

Ministry of Health of Ukraine
Ukrainian Medical Stomatological Academy
Department of Nervous Diseases with Neurosurgery and Medical Genetics

“APPROVED”

First vice-rector
for Scientific and Pedagogical Work
V.M.Dvornyk

“26” may 2020 year

NEUROLOGY

SYLLABUS

| | |
|---|---|
| educational and professional level | the second (master's) level of higher education |
| Field of Study | 22 «Health care» |
| Specialty | 222 «Medicine» |
| Educational qualification | Master of Medicine |
| Professional qualification | Doctor |
| Form of study | Full-time education |
| Course and semester at studying the academic discipline | 4 course, 7 semester |

Syllabus of the academic discipline was approved at the meeting of the Department of Nervous Diseases with Neurosurgery and Medical Genetics

The head of the Department _____
M.Yu. Delva
(signature)

Protocol No. 9 from 11 march 2020

Approved by the cyclic methodical commission on therapeutic and pediatric disciplines

The head of CMC _____
I.P. Katerenchuk
(signature)

Protocol No.8 from 16 april 2020

TEACHERS WHO TEACH DISCIPLINE

| | |
|---|--|
| Surname, name of teachers, scientific degree, academic rank | Delva Mykhaylo, PhD, Dr. Med. Sci., professor Lytvynenko Nataliya, PhD, Dr. Med. Sci., professor Sanyk Olexandr, PhD, docent Sylenko Galyna, PhD, docent Pinchuk Victoria, PhD, docent Delva Iryna, PhD, docent Purdenko Tetyana, PhD, docent Taryanyk Kateryna, PhD, docent Gladka Victoria, PhD, docent Kryvchun Angelina, PhD, docent Palenka Olena, PhD, assistant Piddubna Olexandra, PhD, assistant |
| Teachers' profile | https://www.umsa.edu.ua/fakultets/med/kafedry/nervovhvorob |
| Contact number | Neurological department of Poltava regional hospital named after M.V. Sklyfosovsky. – 23 Shevcenko str., tel. (053) 56-42-37, (0532) 52-49-05. Neurological department of 1st Poltava municipal hospital. – 27 Olesya Honchara str., tel. (053) 67-62-91. Neurological department of 5th Poltava municipal hospital. 4, Pavlenkivska str., tel. (0532) 7-06-34 |
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| Department's website | https://www.umsa.edu.ua/fakultets/med/kafedry/nervovhvorob |

MAIN CHARACTERISTICS OF THE ACADEMIC DISCIPLINE

The volume of the academic discipline

Number of credits / hours – 4/120, among them:

Lectures (hours) – 10

Practical (seminars) classes (hours) – 70

Individual work (hours) – 40

Type of control – Final modular control (FMC);
semester final certification (SFC).

The signs of academic discipline

Nature of the discipline - NORMATIVE

Year of study - 4

Semester - 7

The academic discipline policy

During organizing of educational process at UMSA, teachers and students act according to:

- provisions for the educational process organization (https://www.umsa.edu.ua/storage/department-npr/docs_links/o3MhEcAIDHFI4AilBuVYU8T0PfVtJeVK6qnv33oi.pdf);
- the Code of Academic Integrity (https://www.umsa.edu.ua/storage/department-npr/docs_links/xugb1mKV2PTYPLLu13JtfSgoV7Kpv9CzhulKT0rP.pdf);
- current Higher Education Standards (<https://mon.gov.ua/ua/osvita/visha-osvita/naukovo-metodichna-rada-ministerstva-osviti-i-nauki-ukrayini/zatverdzeni-standarti-vishoyi-osviti>);
- internal security rules for the work of UMSA students (<https://www.umsa.edu.ua/info/pravila-vnutrishnogo-rozporyadku>).

The academic discipline description (abstract)

Neurology is one of the disciplines of the clinical stage of undergraduate physician training, during which the students learn theoretical basics, skills of neurological patients examination, methodology of making a diagnosis of a neurological disease, choice of treatment tactics and providing urgent medical care in case of medical emergencies. A special place is given to the study of acute conditions - disorders of the cerebral blood flow, neurological pain syndromes, disorders of the functions of the autonomic and peripheral nervous systems. A sick person with all his / her peculiarities is the main subject of study at lectures and practical classes.

At practical classes the attention is paid to students' acquisition of examination skills, making topical and clinical diagnosis, treatment prescription and providing urgent medical care for patients with various diseases of the nervous system.

It is important to give the students a flavor of the pathogenetic mechanisms of the origination of the nervous system diseases, methods of prevention of the nervous system disorders.

Thus, neurology is an academic clinical discipline that studies the methods and techniques of clinical examination, features of professional communication of the doctor with the patient, subjective and objective manifestations of the disease (symptoms and syndromes), causes and mechanisms of their origin and development (semiology) with the purpose of making a diagnosis.

The study of discipline carries out in two logical stages: the first – mastering of the basic methods of physical, instrumental and laboratory examination of the patient, after which students define a topical diagnosis of the nervous system disorder, and the second – clinical neurology, where students learn the theoretical bases of specific neurology (pathogenetic mechanisms of origin, features of clinics, diagnostics, treatment and prevention of nervous system diseases).

Prerequisites and post-requisites of the discipline (interdisciplinary communication)

Neurology as an academic discipline is based on the study of medical biology, biological and bioorganic chemistry, histology, physiology and pathological

physiology, human anatomy and pathomorphology, propaedeutic disciplines therapeutic profile, pharmacology, radiology and integrates with these disciplines.

Neurology as an academic discipline integrates with other clinical disciplines: internal medicine, neurosurgery, oncology, psychiatry, medical genetics, etc.

Purpose and tasks of the discipline:

1.1. The purpose of studying of academic discipline «neurology» is the ultimate purposes. The description of goals is defined through the ability represented by represented by targets (actions):

- determine the main symptoms and syndromes of the disorders of different parts of the nervous system;
- interpret the data of functional anatomy and clinical physiology of the nervous system;
- determine the etiological factors and pathogenetic mechanisms of development of underlying neurological diseases.

1.2. The main tasks of the discipline «Neurology» are:

- make the preliminary diagnosis of the underlying neurological diseases,
- analyze the basic indicators of the laboratory and instrumental methods of test in neurological practice,
- plan the patient surveillance with neurological pathology.

Competencies and learning outcomes, the formation of which is facilitated by the discipline of «Neurology»:

The discipline ensures the student acquisition of *competence*:

– *integral*:

Ability to solve typical and complex specialized tasks and practical problems in professional health care activities, or in the process of study that involves research and/or innovation, and is characterized by complexity and uncertainty of conditions and requirements.

– *general*:

1. Ability to abstract thinking, analysis and synthesis.
2. Ability to learn and to be modernly trained.
3. Ability to apply knowledge in practical situations.
4. Knowledge and understanding of the subject area and understanding of professional activity.
5. Ability to adapt and act in a new situation.
6. Ability to make sound medical judgment.
7. Ability to work in a team.
8. Interpersonal skills.
9. Ability to communicate both verbally and non-verbally in official language.
10. Ability to communicate in a foreign language.
11. Skills in the use of information and communication technologies.
12. Determination and persistence on the tasks and duties taken.
13. Ability to act socially responsible and with public consciousness.

14. The desire to save the environment.
15. Ability to act on the basis of ethical considerations (motives).

– *special (professional, subject matter):*

1. Interviewing skills and clinical examination of the patient.
2. Ability to determine the required list of laboratory and instrumental tests and evaluate their results.
3. Ability to make a syndromic diagnosis of the disease.
4. Ability to make a preliminary and clinical diagnosis of the disease
5. Ability to diagnose medical emergency.
6. Skills of emergency medical response.
7. Skills to perform medical procedures.
8. Ability to fill in medical records.
9. Ability to perform sanitary-and-hygienic and preventive measures.
10. Ability to provide the necessary regimen of hospitalization during treatment of diseases.

Detailing of competency in accordance with the descriptors of the NFC in the form of «Matrix of competence».

