SYLLABUS

1. General information on the course

Full course name	Neurology
Full official name of a higher education institution	Sumy State University
Full name of a structural unit	Academic and Research Medical Institute. Кафедра нейрохірургії та неврології з курсами психіатрії, наркології, медичної психології, професійних хвороб
Author(s)	Lychko Volodymyr Stanislavovych
Cycle/higher education level	The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle
Semester	3 weeks across 7-8 semester
Workload	Обсяг становить 3 кредитів ЄКТС, 90 годин, з яких контактна робота з викладачем становить 6 годин лекцій, 60 годин - практичних занять, 24 години - самостійна робота студентів
Language(s)	English

2. Place in the study programme

Relation to curriculum	Compulsory course available for study programme "Medicine"
Prerequisites	Krok-1, required knowledge of Latin and medical terminology, medical biology, biological and bioorganic chemistry, medical and biological physics, human anatomy, pathological physiology, pathological anatomy, pharmacology, hygiene and ecology, microbiology, virology and immunology, social medicine and health care, propaedeutics of internal medicine, internal medicine, tuberculosis, psychiatry, narcology, otorhinolaryngology, nursing practice, radiology
Additional requirements	There are no specific requirements
Restrictions	There are no specific restrictions

3. Aims of the course

The aim of the discipline is to achieve modern knowledge and professional skills in neurology based on knowledge of anatomical and physiological features of the body, medical biology, normal anatomy, normal physiology, histology and embryology, biochemistry, microbiology and virology, pathomorphology, pathophysiology, pharmacology and clinical skills. laboratory and instrumental

examination of a neurological patient in compliance with the principles of medical ethics and deontology.

4. Contents

Module 1. General neurology
Topic 1 The main stages of development of neurological science. Principles of structure and functioning of the nervous system. The first studies of diseases of the nervous system (Hippocrates, Galen, Avicenna). The study of neurology in the universities of the Middle Ages and the Renaissance. Organization of the first departments of neurology at universities (Kharkiv, Kyiv, Lviv, etc.). Domestic and foreign neurological schools. Modern directions of neurology development: differentiation of neurological science (creation of separate centres and scientific subdivisions for the study of cerebrovascular, demyelinating diseases, epilepsy, neuromuscular pathology, etc.) and integration with other sciences (somatic neurology, vertebral neurology). The main stages of phylogeny and ontogenesis of the nervous system. The structural and functional units of the nervous system. The main anatomical and topographic departments of the nervous system: hemispheres of the brain, subcortical nodes, brain stem, spinal cord, roots, spinal ganglia, plexuses, peripheral nerves. The main structural unit of the nervous system. Types of neurons, functional significance. The functional significance of neuroglia. The autonomic nervous system, suprasegmental and segmental departments. Limbic-reticular complex. Cortex. Cytoarchitectonic fields. Localization of functions in the cortex of the large hemispheres. The concept of functional systems. Blood supply to the brain and spinal cord. Meninges and spinal cord. Cerebrospinal fluid.
Topic 2 Pathology of the motor and sensory systems Representation of reflex and reflex arc, conditioned and unconditioned reflexes, levels of closure of skin, tendon and periosteal reflexes. Anatomical features and neurophysiology of the system of arbitrary movements, extrapyramidal system and cerebellum. Methods of research of the motor system. Implementation of arbitrary movements. Pyramid system. Central and peripheral motor neurons. Cortico-nuclear and cortico-spinal pathways. Symptoms of central (spastic) paralysis. Pathophysiology of muscular hypertension, hyperreflexia, pathological reflexes, decreased abdominal reflexes. Symptoms of peripheral (flaccid) paralysis. Pathophysiology of atony, areflexia, atrophy. Paralysis, paresis, monoplegia, paraplegia, hemiplegia, triplegia, tetraplegia. Motor disorders syndrome in motor pathway lesions at different levels: anterior central torsion (irritation and prolapse syndromes), radial crown, inner capsule, brainstem (alternating paralysis), various levels of the spinal cord (above the cervical thickening, at the level of cervical thickening, thoracic), lumbar thickening, cone), different levels of peripheral motor neuron (anterior horn, anterior root, nerve plexuses, individual peripheral nerves). The concept of reception. Types of receptors. Exteroceptive, proprioceptive, interoceptive sensitivity. Clinical classification of sensitivity. Leading ways of sensitivity. Research methodology. Types of sensitive disorders.

Topic 3 Extrapyramidal system and cerebellum, lesion syndromes

Anatomical data: basal ganglia, brainstem formations. Connections of subcortical ganglia with different parts of the brain and spinal cord. Physiology and biochemistry of the extrapyramidal system. Modern ideas about the metabolism and concentration of catecholamines in the nigrostriatal system. Syndromes of lesions of the extrapyramidal system. Biochemical aspects and key clinical manifestationsof Parkinsonism syndrome. Differential diagnosis of plastic and spastic hypertension. Hyperkinetic syndrome. Types of hyperkinesis. Anatomical and physiological features of the cerebellum. Connections of the cerebellum with different parts of the brain and spinal cord. Afferent and efferent pathways. Functions of the cerebellum. Cerebellar lesion syndromes.

Topic 4 Pathology of olfactory and visual analyzers. Syndromes of oculomotor nerve damage.

The olfactory nerve: basic anatomical and physiological data. Research of the olfactory analyzer. Defeat syndromes. The optic nerve. Anatomical and physiological features. Symptoms of lesions. The trochlear and abductor nerves - localization of nuclei, the exit of roots from a skull, a zone of innervation on the periphery, pupillary reflex, impaired pupillary reactions (Argyle-Robertson syndrome).

Topic 5 Syndromes of lesions of the trigeminal and facial nerves. Pathology of the vestibulocochlear nerve.

The anatomical features of the trigeminal nerve. Symptoms of trigeminal nerve damage. The facial nerve. Anatomical and physiological features. Symptoms of damage. Anatomical and physiological features of the vestibulocochlear nerve. Pathology of the vestibulocochlear apparatus: lesions of the sound-perceiving apparatus (hearing disorder at high tones), lesions of the sound-conducting apparatus (hearing disorder at low tones); lesions of the parietal part (dizziness, nystagmus, imbalance, coordination of movements, autonomic disorders, lesions of the temporal cortex.

