

# VOCATIONAL SCHOOL OF HEALTH SERVICES

## ELECTRONEUROPHYSIOLOGY PROGRAM

2024-2025

### 1st YEAR FALL SEMESTER

#### **ATA103 PRINCIPLES OF ATATÜRK AND HISTORY OF REVOLUTIONS I** **THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

The basic concepts, Reasons for the collapse of the Ottoman State, Modernization movements in Turkey, First World War, National Independence War.

#### **ENF119 ELECTROENCEPHALOGRAPHY-EEG (BSEC) THEORETICAL: 2 PRACTICAL APPLICATION: 2 CREDIT: 3 ECTS: 7**

Introduction to electroneurophysiology, EEG generators and rhythmic EEG activity, EEG device, EEG electrodes and placement, polarity and field detection in EEG, Technical standards in clinical EEG recording, Artifacts, Definition of normal EEG, Activation methods, Neonatal EEG, Abnormal EEG patterns and Relationship with neurological diseases, Classification of seizures, Computerized and interictal EEG analysis methods, Video EEG monitoring, Ictal, EEG semiology.

#### **FZY101 PHYSIOLOGY THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

Introduction to Physiology, Homeostasis, Cell Physiology, Blood Physiology, Cardiovascular System Physiology, Respiratory System Physiology, Excretory System Physiology, Digestive System Physiology, Reproductive Physiology, Nervous System Physiology, Endocrine System Physiology, Sensory Physiology.

#### **INGU103 ENGLISH I THEORETICAL: 3 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

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.

#### **ENF123 NEUROPHYSIOLOGICAL DEVICE AND EQUIPMENT TECHNOLOGIES** **THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 4**

Basic electrical knowledge, Load and Current, Current and Voltage, Ohm's law, Factors affecting resistance, Biopotentials (EEG, EMG), General imaging principles, General sensor types (pressure, temperature), Basic components of physiological signal trackers (sensor, amplifier), Biopotential electrodes and their types, Digital EEG device features, Digital EEG device features, EEG device and its basic components and possible problems,

EMG device and its basic components and possible problems, PSG device and its basic components and possible problems.

**MYO103 BASIC ANATOMY THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

Introduction to Anatomy, Locomotor System Anatomy, Respiratory System Anatomy, Circulatory System Anatomy, Digestive System Anatomy, Urinary System Anatomy, Genital System Anatomy, Endocrine System Anatomy, Nervous System Anatomy, Sensory Organs Anatomy.

**FAR105 BASIC PHARMACOLOGY THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 3**

Introduction to Pharmacology and general principles, Drug application routes and Different types of pharmaceutical dosage forms, Toxic effects of the drugs, Central nervous system drugs, Anesthetics and analgesics, Autonomic Drugs, Cardiovascular system drugs, Respiratory system drugs, Gastrointestinal system drugs, Chemotherapeutics, Drug abuse and addiction, Rational Use of Medicine

**MYO003 MEDICAL TERMINOLOGY THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

The term reading of the rules, prefixes, suffixes, the term varieties, musculoskeletal system, blood terms, the cardiovascular system terms, the respiratory system terms, the digestive system terms, the urinary system terms, the reproductive system terms, the endocrine system terms, the nervous system terms and psychiatric terms, Sensory organs the terms diagnostic terms.

**TURK103 TURKISH LANGUAGE I THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

What is Language: Theories about the birth of language, Language-culture-nation relationship; Language Revolution: Turkish Language Institution and its studies; Languages of the World: Language families, the place of Turkish among the world languages; Features of Turkey Turkish: Phonetic features, Form features, Sentence features; Writing rules; Punctuation; Correspondence: CV, Petition, Letter, Business letter, Telegram.

**RKUL103 UNIVERSITY CULTURE I (ÜSEÇ) THEORETICAL: 0 PRACTICAL APPLICATION: 2 CREDIT: 1 ECTS: 4**

Each semester includes seminars, conferences, panels, workshops and talks to be held for 14 weeks within the framework of a program consisting of suggestions from academic units, student council and student clubs at the university.

## **1st YEAR SPRING SEMESTER**

**ATA104 PRINCIPLES OF ATATÜRK AND HISTORY OF REVOLUTIONS II THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

Events in the genesis and development of modern Turkey, ideas and principles; Turkish Foreign Policy in Atatürk Era, Atatürk's Revolutions, The Basic principles of Turkish Revolution.

