

T.C.

USKUDAR UNIVERSITY

SCHOOL OF HEALTH SERVICES

PROGRAM OF PERFUSION TECHNIQUES

School of Health Services has its own building in the center of Altunizade and applications are performed in the NP Application and Research Hospital, Istanbul. The language of the program is Turkish. The duration of the program is 4 semesters (2 years). Two-year Associate's Degree diploma is given to the students who successfully complete the program.

The aim of this program, is to train people such as cardiovascular surgeon or anesthetist under the supervision of a specialist doctor, a heart-lung machine used in heart surgery, the heart-lung support devices used for circulatory or respiratory failure, renal failure, dialysis devices used; Hemo-prepared to run, and will be followed by diafiltration and autotransfusion devices health.

Perfusion technicians perform blood circulation during operation setting up hearth-lung machine; install dialysis machine and the machine for blood circulation during liver transplantation. Perfusion technicians will find the opportunity to work in private and public hospitals. Additionally, they can be employed in research projects supported by domestic or international universities as a perfusion technician.

Perfusion technicians who want to be, to be successful in the field of Science and Technology, tools and machines to have an interest, but also can use the hands and fingers skillfully, can detect the mechanical properties and shape relationships, vision, and hearing organs intact, I like to help people, they are people who have a strong sense of responsibility expected. Those who have completed the program in perfusion techniques "Perfusion Technician" is the title. Perfusion technicians, instruments and appliances used in medical and biological sciences, schemes will be properly installed, continuous maintenance, which makes the location of the fault when it detects and repairs. Perfusion technicians, public and private hospitals, laboratories, dispensaries, medical device, the factories and workshops, or medical equipment repair and maintenance services perform their duties. Therefore vary according to place of

work environments. In business continuously doctors, nurses and other hospital staff are in contact with.

Graduates also have the opportunity to transfer by taking DGS (direct transfer exam) to this program if there is a contingent.

CURRICULUM

I. MIDTERM

Course Code	Course Title	Theory	Practice	Credit	ECTS
FZY 101	Physiology	2	0	2	3
ANA 101	Anatomy	2	0	2	3
MİK 151	Introduction to Microbiology	2	0	2	2
BİK 111	Biochemistry	2	0	2	2
BİO 111	Medical Biology	2	0	2	2
TTR 101	Medical Terminology	2	0	2	2
SAH 101	Health Law	2	0	2	2
SHY 101	Health Services Management	2	0	2	2
MET 101	Professional Ethics	2	0	2	3
BİL 111	Fundamentals of Information Technology I *	2	0	2	2
TURK 101	Turkish Language I *	2	0	2	2
İNGU 101	English I *	2	0	2	3
ATA 101	Ataturk's Principles and Revolution History I *	2	0	2	2
TOTAL		26	0	26	30

* Will be given in the form of distance education.

II. MIDTERM

Course Code	Course Title	Theory	Practice	Credit	ECTS
DSF 102	Circulatory and Respiratory Physiology	2	0	2	2
PET 102	Perfusion Technology I	2	0	2	2
KPB 102	Cardiopulmonary Bypass	2	0	2	2
PER 104	Applications of Perfusion in Clinics I	0	8	4	6
BMT 102	Biomedical Equipment Technology Introduction	3	0	3	3
EFH102	Infectious Diseases	2	0	2	3
BİF102	Biophysics	2	0	2	3
BİL 112	Basic Information Technologies II *	2	0	2	2
TURK 102	Turkish Language II *	2	0	2	2
İNGU 102	English II *	2	0	2	3
ATA 102	Ataturk's Principles and Revolution History II *	2	0	2	2
TOTAL		21	8	25	30

* Will be given in the form of distance education.

III. MIDTERM

Course Code	Course Title	Theory	Practice	Credit	ECTS
PER 201	Side Effects of Cardiopulmonary Bypass	2	0	2	4
PER 203	Perfusion Technology II	2	0	2	4
PER 205	Pediatric and Adult Perfusion	6	6	9	14
PER 207	Applications of Perfusion in Clinics II	0	8	4	8
POP 201	Positive Psychology	2	0	0	0
TOTAL		12	14	17	30

IV. MIDTERM

Course Code	Course Title	Theory	Practice	Credit	ECTS
PER 202	Life Threatening Complications	2	0	2	3
PER 204	Patient Monitoring during Extracorporeal Circulation	3	0	3	4
KGS 202	Quality Assurance and Standards	2	0	2	3
PER 206	Clinical Use of Cardiopulmonary Bypass Technology	4	4	6	10
PER 208	Extracorporeal Support Systems	4	4	6	10
TOPLAM		15	8	19	30

COURSE DESCRIPTION

FZY 101 Physiology

(2+0) 2, ECTS: 3

This course is designed to provide students with an understanding of physiology with emphasis on the functions of the human body. This course introduces the students the function and regulation of humans and physiological integration of the organ systems to maintain homeostasis. Several biological systems are considered, including respiratory, circulatory, digestive and metabolic, renal, nervous, musculoskeletal, hormonal, and sensory. The weekly laboratory session will complement the lecture.