Topic 6 Pathology of 9-12 pairs of cranial nerves

The glossopharyngeal and vagus nerves. Anatomical and physiological features. Localization of nuclei in the medulla oblongata. Bulbar and pseudobulbar syndromes: common symptoms (dysphagia, dysphonia, dysarthria) and differences (fibrillation and atrophy of the muscles of the tongue, reflexes of oral automatism, forced laughter, crying). Impaired innervation of the muscles of the tongue.

Topic 7 Brain stem

Anatomical and physiological features of the brain stem. Alternating syndromes of defeat.

Topic 8 Localization of functions in the cerebral cortex. Defeat syndromes. Part 1.

The structure of the large hemispheres of the brain. Cyto- and myeloarchitectonics of the cortex. Localization of functions in the cerebral cortex. Dynamic localization of functions. Motor and sensory representations in the cortex. The concept of functional asymmetry of the hemispheres. Gnostic functions. Types of disorders of gnostic functions: visual, olfactory, gustatory, auditory agnosia, astereognosis, autotopagnosia, anosognosia. Praxis. Types of apraxia: constructive, ideational, motor. Language. Speech disorders: motor, sensory, amnestic aphasia.

Topic 9 Localization of functions in the cerebral cortex. Defeat syndromes. Part 2. Syndromes of lesions of individual lobes of the large hemispheres: frontal, temporal, parietal, occipital lobes, limbic cortex. Syndromes of irritation of the cortex of the large hemispheres. Syndromes of the defeat of the right and left hemispheres. The concept of interhemispheric asymmetry. Chronic autonomic syndrome. Syndrome of "locked" patient. Brain death syndrome.
Topic 10 Pathology of the autonomic nervous system Anatomical and physiological features and functions of the autonomic nervous system. Sympathetic nervous system: lateral horns of the spinal cord, sympathetic trunk, ganglia. Parasympathetic nervous system: cranial bulbar, sacral departments. Suprasegmental department of autonomic functions: hypothalamus, limbic system, reticular formation of the brainstem. Ergotropic and trophotropic activity. Methods of research of vegetative functions. Syndromes of lesions of the suprasegmental part of the autonomic nervous system. Autonomic dystonia syndrome. Permanent and paroxysmal course. Hypothalamic syndrome. Vegetative-vascular paroxysms. Syndrome of lesion of the segmental autonomic nervous system. Lesions of the brainstem, lateral horns of the spinal cord, ganglia of the border trunk, plexuses, nerves. Claude-Bernard-Gorner syndrome. Visceral symptoms. Levels of regulation of pelvic functions, their disorders.
Topic 11 Cerebrospinal fluid. Meningeal syndrome. Lumbar puncture. The physiology of CSF production. The composition of the cerebrospinal fluid is normal, with changes in meningitis, tumours, hemorrhagic stroke, tuberculosis. Cell-protein, protein-cell dissociation. Pleocytosis. Meningeal symptoms: headache, vomiting, general hyperesthesia, photophobia, the rigidity of occipital muscles, Kernig's symptom, Brudzinsky's symptoms (upper, middle, lower), trismus, local reactive pain phenomena of Mendel's village, excruciating system when pressing the exit points of the small and large occipital nerves. The meningeal posture of the patient. A symptom of Lesage.
Topic 12 Functional diagnosis of diseases of the nervous system. Radiological and contrast radiological examinations (myelography, angiography, ventriculography). Ultrasound (Doppler). Electrophysiological (electroencephalography, electromyography, etc.). Neuroimaging methods (computed tomography, magnetic resonance imaging, including vascular, positron emission topography).
Topic 13 Independent curation of the patient with the compilation of medical history Educational case history, based on the clinical supervision of patients with the design of survey data and additional research methods, in order to establish, justify the diagnosis and prescribe treatment from the standpoint of evidence-based medicine.
Topic 14 Intermediate modular control Testing
Module 2. Special neurology
Topic 15 Vascular diseases of the brain and spinal cord. Part 1. Classification. Acute cerebrovascular disorders: strokes and transient cerebrovascular disorders (transient ischemic attack and cerebral hypertensive crisis). Chronic cerebrovascular disorders: early and late forms. Vascular dementia.

Topic 16 Vascular diseases of the brain and spinal cord. Part 2.

Etiological factors and pathogenesis of acute cerebrovascular disorders. Hemorrhagic and ischemic (thrombotic and non-thrombotic) strokes, subarachnoid haemorrhage. Symptoms of damage to the anterior, middle, posterior cerebral arteries. Syndromes of occlusion and stenosis of the main vessels of the brain. Cerebral and focal syndromes. Quantitative and qualitative types of disorders of consciousness (productive and unproductive symptoms). Differential diagnosis of different types of acute cerebrovascular disorders. Modern methods of undifferentiated and differentiated therapy of acute cerebrovascular disorders from the standpoint of evidence-based medicine. Indications and contraindications for surgical treatment. Haemorrhages in the spinal cord and its membranes. Ischemic spinal strokes. Aetiology and pathogenesis. Semiology. Diagnosis. Intensive care in the acute period. Treatment of patients in the period of residual effects after cerebral and spinal strokes from the standpoint of evidence-based medicine. Rehabilitation and examination of able-bodied patients. Prevention of vascular diseases of the brain and spinal cord.

Topic 17 Meningitis. Arachnoiditis. Encephalitis.