**ENF118 BIOPHYSICS THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

Introduction to biophysics, Bioenergetics, ATP and metabolism, Membrane structure, Membrane transport, Action potential, Information theory and cybernetics, Hearing biophysics, Visual biophysics, Brain function and electrical activity of the heart muscle, Skeletal muscle conduction, Radiation biophysics, Medical imaging techniques biophysical bases

**INGU104 ENGLISH II THEORETICAL: 3 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

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.

**ENF102 COGNITIVE NEUROPHYSIOLOGY I (BSEC) THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 4**

Brain anatomy, function and disorders of the brain network , the functions of the cerebral hemispheres , examination of brain-behavior relationships .

**ENF104 NEUROLOGY I THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 4**

Obtaining information on neurological diseases that can be encountered while working in Electroneurophysiology laboratuvar in the respective clinics.

**RPSI209 POSITIVE PSYCHOLOGY AND COMMUNICATION SKILLS (ÜSEC) THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 3**

1-definition of positive psychology, basic concepts, theoretical foundations and applications

2-emotional experiences and examine the brain behavior of the system's behavior

3-yourself and recognize others

4-psikososyal life skills and problem solving skills

5-motivation and planning

6-anger, aggression, violence

7-relationship management, healthy decision-making

8-sebatkarlık and agreeableness

**ENF124 NERVE AND MUSCLE ANATOMY THEORETICAL: 2 PRACTICAL APPLICATION: 2 CREDIT: 3 ECTS: 3**

Nerve muscle anatomy; input, axes, planes. Terminology. Nervous system. Medulla spinalis, Afferent and efferent pathways. Lower and upper extremity muscles. Nerves. Plexus brachialis, Plexus sacralis topography and functional anatomy.

**TURK104 TURKISH LANGUAGE II THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

To gain the ability to use the mother tongue correctly; Punctuation marks and spelling rules, composition rules, writing types are discussed with examples and writing activities are carried out in this course, in which students who have acquired this skill and come to university are based on generating ideas and writing their thoughts in order to improve their abilities in this field. In addition, various novels, poetry books and theater works are read and studied. A reading theater is made in the classroom and applied emphasis and intonation lessons are given with various diction techniques.

**ENF120 SLEEPING EEG AND PSG THEORETICAL: 2 PRACTICAL APPLICATION: 4 CREDIT: 4 ECTS: 4**

The purpose of the sleep test is to examine many parameters during sleep. Since daytime and nighttime sleep have different characteristics, the standard sleep test called polysomnography is performed in the sleep laboratory. In 2 hours theoretically, EEG and PSG methods are used to explain many subjects such as pathological findings and epileptic discharges for the detection of sleep problems. In 4 hours of practice, the recording of sleep shots and the detection of sleep stages on devices and the detection of related pathologies by scoring the records of the stages will be taught. Introduction to sleep technician, sleep introduction, polysomnography, excessive daytime sleepiness, sleep breathing disorders, restless legs syndrome, periodic leg movements during sleep, insomnia, narcolepsy, sleep and epilepsy, parasomnias.

**RKUL104 UNIVERSITY CULTURE II (ÜSEC) THEORETICAL: 0 PRACTICAL APPLICATION: 2 CREDIT: 1 ECTS: 4**

Each semester includes seminars, conferences, panels, workshops and talks to be held for 14 weeks within the framework of a program consisting of suggestions from academic units, student council and student clubs at the university.

## **2nd YEAR FALL SEMESTER**

**ENF215 ELECTROMIOGRAPHY-EMG THEORETICAL: 2 PRACTICAL APPLICATION: 4 CREDIT: 4 ECTS: 10**

Basic information about EMG devices and electrodes, artifacts, EMG safety, Motor conduction studies, Sensory conduction studies, Needle electromyography, Late responses, Neuromuscular junction physiology, Electrophysiological examination in radiculopathies, Electrophysiological findings in plexopathies, Electrophysiological examination in polyneuropathies, Electrophysiological examination in entrapment neuropathies, Peripheral Electrophysiological examination in nerve traumas, Electrophysiological findings in anterior horn diseases, Electrophysiological findings in neuromuscular junction and muscle diseases, EMG examination planning. Single fiber electromyography, EMG techniques, Electromyographic examination of cranial nerves,

Reflexology in electrophysiology laboratory, Electromyography in children, Electrophysiological examinations in movement disorders, Spasticity and other CNS diseases, Autonomic nervous system examinations, EMG device information, Strategies in EMG examination, EMG report, Signal analysis methods in electromyography, Planning of clinical electromyography studies, Statistics in clinical electromyography studies.

**İLK101 FIRST AID (BSEC) THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 3**

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.

