MEDİCAL IMAGING TECHNIQUES PROGRAM 2024-2025 COURSE CONTENTS

I. SEMESTER

ATA103 PRINCIPLES OF ATATURK AND HISTORY OF REVOLUTIONS I (2+0 ECTS: 2)

Revolution, evolution, rebellion, coup and reform. The characteristics of the Turkish Revolution, Industrial Revolution, The French Revolution, The reasons of collapse of the Ottoman Empire (19th Century), Reforms (Tanzimat and Islahat), Constitutional monarchy (First and Second), The Balkan Wars, First World War and input to war Ottoman Empire, The fronts that Ottoman Empire fought and the results of the war, Mondros Armistice Agreement and occupations on the Ottoman Empire, National Independence War, The occupation of Izmir and effects of this occupation, The preparation period of National Independence War, The movement of Mustafa Kemal to Samsun and the start of the organization of Anadolu Revolution, Amasya Circular, Erzurum and Sivas Congresses, founding of the Deputation, Opening of the TBMM, Rebellions against the TBMM, Sevr Treaty, founding of "Kuva-yı Milliye" and the national army, Construction of the national army; human, money and equipment resources, I. II. İnönü, Kütahya-Eskişehir and Sakarya Battles, Büyük Taarruz, East Front, West Front: I. İnönü War, London Conference, Moscow Treaty, First constitution of the Turkish Grand National Assembly, İnönü War II, Battles of Kütahya and Eskişehir, Sakarya War and the conclusions, Ankara Treaty, Ideological differentiation in the Turkish Grand National Assembly, The Great Offensive, Mudanya cease-fire agreement, Peace Treaty of Lausanne, Abolishment of the Sultanate.

FZY101 PHYSIOLOGY (2+0 ECTS: 2)

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

INGU103 ENGLISH I (2+0 2 ECTS: 2)

Nice to meet you, This is a book, Grammar: articles, singular/plural nouns, There is/There are, countable/uncountable nouns, quantifiers, I work in a bank, Grammar: Simple Present Tense, Adverbs of frequency, I have got a nice family, Grammar: have got/has got, object pronouns, possessive adjectives, I can run fast/I must study harder, Grammar: can/can't, must/mustn't, I was at home/She studied English last night, Grammar: was/were, Simple Past Tense, Midterm Exam, Revision (unit 1-7), I am reading a book now, Present Continuous Tense, Conjunctions (and-but-so-because), Fenerbahçe is the best football team in Turkey, comparative and superlative, Revision (unit 9-11), General Revision.

MYO103 BASIC ANATOMY (2+0 ECTS: 2)

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

TGT109 RADIOLOGIC IMAGING PHYSICS (3+0 ECTS: 5)

Introduction to Radiation Physics, Matter and Atomic Structure, Concept of Radiation - Ionizing and Non-ionizing Radiation, Electromagnetic Spectrum, Concept of Radioactivity and Radioactive Decays,

Properties of X-Ray and Obtaining it from X-Ray Tube, Interaction of X-Ray with Matter, Concept of Attenuation , Radiation Dose Units, Basic Principles of Radiation Protection, Physics of X-ray devices (X-Ray, Mammography), USG Physics, CT physics, MR physics.

TGT111 RADIOLOGIC IMAGING METHODS I (3+2 ECTS: 9)

History of Radiology (Introduction to Radiology and History of Radiology) (APPLICATION: Laboratory introduction, stating the rules.), Radiological Terminology and Areas of Use (Imaging Methods_Introduction to X-ray Physics_Basic Information_Introduction to Positions) (APPLICATION: Introduction of the X-ray device, showing its parts.), Anatomical formations, Cranium radiographs. (APPLICATION: Positioning and taking of cranium radiographs), Head towne, orbit, Caldwell, Waters radiographs (APPLICATION: Positioning of head towne, orbita, Caldwell, Waters radiographs), Nasal bone, Schüller, Stenvers radiographs (APPLICATION: Nasal bone, Schüller, Stenvers radiographs shooting technique), Anatomical formations, Spine radiographs (APPLICATION: Spine radiographs shooting techniques), Atlantoaxial, Odontoid, Cervical vertebra radiographs (APPLICATION: Atlantoaxial, Odontoid, Cervical vertebra shooting techniques), Thoracic vertebra, Lumbar vertebra, Sarum vertebra radiographs (APPLICATION: Thoracic vertebra, Lumbar vertebra, Sacrum vertebra radiography techniques), Coccyx, Whole column vertebra radiography (APPLICATION: Coccyx, Whole column vertebra radiography techniques), Anatomical formations, Body radiographs (APPLICATION: Anatomical formations, Trunk radiography techniques), Lung PA ,Sternum radiographs (APPLICATION: Lung PA,Sternum radiograph techniques), Thorax,abdominal radiographs (APPLICATION:Thorax,abdominal radiograph techniques), Direct urinary system radiographs (APPLICATION: Direct urinary system radiographs)

TURK103 TURKISH LANGUAGE I (2+0 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.

RKUL103 UNIVERSITY CULTURE I (0+2 ECTS: 4)

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 COMMUNİCATION SKILLS (2+0 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, Learning Healthy Decision Making Skills, Learning Concepts of Reconciliation.

II. SEMESTER

RKUL104 UNIVERSITY CULTURE II (0+2 ECTS: 4)

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.

