

**ÜSKÜDAR UNIVERSITY**  
**Vocational School of Health Services**  
**Medical Imaging Techniques - Course Content**

**I. Semester**

**ATA101 Principles of Atatürk and History of Revolutions I :**

Defining concepts, definition of lesson methods and resources, Industrial Revolution and French Revolution, Distribution of Ottoman State (XIX. Century), Tanzimat and Reform Edict, I. and II. Constitutional Monarchy, World I, Tripoli and Balkan Wars, Mondros Armistice Treaty, Wilson Principles, Paris Conference, M. Kemal's Arrival in Samsun and the Situation in Anatolia, Amasya Circular, National Congresses, Opening of Mebusan Assembly, Establishment of Parliament and Internal Rebellions, the Organization Law, the Establishment of the Regular Army, I. II. İnönü, Kütahya-Eskişehir and Sakarya Square Battles and Great Assault, Treaties during the War of Independence, Lausanne Peace Treaty, Abolition of the Sultanate.

**FZY101 Physiology:**

Introduction to Physiology and Homeostasis, Cell physiology, Blood physiology, Musculoskeletal System Physiology, Nervous System Physiology, Midterm Exam Week, Cardiovascular System Physiology, Respiratory System Physiology, Digestive System Physiology, Urinary System Physiology, Urinary System Physiology, Endocrine System Physiology System physiology, Sensory System physiology.

**INGU101 English I:**

Meet, to be verb, subject pronouns, Sign pronouns, countable / uncountable nouns, quantitative expressions, Simple time tense, frequency envelopes, object pronouns, possessive adjectives, have got / has got, -should, -should, ( must / mustn t) can, can (can / can t), past tense (Simple Past Tense), present, conjunctions (and-but-so-because), comparisons.

**MYO013 Basic Anatomy:**

Introduction to anatomy. Axes, planes, general information, Bones, Joints, Muscles, Respiratory system, Heart-Circulatory system, Digestive system, Urinary system, Female genital organs, Male genital organs, Nervous System, Sensory organs, Endocrine system.

**TGT111 Radiological Imaging Methods:**

History of Radiology (Introduction to Radiology and History of Radiology), Radiological Terminology and Usage Areas (Imaging Methods, Introduction to X-Ray Physics, Basic Information, Introduction to Positions), Anatomical formations, Cranium graphs, Head towne, orbital, Caldwell, Waters graphs, Nasal bone, Schuller, Stenvers graphs , Anatomical formations, Spine radiographs, Atlantoaxial, Odontoid, Servical vertebra graphs, Thoracic vertebrae, Lumbar vertebrae, Sacrum vertebrae graphs, Coccyx, Whole colon vertebrae graphs, Anatomic formations, Body graphs, Lung PA, Sternum graphs, Thorax, abdominal graphs, Directive graphs urinary system radiographs.

**TURK 101 Turkish Language I :**

Oral presentation studies, What is language; world languages, the place and historical development of Turkish among them, the problems of Turkish today with the current texts, the writing of “de”, “ki” and “mi” with the current texts, problems with the writing of the Turkish words with the

compiled texts (combined text review: Scientific content review of an article, Practices related to spelling rules and punctuation marks, Text review: Analysis of a columnist, Expression disorders, language mistakes and applications, Turkish as a language of science with sample texts, Oral presentation studies.

**RKUL101 University Culture I:**

Each semester, the academic units of the university, student council and student seminars will be held for 14 weeks in the framework of a program of advice to clubs, conferences, panels, workshops and sayings contain.

**RPSI209 Positive Psychology and Communication Skills:**

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, Learning Healthy Decision Making Skills, Learning Concepts of Reconciliation.

**TGT109 Radiologic Imaging Physics :**

Introduction to Radiology, Electromagnetic energy, X-ray formation, Interaction of X-ray with matter, Attenuation, X-ray devices, Control of scattered radiation, Fluoroscopy, Orthopantomography, CT physics, Mammography, MR physics.

**II. Semester**

**ATA102 Principles of Atatürk and History of Revolutions II :**

Lausanne Peace Treaty and Its Evaluation, Revolutions in the Political Area, Declaration of the Republic and the Abolition of the Caliphate, Multiparty Political Life Trials, Revolutions in the Field of Law, Revolutions in the Social Field, Turkish Foreign Policy Between the Years 1923-1938, 1938- 1950 Between Turkish foreign policy, Democratic Party Government and Adnan Menderes period (1950 - 1960), 1960 coup d'etat and Political Developments in Post, 1980-2002 Period Turkey Domestic Politics, Basic Principles of Turkish Revolution (Principles and complementary policies), Atatürk's Reforms Rationalism and Scientific Thought; Republicanism and Populism, Nationalism and Etatism; Secularism and Revolutionism.