**ENF211 COGNITIVE NEUROPHYSIOLOGY II (BSEC) THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 5**

Cognitive Neurophysiology Introduction, Thalamus, Perception and Selectivity in Perception, Attention, Cerebral Lateralization, Hemispatial Neglect, Aphasia, Learning and Memory, Amnesia and Dementia, Retrieval and Forgetting, Prefrontal Cortex, The Neurophysiology of Language, Higher Cognitive Function, Emotion

**ENF213 NEUROLOGY II THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 5**

Periferik sinir sistemine genel bakış, anatomofizyolojik ilişkileri, kavramları ve hastalıkları açısından genel nosyon kazandırılması ve periferik sinir sistemi ile EMG'nin ilişkilendirilmesi.

**SAH101 HEALTH LAW (BSEC) THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 3**

Basic concepts and institutions of health law, patient rights and concepts, physician rights and concepts, privacy in medical interventions, lighting and consent, unlawful medical intervention, medical interventions without medical indication, legal quality with relationship between hospital and patient, the legal quality of the relationship between private hospitals and patient, legal quality of the relationship between public hospitals and patient, incorrect medical applications and compensation issues

**VOCATIONAL SCHOOL OF HEALTH ELECTIVE COURSE**

**MYO015 Social Responsibility Project THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

Introduction to the course, basic concepts, the concept of social responsibility and an overview of social responsibility campaigns, determination of project topics (children, elderly, women, environmental problems, people with education and learning problems, patients and health problems, etc.) project preparation presentation. Getting to know non-governmental organizations and their work.

**MYO021 Entrepreneurship and Project Culture THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS 2**

In this course, in cooperation with Üsküdar University, GOSB Technopark and GOSB Technopark companies, the topics of marketing in entrepreneurship, human resources in entrepreneurship, financial management in entrepreneurship, technology management in entrepreneurship, technology management in entrepreneurship, patent law, R&D and innovation in entrepreneurship will be discussed.

**MYO020 Career Planning and Professional Competencies THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

In some weeks, the courses will be taught by inviting industry professionals and guest educators from public institutions to establish industry connections. In the course, students will be informed about the methods and tools used in the recruitment processes, and applications and assignments will be given to reinforce these methods.

## **2nd YEAR SPRING SEMESTER**

**ENF208 SENSORY EVOKED POTENTIALS THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 5**

Motor excitation potentials, Cortical excitation methods in neurophysiological research, Clinical use of excitation potentials, Event-related potentials: P300, CNV, P50, MMN, Excitation potentials and functional neuroimaging methods.

**ENF200 CLINICAL ELECTRONEUROPHYSIOLOGY THEORETICAL: 2 PRACTICAL APPLICATION: 8 CREDIT: 6 ECTS: 13**

It consists of 2 hours of theory and 8 hours of practical training. Gaining basic skills such as theoretical overview of the peripheral nervous system and understanding the electrical activities of peripheral nerves, working principles of EMG and shooting techniques, normal EMG, recognizing and removing artifacts, abnormal nerve conduction; VEP vision testing training, SEP somatosensory, BAEP brainstem auditory evoked potential. Motor excitation potentials, Cortical stimulation methods in neurophysiological research, Clinical use of excitation potentials, Event-related potentials, MMN, Excitation potentials and functional neuroimaging methods and teaching them with practical applications through equipment in the electroneurophysiology laboratory.

**MET101 PROFESSIONAL ETHICS THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 2**

What is Deontology, Definition and Introduction, What is Morality, Characteristics of Morally Mature Individuals, Concepts of Health and Disease, What is Occupation, Principles of Profession, Teamwork, Place of Health Personnel in Society, Universal Declaration of Human Rights, Patient Rights, Law on Health Method and Regulations, Euthanasia, Ethics in Transplantation.

**ENF 210 NEUROMODULATION TREATMENTS (PEC) THEORETICAL: 2 PRACTICAL APPLICATION: 0 CREDIT: 2 ECTS: 3**

Overview of the central nervous system and understanding of its cortical electrical activities, technical examination of neuromodulation devices, clinical use of neuromodulation techniques. Gaining tDCS, rTMS and deep TMS application theory and

skills under expert supervision (Neurologist) in the electrophysiology laboratory of the relevant clinics.

**ENF999 SUMMER INTERNSHIP THEORETICAL: 0 PRACTICAL APPLICATION: (20 WORKING DAYS) CREDIT: 0 ECTS: 9**

To have information about the functioning of the Electroneurophysiology laboratory, to get to know the EEG, EMG and PSG devices, to have information about their operation and to use these devices, to meet and inform the patient who comes for the EEG recording, to connect the electrodes for the EEG recording without any problems, to make the recording according to the standards and to end the recording .