Meningitis. Classification. Purulent meningitis. Primary meningococcal meningitis, clinic, diagnosis, features of the course, atypical forms. Secondary meningitis: pneumococcal, staphylococcal. The clinic, diagnosis, cerebrospinal fluid indicators, treatment from the standpoint of evidence-based medicine, prevention. Serous meningitis. Primary viral: lymphocytic choriomeningitis, enterovirus meningitis (ECHO, Coxsackie), mumps and others. Secondary: tuberculous meningitis and meningitis in other infections. Clinic, diagnosis, the importance of cerebrospinal fluid research in differential diagnosis, treatment from the standpoint of evidence-based medicine, prevention. Arachnoiditis. Aetiology, pathogenesis, morphology. Classification by localization: arachnoiditis of the posterior cranial fossa, basal, convex. Clinic, course, diagnosis. Differential diagnosis. Treatment from the standpoint of evidence-based medicine and prevention. Encephalitis. Classification. Primary encephalitis: epidemic, tick-borne spring-summer, herpetic. Secondary encephalitis: rheumatic (small chorea), post-vaccination, chickenpox, bark, redness. Clinic, course, forms of the disease, diagnosis. Lesions of the nervous system in influenza (influenza hemorrhagic encephalitis, encephalopathy).

Topic 18 Neurosyphilis. Neurological manifestations of polymyositis, dermatomyositis. Lesions of the nervous system in the presence of HIV infection.

Neurosyphilis. Early neurosyphilis (mesodermal): generalized syphilitic meningitis, meningovascular syphilis, gums of the brain and spinal cord, latent asymptomatic meningitis (cerebrospinal fluid). Late neurosyphilis (parenchymal): spinal tuberculosis, progressive paralysis. Diagnosis, treatment methods from the standpoint of evidence-based medicine. Neurological disorders of polymyositis-dermatomyositis: aetiology, pathogenesis, clinical manifestations (skeletal muscle syndrome, myofascial pain syndrome, myotonic syndrome, Raynaud's syndrome); neurological disorders (CNS lesions, autonomic disorders, hypothalamic dysfunction, tunnel neuropathies), additional methods of examination, differential diagnosis, treatment, prevention. NeuroAIDS. Aetiology, pathogenesis, key clinical manifestations: dementia, acute meningoencephalitis and atypical aseptic meningitis, myelopathy, lesions of the peripheral nervous system. Nervous system lesions associated with immunodeficiency infections caused by toxoplasmosis, herpes simplex virus, cytomegalovirus infection, papovavirus, fungi (cryptococcus, candidiasis). Tumours of the central nervous system in AIDS: primary lymphoma, Kaposi's sarcoma. Cerebrovascular disorders in AIDS patients. Diagnosis of neurological manifestations of AIDS. Treatment from the standpoint of evidence-based medicine. Forecast. Prevention.

Topic 19 Poliomyelitis. Acute myelitis. Parasitic diseases of the nervous system, prion infections, neuroberreliosis.

Poliomyelitis. Aetiology, pathogenesis, epidemiology, ways of distribution, morphology. Clinical classification: paralytic (abortive, subclinical) and paralytic forms (pre-paralytic and paralytic stages) and stem forms. Diagnosis, differential diagnosis. The value of virological and serological studies in the diagnosis of the disease. Treatment in the acute and recovery periods from the standpoint of evidence-based medicine. Effects. Prevention. Poliomyelitis-like diseases in children caused by Coxsackie and ECHO viruses, mumps, herpes simplex, adenoviruses. Clinical forms, course, prognosis, diagnosis, treatment, prevention. Acute myelitis. Aetiology, pathogenesis, morphology. Clinic and clinical forms (symptom complex of spinal cord injury in the lumbar and thoracic regions, at the level of cervical thickening, in the upper cervical region). CSF diagnostics. Differential diagnosis. Treatment from the standpoint of evidence-based medicine. Cysticercosis, echinococcosis. Toxoplasmosis. Ways of infection. Clinic. Diagnosis, treatment, prevention. Prion infections. Creutzfeldt-Jakob disease (aetiology, pathogenesis, clinic, diagnosis, prevention). Neuroborreliosis (Lyme disease, tick-borne borreliosis) - routes of infection, clinical and epidemiological data, tick-borne migrating erythema, prevention, laboratory diagnosis, treatment from the standpoint of evidence-based medicine.

Topic 20 Diseases of the peripheral nervous system.

Clinical classification of diseases of the peripheral nervous system. Vertebrogenic lesions of the peripheral nervous system. Cervical, chest, lumbar-sacral levels: reflex, radicular and vascular syndromes.

Topic 21 Demyelinating diseases of the nervous system.

Acute multiple encephalomyelitides. Multiple sclerosis. The modern theories of pathogenesis (autoimmune disease, genetic predisposition). Morphology, early symptoms. The main clinical forms. Charcot triad. Forms of the disease. Differential diagnosis. Treatment from the standpoint of evidence-based medicine.

Topic 22 Hereditary and degenerative diseases of the nervous system.

Amyotrophic lateral sclerosis. Modern principles of classification. Neuromuscular diseases. Progressive muscular dystrophies. Myopathies: pseudohypertrophic Duchenne, juvenile Erba-Rota, shoulder-scapular-facial Landuzi-Degerina; amyotrophies: spinal Verdnig-Hoffman, spinal Kugelberg-Welander, neural Charcot-Marie. Myotonia. Congenital myotonia of Thomson. Dystrophic myotonia Rossolimo-Steinergo-Kurshmann. Myasthenia. Myasthenic syndromes. Paroxysmal myoplegia. Paroxysmal myoplegia syndrome. Extrapyramidal degeneration. Hepatocerebral degeneration - Konovalov-Wilson disease. Huntington's disease. Modern biochemical aspects of Parkinson's disease and treatment from the standpoint of evidence-based medicine. Muscular dystonias (primary hereditary, secondary due to organic diseases of the brain). Spinocerebellar ataxias. Hereditary ataxia of Friedrich. Hereditary spinocerebellar ataxias. Pyramidal degeneration. Hereditary spastic paraplegia (Strumpel's disease). Craniovertebral abnormalities: Klippel-Weyl syndrome, Arnold-Chiari. Underdevelopment of the spinal cord. Spinal hernias. Syringomyelia.

Topic 23 Headache. Disorders of sleep and vitality. Somatic neurological syndromes.

