **0** | **3** | **3** |
| Organizing and analyzing data, frequency tables, graphical representations, measures of central tendency, arithmetic mean, mode, median, geometric mean, harmonic mean, measures of distribution, variance, mean absolute deviation, quartets, box plots, coefficient of variation, sampling distributions and estimation , some properties of sample mean and variance, point estimation, confidence intervals Chi-square, t and F distributions, hypothesis tests. Chi-square-based significance tests. |
| **5.** | **GTB410** | GRADUATION THESIS 2 | **C** | **0** | **2** | **1** | **5** |
| These courses are prepared on the basis of an example and oral presentation of an education and training for the profession of training in accordance with the education and training for scientific education. |
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| **ELECTIVE COURSES** |
| **SECOND YEAR 3. SEMESTER ELECTIVE COURSES** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB221** | **SENSORY ANALYSIS** | **E** | **2** | **0** | **2** | **3** |
| It includes the principles of sensory analysis, the structure of sensory organs and their roles in perception, the characteristics of the panelist and panel places, the selection and training of the panelist, the selection of sensory analysis methods and their application in different foods. |
| **2.** | **GTB215** | **VOLUNTEERING STUDIES** | **E** | **1** | **2** | **2** | **4** |
| In the course, they will briefly see the working principles and principles of non-governmental organizations in today's world, especially Volunteering activities and Civil society studies, their activities, and their strategies to explain themselves to the society in the context of publicity and public relations. In addition to these, there will be sharing of experiences by various non-governmental organizations about their activities. |
| **3.** | **GTB213** | **FOOD SAFETY AND QUALITY MANAGEMENT** | **E** | **2** | **0** | **2** | **2** |
| Definition of quality, total quality concept, total quality management system and ISO-9000 standards, functions of Quality Assurance Department and its relations with other departments, definition of Critical Control Points, HACCP, GMP systems, classification of food quality characteristics, definition and objective evaluation of sensory properties of foods, sensory testing techniques, control of nutrients, compositional analysis of foods, statistical quality control tools. |
|  **4.** | **GTB223** | **TRADITIONAL FOODS** | **E** | **2** | **0** | **2** | **3** |
| Learns the definitions of tradition, traditional feature, product with traditional features, Geographical Indication, geographical indication, name of origin and related concepts, 2. Understands the difference between Geographical Indication and trademark, 3. Gains knowledge about the characteristics of geographical indication, 4. Food technology of traditional products Explains the problems encountered in modernization in terms of terms, 5. Learns how the geographical indication is protected in our country and Europe, has information about the registration application and acceptance process. 6. Comprehends the advantages of registration of a traditional and/or local product in terms of food technology, standardization and inspection. 7. Comprehends the advantages of Geographical Indication in rural development, 8. Explains the requirements for CIs to be used as a useful tool in socio-economic development, 9. Understands the difference in the inspection mechanisms of Geographical Indication products and trademarks, 10. TPI's web page and related documents follows. 11. Prepares a Geographical Indication application file for a selected product. |
| **5.** | **GTB217** | **FOOD MARKETING TECHNIQUES** | **E** | **2** | **0** | **2** | **3** |
| Within the scope of this course, the subject and scope of marketing, the place and importance of personal selling in marketing, the stages of the sales process will be discussed. |
| **6.** | **GTB219** | **PROFESSIONAL ETHICS** | **E** | **2** | **0** | **2** | **3** |
| The definition of the concept of ethics and morality, the sources of moral values, the importance of moral behavior in terms of the survival of the society, the importance of morality in doing business, the relations between morality and organizational culture, the importance of developing a moral organizational culture, the ways to develop moral behaviors and the attitudes to be followed in the face of moral violations will cover the scope of the course forms. |
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| **SECOND YEAR 4. SEMESTER ELECTIVE COURSES** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB228** | **FOOD CONSERVATION TECHNIQUES** | **E** | **2** | **0** | **2** | **3** |