**FAR105 Basic Pharmacology:**

Introduction to Pharmacology and Basic Concepts, Introduction to Pharmacology and Basic Concepts Continuation and Drug Applications, Toxic effects of drugs, Autonomic nervous system drugs, Central Nervous System Drugs, Anesthetics, Cardiovascular system drugs, Drug abuse and addiction, Respiratory system drugs, Gastrointestinal system drugs, Endocrine drugs acting on the system, chemotherapeutics.

### **INGU102 English II:**

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.

### **RTR114 Biological Effects of Radiation:**

Learning the effects of radiation on living things and learning radiation doses and units to be used in their specialty.

### **TGT120 Radiological Imaging Methods II**

Anatomical formations, Upper extremity graphs, Shoulder, scapula, clavicular graphs, humerus, elbow graphs, forearm, wrist graphs, hand and hand finger graphs, Anatomic formations, Lower extremity graphs, pelvis, sacroiliac, hip joint graphs, Femur, knee graphs , Kruris, Ankle radiographs, Foot, Kalkaneus, toe thumb, foot sesamoid radiographs, Mammography, dental and kdm, Shooting error.

### **TURK 102 Turkish Language II :**

The course will help students to gain consciousness of language; inclination and habit of reading; proper usage of fundamental spelling and punctuation; and to gain a larger vocabulary set utilization.

### **RKUL102 University Culture II:**

It consists of participating in seminars and conferences held within the university and reporting on the presentations attended.

### **TGT114 Radiation Safety and Protection:**

Historical development in radiation protection, Cell structures and working system, Units used in radiation measurement, Dose and risk calculations in radiation exposure, radiation protection methods. Measurement devices used in radiation protection, Radiation accidents and biological dosimeter, Dosimeter, Collection and harmless of radioactive sources, Armouring in radiology and nuclear medicine devices , shielding calculations in radiology devices, shielding accounts sample problems in the radiology unit, radiology, nuclear medicine and radiotherapy dose to the fetus, legal status for radiation protection in Turkey.

## **III. DÖNEM:**

### **MET101 Professional Ethics:**

What is Ethics? / A View of Ethical Theories / Basic Concepts: Responsibility, Accountability and Liability / Ethical Analysis, Society and Information Ethics: Two-Way Relationship Between Society and Technology Effects of Information Technologies; Optimistic, Pessimistic, Contextual Views Why IT Ethics, Addiction, Health Problems, Unemployment, Social Relations, Security, Abuse and Cybercrime, Human Rights and Patient Rights, Hospital Ethics Committees, Medical Professional Ethics and Deontology, Medical Professional Ethics Principles and deontology, Ethical case analysis, Professional Medical Imaging Techniques, Medical Imaging Professional Ethics Principles, The

Concept of Privacy in Radiology, Medical Imaging Techniques Civil Society Organizations, National Legislation and Legal Rights.

**TGT213 Radiological Imaging Methods III:**

MRI history, system units, MRI physics I, MRI physics II, Artifacts, basic attraction principles, Contrast Materials, Cranial MR, Sella MR, Epilepsy protocol, Diffusion, Spinal MR (Cervical, Dorsal-Thoracic, Lumbar), Neck MR, Brachial Plexus MR, TMJ MR, Shoulder MR, Elbow MR, Wrist MR, Hand MR, Upper and Lower Abdominal MR, MRCP, Thorax MR, Cosofemoral MR, Knee MR, Kruris MR, Ankle and Foot MR, MR angio basics, Cranial TOF, Cervical Angio, Venography, Peripheral MR angio, Renal MR angio, Aort MR angio, Cardiac MR, Advanced MR applications I (DTI, Perfusion), Advanced MR applications II (Functional MR, MR Spectroscopy).

**TGT217 Radiological Anatomy:**

Anatomic Structures in Upper Extremity Radiographies, MR and CT, MR and CT in Lower Extremity Radiography, Anatomic Constructions in Head and Neck, Columna Vertebralis, Lung and Body Radiographs, CT, MR Anatomic Structures, Body (Thorax, Abdomen, Pelvis ) Computed Tomography Cross-sectional Anatomy, MR Digestive System, Urogenital System Radiography, CT and MR Anatomical Constructions.