Aetiology and mechanisms of headache. Classification. Nosological forms of headache: migraine, muscle tension pain, beam pain. Differential diagnosis, principles of treatment. Migraine aetiology, modern mechanisms of pathogenesis. Clinical forms, diagnosis, differentiated diagnosis, principles of treatment (during the attack and in the period between attacks). Headache in intracranial hypotension syndrome and intracranial hypertension syndrome (etiopathogenetic factors, subjective data, clinical and instrumental data). Sleep disorders and vigour: sleep stages, sleep disorders - parasomnia, sleep disorders - insomnia, causative factors, treatment. Hypersomnia - pathological drowsiness. Sleep apnea syndrome. Treatment. Somatoneurological syndromes occur as a result of metabolic disorders of the nervous system, hypoxia, pathological reflex impulses in human somatic diseases. The most common somatic neurological syndromes: asthenic, autonomic dystonia, polyneuropathy, neuromuscular disorders. Somatic neurological syndromes in diseases of the lungs, heart, blood system, digestive tract, liver, kidneys, endocrine system, collagenosis. Paraneoplastic syndrome. Treatment from the standpoint of evidence-based medicine. Prevention.

Topic 24 Neurological aspects of traumatic brain injury. Spinal cord injury. Tumours of the brain and spinal cord. Brain abscess.

Modern aspects of classification of craniocerebral trauma. Concussion. Differential diagnosis of slaughter and compression of the brain. Intracranial haemorrhage. Complications of traumatic brain injury: post-traumatic encephalopathy, post-traumatic arachnoiditis, post-traumatic convulsive syndrome, post-traumatic asthenic syndrome. Chronic meningeal hematomas (epi- and subdural). Emergency care for traumatic brain injury. Spinal cord injury. Clinic, diagnosis, treatment from the standpoint of evidence-based medicine. Peripheral nerve injuries. Classification (topical and pathomorphological). Clinic: cerebral, focal and dislocation syndromes. Differential diagnosis of brain and spinal cord tumours. Extra - and intramedullary tumours. Diagnostic value of ophthalmoscopy, cerebrospinal fluid, EEG, angiography, ventriculography, MRI, CT, PET and other methods for brain and spinal cord tumours. Principles of surgical and conservative treatment of brain and spinal cord tumours from the standpoint of evidence-based medicine. Brain abscess. Sources of abscessing. Clinic, diagnosis, differential diagnosis.

Topic 25 Epilepsy

Pathogenetic essence of the epileptic centre in the development of the disease. Significance of endogenous and exogenous factors involved in the formation of this focus. Classification of epileptic seizures: generalized, partial and partially generalized. Principles of differentiated treatment of epilepsy from the standpoint of evidence-based medicine. Status epilepticus (diagnosis, emergency care).

Topic 26 Non-epileptic paroxysmal states

Non-epileptic paroxysmal states. Conditions with convulsions: spasmophilia, febrile convulsions, toxic convulsions, hysterical paroxysms. Conditions without convulsions: autonomic paroxysms, migraine, syncope. Differential diagnosis of epilepsy and non-epileptic paroxysmal conditions. Treatment of paroxysms and treatment between attacks from the standpoint of evidence-based medicine.

Topic 27 Emergencies in neurology. Drugs used in neurology. Immediate conditions in neurology: the pain of different localization, trigeminal neuralgia, cervicalgia, cervical brachialgia, lumbalgia, lumbal-ischialgia, headache, dizziness, vomiting, fainting, collapse, hypertensive crisis, hypertensive cerebral syndrome, brain swelling, hemorrhagic stroke, ischemic stroke, meningococcal meningitis, diencephalic paroxysm, psychomotor excitation, migraine, epileptic seizure, epileptic status, urinary tract disorders, myasthenic crisis, cholinergic crisis, insomnia, bulbar syndrome, pseudobulbar syndrome, purulent meningitis, serous meningitis, acute polyneuritis, polyradiculoneuritis, acute polio, acute poisoning (alcohol and its surrogates, psychotropic substances, mushrooms). Groups of drugs used to treat neurological diseases: antiparkinsonian; anticonvulsants; antimigraine, antiatherosclerotic, neuroleptics; anti-stress drugs; interferons, drugs used in neuromuscular diseases, autoimmune and demyelinating diseases, herpetic lesions, muscular dystonias, hyperkinesias, etc.
Topic 28 Perinatal lesions of the nervous system. Etiological factors (intrauterine, birth trauma, brain damage in the early postpartum period). Hypoxic-ischemic encephalopathy (acute period, recovery period). Cerebral palsy, clinical forms - spastic, hemiplegic, atactic, quadriplegic, hyperkinetic. Diagnosis. Treatment (drug, non-drug) from the standpoint of evidence-based medicine. Prevention.
Topic 29 Protection of case history Educational case history, based on the clinical supervision of patients with the design of survey data and additional research methods, in order to establish, justify the diagnosis and prescribe treatment from the standpoint of evidence-based medicine.
Topic 30 Final modular control Testing

5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

LO1	Ability to abstract thinking, analysis, and synthesis.
LO2	Ability to learn, master modern knowledge, and apply the knowledge in practice.
LO3	Knowledge and understanding of the subject area and professional activity comprehension.
LO4	Ability to adapt and act in a new situation.
LO5	Ability to make reasoned decisions; teamwork ability; interpersonal skills.
LO6	Ability to use information and communication technologies.
LO7	Determination and persistence on the tasks and commitments undertaken.
LO8	Ability to collect medical information about the patient and analyze clinical data.
LO9	Ability to determine the required set of laboratory and instrumental studies and to evaluate their results.
LO10	Ability to establish a provisional and clinical diagnosis of disease.

LO11	Ability to determine the necessary mode of work, rest, and diet in the treatment course.
LO12	Ability to determine the principles of treatment and treatment modality and to perform medical procedures.
LO13	Ability to diagnose medical emergencies, determine the approach to emergency medical care, implement medical evacuation procedures.
LO14	Ability to solve medical problems in new or unfamiliar environments given incomplete or limited information, taking into account aspects of social and ethical responsibility.
LO15	Ability to perform sanitary and preventive measures.
LO16	Ability to perform disability examination.
LO17	Ability to maintain medical records, including electronic documents.
LO18	Ability to integrate knowledge and solve complex health problems in a broad or multidisciplinary context.