Matrix of competence

| № | Competence | Knowledge | Ability | Communication | Autonomy and responsibility |
|-----------------------------|--|---|--|--|--|
| General competencies | | | | | |
| 1. | Ability to abstract thinking, analysis and synthesis. | Know methods of analysis, synthesis and further modern training. | Be able to analyze information, make informed decisions, be able to acquire modern knowledge. | Establish appropriate links to achieve goals. | Be responsible for the timely acquisition of modern knowledge. |
| 2. | Ability to learn and to be modernly trained. | Know modern trends of development industries and analyze them. | Be able to analyze professional information, make informed decisions, acquire modern knowledge | Establish appropriate links to achieve goals. | Be responsible for the timely acquisition of modern knowledge. |
| 3. | Ability to apply knowledge in practical situations | Must have specialized conceptual knowledge gained during the learning process. | Be able to solve difficult tasks and problems that arise in professional activities. | A clear and unambiguous presentation of own conclusions, knowledge and explanations, which are substantiated by experts and non-specialists. | Be responsible for making decisions in difficult conditions. |
| 4. | Knowledge and understanding of the subject area and understanding of professional activity | Must have a deep knowledge of the structures of professional activity. | Be able to perform professional activities that require updating and integration of knowledge. | Ability to form effective communication strategy in professional activities. | Be responsible for professional development, ability to further professional training with a high level of autonomy. |
| 5. | Ability to adapt and act in a new situation. | Know the types and ways of adaptation, principles of action in a new situation. | Be able to apply self-regulation means, be able to adapt to new situations (circumstances) of | Establish appropriate connections to achieve the result. | Be responsible for a healthy lifestyle and timely use of self-regulation methods. |

| № | Competence | Knowledge | Ability | Communication | Autonomy and responsibility |
|----------|---|--|--|--|--|
| | | | life and activity. | | |
| 6. | Ability to make sound medical judgment. | Know the tactics and strategies of communication, the laws and methods of communicative behavior. | Be able to make informed decisions, choose ways and strategies of communication to ensure effective teamwork. | Use communication strategies and interpersonal skills. | Be responsible for the choice and tactics of the communication method. |
| 7. | Ability to work in a team. | Know tactics and communication strategies, laws and ways of communicative behavior. | Be able to choose methods and strategies for communication to provide effective teamwork. | Use communication strategies. | Be responsible for the choice and tactics of communication. |
| 8. | Interpersonal skills. | Know the laws and ways of interpersonal communication. | Be able to choose ways and strategies of communication for interpersonal interaction. | Use interpersonal communication skills. | Be responsible for the choice and tactics of communication. |
| 9. | Ability to communicate both verbally and non-verbally in official language. | Must have perfect knowledge of the official language. | Be able to apply knowledge of the official language both orally and in writing. | Use the official language in professional and business communication and during preparation of documents. | Be responsible for fluency in the official language, for the development of professional knowledge. |
| 10. | Ability to communicate in a foreign language. | Must have basic knowledge of a foreign language. | Be able to communicate in a foreign language. | Use a foreign language in a professional activity. | Be responsible for the development of professional knowledge involving a foreign language. |
| 11. | Skills in the use of information and communication technologies. | Must have a deep knowledge of information and communication technologies used in professional activities | Be able to use information and communication technologies in a professional industry that needs updating and integrating knowledge | Use information and communication technologies in professional activities. | Be responsible for the development of professional knowledge and skills. |
| 12. | Determination and persistence on the tasks and duties taken. | Know the duties and ways of fulfilling the tasks. | Be able to define the purpose and the task of being persistent and conscientious in the performance of duties. | Establishing interpersonal relationships to accomplish tasks and responsibilities effectively. | Responsible for the quality performance of the tasks. |
| 13. | Ability to act socially responsible and public consciousness. | Know your social and public rights and responsibilities. | Form your own civic consciousness; be able to act in accordance with it. | Ability to show your public and social position. | Respond to your civic position and activity. |
| 14. | The desire to save the environment. | Know the problems of preserving the environment and how to save it. | Be able to formulate requirements for themselves and others around the environment. | Make proposals to the relevant authorities and institutions regarding measures for conservation and protection of the environment. | Be responsible for the implementation of environmental protection measures within the scope of its competence. |
| 15. | Ability to act on the basis | Know the basics of | Be able to apply | Ability to carry | Be responsible for |

| № | Competence | Knowledge | Ability | Communication | Autonomy and responsibility |
|--|---|---|---|--|---|
| | of ethical considerations. | ethics and deontology. | ethical and deontological norms and principles in professional activity | professional position to patients, their family members, colleagues. | performance of ethical and deontological norms and principles in professional activity |
| Special (professional) competencies | | | | | |
| 1. | Interviewing skills and clinical examination of the patient. | Have specialized knowledge about the person, organs and systems, know the conventional management and physical examination of the patient. | Be able to lead a discussion with the patient, to perform the examination, palpation, percussion, auscultation based on algorithms and standards. | Effectively define a communication strategy during communication with a patient. Fill in the information about human health to appropriate medical records. | Be responsible for the quality of the collection of information obtained through interviewing, examination and timely assessment of the patient's overall health. |
| 2. | Ability to determine the required list of laboratory and instrumental tests and evaluate their results. | Have specialized knowledge about the person, organs and systems, standard techniques of conduction of laboratory and instrumental tests identified by the program. | Be able to analyze the results of laboratory and instrumental tests and to evaluate information about the patient's condition. | Perform and report to the patient and the specialist as it is needed a list of laboratory and instrumental tests. | Be responsible for decision-making on the evaluation of laboratory and instrumental test results |
| 3. | Ability to make a syndromic diagnosis of the disease. | Have specialized knowledge about the person, organs and systems; standard inspection methods; algorithms of diagnosis of diseases; algorithms of distinguishing leading symptoms and syndromes; methods of laboratory and instrumental examination; knowledge in the estimation of human condition. | Be able to carry out a physical examination of the patient; be able to make an informed decision about the choice of a leading clinical symptom or syndrome; be able to appoint laboratory and instrumental examination of the patient by standard methods. | Fill in the medical records of the patient (inpatient card, etc.) on the basis of regulatory documents. | Be responsible for making informed decisions and actions regarding the correctness of the made syndromic diagnosis of the disease in accordance with ethical and legal standards. |
| 4. | Ability to diagnose medical emergency. | Have specialized knowledge about the person, organs and systems, standard methods of human examination | Be able to assess a person's condition and provide rescue emergency care in the case of absence of information by standard techniques and making a sound decision. | Make an informed decision on the assessment of the human condition and the organization of the urgent medical measures depending on the human condition in all circumstances in accordance with the relevant ethical laws. | Be responsible for the timeliness and effectiveness of medical interventions to diagnose emergencies. |
| 5. | Skills of emergency medical response. | Have specialized knowledge of the | To be able to provide emergency | Explain the importance and | Be responsible for the timeliness and |

| № | Competence | Knowledge | Ability | Communication | Autonomy and responsibility |
|----------|---|---|---|--|--|
| | | structure of the human body, organs and systems; algorithm of emergency medical response in case of medical emergencies (cardiac and respiratory arrest). | medical care in in case of medical emergencies – to carry out the closed-chest cardiac massage and artificial respiration. | procedure for conduction of curative services of emergency medical care. | quality of emergency medical care. |
| 6. | Skills to perform medical procedures. | Have specialized knowledge about the human body, organs and systems; knowledge of algorithms for performing of medical procedures according to the curriculum. | Be able to perform the medical procedures according to the curriculum. | Define and get across the reasonable conclusions about the importance of medical procedures to the patient or specialists. | Be responsible for the quality of the performance of medical procedures |
| 7. | Ability to fill in medical records. | Know the system of paperwork in the professional work of medical personnel, including modern computer information technologies | Be able to determine the source and location of the appropriate information, depending on its type; be able to process information and analyze received information. | Obtain the appropriate information from a specific source and preform relevant conclusions on the basis of analysis. | Be responsible for the completeness and quality of the informational analysis and conclusions on the basis of analysis. |
| 8. | Ability to perform sanitary-and-hygienic and preventive measures. | Know the system of sanitary-and-hygienic and preventive measures at hospital. Know the principles of a healthy diet, the principles and methods of promoting a healthy lifestyle. | Have skills in the organization of sanitary-and-hygienic and therapeutic and protective regimen of the main units of the hospital. Be able to promote healthy lifestyles. | Know the principles of presenting information according the sanitary-and-hygienic condition of the departments and observation of general hospital and therapeutic and protective regimens to the management of the structural subdivisions of the medical establishment; use lectures and interviews. | Be responsible for the timely and qualitative implementation of measures to ensure the sanitary-and-hygienic and therapeutic and protective regimens of the main departments of the hospital, promoting a healthy lifestyle. |
| 9. | Ability to provide the necessary regimen of hospitalization during treatment of diseases. | Have specialized knowledge about the human body, organs and systems; ethical standards; algorithms for providing an inpatient stay in hospital during treatment. | Be able to provide necessary work-rest regime determined by the doctor in the case of treatment of the disease. | Preform conclusions about the necessary regime of inpatient setting, work-rest regime for the patient and specialists in the case of treatment of the disease. | Be responsible for providing of the conditions of work-rest regime observing in the case of treatment of the disease prescribed by a doctor. |

Learning outcomes:

After completion of the study of the discipline the students must know:

- the place of neurology as a science, a field of practical medicine and a subject;
- methodological bases and schemes of clinical neurological examination of the patient: examination of higher cortical functions, cranial nerves, motor, sensory functions, etc.;
- changes in cerebrospinal fluid and meningeal symptom complex;
- paraclinical methods of examination of patients (neuroimaging, ultrasound and electrophysiological);
- - clinical and diagnostic interpretations of indicators of main laboratory and instrumental tests;
- - the most important symptoms and syndromes in the clinic of nervous diseases and their semiological interpretation;
- - main points of clinical neurology: vascular, inflammatory brain diseases, autonomic nervous system diseases, progressive and demyelinating diseases, peripheral nervous system diseases, vertebrogenic diseases, hereditary and degenerative diseases, etc.; the etiological and pathogenetic formation factors of these diseases;
- - modern methods of diagnosis, treatment and prevention of the nervous system diseases, taking into account the principles of scientific-based medicine.

