LABORATORY TECHNOLOGY COURSE CONTENTS (2024-2025)

YEAR ONE

1st TERM COURSE PLAN

ATA103 Principles of Atatürk and History of Revolutions I (T+P:2+0, Credit:2 ECTS:2) The basic concepts, Reasons for the collapse of the Ottoman State, Modernization movements in Turkey, First World War, National Independence War.

INGU103 English I (T+P:2+0, Credit:2, ECTS:2)
This is an elementary English course designed for beginners of English language. The learners are expected to develop four basic language skills; listening, speaking, reading and writing through various kinds of teaching techniques and practices. The learners are exposed to basic language structures and vocabulary with the help of authentic materials within real life context.

LBT101 General Chemistry I (T+P:2+0, Credit:2, ECTS:4)
It provides information on subjects such as Properties and Measurement of Matter, Atoms and Atomic Theory, Chemical Compounds, Electron Structure of the Atom, Periodic Table and Some Atomic Properties, Chemical Bonds, Solutions, Acids and Bases, Chemical Equilibrium, Carbon Chemistry.

LBT103 General Biology (T+P:2+0, Credit:2, ECTS:4)
Introduction to General Biology, Historical Development of Biology, Sub-branches of Biology, Relationships of Biology with Other Sciences, Difference between Living and Nonliving, Chemical Structure of the Cell: Organic substances and inorganic substances: Water, minerals, carbohydrates, lipids, proteins, nucleic acids. Cell Structure and functions: Prokaryotic and Eukaryotic cells, organelles, Material passage through the cell membrane, Cell Division: cell cycle, mitosis and meiosis, Cell metabolism: Anabolism and catabolism, Cell metabolism: Anabolism and catabolism, Classification of Living Things: Domains, Reproduction in Plants and Development, reproduction and development in animals. Relationships of living things with their environment.

LBT111 Laboratory Techniques I (T+P:2+2, Credit: 3, ECTS:6)
Laboratory General and Personal Safety Measures, Materials and Devices Used, Cleaning of Materials, Measurement Techniques, Calculation and Preparation of Solutions, General Analysis Methods, Separation and Purification Methods, Physical Analysis Methods, pH Concept and Measurement, Using Microscope.

LBT113 Laboratory Safety (T+P:2+0, Credit:2, ECTS:3)
Safety Principles in the Laboratory, Laboratory, Personal Safety Measures in Laboratory, Laboratory Accidents in First Aid, Safety Precautions Against Chemical, Security Measures Against Biological Agents, Waste Management, Disinfectants and disinfectant, sterilization.

TURK103 Turkish Language I (T+P:2+0, Credit:2, ECTS:2)
The course will help students to gain consciousness of language; inclination and habit of reading; proper usage of fundemental spelling and punctuation; and to gain a larger vocabulary set utilization.

MAT101 Basic Mathematics (T+P:2+0, Credit:2, ECTS:3)
Numbers, Bibliographical Numbers, Root Numbers, Absolute Value, Division of Factors, Rate Proportion, Equations, 1 Unknown Unknown Equations, Uncertain 2 Equations, Inequalities, Functions, Numerical Logic.

RKUL103 University Culture I (T+P:0+2, Credit:1, ECTS:4)
14 seminars will be held throughout the week, conferences, panels, workshops and singing Includes've frame Academics at the university, student council it recommends a program of student clubs of his era.

2nd TERM COURSE PLAN

ATA104 Principles of Atatürk and History of Revolutions II (T+P: 2+0, Credit:2, ECTS:2)
Events in the genesis and development of modern Turkey, ideas and principles; Turkish Foreign Policy in Atatürk Era,

Ataturk's Revolutions, The Basic principles of Turkish Revolution.

INGU104 English II (T+P:2+0, Credit:2, ECTS:2)
This is an elementary English course designed for beginners of English language. The learners are expected to develop four basic language skills; listening, speaking, reading and writing through various kinds of teaching techniques and practices. The learners are exposed to basic language structures and vocabulary with the help of authentic materials within real life context.

LBT108 Laboratory Techniques II (T+P:2+0, Credit:2, ECTS:4)
Dilution and concentration of solutions, Buffer solutions and their preparation, Introduction to instrument analysis methods, Spectroscopy types and uses, Spectroscopic analysis methods (IR, Raman, NMR, Atomic Absorption), Ultraviolet-Visible field spectroscopy (UV-Vis), creating calibration curve, Mass Spectrometry (MS), Chromatographic methods and their classification (paper, thin layer chromatography, column, ion exchange chromatography), Liquid Chromatography and Application Areas (HPLC), Liquid Chromatography-Mass Spectrometry (LC / MS) and Application Fields, Gas Chromatography-Mass Spectrometry (GC-MS) and Application fields. Polymerase Chain Reaction (PCR).