ANA 101 Anatomy

(2+0) 2, ECTS:3

Motion System (skeleton, joints, muscles); Circulatory System (cardiovascular, lymphatic), Digestive System, Respiratory System, Urinary and Reproductive System, Endocrine System, Nervous System (Central, peripheral, autonomic); Sensory Organs; Developmental Anatomy.

MİK 151 Introduction to Microbiology

(2+0) 2, ECTS: 2

In this course, a survey of bacterial morphology, biochemistry and physiology with special emphasis on the cultivation, identification and control of microorganisms is intended. Basic laboratory skills in microbiology subject is one of the learning outcomes.

BİK 111 Biochemistry

(2+0) 2, ECTS:2

In this course will be covered functional group reactions and properties of biologically and organic chemistry of macromolecules (proteins, carbohydrates, nucleic acids and lipids. Basic laboratory skills in biochemical subject is one of the learning outcomes.

BİO 111 Medical Biology

(2+0) 2, ECTS: 2

All biological concepts will be covered in this course. The topics include; the origin of living organisms and cellular basis, the chemical structural components of the cell, cell biology, the structure of cell membrane, functions of sub-cellular organelles, energy metabolisms, the basis of cellular information flow and cell signaling, DNA structure, chromosomes and nucleus.

TTR 101 Medical Terminology**(2+0) 2, ECTS:2**

Dersin veriliş amacı, ön ve son ekler, İskelet Sistemi tıbbi terimleri, Solunum Sistemi tıbbi terimleri, Kardiyovasküler Sistem tıbbi terimleri, Kulak Burun Boğaz tıbbi terimleri, Göz tıbbi terimleri, Üroloji tıbbi terimleri, Genital Sistem tıbbi terimleri, Nöroloji ve Psikiyatri tıbbi terimleri, Gastro-İntestinal Sistem tıbbi terimleri, Dermatoloji tıbbi terimleri, Hematoloji tıbbi terimleri,

SAH 101 Health Law**(2+0) 2, ECTS:2**

Social Rules and Law; Concept of Law and Law Enforcement, Legal Rules, Sources of Law Handles; Definition and Types of Vesting, Forfeiture, and applications; Person and Person Types: Real persons, legal entities; Real Person Qualifications: Rights license , verb license; Kinship; residence; Protection of Personality, Possession, Property, Debt Obligation and Responsibility; Judicial Bodies. Health Law.

SHY 101 Health Services Management**(2+0) 2, ECTS:2**

Health - Disease Concepts and Services, Management science - the development and management functions, health care management, health care, private and public aspects, health economics, health care financing, the total quality of health services, health manpower planning and management, Inpatient and outpatient health care facilities Ministry of Health and health services, social security and health services, health legislation. The organization of the Ministry of Health, the kinds of public and private health institutions and forms of governance of these institutions, leadership, goal setting, determining the priorities, decision making, health needs assessment, performance measurement, urban health care management, hospital management, management and organization of emergency medical services, health care facilities material management, management and organization of nursing services, pharmacy services, management and organization, imaging centers, management and organization, management and organization of archives and documentation services.

MET 101 Professional Ethics**(2+0) 2, ECTS:2**

What is deontology, Definition and Introduction, What is Morality, moral Mature individual properties, Concepts of Health and Illness, Job What Is The Job Search Principles, Teamwork,

Health Professionals in Society, the Universal Declaration of Human Rights, Patient Rights, Health Law and Related Methods regulations, euthanasia, transplantation ethics.

BİL 111 Fundamentals of Information Technology I (2+0) 2, ECTS:2

The computer operating system, the general definitions, hardware, information, technical specifications. The general definition of operating systems. Windows operating system. The introduction of Microsoft Office programs, office applications. Internet Explorer.

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

What is language: the language of theories about the birth, language, culture and society relationship; Language Revolution: Turkish Language Association and the work of the World Languages: Language families of Turkish among the world languages; Turkey Turkish: Voice features, Morphology, Syntax, , Spelling, Punctuation, Correspondence: Resume, Application, letter, business letter, telegram.