After completion of the study of the discipline the students are able to:

- evaluate the patient's neurological status (examination of active and passive movements volume, tone and strength of muscle, tendon, periosteal, dermal reflexes (steno-carpo-radial, biceps, triceps, genual, Achilles, abdominal), pathological reflexes by Babinski, Oppenheim, Gordon, Schaefer, Rossolimo, Bekhterev, Zhukovsky, and others and synkinesia, coordination of movements (finger-nose, knee-heel, diadochokinesis, tests for dysmetry), detection of static and dynamic ataxia, sensitivity (superficial, deep and complex species), symptoms of tension, smell and taste abnormality, vision acuity, vision fields, color perception, oculomotor nerves functions, V nerve functions, VII nerve functions, IX-X nerves functions, XI-XII nerves functions, autonomic nervous system, meningeal symptoms (occipital muscles rigidity, Kernig's and Brudzinski's symptoms), reactive pain phenomena: Mendel's symptom, Plateau's symptom, places of exit of the small and large occipital nerves, language, praxis, gnosis, writing, reading, calculus).
- identify and fix the leading topical syndrome and make a clinical diagnosis;
- interpret the main indicators of examination aid methods in a neurological clinic (electrophysiological, ultrasound, X-ray, CT scan);
- examine the patients with neurological pathology, fill in medical case-history and prescribe modern diagnostics and treatment taking into account the principles of evidence-based medicine;
- identify signs of human medical emergency in all circumstances (at home, on the street, at hospital or its department); use the physical examination standard methods

and possible anamnesis; know about the human body, organs and systems; observe the relevant ethical and legal laws;

- demonstrate mastery of morally-deontological principles of medical specialist and principles of professional subordination in the clinic of nervous diseases.

Structure of the discipline

| Name of modules and themes | Number of hours | | | | |
|---|-----------------|-----------|----------|-------------------|-------|
| | Total | including | | | |
| | | Lectures | Seminars | Practical classes | In.w. |
| 1 | 2 | 3 | 4 | 5 | 6 |
| <u>Module 1. General neurology.</u> | 45 | 4 | | 28 | 13 |
| Content module 1. Introduction. Symptoms of movement and sensory disorders. | 22 | 4 | | 12 | 6 |
| Lecture 1. Introduction to neurology. Principles of structure and functions of the nervous system. Motion syndromes. Parkinson's syndrome and neurochemical mechanisms of its occurrence. | | 2 | | | |
| Lecture 2. Higher cerebral functions and their disorders. | | 2 | | | |
| 1. Structure principles and nervous system functioning. Nervous system functional unit. Reflex concept and reflex arc. | 2,5 | | | 2 | 0,5 |
| 2. Voluntary movements and their disorders. | 3 | | | 2 | 1 |
| 3. Cerebellum. Anatomy. Syndromes of the cerebellum disorders. Types of ataxia. | 2.5 | | | 2 | 0.5 |
| 4. Extrapyrimalid system and its disorder syndromes. | 2,5 | | | 2 | 0,5 |
| 5. Sensitive system and symptoms of its disorder. Types and kinds of sensitivity disorders. | 2.5 | | | 2 | 0,5 |
| 6. Practical skills. Microcuracy and topical diagnosis of disorders of the motor and sensory systems. | 3 | | | 2 | 1 |
| <u>Content module 2. Cranial nerves pathology. Autonomic nervous system disorders and higher cerebral functions. Peripheral nervous system disorders. Meningeal syndrome.</u> | 25 | | | 16 | 9 |

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|---|-----|---|--|----|-----|
| <u>Additional methods of research in neurology.</u> | | | | | |
| 7. Pathology of IX-XII pairs of cranial nerves. | 2.5 | | | 2 | 0,5 |
| 8. The trigeminal, facial, vestibule-cochlear nerves and symptoms of their disorders. | 3 | | | 2 | 1 |
| 9. Pathology of olfactory and visual analyzers. Syndromes of disorders of oculomotor nerves. | 3 | | | 2 | 1 |
| 10. Localization of functions in the cerebral cortex. Symptoms of disorders. Syndromes of meninges lesions. Meningeal syndrome. | 3 | | | 2 | 1 |
| 11. Autonomic nervous system. Symptoms of disorders | 2.5 | | | 2 | 0,5 |
| - Symptom-complex of spinal cord lesions. | 1 | | | | 1 |
| 12. Paraclinical studies in neurology. Cerebrospinal fluid, its study. | 3 | | | 2 | 1 |
| 13. Practical skills. | 3 | | | 2 | 1 |
| 14. Final modular control: | 4 | | | 2 | 2 |
| Module 2. Special Neurology. | 33 | 6 | | 42 | 27 |
| Content module 3. Cerebrovascular and spinal cord disease, main neurological syndromes, occupational diseases of the nervous system, neurotoxicity. Autonomic nervous system diseases. | 32 | 6 | | 14 | 12 |
| Lecture 3. Cerebrovascular disease (transient disorders of cerebral circulation, ischemic and hemorrhagic strokes). | | 2 | | | |
| Lecture 4. Cerebrum Inflammatory diseases (meningitis, encephalitis). | | 2 | | | |
| Lecture 5. Nervous system demyelinating diseases (multiple sclerosis, multiple encephalomyelitis) and nervous system progressive diseases (myasthenia, syringomyelia, lateral amyotrophic sclerosis). | | 2 | | | |
| - Basic neurologic syndrome. | 1 | | | | 1 |
| 15. Cerebrovascular disease (initial manifestations cerebrovascular insufficiency, transient cerebrovascular diseases, chronic | 3 | | | 2 | 1 |

| | | | | | |
|---|----|--|--|----|---|
| cerebrovascular insufficiency). | | | | | |
| 16. Ischaemic stroke. | 3 | | | 2 | 1 |
| 17. Haemorrhagic stroke. | 3 | | | 2 | 1 |
| 18. Blood vessel disease of spinal cord | 3 | | | 2 | 1 |
| 19. Practical skills. Individual patient care with preparation of medical case history. | 6 | | | 2 | 4 |
| - Occupational diseases of the nervous system, and community-acquired neurointoxication. Nervous system impairment under the influence of physical factors. | 1 | | | | 1 |
| 20. Autonomic nervous system diseases. | 3 | | | 2 | 1 |
| 21. Neurodentistry syndromes. | 3 | | | 2 | 1 |
| Content module 4. Infectious, infectious-allergic, demyelinating and progressive diseases of the nervous system, prion infections. | 18 | | | 12 | 6 |
| 22. Meningitis. Arachnoidites. | 3 | | | 2 | 1 |
| 23. Encephalitis. Lyme disease. | 3 | | | 2 | 1 |
| 24. Neurosyphilis. Neurorheumatism. Neurological manifestations of polymyositis-dermatomyositis. | 3 | | | 2 | 1 |
| 25. Nervous system impairments caused by HIV infection. Poliomyelitis. Slow neuroinfection. | 3 | | | 2 | 1 |
| 26. Nervous system progressive diseases. | 3 | | | 2 | 1 |
| 27. Nervous system demyelinating diseases. | 3 | | | 2 | 1 |
| <u>Content module 5. Peripheral nervous system diseases, spinal osteochondrosis neurological manifestations, somatoneurological syndromes. Hereditary and neurodegenerative disease.</u> | 25 | | | 16 | 9 |
| 28. Peripheral nervous system diseases (clinical classification of peripheral nervous system diseases (1987). The concept of neuropathy and neuralgia. Neuropathies of radial, ulnar, medius, ischiadic, fibular, tibial nerves). | 3 | | | 2 | 1 |
| 29. Peripheral nervous system diseases (radiculitis, ganglionitis, truncite. polyradiculitis (Guillain-Barre's syndrome). Recurrent | 3 | | | 2 | 1 |

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|---|-----|----|--|----|----|
| polyneuropathies – diabetic, alcoholic, toxic. Brachial plexitis. Etiology, pathogenesis, clinic, diagnosis and treatment). | | | | | |
| 30. Spinal Osteochondrosis neurologic syndrome | 3 | | | 2 | 1 |
| 31. Hereditary and degenerative diseases of the neuromuscular system. | 3 | | | 2 | 1 |
| 32. Hereditary and degenerative diseases of cerebellum, pyramid and extrapyramidal system. | 3 | | | 2 | 1 |
| 33. Practical skills. Presentation of medical case history | 3 | | | 2 | 1 |
| 34. Theoretical control (solution of test tasks of Krok-2) and control of practical skills for permission to SFC. | 7 | | | 4 | 3 |
| Total hours | 120 | 10 | | 70 | 40 |