**MYO022 Professional English:**

Introduction to professional English in radiology, Present Time Tense with Radiology samples, Present Continuous Tense with Radiology samples, Future Time with Radiology samples, Past Time with Radiology samples (Past Tense), Parts of the body , Organs, Health terms, Disease terms, Modal Verbs with Radiological examples, Positions to be given to the Patient in Radiology Applications, Dialogues in Radiology units, Dialogues in Radiology units.

**SKI100 Communication in Health Institutions:**

Definition, importance and history of communication, dimensions, types, features and self-knowledge of communication, nonverbal communication, effective communication methods (listening / empathy), verbal communication, organizational communication (horizontal relationship / vertical relationship), approach to angry patient and approach to the person who died closely. Approach to disabled patient, Approach with child and elderly patient, Feedback and request, Communication conflicts and solutions, Time management, Case study.

**TGT215 Nuclear Medicine :**

Introduction to Nuclear Medicine, Atom and Its Structure, Radioactivity, Halftones, Radiation, Electromagnetic Spectrum, Alpha, Beta, Gamma Decays, Interaction of Radiation with Matter and Radiation Protection, Nuclear Medicine Imaging Device Structure, Gamma Cameras, PET, Radiopharmaceuticals, Quality in Nuclear Medicine Control, Patient Preparation and Patient Positioning, Bone Scintigraphy, Bone Mineral Density Measurement application, Thyroid Scintigraphy, Thyroid Uptake Test application, Radioactive Wastes, GIS Scintigraphy applications, PET / CT and PET / MR Applications in Nuclear Medicine, SPECT / BT.

#### **IV. DÖNEM:**

##### **ILK101 First Aid :**

General First Aid Information, Human Body, Sick / Injured and Crime Scene Assessment, Basic Life Support, Airway Obstruction, Bleeding and Shock, Injuries, Burns, Freezing, Heatstroke, Consciousness Disorders (Consciousness Losses, Transfer, Low Blood Sugar, Chest Pain), Poisoning, Animal Bites, Eye-Ear-Nose-Object Drownings, Fractures, Dislocations, Sprains, Transportation Techniques.

##### **TGT214 Radiological Imaging Methods IV:**

CT history, physics, CT systems, Patient preparations, contrast agents and side effects, radiation protection, Cranial CT, orbita CT, pituitary CT, Paranasal sinuses CT, Temporal bone CT, Neck CT, larynx CT, spinal CT, Thorax BT, Abdomino -pelvic CT, Limb and joint CT examinations, CT angio basics, Cerebral BT angio, cervical CT angio, Pulmonary BT angio, thoracic and abdominal aortic CT angio, Renal CT angio, CT angio applications for extremities, Coronary-cardiac CT angio.

##### **TGT216 Basic Radiotherapy:**

Introduction to Radiotherapy, What is Cancer? Cancer Cells Characteristics and Causes, Metastasis and Staging, Concept of Fraction and Immobilization Methods, Radiation Therapy Planning and Target Volume Concept, Radiotherapy Possible Side Effects and Radiation Sensitivity of Tissues, Brachytherapy, Radiotherapy Linear Accelerators, Tomotherapy, GammaKnife and Cyberpnea, Radiotherapy Cancer Types and Treatment Methods, Cancer Types and Treatment Methods.

##### **HLK101 Public Health:**

Basic concepts in public health, Basic health services, Health organization in Turkey, Health transformation project, Mother-child health, Family planning, Occupational and worker health, Elderly health, Social and infectious diseases, Prevention and control of infectious diseases, Health education, Health development and healthy living, Community mental health, Adequate and balanced nutrition, Environmental health.

##### **SAH101 Health Law:**

Introduction to Health Law, Basic Concepts and Institutions of Health Law, Patient Rights and Concepts, Physician Rights and Concepts, Privacy in Medical Interventions, Illumination and Consent, Medical Intervention Unlawfulness, Relationships Between Hospitals and Patients, Legal Quality, Special Legal Quality of the Relationship Between Hospitals and Patients, Legal Quality of the Relationship Between Public Hospitals and Patients, Incorrect Medical Practices and Compensation Problems.