

### Medical Imaging Techniques

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT101	Radiology Physiology	(4,0,4)	4	6	Compulsory Course

The structure, formation and physics principles of X-ray, the structure of the X-ray tube and the way it works, the conditions necessary for its occurrence, its properties, quality, quantity. X-ray interaction with matter. X-ray detection, dosage. Radioactivity and Radium. Tools used to improve quality in radiography. Secondary radiation, Reducing secondary radiation by Grid, Reducing secondary radiation by changing the primary light and other methods, Structure and working style of Digital X-ray Device, Structure, physics and working principles of Computed Tomography Device, Structure, physics and working principles of Magnetic Resonance Device, Nuclear Medicine The structure, physics and working principles of the devices are the structure, physics and working principles of USG Devices.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT104	Medical Imaging I	(4,2,5)	5	5	Compulsory Course

Preparations for Radiographic Examination, Head Radiographs, Facial Radiographs, Vertebral Radiographs, Thorax and Abdominal Radiographs, Thorax and Abdominal Radiographs, Upper Extremity Radiographs, Lower Extremity Radiographs, Lung, Cardiac Radiographs

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT106	Sterilization Principles and Methods	(2,0,2)	2	2	Compulsory Course

Classification and Structures of Microorganisms: basics, naming, sizes, simple staining methods, gram measurement method and principles. Principles of acid-resistant bacteria breeding method. Structure of Bacteria: Round (cocci), rod-shaped and spiral-shaped viruses, involution forms. Anatomical Structure of Bacterial Cells: Protoplasts, cephaloplasts, L organisms of bacteria. Effect of External Environment on Microorganisms: Sterilization, disinfection and application methods. Sterilization methods, sizing, chemical production, heat, irradiation, filtration methods, dry-hot air sterilization, moist heat sterilization, tinalization. Structure of Viruses: Differences between bacteria and viruses, AIDS virus.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT118	Clinical Education and Practice I	(0,10,5)	5	5	Compulsory Course

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
Practice in an institution with a radiology department. Taking shots with the devices used for imaging in the radiology unit.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT124	Radiological Anatomy I	(2,0,2)	2	2	Compulsory Course
skeletal system; direct roentgenographic and cross-sectional anatomy of upper and lower extremities, vertebral column, ribs, cranial bones Anatomical Structures on Head and Face Radiographs, Anatomical Structures on Lung and Trunk Radiographs, Anatomical Structures on Upper and Lower Extremity Radiographs, Anatomical Structures on Mammography Images, Head and Neck Computed Tomographs Cross-sectional Anatomy, Body (Vertebra, Thorax, Abdomen, Pelvis) Computed Tomographs Cross-sectional Anatomy, Upper and Lower Extremity Computed Tomographs Cross-sectional Anatomy.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT201	Radiological Anatomy II	(2,0,2)	2	3	Compulsory Course
Roentgenographic and cross-sectional anatomy of respiratory, transitional, gastrointestinal and urogenital systems, Head and Neck Magnetic Resonance Sectional Anatomy, Body (Vertebra, Thorax, Abdomen, Pelvis) Magnetic Resonance Sectional Anatomy, Upper and Lower Extremities Magnetic Resonance Sectional Anatomy, Anatomical in Cerebral and Neck Angiographies Structures, Anatomical Structures in Cerebral and Neck Angiographies, Anatomical Structures in Thorax and Abdominal Angiographs, Anatomical Structures in Upper and Lower Extremity Angiographs, Anatomical Structures in Digestive System, Biliary and Urogenital System Radiographs.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT205	Medical Imaging II	(4,2,5)	5	5	Compulsory Course
Radioactive examinations and Special examinations; angiography, cystography, tomography, venography. Ultrasonography, Computed Tomography, Magnetic Resonance, Digital X-ray and fluoroscopy techniques, esophagus, stomach, duodenum, small intestine and large intestine films and medicated urography techniques, as well as film and shooting quality are transferred.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT207	Nuclear medicine	(2,0,2)	2	3	Compulsory Course

