USKUDAR UNIVERSITY

SHMYO

MEDICAL LABORATORY TECHNIQUES PROGRAM

2022-2023

COURSE CONTENTS

I. SEMESTER

MYO 101 Basic Anatomy and Physiology (3 + 0 + 3) ECTS: 4

Definition of anatomy, general parts, basic concepts, cell, anatomical terms, cranium, continuation of skeletal system, joints, muscles, circulatory system, endocrine system, respiratory system ,, digestive system, excretory system, reproductive system, nervous system, 5 senses, topographic anatomy, Basics of physiology, Cell physiology, Fluid dynamics, Muscle physiology, Nervous physiology, Cardiovascular physiology, Respiratory physiology, Kidney and urinary system physiology, Gastrointestinal system physiology, Endocrine system and metabolism, Reproductive physiology, Hematology, Immune system.

LBT 113 Laboratory Safety (BSEÇ) (2 + 0 + 2) ECTS: 3

Rules to be considered while working in the laboratory; Glass and plastic materials used in the laboratory; Material cleaning in the laboratory; Sterilization and disinfection; Measurement and measurement units; Pure water systems; Oven, sterilizer, autoclave, water bath presentation and usage; Mixers used in the laboratory, heater and cooler systems; Centrifuge and centrifugation; Scales types and usage; Ph concept and measurement; Types and properties of microscope, classical light microscope and its usage

MAT 101 Basic Mathematics (2 + 0 + 2) ECTS: 3

Numbers; Classification of Numbers, Exponential Expressions and rooted expressions, Rational expressions, Factorial, Proportion-Proportion, Equations (First Order Equations), Second Order Equations, Inequalities, Functions, Angles and Trigonometry, Trigonometric Ratios, Complex Numbers

TLT 107 General Pathology (2 + 0 + 2) ECTS: 4

Definition of the pathology, history and features of the pathology laboratory, materials and tissue follow-up to the pathological laboratory, cell injury, inflammation and healing; Etiology in Pathology, Body fluids and diseases related to blood circulation; Neoplasms; Immunology and Immunopathology

RPSI209 Positive Psychology and Communication Skills (ÜSEÇ) (2 + 0 + 2) ECTS: 3

Definition of Positive Psychology and Learning Basic Concepts, Learning the Theoretical Bases of Positive Psychology, Learning the Brain Infrastructure of Social Behaviors, Emotional Intelligence, Principles of Emotional Intelligence, Personality Development of Emotional Intelligence in Marriage and Work Life, Marriage and Work Life Learning Relationship, Learning Concepts Related to Self Awareness and Awareness, Learning Others and Empathy, Learning Communication Skills, Learning Motivation and Planning Skills, Learning Problem Solving Skills, Learning Anger Control Skills, Learning Relationship Management Skills, Learning Persistence and Impulse Control Skills. Learning Healthy Decision Making Skills, Learning Concepts of Reconciliation

TLT109 DISEASES KNOWLEDGE (BSEÇ) (2 + 0 + 2) ECTS: 3

Basic Health and Disease Concepts, Digestive System Diseases, Respiratory System Diseases, Respiratory System Diseases, Nervous System, Nervous System Diseases, Circulatory System Diseases-1, Circulatory System Diseases-2, Excretory System Diseases, Endocrine System Diseases, Sense Organ Diseases, Blood Diseases, Joint Diseases

RKUL 101 University Culture (0 + 2 + 1) ECTS: 1

The student's awareness of the privilege of being a “university student” throughout his university life enables him to comprehend that the university is not just a place of lessons and a profession, it should be a participant and a guide rather than understanding, interpreting what is happening in and around the world in university life.

ATA 101 Atatürk's Principles and History of Turkish Revolution I (2 + 0 + 2) ECTS: 3

Ottoman Social and State Order Delay and Reform Movements; Disintegration of the Ottoman State and the Start of the National Struggle; Mustafa Kemal Organizing the National Struggle in Anatolia; Opening of the First T.B.M.M.; Military and Political Developments Between 1920-1922; Revolutions and Counter-Reactions; Establishment of Constitutional System; Domestic and Foreign Politics in the Republican Era; Basic Features of Turkish Revolution and Thought Movements that are Affected; Innovations in Law, Education, Economy and Social Life; Atatürk's Principles and General Qualifications of These Principles; Evaluation of Kemalism in Ideological Perspective.

TURK 101 Turkish Language I (2 + 0 + 2) ECTS: 3

What is Language: Theories about the birth of language, Language-culture-nation relationship; Language Revolution: Turkish Language Institution and its works; World Languages: Language families, the place of Turkish among world languages; Features of Turkey Turkish: Voice properties, Format feature

İNGU 101 English I (3 + 0 + 3) ECTS: 3

Markers; Preliminary Prepositions: Place, Time, Movement; Singular and Plural Names: Countable and Uncountable nouns; Times: Wide time, Present time, Past time structures; Modes: Will, Should, Should not, Must, Must not, Can; Comparative structures; Fairings: Personal titles, Possessive titles; Adjectives; Positive sentence, Negative sentence and Question sentences; Conjunctions: And, But, While-While, Because.