LBT110 General Chemistry II (T+P:2+0, Credit:2, ECTS:4)
The concept of acid base, salts and properties, solution and solution types, solution preparation and calculations, chemical kinetics and chemical equilibrium, organic chemistry; alkan / alkene / alkynes, alcohols and ethers, aldehydes and ketones, estars and acids and amides.

CEV124 Environmental Impact Assessment (T+P:2+0, Credit:2, ECTS:4)
Definition of EIA, EIA regulation, EIA regulation and sample EIA report review, EIA regulation, sufficiency statement, Regulations and EIA report relation, Regulation on Hazardous Chemicals, Control of solid wastes, Control of hazardous wastes, Water pollution control regulation, Soil Pollution Control Regulation, Air Quality Control Regulation, Environmental Control Regulation, EIA Reports, General review.

LBT114 Soil and Water Pollution (T+P:2+0, Credit:2, ECTS:3)
General Properties of Soil, Sources and Causes of Pollution in Soil, Effect of Erosion and Desertification on Soil Pollution, Effect of Erosion and Desertification on Soil Pollution, In Situ Applications in Soil Improvement, Ex Situ Applications in Soil Improvement, The Role of Microorganisms in Biological Remediation, Introduction to Water Quality , Causes and Sources of Water Pollution, Effects of Water Pollutants on the Environment and Human Health, Sources of River Pollution and Precautions That Can Be Taken Against Pollution, Sources of Lake Pollution and Precautions That Can Be Taken Against Pollution, Examination of the Water Quality Control Regulation, Review of Water Quality Control Regulation

TURK104 Turkish Language II (T+P:2+0; Credit:2, ECTS:2)
The course will help students to gain consciousness of language; inclination and habit of reading; proper usage of fundemental spelling and punctuation; and to gain a larger vocabulary set utilization.

BIK101 Biochemistry (T+P:2+0, Credit:2, ECTS:2)
Subject and history of biochemistry, biomolecules, cell structure, Properties of water and aqueous solutions, Amino Acids, Peptides, Proteins, Enzymes, Nucleic Acids, Carbohydrates, Lipids and Membranes, Vitamins, Trace elements.

RKUL104 University Culture II (T+P:0+2, Credit:1, ECTS:4)
14 seminars will be held throughout the week, conferences, panels, workshops and singing Includes've frame Academics at the university, student council it recommends a program of student clubs of his era.

RPSI209 Positive Psychology and Communication Skills (T+P:2+0, Credit:2, ECTS:3)
Definition of positive psychology, basic concepts, theoretical foundations and applications, emotional experiences and examine the brain behavior of the system's behavior, yourself and recognize others, psiksosyal life skills and problem solving skills, motivation and planning, anger, aggression, violence, relationship management, healthy decision-making, 8-sebatkarlık and agreeableness.

YEAR TWO

3rd TERM COURSE PLAN

LBT200 Agricultural Drugs and Analysis (T+P:2+0, Credit:2, ECTS:5)

Benefits and Types of Pesticides, Risks of the Use of Pesticides, Behavior of Pesticides in the Ecosystem, Effects of Pesticides on Health, Behavior of Pesticides in Soil, Behavior of Pesticides in the Atmosphere, Pesticide Residues in Products and Factors Affecting Residues, Analysis of Some Pesticides Residues, Pesticide Use and Pesticide Residue Limits in the World and Turkey

LBT201 Standardization and Quality (T+P:2+0, Credit:2, ECTS:4)

Quality and definition, standardization and definition, for business standardization, benefits for the consumer and for the economy, the standardization work carried out in Turkey, international standardization activities and examples, quality approaches, total quality management, quality assurance, ISO 9000 standards, professional quality standards.

LBT211 Water Analysis (T+P:2+0, Credit:2, ECTS:3)
Water and its structure, General physical and chemical properties of water, Determination of physical, chemical and microbiological properties of water, Determination of anions in water, Determination of Carbonate and Bicarbonate in Water, Disinfection of Water.