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
<p>Basic devices and quality control used in nuclear medicine. Fundamentals of radioisotope dilution methods in nuclear medicine. Biological parts of scintigraphy in nuclear medicine. Patient preparation in nuclear medicine practice, surveillance in scintigraphy shots that do not create images on a gamma camera, in vitro tumor definition by radionuclide methods. Doses and departments, Positions, Examine nuclear medicine methods and systems, Clinical applications</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT207	Radiotherapy	(2,0,2)	2	3	Compulsory Course
<p>History of radiotherapy. Technical operation used in radiotherapy. Devices used in radiotherapy and intended use. Treatment used in radiotherapy. Brief radiation physics, Radiation systems / Radiobiology. Patient planning and the task of this technician. External protection protection rules, distance, duration and protection, as well as internal protection rules, photoelectric effect-Compton scattering and Pair Formation events in the interaction of radiation with matter, internal radiation dosimetry, and radioactive waste management and radioactive reclamation.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT213	Organization in Radiology	(2,0,2)	2	3	Compulsory Course
<p>Establishing a study organization, Organizing a patient information system, Planning the services provided with radiology rules, Archiving the patient's image, Monitoring the services provided by the radiology rules</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT215	Radiation Health and Protection	(1,0,1)	1	2	Compulsory Course
<p>Effect of radiation on living cells, Maximum allowable radiation doses, Radiation measurement methods, Radiation control measures, Shielding against radiation, Planning of places working with radiation and equipment while working, Protective clothing, Radiation protection methods.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT219	Clinical Education and Practice II	(0,10,5)	5	6	Compulsory Course

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
Practice in an institution with a radiology department. Taking shots with the devices used for imaging in the radiology unit. Applications to gain the skills required for Medical Imaging technician.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TGT221	Technology of Biomedical Devices	(1,2,2)	2	3	Compulsory Course

Definition and application of biomedical technology. Working principles of biomedical devices Magnetism, Definition of electric current, Direct and alternating current, Electro magnetism. Resistors, capacitors, self-coils, transformers and their use in electrical circuits. Atomic theory, Electro negative and electro positive currents, Rectifiers, vacuum lamps, semiconductors. Finding faults in electrical energy-operated devices. X-ray properties and obtaining, X-ray types, Main structure of X-ray equipment, Measurement and equation systems, X-ray equipment main circuits (autotransformer, kenetron filament, control, timer and buki circuits). The necessary settings in the x-ray device (autotransformer, kenetron filament, timer tube filament and KVP settings), ideal x-ray laboratory. Dark rooms, Fault finding systems, minor repairs that can be done by X-ray technicians, simplification of schematics.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAT151	Basic Mathematics	(3,0,3)	3	3	Compulsory Course

Numbers and Number systems; Natural Numbers, Integers, Rational Numbers and Decimals, Exponents, Radical Numbers. Algebraic Expressions, Identities, Factorization and Rational Expressions, Functions, Equations, Polynomials, Functions, Inequalities, Trigonometry, Complex Numbers, Systems of Linear Equations, Matrix and Determinants. Introduction to Statistics, Measures of Central Tendency, Measures of Distribution

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO101	Medical Terminology	(2,0,2)	2	3	Compulsory Course

Introduction to terminology, Prefixes that make up medical terms, Stems, Suffixes. Movement system terms, Nervous system terms, Blood terms, Cardiovascular terms, Respiratory system terms, Endocrine system terms, Sense organ terms, Urinary system terms, Genital system terms. Giving information about the standard terminology of surgery and diseases.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO102	Diseases Information	(3,0,3)	3	3	Compulsory Course

General structure of the human body. Cell and its functions, Metabolism, Body fluids, electrolytes and tissue types. Organs and systems, Musculoskeletal, Nervous, Respiratory, Circulatory, Digestive, Excretory systems, reproductive organs and their functions. Concepts of health and disease, symptoms, Findings, Etiology, Examination of diseases, Examination forms and diagnostic procedures. Congenital anomalies, Eye-ENT Diseases, Urogenital System Diseases, Infectious and parasitic diseases, Cancer, Endocrine system diseases, Blood diseases, Mental health and disorders, Nervous system and sensory organs diseases.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO104	Physiology	(3,0,3)	3	3	Compulsory Course