6. Role of the course in the achievement of programme learning outcomes

Programme learning outcomes achieved by the course.
For 222 Medicine:

PO1	To detect and identify the leading clinical symptoms and syndromes (according to the List 1); to establish the most probable nosological or syndromic preliminary clinical diagnosis of diseases (according to the List 2) using standard methods, preliminary data of the patient's anamnesis, patient's examination data, and knowledge about a human, his organs and systems.
PO2	To collect information about the patient's general condition; to assess the patient's psychomotor and physical development and the state of organs and systems of the body; to assess information on the diagnosis (according to the List 4) based on laboratory and instrumental findings.
PO3	To order and analyze additional (mandatory and optional) examinations (laboratory, radiological, functional and/or instrumental) (according to the List 4) in order to perform a differential diagnosis of diseases (according to the List 2).
PO4	To establish a final clinical diagnosis at a medical institution under control of a supervising doctor by means of informed decision and logical analysis of the obtained subjective and objective data of clinical and additional examinations, and differential diagnosis, following the relevant ethical and legal norms (according to the List 2).
PO5	To detect the key clinical syndrome or the reason for patient's condition severity (according to the List 3) via informed decision and evaluation of the person's state under any circumstances (at home, in the street, at a healthcare facility), including under emergency and military operation conditions, in the field, with a lack of information and limited time.

PO6	To determine the nature and treatment principles (conservative, operative) in patients with diseases (according to the List 2) at a healthcare facility, at patient's home or during medical evacuation process (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures based on the principles of evidence-based medicine; if needed to go beyond the standard scheme, to substantiate the personalized recommendations under control of a supervising doctor at a medical facility.
PO7	To determine an appropriate work and rest mode in the treatment of diseases (according to the List 2) at a healthcare institution, at patient's home and during medical evacuation (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures.
PO8	To determine an appropriate diet in the treatment of diseases (according to the List 2) at a healthcare institution, at patient's home and during medical evacuation (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures.
PO11	To determine the appropriate approach in emergency medical care case under any circumstances, adhering to the relevant ethical and legal norms, by making an informed decision based on the main clinical syndrome (disease severity) and emergency diagnosis (according to the List 3) using standard schemes under limited time conditions based on the principles of evidence-based medicine.
PO12	To provide emergency medical assistance under any circumstances, adhering to the relevant ethical and legal norms, by making an informed decision based on the main clinical syndrome (disease severity) and emergency diagnosis (according to the List 3) using standard schemes and predetermined approach under limited time conditions based on the principles of evidence-based medicine.
PO15	To perform procedures related to emergency medical assistance within a limited time and under any circumstances, using standard schemes on the basis of a medical emergency diagnosis (according to the List 3).
PO16	To plan and implement a system of sanitary and preventive measures against the occurrence and spread of diseases among the population.
PO18	To search for the necessary information in the professional literature and databases; to analyze, evaluate, and apply this information. To apply modern digital technologies, specialized software, statistical methods of data analysis to solve complex health problems.
PO19	To assess environmental impact on public health.

7. Teaching and learning activities

7.1 Types of training

Topic 1. The main stages of development of neurological science. Principles of structure and functioning of the nervous system.

pr.tr.1 "The main stages of development of neurological science. Principles of structure and functioning of the nervous system." (full-time course)

The main stages of development of neurological science. Principles of structure and functioning of the nervous system. The main stages of development of neurological science. Principles of structure and functioning of the nervous system. The functional unit of the nervous system is a neuron. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies about the history of the nervous system, the main principles of structure and functioning of the nervous system with further discussion).

Topic 2. Pathology of the motor and sensory systems

pr.tr.2 "Pathology of the motor and sensory systems" (full-time course)

Anatomical features and neurophysiology of the system of arbitrary movements. Methods of research of the motor system. Pyramid system. Central and peripheral motor neurons. Cortico-nuclear and cortico-spinal pathways. Motor disorders syndrome. The concept of reception. Types of receptors. Exteroceptive, proprioceptive, interoceptive sensitivity. Clinical classification of sensitivity. Leading ways of sensitivity. Research methodology. Types of sensory disorders. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the pyramid and sensory systems) with further discussion. In addition, the study of this topics provides role-playing games. Interpretation of the obtained survey data of the pyramid and sensory systems in the profile departments of the medical institution (according to the agreement on cooperation between the medical institution and the university).

Topic 3. Extrapyramidal system and cerebellum, lesion syndromes

lect.1 "Extrapyramidal system and cerebellum, lesion syndromes" (full-time course)

Extrapyramidal system and cerebellum, lesion syndromes

pr.tr.3 "Extrapyramidal system and cerebellum, lesion syndromes" (full-time course)

Extrapyramidal system and cerebellum, lesion syndromes. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the function of the extrapyramidal system and the cerebellum) with further discussion. In addition, the study of this topics provides role-playing games. Interpretation of the obtained data based on the results of the examination of the extrapyramidal system and cerebellum in the profile departments of the medical institution (according to the agreement on cooperation between the medical institution and the university).

Topic 4. Pathology of olfactory and visual analyzers. Syndromes of oculomotor nerve damage.

lect.2 "Pathology of 1-6 pairs of cranial nerves" (full-time course)

Brain stem. Symptoms of defeat. Pathology of olfactory and visual analyzers. Syndromes of lesions of the oculomotor and trigeminal nerves.

pr.tr.4 "Pathology of olfactory and visual analyzers. Syndromes of oculomotor nerve damage." (full-time course)

Topic 4. Pathology of olfactory and visual analyzers. Syndromes of oculomotor nerve damage. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the function of the olfactory, visual analyzers and oculomotor nerves) with further discussion. In addition, the study of this topics involves role-playing games, work in a simulation centre to perform ophthalmoscopy, computer perimetry. Interpretation of the received data in profile departments of medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 5. Syndromes of lesions of the trigeminal and facial nerves. Pathology of the vestibulocochlear nerve.

pr.tr.5 "Syndromes of lesions of the trigeminal and facial nerves. Pathology of the vestibulocochlear nerve." (full-time course)