Thematic plan of lectures

| № | Topics of lectures | Hours |
|---|---|-------|
| | <u>Module 1. General neurology.</u> | |
| 1 | <p>Introduction to neurology. Principles of structure and functions of the nervous system. Motion syndromes. Parkinson's syndrome and neurochemical mechanisms of its occurrence.</p> <p>Functional unit of the nervous system. The reflex concept and reflex arc. Pyramid system. Corticonuclear and cortical-spinal tracts. Symptoms of central and peripheral paresis, pathogenesis of symptoms. Pathological reflexes, study methodology. Symptom-complexes of movement disorders with damage of different levels of cortico-muscular tract. Anatomy of the cerebellum, leading pathways of the lower, middle, upper cerebellar stalk. Syndromes of the cerebellum disorders. Types of ataxia. Signs of impairment. Study methodology of motion coordination. Differential diagnosis of ataxia. Anatomy of the striatopallidal system - the striatal and pallidal divisions. Biochemistry of the extrapyramidal system - a contemporary view of the exchange and concentration of catecholamines in the nigrostriatal system. Functions of the extrapyramidal system, impairments syndrome: hypertonic-hypodynamic (parkinsonism) and hypotonic-hypodynamic (hyperkinesia). Study methodology.</p> | 2 |
| 2 | <p>Higher cerebral functions and their disorders. Functional features of the cortical portions of the frontal, parietal, temporal, occipital lobes of the cerebral hemispheres. Projection areas. The concept of hemispheres functional asymmetry. Apraxia, agnosia, their types. Aphasia, clinical kinds, topical diagnosis. Alexia, agraphia, acaculia. Impairment syndromes of separate parts of a brain, right and left hemispheres. Impairment syndromes of cerebral cortex.</p> | 2 |
| | <u>Module 2. Special Neurology.</u> | |
| 1 | <p>Cerebrovascular disease (transient disorders of cerebral circulation, ischemic and hemorrhagic strokes). Cerebral circulation. Classification of cerebral circulation disorders. Initial manifestations of insufficiency of cerebral circulation. Dyscirculatory encephalopathy. Vascular cerebral crisis (hypertensive, hypotonic). Transient Ischaemic attack. Impairment syndromes of anterior, middle and posterior cerebral arteries. Classification. Etiological factors and pathogenesis of ischemic strokes. Differential diagnosis of ischemic and hemorrhagic strokes. Principles of treatment.</p> | 2 |

| | | |
|---|--|----|
| | Undifferentiated and differentiated treatment of strokes. Indications and contraindications for surgical interventions of acute disorders of cerebral circulation. Treatment of patients in the period of residual effects after cerebral strokes. Rehabilitation and vital capacity test. Prevention of cerebrovascular diseases. Modern principles of treatment with standards of treatment and principles of evidence-based medicine. Prevention of cerebrovascular diseases. Classification. Etiological factors and pathogenesis of hemorrhagic strokes. Indications and contraindications for surgical treatment of acute disorders of cerebral circulation. | |
| 2 | <p>Cerebrum Inflammatory diseases (meningitis, encephalitis). Meningitis. Classification of meningitis: primary and secondary, purulent and serous.</p> <p>Purulent meningitis. Primary meningococcal meningitis, clinic, diagnosis, features of the clinical course of disease, atypical forms. Secondary meningitis: pneumococcal, staphylococcal. Clinic, diagnostics, indicators of cerebrospinal fluid, treatment, prevention.</p> <p>Serous meningitis. Primary viral: lymphocytic choriomeningitis, enterovirus meningitis (ECNO, Coxsackie), mumps and others. Secondary: tuberculous meningitis and meningitis in other infections. Clinic, diagnostics, study value of CSF in differential diagnostics, treatment, prevention.</p> <p>Arachnoidites. Etiology, pathogenesis. Pathomorphology: adhesive, cystic. Localization classification: arachnoid of posterior cranial fossa, basal, convexital. Clinic, course, diagnosis. Differential diagnostics. Treatment and prevention.</p> <p>Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment.</p> <p>Encephalitis. Classification. Primary encephalitis: epidemic, tick-borne spring-summer, herpetic. Secondary encephalitis: rheumatic (hysterical chorea), post-vaccination, caused by varicella, measles, rubella. Clinic, course, forms of the disease, diagnosis. Lyme disease.</p> <p>Nervous system damage caused by influenza (influenzal hemorrhagic encephalitis, encephalopathy).</p> <p>Infectious encephalopathy – dyscirculatory and dystrophic changes of the brain without marked focal lesions with predominance in the clinic of asthenic manifestations, autonomic dystonia, intracranial hypertension. The course, diagnosis, differential diagnosis, treatment, prevention.</p> | 2 |
| 3 | <p>Nervous system demyelinating diseases (multiple sclerosis, multiple encephalomyelitis) and nervous system progressive diseases (myasthenia, syringomyelia, lateral amyotrophic sclerosis). Multiple Sclerosis, Acute Multiple Encephalomyelitis. Acute transverse myelitis. Etiology, pathogenesis, clinic, diagnosis, differential diagnosis. Treatment, vital capacity test.</p> <p>Nervous system demyelinating diseases (multiple sclerosis, multiple encephalomyelitis) and nervous system progressive diseases (myasthenia, syringomyelia, lateral amyotrophic sclerosis). Syringomyelia. Lateral amyotrophic sclerosis. Myasthenia. Etiology, pathogenesis, clinical symptoms and clinical forms. Treatment, vital capacity test. Myasthenic and cholinergic crisis, differential diagnostics, emergency management.</p> | 2 |
| | Total | 10 |

Seminar themes (modules and content modules)

Seminars are not included in the syllabus.

Themes of practical study (modules and content modules)

| № | THEME | Number of hours |
|---|-------|-----------------|
|---|-------|-----------------|

| | <i>Module 1: General Neurology.</i> | |
|-----|--|---|
| 1. | Nervous system: principles of structure and functions. Anatomy and physiology of the nervous system. The concept of a neuron. Peripheral nerves. Spinal cord: segmental apparatus and leading tracts. Brainstem. Cerebellum. Subcortical nuclei, internal capsule. Cerebral hemispheres. Ventricles, brain membranes, cerebrospinal fluid. Concept of topical diagnostics. Reflex and reflex arc. Classification of reflexes. Reflex arcs of deep and superficial reflexes. Pathological reflexes. Study methodology of reflexes. | 2 |
| 2. | Voluntary movements and their disturbances. Pyramid system. Corticonuclear and cortical-spinal tracts. Symptoms of central and peripheral paresis, pathogenesis of symptoms. Pathological reflexes, study methodology. Symptom-complexes of movement disorders with damage of different levels of cortico-muscular tract. | 2 |
| 3. | Cerebellum. Syndromes of the cerebellum disorders. Types of ataxia. Anatomy of the cerebellum, leading pathways of the lower, middle, upper cerebellar stalk. Signs of impairment. Study methodology of motion coordination. Differential diagnosis of ataxia. | 2 |
| 4. | Extrapyramidal system and its impairment syndromes. Anatomy of the striatopallidal system - the striatal and pallidal divisions. Biochemistry of the extrapyramidal system - a contemporary view of the exchange and concentration of catecholamines in the nigrostriatal system. Functions of the extrapyramidal system, impairments syndrome: hypertonic-hypodynamic (parkinsonism) and hypotonic-hypodynamic (hyperkinesia). Study methodology. | 2 |
| 5. | Sensitive system and its impairment symptoms. Kinds and types of sensitive disorders. Sensitivity classification. Leading paths of superficial and deep sensitivity. Study methodology of different types of sensitivity. The concept of nociceptive and antinociceptive system of the brain. Clinical syndromes (types) of sensitivity disorders: peripheral, segmental, conductive, cortical. Topical diagnosis of sensitivity disorders. | 2 |
| 6. | Practical skills. Microcuracy and topical diagnosis of the disorders of motor and sensory systems. | 2 |
| 7. | Pathology of IX-XII pairs of cranial nerves. Bulbar and pseudobulbar syndromes. Nuclei topography: leading pathways of the glossopharyngeal, vagal, accessory and sublingual nerves. Functions of the caudal group of cranial nerves. Study methodology, clinical signs of disorders. Alternating syndromes of Jackson, Wallenberg-Zakharchenko. Bulbar and pseudobulbar syndromes, differential diagnosis. | 2 |
| 8. | The trigeminal, facial, vestibule-cochlear nerves and symptoms of their impairment. The cranial nerves of the trigonum pontocerebellare and the leading pathways of the trigeminal, facial, vestibule-cochlear nerves, their function. Study methodology, clinical syndromes of lesions at different levels, alternating Millard-Gubler's syndrome. | 2 |
| 9. | Pathology of olfactory and visual analyzers. The leading pathways of olfactory, visual analyzers. The reflex arc of the pupillary reflex. Clinical signs of lesions at different levels. Study methodology. Syndromes of oculomotor nerves lesions. Topography of nuclei and leading pathways of oculomotor, block, abducent nerves. Functions of oculomotor nerves. Study methodology. Clinical signs of the lesion. Innervation of sight. Sympathetic innervation of the eye. Alternating syndromes of Weber, Foville, Argyll-Robertson syndrome. | 2 |
| 10. | Localization of functions in the cerebral cortex. Symptoms of lesion. Functional features of the cortical portions of the frontal, parietal, temporal, occipital lobes of the cerebral hemispheres. Projection areas. The concept of hemispheres functional asymmetry. Apraxia, agnosia, their types. Aphasia, clinical kinds, topical diagnosis. Alexia, agraphia, acalculia. Impairment syndromes of separate parts of a brain, right and left hemispheres. Impairment syndromes of cerebral cortex. Syndromes of the meninges lesions. Meningeal syndrome. | 2 |