| To gain the ability to determine the causes of deterioration patterns in foods and to apply appropriate preservation techniques for these deterioration patterns |
| **2.** | **GTB216** | **OCCUPATIONAL SAFETY AND WORKER HEALTH** | **E** | **2** | **0** | **2** | **2** |
| The main aim of the course is to evaluate the structure and formation of the family in social life; its function as a social institution, its importance, and its relationship and interaction with other sociological phenomena. Within the scope of the course, the formation of family and family types, changes in family structure with industrialization, family relations (internal authority and power relations, horizontal and vertical communication in family relations), gender and the value of the child in different societies, etc. topics will be discussed. |
| **3.** | **GTB218** | **COMMUNICATION TECHNIQUES** | **E** | **2** | **0** | **2** | **2** |
| To enable the student to comprehend communication and its importance, ways of communicating, obstacles and problems, types and models of communication, the meaning and functions of organizational communication, and the characteristics of effective communication. |
| **4.** | **GTB220** | **QUALITY MANAGEMENT SYSTEMS** | **E** | **3** | **0** | **3** | **3** |
| Introduction to Quality and Total Quality, Quality, History and Related Concepts, Quality Philosophies and Systems, Total Quality Management, Process Management, Process Improvement Process Measurement Systems, Statistical Applications, Six Sigma and Design Integrated Quality Management Systems, Other Quality Management Systems, EFQM Excellence Model, A General Evaluation of Quality |
| **5.** | **GTB226** | **MEDICAL AND FUNCTIONAL FOODS** | **E** | **2** | **0** | **2** | **2** |
| To provide information on the concept of pharmaceutical food, its history, types, effects on health, the main subjects within the chemistry of pharmaceutical foods, and to teach the chemical structures and reactions of bioactive components and phytochemicals in these foods. |
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| **THIRD YEAR 5. SEMESTER ELECTIVE COURSES** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB311** | **ENZYME TECHNOLOGY** | **E** | **2** | **0** | **2** | **3** |
| Basic concepts of enzymes, chemical enzymes, enzyme-substrate relationships, enzyme kinetics, classification of enzymes, etc. It is aimed at teaching the subjects in detail. |
|  **2.** | **GTB313** | **ESTABLISHMENT AND ORGANIZATION IN FOOD MANAGEMENT** | **E** | **2** | **0** | **2** | **3** |
| Within the scope of this course, food-related factory establishment, new product planning, project preparation and organization to expanding investment. |
| **3.** | **GTB315** | **NATURAL AND ARTIFICIAL COLORS USED IN FOODS** | **E** | **2** | **0** | **2** | **3** |
| To have information about the classification, effects and usage amounts of natural and artificial coloring materials used in foods. |
|  **4.** | **GTB319** | **FOOD TECHNOLOGY AND ENVIRONMENT RELATIONSHIP** | **E** | **2** | **0** | **2** | **3** |
| Environmental regulation information, Risk analysis, Waste storage, Personal protection measures, International health and safety warnings. |
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| **THIRD YEAR 6. SEMESTER ELECTIVE COURSES** |
| **NO** | **COURSE CODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB314** | **OPERATIONAL HYGIENE AND SANITATION** | **E** | **3** | **0** | **3** | **4** |
| Within the scope of this course, the subjects of removing the microorganisms that threaten human health from their environment and having knowledge about the protection of a healthy environment will be discussed. |
| **2.** | **GTB316** | **INDUSTRIAL MICROBIOLOGY** | **E** | **3** | **0** | **3** | **4** |
| Isolation, identification and preservation of microorganisms of industrial importance. Development conditions. Control of metabolism. Genetic development of microorganisms of industrial importance. Preparation and propagation of inoculum for industrial fermentations. Media for industrial fermentations. Sterilization. Industrial applications (such as alcohol, THP, organic acid, amino acid, vitamin, enzyme, baker's yeast production). Waste water applications in the food industry. Bioreactors and application principles. |
| **3.** | **GTB318** | **INDUSTRIAL FOOD RESIDUES AND WASTE** | **E** | **2** | **0** | **2** | **3** |
| Utilization possibilities of food industry waste and residues. |
|  **4.** | **GTB320** | **ORGANIC FOOD AND AGRICULTURE** | **E** | **2** | **0** | **2** | **3** |
| Organic food production, organic farming |