Syndromes of lesions of the trigeminal and facial nerves. Pathology of the vestibulocochlear nerve. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the function of the trigeminal, facial, vestibulocochlear nerves (electromyography, audiometry)) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre with electromyography and audiometry. Interpretation of the obtained data of examination of the nervous system in patients of specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), preparation of a plan for treatment of the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 6. Pathology of 9-12 pairs of cranial nerves

pr.tr.6 "Pathology of 9-12 pairs of cranial nerves" (full-time course)

Pathology of 9-12 pairs of cranial nerves. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the function of 9-12 cranial nerves (electromyography) with further discussion. Simulation centre with electromyography Interpretation of the obtained data of examination of the nervous system in patients of specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), preparation of a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 7. Brain stem

lect.3 "Brain stem" (full-time course)

Brain stem.

pr.tr.7 "Brain stem" (full-time course)

Brain stem. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of brainstem function with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre Interpretation of the obtained data of examination of the nervous system in patients of specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a treatment plan for the underlying disease and providing emergency care from the standpoint of evidence-based medicine.

Topic 8. Localization of functions in the cerebral cortex. Defeat syndromes. Part 1.

pr.tr.8 "Localization of functions in the cerebral cortex. Defeat syndromes. Part 1." (full-time course)

Localization of functions in the cerebral cortex. Defeat syndromes. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental research localization of functions in the cerebral cortex (electroencephalography, computed tomography, magnetic resonance imaging, positron emission tomography, Doppler) further discussion. In addition, the study of this system involves role-playing games, work in a simulation centre with the performance of electroencephalography. Interpretation of the obtained data of electromyography, X-ray and ultrasound examination of the nervous system in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), preparation of a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 9. Localization of functions in the cerebral cortex. Defeat syndromes. Part 2.

pr.tr.9 "Localization of functions in the cerebral cortex. Defeat syndromes. Part 2." (full-time course)

Localization of functions in the cerebral cortex. Defeat syndromes.The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental research localization of functions in the cerebral cortex (electroencephalography, computed tomography, magnetic resonance imaging, positron emission tomography, Doppler) further discussion. In addition, the study of this system involves role-playing games, work in a simulation centre with the performance of electroencephalography. Interpretation of the obtained data of electromyography, X-ray and ultrasound examination of the nervous system in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), preparation of a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 10. Pathology of the autonomic nervous system

pr.tr.10 "Pathology of the autonomic nervous system" (full-time course)

Pathology of the autonomic nervous system. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the functions of the autonomic nervous system (electroencephalography, electrocardiography, thermometry, dermographism)) with further discussion. In addition, the study of this system involves role-playing games, work in a simulation centre with thermometry. Interpretation of the obtained data of examination of the autonomic system in patients of specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a plan for treatment of the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 11. Cerebrospinal fluid. Meningeal syndrome.

pr.tr.11 "Cerebrospinal fluid. Meningeal syndrome." (full-time course)

Cerebrospinal fluid. Meningeal syndrome. Cerebrospinal fluid, its changes. Meningeal syndrome. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of lumbar puncture)) with further discussion. In addition, the study of this system involves work in a simulation centre to perform a spinal tap. Interpretation of the received data in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 12. Functional diagnosis of diseases of the nervous system.

pr.tr.12 "Functional diagnosis of diseases of the nervous system." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with methods of functional and instrumental study of the nervous system (electromyography, computed tomography, magnetic resonance imaging, positron emission tomography, Doppler, lumbar puncture)) discussion. In addition, the study of this system involves role-playing games, work in a simulation centre to perform a lumbar puncture. Interpretation of the obtained data of electromyography, X-ray and ultrasound examination of the nervous system in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), preparation of a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 13. Independent curation of the patient with the compilation of medical history

pr.tr.13 "Independent curation of the patient with the compilation of medical history" (full-time course)

Educational case history, based on the clinical supervision of patients with the design of survey data and additional research methods, in order to establish, justify the diagnosis and prescribe treatment from the standpoint of evidence-based medicine.

Topic 14. Intermediate modular control

pr.tr.14 "Intermediate modular control" (full-time course)

Testing

Topic 15. Vascular diseases of the brain and spinal cord. Part 1.

pr.tr.15 "Vascular diseases of the brain and spinal cord. Part 1." (full-time course)

Vascular diseases of the brain and spinal cord. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of vascular diseases of the brain and spinal cord (ischemic stroke, intracerebral haemorrhage)) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre to perform a spinal tap. Interpretation of the obtained data of computed tomography, ultrasound examination of the nervous system in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 16. Vascular diseases of the brain and spinal cord. Part 2.

pr.tr.16 "Vascular diseases of the brain and spinal cord. Part 2." (full-time course)

Vascular diseases of the brain and spinal cord. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of vascular diseases of the brain and spinal cord (ischemic stroke, intracerebral haemorrhage)) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre to perform a spinal tap. Interpretation of the obtained data of computed tomography, ultrasound examination of the nervous system in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 17. Meningitis. Arachnoiditis. Encephalitis.

pr.tr.17 "Meningitis. Arachnoiditis. Encephalitis." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of acute and chronic diseases of the brain and spinal cord (encephalitis, meningitis, arachnoiditis)) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre to perform a spinal tap. Interpretation of the obtained data of computed tomography, ultrasound examination of the nervous system, spinal tap in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a treatment plan for the underlying disease and emergency care from the standpoint of evidence-based medicine.