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| | Brain and spinal cord. The physiology of liquid formation. Meningeal symptoms: headache, vomiting, general hyperesthesia, photophobia, rigidity of occipital muscles, Kernig's symptom, Brudzinski's symptoms (upper, middle, lower), trismus, local reactive pain phenomena of Mendel's symptom, zygomatic Bechterew's symptom, pain during pressing the exit points of the small and large occipital nerves. Meningeal position of the patient. Lesage's sign. | |
| 11. | Autonomic nervous system, syndroms of their impairment. Anatomy, physiology, impairment symptoms of the transsegmental and segmental structures of the autonomic nervous system, its sympathetic and parasympathetic departments at different levels. Study methodology of vegetative functions. Independent work. | 2 |
| 12. | Paraclinic research methods in neurology: radiological (radiography of the skull, spine, angiography, ventriculography, CT). ECHO-EG, REG, EEG, ENMG, study of electrical excitability, hemostasis system, scintigraphy. NMR tomography, Doppler sonography. Cerebrospinal fluid, research methods. The composition of normal cerebrospinal fluid, its changes caused by meningitis, tumors, hemorrhagic stroke, tuberculosis. Cell-protein, protein-cell dissociation. Pleocytosis. | 2 |
| 13. | Practical skills. | 2 |
| 14. | <i>Final modular control:</i> | 2 |
| | TOTAL | 28 |
| | <i>Module 2: Special Neurology.</i> | |
| 15. | Cerebrovascular disease (initial manifestations of cerebral circulation disorders, transient cerebral circulation disorders, chronic cerebral circulation disorders). Cerebral circulation. Classification of cerebral circulation disorders. Initial manifestations of insufficiency of cerebral circulation. Dyscirculatory encephalopathy. Vascular cerebral crisis (hypertensive, hypotonic). Transient Ischaemic attack. Impairment syndromes of anterior, middle and posterior cerebral arteries. Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment. | 2 |
| 16. | Ischemic strokes. Classification. Etiological factors and pathogenesis of ischemic strokes. Differential diagnosis of ischemic and hemorrhagic strokes. Principles of treatment. Undifferentiated and differentiated treatment of strokes. Indications and contraindications for surgical interventions of acute disorders of cerebral circulation. Treatment of patients in the period of residual effects after cerebral strokes. Rehabilitation and vital capacity test. Prevention of cerebrovascular diseases. Modern principles of treatment with standards of treatment and principles of evidence-based medicine. Prevention of cerebrovascular diseases. | 2 |
| 17. | Hemorrhagic strokes. Classification. Etiological factors and pathogenesis of hemorrhagic strokes. Differential diagnosis of ischemic and hemorrhagic strokes. Principles of treatment. Undifferentiated and differentiated treatment of strokes. Indications and contraindications for surgical interventions of acute disorders of cerebral circulation. Treatment of patients in the period of residual effects after cerebral strokes. Rehabilitation and vital capacity test. Prevention of cerebrovascular diseases. Modern principles of treatment with standards of treatment and principles of evidence-based medicine. Prevention of cerebrovascular diseases | 2 |
| 18. | Blood vessel disease of spinal cord. Classification. Etiological factors and pathogenesis of acute disorders of the spinal circulation. Differential diagnosis of strokes. Principles of treatment. Undifferentiated and differentiated treatment of strokes. Chronic disorders of the circulatory system of the spinal cord (myelopathy). Treatment of patients in the period of residual effects after spinal strokes. Rehabilitation and vital capacity test. Prevention of blood vessel disease of the spinal cord. | 2 |
| 19. | Practical skills. Individual patient care with preparation of medical case history. | 2 |

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| 20. | <p>Autonomic nervous system diseases. Hypothalamic syndrome - neuroendocrine, neurodystrophic, vegetovascular forms. Vegetative dystonia. Sympathetic-adrenal, vago-insular crisis. Clinic, diagnosis, treatment. Vital capacity test. Raynaud's disease, erythromelalgia. Meniere's disease, Quincke's edema. Sympathicoganglionitis. Clinic, diagnosis, treatment. Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment.</p> | 2 |
| 21. | <p>Neurodental syndromes. Classification of neurostomatological diseases (V.Ye. Hrechko, M.N. Puzyn). Neuritis and neuralgia of the trigeminal, glossopharyngeal, glossal nerves. Trigeminal ganglionitis. Examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment.</p> | 2 |
| 22. | <p>Meningitis. Arachnoidites. Meningitis. Classification of meningitis: primary and secondary, purulent and serous.</p> <p>Purulent meningitis. Primary meningococcal meningitis, clinic, diagnosis, features of the clinical course of disease, atypical forms. Secondary meningitis: pneumococcal, staphylococcal. Clinic, diagnostics, indicators of cerebrospinal fluid, treatment, prevention.</p> <p>Serous meningitis. Primary viral: lymphocytic choriomeningitis, enterovirus meningitis (ECNO, Coxsackie), mumps and others. Secondary: tuberculous meningitis and meningitis in other infections. Clinic, diagnostics, study value of CSF in differential diagnostics, treatment, prevention.</p> <p>Arachnoidites. Etiology, pathogenesis. Pathomorphology: adhesive, cystic. Localization classification: arachnoid of posterior cranial fossa, basal, convexital. Clinic, course, diagnosis. Differential diagnostics. Treatment and prevention.</p> <p>Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment.</p> | 2 |
| 23. | <p>Encephalitis. Lyme disease. Classification. Primary encephalitis: epidemic, tick-borne spring-summer, herpetic. Secondary encephalitis: rheumatic (hysterical chorea), post-vaccination, caused by varicella, measles, rubella. Clinic, course, forms of the disease, diagnosis.</p> <p>Nervous system damage caused by influenza (influenzal hemorrhagic encephalitis, encephalopathy).</p> <p>Infectious encephalopathy – dyscirculatory and dystrophic changes of the brain without marked focal lesions with predominance in the clinic of asthenic manifestations, autonomic dystonia, intracranial hypertension. The course, diagnosis, differential diagnosis, treatment, prevention.</p> | 2 |
| 24. | <p>Neurosyphilis. Neuro-rheumatism. Neurological manifestations of polymyositis and dermatomyositis. Neurorheumatism, etiology, pathogenesis, basic clinical forms, diagnosis, treatment. Neurosyphilis, etiology, pathogenesis, early- and late-onset of clinical forms of the disease, diagnosis, treatment. Poliomyositis-dermatomyositis, etiology, pathogenesis, diagnosis, treatment. Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment.</p> | 2 |
| 25. | <p>Nervous system impairments caused by HIV infection. Poliomyelitis. Slow neuroinfection. Tuberculosis of the nervous system. Nervous system impairments caused by HIV infection (basic clinical forms, diagnosis, treatment). Poliomyelitis (basic clinical forms, diagnosis, treatment). Tuberculosis of the nervous system (basic clinical forms, diagnosis, treatment). Slow neuroinfection.</p> <p>Creutzfeldt–Jakob's disease (etiology, pathogenesis, clinic, diagnosis, prevention). Gerstmann-Straussler-Scheinker's Disease, fatal familial insomnia (FFI) (etiology, pathogenesis, clinic, diagnosis, prevention).</p> <p>Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of</p> | 2 |