LBT225 General Microbiology (T+P:2+2, Credit:3, ECTS:7)
The history and development of microbiology and fundamental concepts, Working rules at laboratories, The equipments and microscobes used in microbiology, Identification and classification of miroorganisms and general properties, The structure of bacterium, their production and metabolisms, The genetics of bacterium and antimicrobic materials, İnfections and infectionary ways , sterilisation and disinfection, The production environment opf microorganisms, colors and painting methods, Staphylococcus, Streptococcus, pneumococcus, bacillus and general information about fungus; general information about viruses and some important viral illnesses; Normal floras and sampling technics; Introduction to immunology, antigen-antibody reactions; Microbiologic diagnosis methods

LBT223 Plant and Soil Analysis (T+P:2+2, Credit:3, ECTS:7)
General structure and properties of soil, General structure and properties of soil, Taking soil samples and preparing them for analysis, Determination of pH in soil, Methods for determining lime and lime requirement in soil, Methods for determining organic matter and nitrogen species in soil, Determination of Moisture in Soil, Phosphorus, sulfur, potassium in soil. , calcium, magnesium determination methods, micro element determination methods in soil, Acidity Determination in Plants, General structure and characteristics of the plant, Dry Matter Determination in Plants, Dry and wet burning methods in plants, Ash Determination in Plants, Nitrogen, phosphorus, sulfur, potassium, calcium in plants, magnesium determination methods, microelement determination methods in plants, benefits, types and risks of pesticides

MYO015 Social Responsibility Project (T+P:2+0, Credit:2, ECTS:2)

Introduction to the course, basic concepts, concept of social responsibility and social responsibility campaigns. recognition of non-governmental organizations and their work.

MYO020 Career Planning and Professional Competencies (T+P:2+0, Credit:2, ECTS:2)
The courses will be taught in some weeks by inviting industry professionals and guest educators from public institutions in order to establish a sector connection. During the course, students will be informed about the methods and tools used in the recruitment processes, and applications and assignments will be given to reinforce these methods.

MYO021 Entrepreneurship and Project Culture (T+P:2+0, Credit:2, ECTS:2)
In this course the Üsküdar University is collabrating with GOSB Techopark and GOSB Technopark companies ,entreprenuership in mareketing , in Human Resourse, in Technological Management , Patent Law and R&D innovation topics will be covered.

4th TERM COURSE PLAN

CEV208 Biotechnology (T+P:2+0, Credit:2, ECTS:5)

Introduction to biotechnology, Waste problem and waste sources in nature, Basic concepts in biotechnology, Waste disposal methods, Methods used in biotechnology, Genetically modified organisms and their areas of use in agriculture, Genetically modified organisms benefits and risks and legal dimensions in terms of environment and production, Genetically modified organisms in terms of environment and production organisms, benefits, risks and legal aspects, Biotechnological approaches in wastewater treatment, Public health, disease and water relationship, Pollution indicator organisms, Recovery of valuable resources, Sustainable environmental cleaning and problems, Sustainable environmental cleaning and problems.

LBT210 Agricultural Ecology (T+P:2+0, Credit:2, ECTS:4)

Definition, history and sub-branches of ecology, Food balance in the world, Ecosystem concept, Agroecosystems, Agriculture and Environmental Factors, Light and its effects on plants, light and its effects on plants, temperature and its effects on plants, air movements, effects of wind on plants, air humidity. , Precipitation and its effects on plants, Climate and Agriculture, Agriculture-soil relationship, Soil Fertility and Soil Microorganisms, Problems encountered in agricultural processes and solution suggestions

LBT999 Summer Internship (T+P:0+0, Credit:0, ECTS:9)

To practice the theoretical knowledge.

ILK101 First Aid (T+P:2+0, Credit:2, ECTS:3)

General Briefing Information, Human Body, Patient / Injured and Scene Assessment, Basic Life Support, Respiratory Cramps, Hemorrhages and Shocks, Injuries, Burns, Frosts, Hot Strike, Consciousness Disorders (Consciousness Losses, Remittances, Blood Sugar Loss, Pain, Poisonings, Animal Bites, Eye-Ear-Burina Obstacle Abduction, Drowning, Fractures, Dislocations, Buckles, Transportation Techniques.

LBT218 Medical Analysis Techniques (T+P:2+0, Credit:2, ECTS:4)

Sample acceptance, sampling errors and factors affecting analysis result, blood analysis, urine analysis, function tests, hormone analysis, tumor marker analysis, gaita and blank analysis, urine system analysis.

LBT227 Food Analysis (T+P:2+2, Credit:3, ECTS:7)

Basic concepts in foods, Food Analysis Principles, Quality criteria and properties in foods. Sensory properties in foods Evaluation of Analytical Methods in Food Analysis, Sampling, storage and analysis for foodstuffs, Protein analysis in foods, Fat analysis in foods, Carbohydrate analysis in foods, Acidity and pH Analysis in Foods, Vitamin Determination in Foods, Alcohol Determination in Food, Analysis of Food Additives Microbiological analysis in foods.