Topic 18. Neurosyphilis. Neurological manifestations of polymyositis, dermatomyositis. Lesions of the nervous system in the presence of HIV infection.

pr.tr.18 "Neurosyphilis. Neurological manifestations of polymyositis, dermatomyositis. Lesions of the nervous system in the presence of HIV infection." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of acute and chronic diseases of the brain and spinal cord (neurosyphilis, polymyositis, dermatomyositis, neuro AIDS)) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre for lumbar puncture, polymerase chain reaction. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 19. Poliomyelitis. Acute myelitis. Parasitic diseases of the nervous system, prion infections, neuroberreliosis.

pr.tr.19 "Poliomyelitis. Acute myelitis. Parasitic diseases of the nervous system, prion infections, neuroberreliosis." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of acute and chronic diseases of the brain and spinal cord (polio, acute myelitis, parasitic diseases of the nervous system, prion infections, neuroborreliosis)). In addition, the study of this topic involves role-playing games, work in a simulation centre for lumbar puncture, polymerase chain reaction. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 20. Diseases of the peripheral nervous system.

pr.tr.20 "Diseases of the peripheral nervous system." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of diseases of the peripheral nervous system) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre for electromyography. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 21. Demyelinating diseases of the nervous system.

pr.tr.21 "Demyelinating diseases of the nervous system." (full-time course)

Acute multiple encephalomyelitis. Multiple sclerosis. Subacute sclerosing panencephalitis. Leukodystrophy. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of demyelinating diseases of the nervous system) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre for electromyography, contrast magnetic resonance imaging. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 22. Hereditary and degenerative diseases of the nervous system.

pr.tr.22 "Hereditary and degenerative diseases of the nervous system." (full-time course)

Amyotrophic lateral sclerosis. Congenital defects of the spine and spinal cord. Syringomyelia. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of hereditary degenerative diseases of the nervous system) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre for electromyography, magnetic resonance imaging. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 23. Headache. Disorders of sleep and vitality. Somatic neurological syndromes.

pr.tr.23 "Headache. Disorders of sleep and vitality. Somatic neurological syndromes." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of patients with headache, sleep disorders and vigour, somatic neurological syndromes) with further discussion. In addition, the study of this topic involves role-playing games, work in a simulation centre for electroencephalography. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 24. Neurological aspects of traumatic brain injury. Spinal cord injury. Tumours of the brain and spinal cord. Brain abscess.

pr.tr.24 "Neurological aspects of traumatic brain injury. Spinal cord injury. Tumours of the brain and spinal cord. Brain abscess." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of patients with traumatic brain and spinal cord injuries, brain and spinal cord tumours, brain abscess) with further discussion. In addition, the study of this topic includes role-playing games, work in a simulation centre for electroencephalography, computed tomography, magnetic resonance imaging. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 25. Epilepsy

pr.tr.25 "Epilepsy" (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of patients with epilepsy) with further discussion. In addition, the study of this topic includes role-playing games, work in a simulation centre for electroencephalography, computed tomography, magnetic resonance imaging. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 26. Non-epileptic paroxysmal states

pr.tr.26 "Non-epileptic paroxysmal states" (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of patients with non-epileptic paroxysmal conditions) with further discussion. In addition, the study of this topic includes role-playing games, work in a simulation centre for electroencephalography, computed tomography, magnetic resonance imaging. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 27. Emergencies in neurology. Drugs used in neurology.

pr.tr.27 "Emergencies in neurology. Drugs used in neurology." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of patients with emergencies in neurology) with further discussion. In addition, the study of this topic includes role-playing games, work in a simulation centre for electroencephalography, computed tomography, magnetic resonance imaging, lumbar puncture. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 28. Perinatal lesions of the nervous system.

pr.tr.28 "Perinatal lesions of the nervous system." (full-time course)

The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching movies with clinical features of patients with perinatal lesions of the nervous system) with further discussion. In addition, the study of this topic includes role-playing games, work in a simulation centre for electroencephalography, electromyography, computed tomography, magnetic resonance imaging, spinal tap. Interpretation of the received data of patients in profile departments of a medical institution (according to the agreement on cooperation between medical institution and university), drawing up of the plan of treatment of the basic disease and rendering of emergency care from the standpoint of evidence-based medicine.

Topic 29. Protection of case history

pr.tr.29 "Protection of case history" (full-time course) Educational case history, based on the clinical supervision of patients with the design of survey data and additional research methods, in order to establish, justify the diagnosis and prescribe treatment from the standpoint of evidence-based medicine.
Topic 30. Final modular control
pr.tr.30 "Final modular control" (full-time course) Testing

7.2 Learning activities

LA1	Writing a case history
LA2	Self-study
LA3	Solving situational problems
LA4	Watching movies
LA5	Preparation for current and final control
LA6	E-learning in systems (the list is specified by the teacher, for example, Google Classroom, Zoom and in the format of the YouTube channel)

8. Teaching methods

Course involves learning through:

TM1	Interactive lectures
TM2	Case-based learning (CBL).
TM3	Team-based learning (TBL).
TM4	Research-based learning (RBL).
TM5	Role-playing game
TM6	Brainstorm
TM7	Educational discussion / debate

Teaching the discipline is with the use of modern teaching methods (CBL, TBL, RBL), which contribute not only to the development of professional skills, but also stimulate creative and scientific activities and are aimed at training practice-oriented professionals. Lectures allow you to learn more about some theoretical issues by explaining certain provisions of a given topic. Practical classes allow students to plan a scheme of examination of the patient and interpret the results of research, diagnose and provide emergency care in emergencies. Execution of situational tasks will allow to analyze tactics of inspection of patients, to make the plan of treatment, to form risk groups. Practicing practical skills allows you to establish the level of knowledge and focus on key issues. Self-study will help to prepare for practical classes, as well as work in small groups to prepare presentations that will be presented to other groups, and then analyzed and discussed.

GC 1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to learn, master modern knowledge and apply it in practical situations. GC 3. Knowledge and understanding of the subject

area and understanding of the professional activity. GC 4. Ability to adapt and act in a new situation. GC 5. Ability to make informed decisions; work in a team; interpersonal skills. GC 7. Ability to use information and communication technologies GC 8. Definiteness and persistence in terms of tasks and responsibilities.