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| | clinical diagnosis and prescribe treatment. | |
| 26. | Nervous system progressive diseases. Syringomyelia. Lateral amyotrophic sclerosis. Myasthenia. Etiology, pathogenesis, clinical symptoms and clinical forms. Treatment, vital capacity test. Myasthenic and cholinergic crisis, differential diagnostics, emergency management. Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment. | 2 |
| 27. | Nervous system demyelinating diseases. Multiple Sclerosis, Acute Multiple Encephalomyelitis. Acute transverse myelitis. Etiology, pathogenesis, clinic, diagnosis, differential diagnosis. Treatment, vital capacity test. Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment. | 2 |
| 28. | Nervous system progressive diseases. Clinical classification of peripheral nervous system diseases (1987). The concept of neuropathy and neuralgia. Neuropathies of radial, ulnar, medius, ischiadic, fibular, tibial nerves). Vital capacity test. Independent work – examine the patient (according to the pattern), make topical diagnosis, introduce to paraclinic and laboratory data, carry out the differential diagnosis, ground of clinical diagnosis and prescribe treatment. | 2 |
| 29. | Peripheral nervous system diseases. Radiculitis, ganglionitis, truncite. polyradiculitis (Guillain-Barre's syndrome). Recurrent polyneuropathies – diabetic, alcoholic, toxic. Brachial plexitis. Etiology, pathogenesis, clinic, diagnosis and treatment. Vital capacity test. Practical skills based on the topic. | 2 |
| 30. | Spinal Osteochondrosis neurologic syndrome. Vertebrogenic impairments of the peripheral nervous system. Cervical level: reflex syndromes (cervicago, cervicalgia; cervicocranioalgia or the syndrome of the posteriorvertebral artery and cervicobrachialgia with muscle-tonic, vegetovascular or neuro-degenerative manifestations). Radicular syndromes (discogenic defect of roots, radiculopathy). Radiculo-vascular syndromes (radiculoischemia). Thoracal level: reflex syndromes (thoracago, thoracalgia with muscle-tonic vegetative-visceral or neurodystrophic manifestations). The radicular syndromes (discogenic lesions of roots - radiculopathy). The radicular syndromes (discogenic defect of roots - radiculopathy). Radiculo-vascular syndromes (radiculoischemia) Sacro-lumbar level: reflex syndromes (lumbago, lumbalgia, lumbar ischialgia with muscle-tonic, vegetovascular or neurodystrophic manifestations). Compressive-ischemic mononeuropathy (the most often the tunnel syndromes). On the upper extremities: the carpal tunnel syndrome (median nerve); syndrome of the Guyon's channel (ulnar nerve). On the lower extremities: the syndrome of tarsal channel (fibular nerve); paresthetic Roth-Berngard's meralgia (the jamming of the lateral cutaneous nerve of thigh under the Poupart's ligament). | 2 |
| 31. | Hereditary and degenerative diseases of the neuromuscular system. Primary progressive muscular dystrophy (myopathy): Duchenne's pseudohypertrophic, juvenile Erb-Roth's, humeral-scapulo-facial Landouzy-Dejerine's. Secondary amyotrophies – neural Charcot-Marie's and spinal Werdnig-Hoffman's, Kugelberg-Welander's. Diseases of the neuromuscular system: Thomsen's myotonia, Myotonic dystrophy, paroxysmal myoplegia. | 2 |
| 32. | Hereditary and degenerative diseases of cerebellum, pyramid and extrapyramidal system. Pyramid system diseases - Strumpell's spastic paraplegia; extrapyramidal system - Parkinson's disease, hepatocerebral dystrophy, Huntington's chorea. Hereditary, clinic, treatment, vital capacity test. Chromosomal diseases, Down's disease. The concept of medicogenetic methods of research. Practical skills based on the topic. | 2 |
| 33. | Practical skills (medical cases history defense). | 2 |
| 34. | Theoretical control (solution of test tasks of Krok-2) and control of practical skills for permission to SFC, including: | 4 |

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| | TOTAL | 42 |
| | <i>TOTAL number of hours of practical training of discipline, including</i> | 70 |
| | <i>Final control of 2 modules of the discipline</i> | 6 |

Independent work

| № | Theme | Hours |
|----------|---|--------------|
| | <u>Module 1: General Neurology.</u> | |
| 1. | Independent study of topics that are not included into the classroom studies: | |
| 1.1 | Symptom-complex of spinal cord lesions. | 1 |
| | <u>Module 2: Special Neurology.</u> | |
| 2. | Study topics that are not included into the classroom studies: | |
| 2.1 | Main neurological syndromes. Headache. Etiological and clinical classification, diagnosis, treatment. Dizziness, etiology, pathogenesis, diagnosis, principles of treatment. Elevated intracranial pressure syndrome, etiology, pathogenesis, diagnosis, treatment principles. Disorders of consciousness, classification, etiology, pathogenesis, diagnosis, principles of treatment. | 1 |
| 2.2 | Occupational diseases of the nervous system, and community-acquired neurointoxication. Nervous system impairment under the influence of physical factors. Radiation lesions of the nervous system. Vibration disease. Air embolism. Exogenous intoxication: mercury, lead, arsenic, carbon monoxide. Clinical signs, treatment, prevention. Botulism. Neurological manifestations of alcoholism, Korsakoff's syndrome. | 1 |
| 3. | Individual independent work | - |
| | Preparation of reports for scientific conference, participation in interuniversity olympiads, creation of educational films. | |

Individual tasks

1. Composition of tasks involving topical diagnostics; creation of pattern of cortical-muscular and sensitive path.
2. Creation of educational films.
3. Participation in interuniversity Olympiads.
4. Report at inter-departmental, inter-university, All-Ukrainian and international conferences and receiving prizes.
5. Preparation of abstracts and articles in specialist journals and collections (collection of scientific papers of young scientists and students – independently, in journals – co-authors are possible).

List of theoretical questions.

a) to the final module control «General neurology»:

1. The main anatomical-topographical parts of the nervous system.
2. The functional unit of the nervous system is the neuron. Neurons types, functional significance. Neuroglia, its functional significance.

3. The reflex is the basis of the nervous system. I.S. Sechenov and I.P. Pavlov are the founders of a contemporary view of the nervous system function. Classification of reflexes. The level of closure of reflex arcs for tendon, periosteal, cutaneous reflexes and reflexes from mucous membranes.
4. The reflexosegmental apparatus of the spinal cord: gray matter, radices and spinal segments, vegetative centers, reflex arc, levels of closure of spinal reflexes. Segmental innervation of the body.
5. The leading paths: frontal, lateral, funiculus posterior (axes).
6. The cortico-spinal anatomy. Central paralysis signs. Pathophysiology of muscle hypertension, hyperreflexia (central paralysis symptoms).
7. The anatomy of the spinal-muscular pathway. Signs of peripheral paralysis. Pathophysiology of atony, areflexia, atrophy.
8. The anatomy and physiology of the motional path. Symptoms of lesions at different levels. Examples of diseases.
9. The pathological reflexes: foot, protective, oral automatism, their clinical significance.
10. The concept of reception and sensitivity. Classification of types of sensitivity: superficial, deep, complex. Types of sensitive disorders.
11. The leading superficial sensitivity pathways. The lesions at different levels (nerve, radix, dorsal horn, lateral column, internal capsule, thalamus, postcentral gyrus). Examples of diseases.
12. The leading pathways of deep sensitivity. Lesions at different levels (nerve, posterior column, medial lemniscus). Sensitive ataxia, examples of diseases.
13. The clinical types (syndromes) of sensitivity disorders: peripheral, segmental, conduction.
14. The mononeuritic type of sensitive disorders. Examples of diseases, the level of damage of the sensory pathways. The concept of neuritis, neuropathy, neuralgia.
15. The polyneuritic type of sensitive disorders. Examples of diseases, the level of damage of the sensory pathways.
16. The damage syndrome of the internal capsule, radial crown, anterior and posterior central gyrus. Examples of diseases.
17. The impairment of half of the spinal cord – Brown-Sequard syndrome at different levels (C1 -C4, C5- Th2, Th3-Th6, Th9-Th10, Th11-Th12, L1 - S2). Symptomatology, examples of diseases.
18. The spinal cord impairments at different levels (C1- C4, C5-Th2, Th3-Th12, L1-S2). Symptomatology, examples of diseases.
19. Intra- and extramedullary syndrome. Examples of diseases.
20. The cerebellum, anatomy, physiology. Afferent and efferent pathways. Symptoms of impairment.
21. The cerebellum connections with different parts of the brain and spinal cord (homo- and heterolateral).
22. Types of ataxia (cerebellum: static, dynamic, sensitive, vestibular, cortical).
23. The anatomy of the subcortical ganglia, connections with different parts of the brain and spinal cord. General characteristics of the syndromes of the lesions: Pallido-nigral (parkinsonism), striary (hyperkinetic).