II. SEMESTER

BIK 101 Biochemistry (2 + 0 + 2) ECTS: 2

Cell, Amino Acids, Peptides, Proteins, Enzymes, Nucleic Acids, Carbohydrates, Lipids and Membranes, Fats, Vitamins

TBG 103 Medical Biology and Genetics (2 + 0 + 2) ECTS: 4

To have knowledge about Mendelian genetics, general genetics, molecular genetics and human genetics. Introduction to Biology; The beginning of life; The physical structure of the cell; Cell warning systems; The chemical structure of the cell; General features of the cell and organelles; Cell division; Structure of genetic material; Genetic factors analysis methods; Mendel's genetics and cytogenetics; Chromosome anomalies; Genetic diseases and genetic counseling; Chromosome analysis and gene therapy.

MIK 101 Basic Microbiology (2 + 0 + 2) ECTS: 2

Introduction to microbiology, scope and classification, microscopes, tools and devices used in microbiology, structure and physiology of bacteria, environmental factors affecting microorganism reproduction, bacterial genetics, protein synthesis, genetic changes in bacteria, antimicrobial agents, antimicrobial drugs, mechanisms of action, antimicrobial agents , Midterm exam, Environments where microorganisms are produced, substances required for the nutrition and reproduction of microorganisms, classification of the media, the main substances used in the preparation of the media, the preparation and storage of the media, the main media and cultivation techniques of various samples, the evaluation of the reproduction, antibiogram susceptibility experiments, dyes used in microbiology and dyeing methods, gram staining, arb staining, methylene blue, capsule staining, sports staining, fungal dyes, virus dyes, parasite dyes, giemsa staining, microorganisms Examination of sterilization, methods of sterilization and disinfection, heat sterilization, sterilization by filtration, ray sterilization, chemical sterilization, sterilization control, clinical applications of disinfection.

TLT 110 Laboratory Instruments (BSEC) (2 + 0 + 2) ECTS: 5

Recognition of Stock Chemicals, Use of Glass Pipettes and Automatic Pipettes, Petiler, Essences, Mezür, Beher Glas, Erlenmayer Vd., Tubes, Balloon, Balloon Joint, Glass and Plastic Material Cleaning, Weighing Precision Weighing, Volume Measurements, Solution Preparation, Centrifugation, Microscope Usage and Maintenance, Autoclave Usage, Pasteur Oven, Oven, Filtration Sterilization of Water, Usage of Spectrophotometry, Vortex, Distle Water Device, Urometer

TLT 100 Introduction to Hematology (2 + 0 + 2) ECTS: 4

Approach to the patient with hematology, Erythrocyte diseases, blood groups and blood transfusion, Leukocytes and their diseases, Platelets and platelet diseases, Hematological tests and their importance, Peripheral smear of blood cells, Bone marrow aspiration and bone marrow transplantation

GKM101 General Chemistry (2+0+2) ECTS:3

Measurement, Unit Systems, Matter and its physical and chemical properties, Compounds, Elements, Molecules, Calculations Based on Chemical Compounds and Chemical Reactions, Concept of Mole, Finding Chemical Formulas and Redox Reactions, Atom and its structure, Bohr Atomic Theory, Modern atomic theory, Periodic Table, Quantum Numbers, Chemical Bonds, Formal Charge, Polarity of Bond, Acid-Base Concept, Acid-Base Reactions and titration, Solutions and concentration, Molarity, Normality, Molality, Percentage calculations by Mass and Volume, Buffer Solutions, pH, equilibrium constants , chemical balance, Calorie Calculation in Foods (Carbohydrate, Protein, Fat)

RKUL 102 University Culture II (ÜSEC) (0 + 2 + 1) ECTS: 1

The student's awareness of the privilege of being a “university student” throughout his university life enables him to comprehend that the university is not just a place of lessons and a profession, it should be a participant and a guide rather than understanding, interpreting what is happening in and around the world in university life.

ATA 102 Atatürk's Principles and History of Turkish Revolution II (2 + 0 + 2) ECTS: 3

Ottoman Social and State Order Delay and Reform Movements; Disintegration of the Ottoman State and the Start of the National Struggle; Organization of the National Struggle in Mustafa Kemal Pasha in Anatolia; Opening of the First T.B.M.M.; Military and Political Developments Between 1920-1922; Revolutions and Counter-Reactions; Establishment of Constitutional System; Domestic and Foreign Politics in the Republican Era; Basic Features of Turkish Revolution and Thought Movements that are Affected; Innovations in Law, Education, Economy and Social Life; Atatürk's Principles and General Qualifications of These Principles; Evaluation of Kemalism in Ideological Perspective.

TURK 102 Turkish Language II (2 + 0 + 2) ECTS: 3

To gain the skill of using mother tongue correctly; In the course where students who have come to the university by acquiring this skill are also essential to produce their thoughts and write their thoughts in order to develop their skills in this field, punctuation marks, spelling rules, composition rules, writing types are discussed with examples and writing studies are carried out. In addition, various novels, poetry books and theater works are read and studied. By making a reading theater in the classroom, applied emphasis and intonation lessons are carried out with various diction techniques.