9. Methods and criteria for assessment

9.1. Assessment criteria

Definition	National scale	Rating scale
Outstanding performance without errors	5 (Excellent)	170 ≤ RD ≤ 200
Above the average standard but with minor errors	4 (Good)	140 ≤ RD < 169
Fair but with significant shortcomings	3 (Satisfactory)	120 ≤ RD < 139
Fail – some more work required before the credit can be awarded	2 (Fail)	0 ≤ RD < 119

9.2 Formative assessment

FA1	Independent performance of situational exercises by students in practical classes and their discussion
FA2	Peer assessment
FA3	Self-assessment of current testing
FA4	Protection of case history
FA5	Interviews and oral comments of the teacher on results
FA6	Testing
FA7	Defense of an individual research project (speech at a conference, competition of scientific works)
FA8	Teacher's instructions in the process of performing practical tasks
FA9	Checking and evaluating written assignments
FA10	Solving clinical cases

9.3 Summative assessment

SA1	Evaluation of written works, surveys, solving a clinical case
SA2	Protection of case history
SA3	Testing
SA4	Final control: practice-oriented exam (according to the regulations)
SA5	Defense of an individual research project (incentive activities, additional points)

Form of assessment:

7 semester	**200 scores**
SA1. Evaluation of written works, surveys, solving a clinical case	**100**

		100
SA2. Protection of case history		**10**
		10
SA3. Testing		**10**
		10
SA4. Final control: practice-oriented exam (according to the regulations)		**80**
	Answer to theoretical questions (3x15)	45
	Execution of a practical task	15
	Providing emergency care	20
8 semester		**200 scores**
SA1. Evaluation of written works, surveys, solving a clinical case		**100**
		100
SA2. Protection of case history		**10**
		10
SA3. Testing		**10**
		10
SA4. Final control: practice-oriented exam (according to the regulations)		**80**
	Answer to theoretical questions (3x15)	45
	Execution of a practical task	15
	Providing emergency care	20

Form of assessment (special cases):

7 semester		**200 scores**
SA1. Evaluation of written works, surveys, solving a clinical case		**100**
	In case of quarantine restrictions, evaluation of written works, surveys, clinical case solving are carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	100
SA2. Protection of case history		**10**
	In case of quarantine restrictions, the protection of the medical history is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	10
SA3. Testing		**10**
	In case of quarantine restrictions, testing is performed remotely using the Mix.sumdu.edu.ua platform.	10
SA4. Final control: practice-oriented exam (according to the regulations)		**80**

	In case of quarantine restrictions, the protection of the medical history is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	80
8 semester		**200 scores**
SA1. Evaluation of written works, surveys, solving a clinical case		**100**
	In case of quarantine restrictions, evaluation of written works, surveys, clinical case solving are carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	100
SA2. Protection of case history		**10**
	In case of quarantine restrictions, the protection of the medical history is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	10
SA3. Testing		**10**
	In case of quarantine restrictions, testing is performed remotely using the Mix.sumdu.edu.ua platform.	10
SA4. Final control: practice-oriented exam (according to the regulations)		**80**
	In case of quarantine restrictions, the protection of the medical history is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	80

Subject to mastering the module's material, the student is assigned a maximum of 5 points for each practical lesson (the grade is set in the traditional 4-point grading system). At the end of the course, the arithmetic mean of success is calculated. The maximum number of points that a student can get in practical classes during the course - 200. The number of points is calculated by the formula 200 multiplied by the arithmetic mean and divided by 5. For writing a medical history are assigned the following points: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. Protection of medical history: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. In general, for a medical history, a student can get a maximum of 10 points, the minimum required score of 6. For diagnostic testing, a student receives a maximum of 10 points. The minimum number of points that a student must receive is 6 points. The maximum number of points for the current educational activity is 120. The student is admitted to the exam if the curriculum requirements are met and if he scored at least 72 points for the current educational activity: 60 points during practical classes, 6 points for medical history and more 6 for testing. The practice-oriented exam is held according to the schedule at the end of the course. Exam tickets contain three theoretical questions on various topics and cover all sections of the discipline (15 points each), one practical task (15 points) and the issue of emergency care (20 points). The exam is credited to the student if he scored at least 48 points out of 80. Incentive points are added to the discipline assessment for individual research projects (defence of student research 12 points, presentation at a scientific conference - 5 points, poster presentation at the conference - 4 points, abstracts - 3 points). The total score in the discipline may not exceed 200 points.

10. Learning resources

10.1 Material and technical support

MTS1	Information and communication systems
MTS2	Library funds, an archive of radiographs, electromyograms, electroencephalograms, electrocardiograms, computer and magnetic resonance imaging, the results of laboratory methods of examination
MTS3	Computers, computer systems and networks
MTS4	MNE "Clinical Hospital 4" of SCC, MNE of SRC "Regional clinical hospital"
MTS5	Multimedia, video and audio, projection equipment (video cameras, projectors, screens, smart boards, etc.)
MTS6	Software (to support distance learning, online surveys), 3-D virtual simulator on "Research Methods in Neurology", "Cerebrovascular Pathology".
MTS7	Medical equipment (electroencephalograph, electroneuromyograph, computed tomography and magnetic resonance imaging, ultrasound, electrocardiograph, lumbar puncture needles, neurological hammer, dynamometer, test tubes, scales, neurological tuning fork, set of aromatic oils, Syvkutsev's and Rabkin's tables, perimeter , ophthalmoscope, ruler, analgesimeter, measuring tape, set for taste function check, audiometer, Voyachek's laterometer, Barany's chair, thermometer, tonometer, phonendoscope, etc.)

10.2 Information and methodical support

Essential Reading	
1	Clinical Neurology: посібник / V. F. Gryb, O. O. Doroshenko, S. I. Genyk, T. D. Hrytsiuk. – K.: Medknyha, 2017. – 288 p.
2	Neurology: textbook / I. A. Hryhorova, L. I. Sokolova, R. D. Herasymchuk etc.; ed.: I. A. Hryhorova, L. I. Sokolova. – K.: Medicine Publishing, 2017. – 624 p.
Supplemental Reading	
3	Topical Diagnosis in Neurology / P. Duus. - Thieme, 2017. - 517 p.
4	How to Examine the Nervous System / R.T. Ross. - Humana Press Inc., 2018. - 242 p.
Web-based and electronic resources	
5	https://wiadlek.pl/
6	https://academic.oup.com/
7	https://www.neurology.org/
8	https://www.biomedcentral.com/
9	http://www.neuroscience.cam.ac.uk/
10	https://www.nhsinform.scot/
11	http://videolectures.net/ (Collection of medical video lectures)