24. The physiology of the extrapyramidal system, its participation in providing unconditional reflexes, implementation of stereotyped automatic movements, muscle readiness for action.
25. The extrapyramidal system biochemistry. Current concepts about metabolism and concentration of catecholamines in the nigrostriatal system.
26. The structures and pathology of the striatal department of the extrapyramidal system, hypotonic-hyperkinetic extrapyramidal syndromes. Examples of diseases.
27. The structures and pathology of the pallidar system of the extrapyramidal system. Parkinsonism. Examples of diseases.
28. The olfactory analyzer (I pair). Anatomy, physiology. Symptoms of lesion. Examples of diseases.
29. The visual analyzer (II pair). Leading paths. Symptoms of lesions at different levels. Examples of diseases.
30. The oculomotor nerves (III, II, II pairs). Anatomy, physiology. Symptoms of lesion. Examples of diseases. The reflex arc of the pupillary reflex.
31. Types of ophthalmoplegies: external, internal, total.
32. The trigeminal nerve (V pair). Anatomy, physiology, symptoms of lesion. Clinic and treatment of trigeminal neuralgia.
33. The anatomy and functions of the facial nerve (VII pair). Central and peripheral paralysis of facial muscles. Neuritis of the facial nerve. Etiology, clinical signs of lesions at different levels, treatment.
34. The anatomy and functions of the auditory and vestibular nerves (VIII pair). Symptoms of lesion. Examples of diseases.
35. The anatomy and functions of the glossopharyngeal, vagus, accessory and sublingual nerves (IX, X, XI, XII pairs). Examples of diseases.
36. Corticonuclear tract. Bulbar and pseudobulbar paralysis. Differential diagnostics. Examples of diseases.
37. Alternating syndromes: peduncular (Weber), pontine (Millard-Gubler, Foville), bulbar (Jackson, Wallenberg-Zakharchenko).
38. The cerebral cortex, its cytoarchitectonics. The theory of localization of functions. Symptoms of cerebral cortex lesions (examples of lesion symptoms and their loss). Apraxia, agnosia.
39. Motor and sensory representations in the cortex. The concept of functional asymmetry of hemispheres.
40. Right and left hemisphere damages.
41. Symptoms of damage of the frontal lobes of the brain.
42. Symptoms of damage of the occipital lobe of the brain.
43. Symptoms of damage of the temporal lobe of the brain.
44. Symptoms of damage of the parietal lobe of the brain.
45. Speech pathology. Aphasia (motor, sensory, amnesic). Differential diagnosis of dysarthria and mutism. Topical diagnostics, structures of lesions.
46. The anatomy, physiology, symptoms of damage of the supra-segmental division of the autonomic nervous system. Vegetative dystonia syndrome, hypothalamic syndrome.

47. The anatomy, physiology, syndromes of damage of the segmental department of the autonomic nervous system. Lesions of the brain stem, the lateral horns of the spinal cord, the ganglia of the border stem, plexuses, nerves.
48. The cerebral meninges. Meningeal syndrome. Cerebrospinal fluid, its circulation. Lumbar puncture. Laboratory study of cerebrospinal fluid.
49. Symptom-complex of elevated intracranial pressure. Etiology, pathogenesis. Examples of diseases.
50. Paraclinical studies in neurology: ECHO-EG, REG, EEG, ENMG, plan and contrast radiography, angiography, thermography, nuclear magnetic resonance imaging and computed tomography, Doppler sonography.

b) to prepare students for SFC:

1. The main anatomical-topographical parts of the nervous system.
2. The functional unit of the nervous system is the neuron. Neurons types, functional significance. Neuroglia, its functional significance.
3. The reflex is the basis of the nervous system. I.S. Sechenov and I.P. Pavlov are the founders of a contemporary view of the nervous system function. Classification of reflexes. The level of closure of reflex arcs for tendon, periosteal, cutaneous reflexes and reflexes from mucous membranes.
4. The reflexosegmental apparatus of the spinal cord: gray matter, radices and spinal segments, vegetative centers, reflex arc, levels of closure of spinal reflexes. Segmental innervation of the body.
5. The leading paths: frontal, lateral, funiculus posterior (axes).
6. The cortico-spinal anatomy. Central paralysis signs. Pathophysiology of muscle hypertension, hyperreflexia (central paralysis symptoms).
7. The anatomy of the spinal-muscular pathway. Signs of peripheral paralysis. Pathophysiology of atony, areflexia, atrophy.
8. The anatomy and physiology of the motional path. Symptoms of lesions at different levels. Examples of diseases.
9. The pathological reflexes: foot, protective, oral automatism, their clinical significance.
10. The concept of reception and sensitivity. Classification of types of sensitivity: superficial, deep, complex. Types of sensitive disorders.
11. The leading superficial sensitivity pathways. The lesions at different levels (nerve, radix, dorsal horn, lateral column, internal capsule, thalamus, postcentral gyrus). Examples of diseases.
12. The leading pathways of deep sensitivity. Lesions at different levels (nerve, posterior column, medial lemniscus). Sensitive ataxia, examples of diseases.
13. The clinical types (syndromes) of sensitivity disorders: peripheral, segmental, conduction.
14. The mononeuritic type of sensitive disorders. Examples of diseases, the level of damage of the sensory pathways. The concept of neuritis, neuropathy, neuralgia.
15. The polyneuritic type of sensitive disorders. Examples of diseases, the level of damage of the sensory pathways.
16. The damage syndrome of the internal capsule, radial crown, anterior and posterior central gyrus. Examples of diseases.

17. The impairment of half of the spinal cord – Brown-Sequard syndrome at different levels (C1 -C4, C5- Th2, Th3-Th6, Th9-Th10, Th11-Th12, L1 - S2). Symptomatology, examples of diseases.
18. The spinal cord impairments at different levels (C1- C4, C5-Th2, Th3-Th12, L1-S2). Symptomatology, examples of diseases.
19. Intra- and extramedullary syndrome. Examples of diseases.
20. The cerebellum, anatomy, physiology. Afferent and efferent pathways. Symptoms of impairment.
21. The cerebellum connections with different parts of the brain and spinal cord (homo- and heterolateral).
22. Types of ataxia (cerebellum: static, dynamic, sensitive, vestibular, cortical).
23. The anatomy of the subcortical ganglia, connections with different parts of the brain and spinal cord. General characteristics of the syndromes of the lesions: Pallido-nigral (parkinsonism), striary (hyperkinetic).
24. The physiology of the extrapyramidal system, its participation in providing unconditional reflexes, implementation of stereotyped automatic movements, muscle readiness for action.
25. The extrapyramidal system biochemistry. Current concepts about metabolism and concentration of catecholamines in the nigrostriatal system.
26. The structures and pathology of the striatal department of the extrapyramidal system, hypotonic-hyperkinetic extrapyramidal syndromes. Examples of diseases.
27. The structures and pathology of the pallidar system of the extrapyramidal system, parkinsonism. Examples of diseases.
28. The olfactory analyzer (I pair). Anatomy, physiology. Symptoms of lesion. Examples of diseases.
29. The visual analyzer (II pair). Leading paths. Symptoms of lesions at different levels. Examples of diseases.
30. The oculomotor nerves (III, II, II pairs). Anatomy, physiology. Symptoms of lesion. Examples of diseases. The reflex arc of the pupillary reflex.
31. Types of ophthalmoplegias: external, internal, total.
32. The trigeminal nerve (V pair). Anatomy, physiology, symptoms of lesion. Clinic and treatment of trigeminal neuralgia.
33. The anatomy and functions of the facial nerve (VII pair). Central and peripheral paralysis of facial muscles. Neuritis of the facial nerve. Etiology, clinical signs of lesions at different levels, treatment.
34. The anatomy and functions of the auditory and vestibular nerves (VIII pair). Symptoms of lesion. Examples of diseases.
35. The anatomy and functions of the glossopharyngeal, vagus, accessory and sublingual nerves (IX, X, XI, XII pairs). Examples of diseases.
36. Corticonuclear tract. Bulbar and pseudobulbar paralysis. Differential diagnostics. Examples of diseases.
37. Alternating syndromes: peduncular (Weber), pontine (Millard-Gubler, Foville), bulbar (Jackson, Wallenberg-Zakharchenko).
38. The cerebral cortex, its cytoarchitectonics. The theory of localization of functions. Symptoms of cerebral cortex lesions (examples of lesion symptoms and their loss). Apraxia, agnosia.