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| **FOURTH YEAR 7. SEMESTER ELECTIVE COURSES** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB411** | **AQUACULTURE PROCESSING TECHNOLOGY** | **E** | **3** | **0** | **3** | **4** |
| In this course, the composition and nutritional value of seafood products, seafood processing technologies (cooling, freezing, drying, salting, marination, smoking, etc.) will be discussed. |
|  **2.** | **GTB413** | **POULTRY MEATS TECHNOLOGY** | **E** | **2** | **0** | **2** | **3** |
| The importance of poultry meat, its processing, cooling-freezing, storage, grading according to quality, chicken meat salami production, chicken broth production, poultry meat microbiology will be discussed. |
| **3.** | **GTB417** | **ALCOHOLIC DRINKS TECHNOLOGY** | **E** | **2** | **0** | **2** | **3** |
| In the first module, "Controlling beer production", the subjects of wort production, boiling, cooling and filling processes are discussed in accordance with its technique. In the second module, "Controlling the wine production", information is given about the pre-processes, pressing process, fermentation process, resting and filling process in wine production. In the last module, "Controlling the production of carbonated beverages", information is given about mixing preparation and CO2 addition processes in accordance with the technique. |
|  **4.** | **GTB419** | **FROZEN PRODUCTS** | **E** | **3** | **0** | **3** | **4** |
| To teach the principles of preservation of foods by freezing, the importance of preserving food spoilage, food poisoning and minimizing nutritional losses. Working principles and comparison of freezing systems. |
| **5.** | **GTB421** | **ENTREPRENEURSHIP** | **E** | **2** | **0** | **2** | **3** |
| Definition and importance of entrepreneurship, what types of entrepreneurs are and their qualifications, entrepreneurship culture, creativity and opportunity analysis, innovation, business idea development, feasibility study and business plan principles, sector and competition analysis, market research techniques, marketing plan, production To provide students with theoretical knowledge on planning, management planning and financial planning. |
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| **FOURTH YEAR 8. SEMESTER ELECTIVE COURSES** |
| **NO** | **COURSECODE** | **COURSE TITLE** | **C/E** | **T** | **P** | **C** | **ECTS** |
| **1.** | **GTB412** | **SUGAR AND SUGARY PRODUCTS TECHNOLOGY** | **E** | **2** | **0** | **2** | **3** |
| The establishment and development of the sugar industry in Turkey; production of sugar and sugar raw materials; cocoa and chocolate technology; cocoa, cocoa powder and cocoa butter, chocolate, chocolate types and making, confectionery technology; confectionery types and properties (marshmallows, nougat, starch and pectin jellies, hard candies, fac, caramel, creams, coated candies). |
|  **2.** | **GTB426** | **FINANCIAL LITERACY** | **E** | **2** | **0** | **2** | **3** |
| Financial Literacy, Selection of Investment Instruments, Risk Management in Investments, Investor Relations, Share Trading Methods and Investment Instruments. |
| **3.** | **GTB416** | **FRUIT JUICE AND CARBONATED DRINK TECHNOLOGY** | **E** | **2** | **0** | **2** | **4** |
| Teaching the production technologies of beverages such as fruit juice, tea, coffee, water and mineral water |
|  **4.** | **GTB422** | **COLD TECHNIQUE** | **E** | **2** | **0** | **2** | **3** |
| Cooling methods, diagrams used in cold technique, capacity and power calculations of the elements in the cooling system, refrigerants, cooling devices and equipment, gradual cooling systems, cooling load calculation, cooling, cold storage; freezing and freezing preservation methods, principles and some physical principles. Cooling and freezing diagrams, freezing time, freezing speed, equipment used in freezing methods and capacity calculations, meat and meat products, cold storage of fruit and vegetable products, freezing and freezing preservation, principles and methods used, storage of fruits and vegetables in a controlled atmosphere, modified foods storage and packaging in the atmosphere. |
|  **5.** | **GTB424** | **MATERIAL INFORMATION** | **E** | **3** | **0** | **3** | **4** |
| Structure of the atom, bonds between atoms and the arrangement of atoms, Mechanical, electrical and physical properties of materials, Organic, ceramic and composite materials, Ferrous and non-ferrous metals and Metal alloys. |
|  **6.** | **GTB420** | **SIGN LANGUAGE** | **E** | **2** | **0** | **2** | **3** |
| Learning and teaching the sign language used by hearing impaired individuals |
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| Downloadable (printable) form of the course contents of the Food Technology Bachelor Program |  |