ATA104 PRINCIPLES OF ATATURK AND HISTORY OF REVOLUTIONS II (2+0 ECTS: 2)

Peace Treaty of Lausanne, Periods of Lausanne Conference, Articles of Treaty of Lausanne and their evaluations, Declaration of Republic, Abolishment of Caliphate, Transition to multi-party political, Law Revolution, Revolutions in the social field, Revolutions in the fields of Education, Economy, Finance, Turkish foreign policy between the years of 1923-1938, Turkish foreign policy between the years of 1938-1950, The government of Democratic Party and the time of Adnan Menderes, The military coup of 1960 and the following political developments, Turkish internal politics between the years of 1980-2002, The basic principles of Turkish Revolution, Revolutions of Atatürk, Rationalism and Scientific Thought; Republicanism, Populism, Nationalism and Etatism; Secularism and Revolutionarism.

INGU104 ENGLISH II (2+0 ECTS: 2)

Demonstrative Pronouns, Possessive Pronouns, Past Continuous Tense, Exercise on Reading & Vocabulary (Simple Past Tense & Past Continuous Tense), Preposition of Time and Place, Present Perfect Tense, Revision (Units 1-5), Possessive “s”, Adverbs of manner, Midterm Exam, Future Tense, Making Suggestions & Requests, Gerunds - Infinitives, Modals (must, should, have to, don’t have to, may), General Revision (Units 7-12).

TURK104 TURKISH LANGUAGE II (2+0 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.

FAR105 BASIC PHARMACOLOGY (2+0 ECTS: 3)

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.

RTR114 BIOLOGICAL EFFECTS OF RADIATION (3+0 ECTS:5)

Introduction, General information about Radiobiology, Structure and Organelles of the Cell, Structure of DNA and Replication, Effects of Radiation at the Cellular Level, Effects of Radiation at the Molecular Level, Concept of Dose, Concept of Radiation Dose, Doses for Radiation Workers and Society, Biological Half-Life, Effective Half-Life Calculations , Cells Hypersensitive to Radiation and the Sensitivity Event Chain, Radiation Sensitivities of Tissues and Organs, Early Effects of Radiation, Late Effects of Radiation, Epidemiological Studies, Radiation Accidents and Biological Effects Depending on the Degree of Dose;

Changes in Blood Values, Vomiting, Nausea, Mortality Rate, Genetic Risks, Chromosomal Abnormalities, Radiation Damage and Repair Events, Basic Principles of Radiation Protection

TGT120 RADIOLOGICAL IMAGING METHODS II (3+2 ECTS: 8)

Anatomical formations, Upper extremity radiographs (APPLICATION: Anatomical formations, Upper extremity radiograph techniques), Shoulder, scapula, clavicle radiographs (APPLICATION: Shoulder, scapula, clavicle radiograph techniques), humerus, elbow radiographs (APPLICATION: humerus, elbow radiography techniques), forearm, wrist radiographs, hand and hand finger radiographs (APPLICATION: forearm, wrist radiographs, hand and hand finger radiograph techniques), Anatomical formations, Lower extremity radiographs (APPLICATION: Lower extremity radiographs), pelvis, sacroiliac, hip joint radiographs (APPLICATION: pelvis, sacroiliac, hip joint radiography techniques), Femur, knee radiographs (APPLICATION: Femur, knee radiography techniques), Cruris, Ankle Radiographs (APPLICATION: Kruris, Ankle Radiography techniques), Foot, Calcaneus Radiography (APPLICATION: Foot, Calcaneus Radiography techniques), big toe, foot sesamoid radiographs (APPLICATION: big toe, foot sesamoid radiography techniques), Mammography (APPLICATION: Lower extremity imaging techniques), Dental and KDM (APPLICATION: Lower extremity imaging techniques), Shooting Mistakes (APPLICATION: Mistakes).

RTR218 RADIATION SAFETY AND PROTECTION (2+0 ECTS: 3)

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 harmlessness 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. SEMESTER

MET101 PROFESSIONAL ETHICS (2+0 ECTS: 2)

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 (2+8 ECTS: 14)

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-Thoracal, 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 (2+0 ECTS: 3)

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, MRDigestive System, Urogenital System Radiography, CT and MR Anatomical Constructions

MYO022 PROFESSIONAL ENGLISH (2+0 ECTS: 3)

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 İN HEALTH INSTITUTIONS (2+0 ECTS: 3)

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 (3+0 ECTS: 5)

Introduction to Nuclear Medicine, Atom and Structure, Radioactivity, Half-Breakings, Radiation, Electromagnetic Spectrum, Alpha, Beta, Gamma Decays, Interaction of Radiation with Matter and Protection from Radiation, 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, Positron Emission Tomography/CT Imaging (18F FDG), Brain PET/CT Imaging with F18 FDG, Brain Death, Scintimammography, Prosta Scan-PSMA, PET/MR Applications.

IV. SEMESTER

ILK101 FIRST AID (2+0 ECTS: 3)

General First Aid Information, Human Body, Sick / İnjured and Crime Scene Assessment, Basic Life Support, Airway Obstruction, Bleeding and Shock, İnjuries, 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 (2+8 ECTS: 15)

CT history, physics, CT systems, Patient preparations, contrast agents and side effects, radiation protection, Cranial CT, orbite 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 (3+0 ECTS: 6)

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 PUCLIC HEALTH (2+0 ECTS: 3)

Basic Public Health, Today's Understanding of Public Health, Infectious Diseases, Maternal Health and Child Health, Health Education, Nutrition, Occupational Health, School Health, Elderly Health, Vector and Control Methods, Epidemiology, Anadolu University Publications

SAH101 HEALTH LAW (2+0 ECTS: 3)

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.