İNGU 101 English I (2+0) 2, ECTS:3

Markers; Prepositions: Place, Time, Motion, Singular and Plural Nouns: Countable and uncountable nouns; Times: tense, present continuous tense, past tense structures; Paradigms: Will, Should, Should not, Must, Must not, Can; Comparative structures; Pronouns: pronouns, possessive pronouns, adjectives, positive sentences, negative sentences and interrogative sentences; Conjunctions: And, But, When, because.

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

The Ottoman Empire Order and Reforms in the Ottoman Empire and Fall of the Disruption; Anatolia, Mustafa Kemal Pasha, Organization of National Struggle Opening of the First Parliament, Military and Political Developments Between 1920-1922, Revolution and Counter Reactions; Constitutional System; Republican Era Domestic and International Politics of the Turkish Revolution, Basic Characteristics and Intellectual Movements, Law, Education, Economy, and Social Life; Ataturk's Principles and General Characteristics of these principles; Evaluation of Kemalism from an ideological perspective.

II. MIDTERM

DSF 102 Circulatory and Respiratory Physiology**(2+0) 2, ECTS: 2**

Circulation and Cardiac Physiology, Respiratory Physiology, Gas Diffusion and Transfer, Acid-Base Balance, Electrocardiography, Hemostasis and Thrombosis issues, fluid-electrolyte balance, homeostatic mechanisms.

PET 102 Perfusion Technology I**(2+0) 2, ECTS: 2**

Perfüzyon Tanımı, Perfüzyonist Tanımı, Akışkan Dinamiği, Perfüzyon Teknikleri, Perfüzyon Yönetimi, Klinik Perfüzyon Uygulamaları, Türkiye ve Dünyadaki Perfüzyon Teknolojisi, Perfüzyon İdaresi, İzole Ekstremiteler.

KPB 102 Cardiopulmonary Bypass**(2+0) 2, ECTS: 2**

Kardiyopulmoner bypass tanımı, Nasıl yapıldığı, Uygulamaları, Kardiyopulmoner Bypass tarihi, Kardiyopulmoner Bypass gelişmesi, Kardiyopulmoner Bypassın Türkiye ve Dünya'daki durumu, Kardiyopulmoner Bypass Devreleri (Devreler, Hatlar, Setler, Isı değiştiriciler, Oksijenatörler, Filtreler, Kanüller, Solüsyonlar)

PER 104 Applications of Perfusion in Clinics I**(0+8) 4, ECTS: 6**

Anatomy, Pathology, Physiology, hands-on training for cardiopulmonary bypass and perfusion technology for at least 30 cases, choice of instruments for perfusion, decision making during during perfusion application.

BMT 102 Biomedical Equipment Technology Introduction**(3+0) 3 ECTS:3**

Biomedical Equipment Technology development and history of the relationship with other disciplines, Biomedical Equipment technician work areas, duties and responsibilities, coordination between Biomedical Engineer; biopotential signals and formation; medical device transducer and electrodes, types and characteristics of the human-instrumentation system.

EFH 102 Infectious Diseases**(2+0) 2, ECTS:3**

This course aims to give brief information about the importance of prevention and controlling of infectious diseases, common infectious diseases and health-care

principles. Introduction to microbiology and infectious diseases. Gastrointestinal diseases. foodborne illness, typhoid fever, dysentery, cholera, brucellosis. Airborne diseases: influenza, bronchitis, pneumonia, tuberculosis. Rabies, tetanos, meningitis, hepatitis, AIDS. Sexually transmitted diseases. Hospital-acquired diseases. Parasites, prevention of infectious diseases, immunology.

BİF 102 Biophysics

(2+0) 2, ECTS: 3

Electrical Properties of Cell Membranes, local potential, action potential, Transducers, Filters, Amplifiers, Measuring Instruments and Oscilloscope, Biophysical Foundations of the EEG, Evoked Potentials

BİL 112 Fundamentals of Information Technology II

(2+0) 2, ECTS:2

General Information About the Office program, Word General Usage Using the File Menu in Word, Word Using the Edit Menu, View Menu Using Word, use Word Insert menu in Word Format to Use Menu, use the Tools Menu in Word, use Word Table Menu, Excel Required Use of Basic Application Menus, PowerPoint Essential Practice for the Use of Menus

TURK 102 Turkish Language II

(2+0) 2, ECTS:2

The right to use their native language for gaining the skills that the students who come to college in gaining skills in order to enhance the ability of producing ideas and thinking in this area is based on the course of writing, punctuation, and spelling rules, rules of composition, writing exercises related to these types of writing are discussed and examples. In addition, various novels, poetry books and plays are read and discussed. Reading plays in the classroom, a variety of techniques and diction lessons are applied stress and intonation.