INGU 102 English II (3 + 0 + 3) ECTS: 3

Tenses: Present tense, Wide tense, Past tense, Future tense structures; Modes: Might, Could, Can, Must, May; Envelopes: Place, Direction, Purpose, State envelopes; Adjectives: Order of adjectives, Comparison, Structures which show superiority; Passive Structure: Present, Wide, Past, Passive structure in the future; Conditional Clauses; Adjective clauses; Transfer Sentences; Verb Structures: TO, -ING; Noun Clauses; Envelope Clauses; Comparative Structures.

III. SEMESTER

TLT 231 Clinical Biochemistry (3 + 2 + 4) ECTS: 8

Introduction to clinical biochemistry and laboratory works; Collection of samples and procedures; The importance of enzymes in clinical diagnosis; Carbohydrate metabolism disorders; The importance of plasma proteins in clinical diagnosis; Plasma lipids and atherosclerosis; Quality control and standardization in clinical biochemistry laboratory; Diagnostic laboratory markers of acute myocardial infarction; Liver function tests; Bilirubin metabolism and jaundice; Kidney function tests; Kidney function tests; Endocrinology; Minerals and electrolyte metabolism; The importance of tumor markers in clinical diagnosis; Cerebrospinal fluid (CSF) Biochemistry; Sources of error in biochemistry

TLT 223 Basic Laboratory Applications I (0 + 8 + 4) ECTS: 10

Patient registration, Sample collection rules, Sample collection and processing, What are preanalytical errors?, Blood count methods (manual), Blood count methods (automation), Urine analysis (manual and automation), protein and creatinine determinations, urine sediment analysis (microscopy), Biochemistry autoanalyzer studies, Turbidimetric methods (clot measurement etc.), Nephelometric measurements (Apo A and Apo B etc.), HPLC methods (HbA1c etc.), Radioimmunassay methods, Chemiluminescence methods (hormone analysis, drug levels analysis)

TLT 225 Clinical Microbiology I (2 + 2 + 3) ECTS: 8

Definition, history and importance of microbiology; types of microorganisms; bacterial genetics; sterilization, disinfection; introduction to immunology; immune system and immunological reactions; microbial diseases; epidemiology of infections; microbial diseases; bacteria and bacterial diseases; viruses and viral diseases; fungi and fungal diseases

MET 201 Professional Ethics (2 + 0 + 2) ECTS: 2

Be conscious of professional responsibility, Be aware of economic, political and legal content in professional problems, Be aware of ethical responsibility, Gain problem solving ability.

Elective Course (2 + 0 + 2) ECTS: 2

IV. SEMESTER

TLT 212 Parasitology (BSEÇ) (2 + 2 + 3) ECTS: 5

Common parasites and their diseases and treatments, and stool examination methods, blood parasites, perianal material examination methods, and parasitic infections in the GAP region will be discussed.

ILK101 First Aid (2 + 0 + 2) ECTS: 3

The definition, importance, principles of first aid, first aid kit. Bleeding. Shock and its types. Injuries. CPR (Cardio-Pulmonary Resuscitation) Foreign body aspiration. Fractures, dislocations and sprains. Burns. Exposure to hot and cold. Poisonings. First aid in medical situations. Geriatric emergencies and first aid

TLT 214 Basic Laboratory Applications II (BSEÇ) (0 + 8 + 4) ECTS: 10

Patient registration, Sample collection rules, Sample collection and processing, What are preanalytical errors?, Blood count methods (manual), Blood count methods (automation), Urine analysis (manual and automation), protein and creatinine determinations, urine sediment analysis (microscopy), Biochemistry autoanalyzer studies, Turbidimetric methods (clot measurement etc.), Nephelometric measurements (Apo A and Apo B etc.), HPLC methods (HbA1c etc.), Radioimmunassay methods, Chemiluminescence methods (hormone analysis, drug levels analysis)

TLT 230 Clinical Microbiology II (2 + 2 + 3) ECTS: 7

Definition, history and importance of microbiology; types of microorganisms; bacterial genetics; sterilization, disinfection; introduction to immunology; immune system and immunological reactions; microbial diseases; epidemiology of infections; microbial diseases; bacteria and bacterial diseases; viruses and viral diseases; fungi and fungal diseases

TLT 222 Basic Immunology (2 + 0 + 2) ECTS: 4

General information about the structure of the immune system, Immune system related organs, Primary lymphoid organs, secondary lymphoid organs, Immune system related cells (lymphocytes, macrophages, monocytes, neutrophils, eosinophils, basophils, NK Natural Killer cells), Immunglobulins (general information about the structure , isotypes, allotypes, idiotypes, general information about IgG, IgA, IgM, IgD, IgE), Serological reactions, Precipitation, Immune-Electrophoresis, Agglutination, Erythrocytes Agglutination, Heterophil antibody experiments, Inhibition Hemadsorbsion and Hemadsorption-Inhibition experiment, Blood groups and General information about the structure of the immune system, Nucleic acids (DNA-RNA) and Nucleic acid replication methods, The use of molecular biology in bacteriology, parasitology and virology, Microbiology techniques. Principles of molecular epidemiology