Basic concepts of physiology, cell, tissue, organ and system organization and working mechanisms and functions of body systems, cell physiology, Muscle physiology, Circulatory system, Blood physiology, Respiratory system physiology, digestive system physiology, excretory system physiology, central nervous system physiology, endocrine system physiology.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO106	Basic Communication Skills	(2,0,2)	2	2	Compulsory Course

Human characteristics, Hierarchy of human needs, Recognition of human, Self-knowledge. The concept of personality, Personality traits, Personality and developmental stages, Factors affecting personality. Behavior, Motivation, Needs, Inhibition of Behavior. Defense mechanisms, Types of defense mechanisms, Duties of defense mechanisms. Communication process, Communication techniques, Communication in communication, Role of behavior in communication, Verbal and non-verbal communication, Communication tools, Situations preventing communication, Effect of transfer in communication. Hearing and listening, Types of listening, Concentrating on the subject, Being prepared to listen, Making an effort to understand what is spoken. Control emotions, Grasp the main idea during listening time, Take notes, Avoid misunderstanding. Anxiety, Anxiety symptoms, Stress, Methods of coping with stress, Crisis, Causes of crisis, Reactions to crisis, How to deal with crisis. Anger, Types of Anger, Preventing the feeling of anger from preventing communication, Constructive behavior in the expression of anger, Useful and unhelpful approaches in improving communication in the face of an angry person.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO109	Basic First Aid	(2,2,3)	3	3	Compulsory Course

Importance and rules of first aid, crime scene management, disaster situations in society, causes, emerging problems and civil defense. Evaluation of the patient/injured, basic life support, first aid in injuries, first aid in bleeding, first aid in respiratory and circulatory system and first aid in shock extremity fractures and bleeding, first aid in vertebra, head, sternum fractures and bleeding, rescue and transportation methods. First aid in burns, electric shock, frostbite, heat stroke, food and chemical poisoning, animal bites, and other situations that require first aid.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO111	Basic Anatomy	(3,0,3)	3	4	Compulsory Course

Introduction to anatomy. Skeletal and muscular system anatomy: bone, muscle, joint and general information, upper and lower extremities. Respiratory system anatomy: thorax wall anatomy and diaphragm, nose and larynx trachea, lungs and pleura. Circulatory system: heart (atria and ventricles), pericardium, vessels. Digestive, excretory and reproductive systems: pharynx, esophagus and stomach, small and large intestines, liver, pancreas, spleen, kidneys, ureters-bladder and urethra-female and male genital organs. Nervous system: central nervous system-diencephalon and telencephalon-medulla spinalis morphology, brain sac- cerebellum and cranial nerves-autonomic nervous system. endocrine system. Sense organs: eye and visual pathways, ear, hearing and balance pathways.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO202	Health Services Administration	(2,0,2)	2	3	Compulsory Course

Historical development of medicine, Basic health services, Health manpower, Health organization in Turkey and TRNC, Immune services, Basic nutrition, Health education, Worker and workplace health, Family planning, Medical ethics.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO204	Occupation Ethics	(3,0,3)	3	4	Compulsory Course

In this course, it is aimed to gain the competencies related to professional ethics. Examining the concepts of ethics and morality, Examining the ethical systems, examining the factors that play a role in the formation of morality, examining professional ethics, examining the consequences of professional corruption and

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					unethical behaviors in professional life, examining the concept of social responsibility, Examining the concepts of ethics and health, Examining the concepts of ethics and culture.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO206	Health Services Administration	(2,0,2)	2	3	Compulsory Course
					Management concept and processes. Turkish health system and its subsystems, aims, organizational structure, historical development, current situation, functioning, management and examination of the institutions and organizations that make up the system are examined.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SMO208	Rational Drug Use	(1,0,1)	1	1	Compulsory Course
					Basic concepts of rational drug use, stakeholders in rational drug use, drug supply process in rational drug use, compliance, storage conditions of drugs, factors leading to irrational drug use.