İNGU 102 English II

(2+0) 2, ECTS:3

Time: Present tense, past tense, past tense, future tense structures; Modes: Might, Could, Can, Must, May, Envelopes: Location, Direction, Purpose, adverbs, adjectives: Order of adjectives, Comparative, Superlative forms; passive Structure: Current, Wide, The Past, the Future also passive voice; Conditionals; Adjective Clauses, Relative Clauses; Verb Structures: TO,-ing, noun clauses; Adverbial Clauses; Comparative Constructions.

ATA 102 Atatürk's Principles and History of Turkish Revolution II

(2+0) 2, ECTS:2

The Ottoman Empire Order and Reforms in the Ottoman Empire and Fall of the Disruption; Anatolia, Mustafa Kemal Pasha, Organization of National Struggle Opening of the First Parliament, Military and Political Developments Between 1920-1922, Revolution and Counter Reactions; Constitutional System; Republican Era Domestic and International Politics of the Turkish Revolution, Basic Characteristics and Intellectual Movements, Law, Education, Economy, and Social Life; Ataturk's Principles and General Characteristics of these principles; Evaluation of Kemalism from an ideological perspective.

III. MIDTERM

PER 201 Side Effects of Cardiopulmonary Bypass (2+0) 2, ECTS: 4

Myocardial Damage: resistant VF, inadequate myocardial perfusion, ventricular distention, ventricular collapse, coronary embolism, catecholamines, aortic cross-clamping, reperfusion, brain damage, renal dysfunction, gastrointestinal effects, endocrine and inflammatory response, cardiopulmonary arrest, resuscitation.

PER 203 Perfusion Technology II (2+0) 2, ECTS: 4

Fluid Dynamics, Perfusion Techniques, Perfusion Management, Clinical Perfusion Practices, Perfusion Technology in Turkey and the world, Perfusion administration, Isolated Limb Perfusion.

PER 205 Pediatric and Adult Perfusion (6+6) 9, ECTS: 14

Pediatric and Adult Cardiopulmonary bypass, pathophysiological response, pediatric, effective and correct implementation of procedures in adult patients.

PER 207 Applications of Perfusion in Clinics II (0+8) 4, ECTS: 8

Anatomy, Pathology, Physiology, hands-on training for Cardiopulmonary bypass and perfusion technology using at least 45 cases and the pre-operative preparation, choice of instruments perfusion, perfusion, during the implementation of decisions.

IV. MIDTERM

PER 202 Life Threatening Complications (2+0) 2, ECTS:3

Mechanical Problems, Massive air Emboly, Arterial dissection.

PER 204 Patient Monitoring during Extracorporeal Circulation (3+0) 3, ECTS:4

Hemodynamic Monitoring and Measurements, Blood Gas Analysis, Air Control, Level Detection, Temperature Monitoring, Electrocardiography, Fluid and Electrolyte Balance, Coagulation Monitoring, Perfusion Eligibility, Peri-operative Echocardiography, Tracking and Monitoring the cardiac catheterization.

KGS 202 Quality Assurance and Standards (2+0) 2, ECTS:3

Quality, total quality management (TQM), international quality system documentation, standards and standardization, the Importance of Standards, quality management and Standards TS EN ISO 9001 and 22000 quality management systems definition and importance of TS EN ISO 9001 and 22000 quality management system, requirements of TS EN ISO 9001 and 22000 standards, Environmental Standards, recovery and recycling of waste.

PER 206 Clinical Use of Cardiopulmonary Bypass Technology (4+4) 6, ECTS:10

Pumps, Filtration, Gas Exchange, Instruments for Gas Exchange, hemodilution, myocardial protection, hypothermia, perfusion cycle, Pharmacological Support, Blood Conservation Techniques, Coagulation Therapy.

PER 208 Extracorporeal Support Systems (4+4) 6, ECTS:10

Right and Left Heart Bypass, Ventricular Support Systems, Total Artificial Heart, Extra-Corporal Membrane Oxygenator (ECMO). Perfusion in Pregnant Patients, Hypothermic Resuscitation, Isolated Limb Perfusion, Body Perfusion, Hemodialysis, Bio-Compliance.