39. Motor and sensory representations in the cortex. The concept of functional asymmetry of hemispheres.
40. Right and left hemisphere damages.
41. Symptoms of damage of the frontal lobes of the brain.
42. Symptoms of damage of the occipital lobe of the brain.
43. Symptoms of damage of the temporal lobe of the brain.
44. Symptoms of damage of the parietal lobe of the brain.
45. Speech pathology. Aphasia (motor, sensory, amnesic). Differential diagnosis of dysarthria and mutism. Topical diagnostics, structures of lesions.
46. The anatomy, physiology, symptoms of damage of the supra-segmental division of the autonomic nervous system. Vegetative dystonia syndrome, hypothalamic syndrome.
47. The anatomy, physiology, syndromes of damage of the segmental department of the autonomic nervous system. Lesions of the brain stem, the lateral horns of the spinal cord, the ganglia of the border stem, plexuses, nerves.
48. The cerebral meninges. Meningeal syndrome. Cerebrospinal fluid, its circulation. Lumbar puncture. Laboratory study of cerebrospinal fluid.
49. Symptom-complex of elevated intracranial pressure. Etiology, pathogenesis. Examples of diseases.
50. Paraclinical studies in neurology: ECHO-EG, REG, EEG, ENMG, plan and contrast radiography, angiography, thermography, nuclear magnetic resonance imaging and computed tomography, Doppler sonography.
51. Cerebrovascular disease. Transient disorders of cerebral circulation. Etiology, classification, diagnosis, treatment, vital capacity test.
52. Classification of cerebral circulation disorders. Dyscirculatory encephalopathy. Etiology, risk factors, clinic, changes of REG, indicators of hemocoagulation, blood lipid spectrum. Treatment, prescriptions, physical methods.
53. Hemorrhagic stroke. Etiology, pathogenesis, classification. Clinic of parenchymal and ventricular hemorrhage. Differential diagnostics. Treatment options in acute and recovery periods. Vital capacity test.
54. Subarachnoid hemorrhage. Etiology, clinic, differential diagnosis. Laboratory tests, cerebrospinal fluid, ocular fundus, Exo-er, angiography, hemocoagulation. Treatment. Vital capacity test.
55. Ischemic stroke: general and internal carotid artery thrombosis, middle cerebral artery thrombosis. Etiology, pathogenesis, lesions, clinic, differential diagnosis. Treatment options in acute and recovery periods. Vital capacity test for patients with cerebrovascular pathology.
56. Ischemic stroke and embolism of cerebral vessels. Etiology, pathogenesis, differential diagnosis. Paraclinic methods of diagnosis (indicators of hemostasis, REG, Exo-er, cerebrospinal fluid). Treatment, arrangement of labour of patients with residual symptoms of stroke.
57. Serous lymphocytic choriomeningitis and enteroviral meningitis caused by Coxsackie. Etiology, clinic, liquid diagnosis, treatment, prescriptions, prognosis, vital capacity test.
58. Tuberculous meningitis. Clinic, liquid diagnostics, features of modern course of tuberculous meningitis. Treatment, prescriptions.

59. Meningococcal meningitis. Clinic, diagnosis, treatment, etiology, complications.
60. Neurosyphilis: early – generalized syphilitic meningitis, late - spinal tuberculosis, progressive paralysis. Clinic, diagnosis, treatment - formulation.
61. Epidemic encephalitis. Etiology, pathogenesis, structures of damage. Clinic, clinical forms, course, treatment in acute and chronic periods. Vital capacity test.
62. Neurosyphilis. Etiology, clinical forms. Amyelotrophy and progressive paralysis. Clinic, diagnosis, treatment.
63. Tick-borne encephalitis. Epidemiology, damage structures, clinical forms, course, Kozhevnikov's epilepsy, treatment and prevention, vital capacity test.
64. Secondary encephalitis (influenzal, rheumatic or associated with measles), lesions structure, clinic, differential diagnosis, treatment, vital capacity test.
65. Poliomyelitis. Etiology, pathomorphology, lesions structure, clinical forms, treatment in acute and recovery periods. Prevention of poliomyelitis.
66. Rheumatic nervous system lesions, classification, symptomatology. Rheumatic encephalitis (hysterical chorea) – structures of damage, clinic, treatment, formulation, prevention, vital capacity test.
67. Multiple sclerosis and acute multiple encephalomyelitis. Etiology, pathogenesis, structures of damage, clinic, clinical forms, differential diagnosis, treatment, formulation, vital capacity test.
68. Lateral amyotrophic sclerosis. Etiology, pathogenesis. Structures of lesions, clinic, clinical forms, treatment – formulation, prognosis.
69. NeuroAIDS – clinical forms, diagnosis, prevention.
70. Compression syndromes of cervical and lumbar osteochondrosis. Radiculopathy of cervical radices, vertebral artery and nerve syndrome, cervical myelopathy, compression of L5, S1 radices, treatment, vital capacity test.
71. Reflex neurological syndromes of cervical and lumbar osteochondrosis. Etiology, clinic. Scalenus syndrome, brachioradial periarthrosis, shoulder-hand syndrome, cervicigo, cervicgia, cervicocranialgia, cervicobrachialgia, lumbago, lumbalgia, lumboischialgia, treatment, formulation, physical methods.
72. Lumbosacral radiculitis. The role of osteochondrosis, intervertebral disk disease in the pathogenesis of the disease. Clinic, radiological signs, course, treatment, formulation, phys. methods, vital capacity test.
73. Neuropathy of the femoral, fibular, tibial nerves. Etiology, clinic, treatment, phys. methods, vital capacity test.
74. Neuritis of the gluteal nerve. Etiology, clinic, treatment, vital capacity test.
75. Neuropathies of the radial, ulnar, median nerves, brachial plexitis. Repetitive stress injury. Etiology, clinic, treatment, formulation, phys. methods, vital capacity test.
76. Polyneuropathies: infectious-allergic (Guillain-Barre's syndrome), diphtheria, arsenic, lead, alcohol, diabetic. Clinic, treatment in acute and recovery periods, formulation, phys. methods, labor and medical expert examination.
77. Syringomyelia. Etiology, pathomorphology, lesion structures, clinic, treatment, formulation, prognosis, vital capacity test.

78. Myasthenia, myasthenic crisis, cholinergic crisis. Etiology and pathogenesis, structures of damage, clinic, clinical forms, treatment - formulation, vital capacity test, prognosis.
79. Diseases of the autonomic nervous system: angiotroponeurosis, hemicrania, Raynaud's disease. Clinic, treatment, formulation, phys. methods, vital capacity test.
80. Diseases of the autonomic nervous system: vegetovascular paroxysms. Erythromelalgia. Meniere's disease. Quincke's edema. Etiology, clinic, diagnostics, treatment, formulation.
81. Neurodentistry syndromes: lesion syndromes of the trigeminal and facial nerves, glossopharyngeal, vagus, sublingual nerves. Glossodynia. Autonomic prosopalgia (Oppenheim's disease, Sluder's syndrome, Charlene's syndrome, Frey's syndrome). Melkersson-Rosenthal's syndrome, Sjogren's syndrome, facial hemitrophy, clinic, diagnosis, treatment, formulation.
82. The main neurological syndromes. Headache: hemicrany, muscle contraction headache, cluster headache. Etiology, clinic, diagnostics, treatment, formulation.
83. The main neurological syndromes. Dizziness, impairment of consciousness, elevated intracranial pressure syndrome. Etiology, clinic, diagnostics, treatment, formulation.
84. Hereditary diseases of the nervous system: myopathy, myoplegia, myotonia, amyotrophy (spinal and neural), Konovalov-Wilson's disease, Parkinson's disease. Pathomorphology, clinical features, types, diagnosis, treatment.
85. Occupational diseases of the nervous system, and community-acquired neurointoxication. Nervous system impairment under the influence of physical factors. Vibration disease. Air embolism. Radiation lesions of the nervous system. Clinic and treatment of heavy-metal and carbon monoxide poisonings. Nervous system lesions during alimentary intoxication and food toxic infections. Etiology, clinic, diagnostics, treatment, formulation.

The list of practical skills for FMC, SFC:

1. Study methodology of superficial reflexes: cutaneous (abdominal, pelmatic), mucous membranes (conjunctival, pharyngeal, from soft palate).
2. Study methodology of deep reflexes: tendon (elbow flexor and extensor, genual, Achilles reflex) and periosteal (superciliary, carporadial).
3. Study methodology of pathological plantar reflex (Babinski's reflex, Oppenheim's disease, Rossolimo's reflex, Schaeffer's sign and Bekterev's reflex) and hand reflexes (Rossolimo's reflex).
4. Research of primitive oral reflex (subcortical): sucking, distance-oral, palmar, genian, lip reflexes.
5. The muscle strength evaluation on 0 to 5 scale accordingly and voluntary movements volume in the extremities.
6. Methods of detection of signs of peripheral and central paralysis.
7. Methods of detection of fibrillary contractions and muscle atrophy.
8. Survey procedure of muscle tone and determination of spastic and plastic muscle hypertension.

9. Methods of detection of extrapyramidal disorders (hyperkinetic-hypotonic and hypokinetic-hypertonic syndromes).
10. Survey procedure of cerebellum functions. Checking of the coordination of movements, muscle tone, nystagmus.
11. The examination method of static ataxia.
12. The examination method of dynamic ataxia.
13. The examination method of surface sensitivity.
14. Study methodology of deep sensitivity and sensitive ataxia.
15. The examination method of complex types of sensitivity (stereognostic sense, sense of localization, discrimination, two-dimensional of space sense).
16. Methods of detection of clinical syndromes (types) of sensitivity disorders (peripheral, segmental, conductive, spinal, cerebral, cortical).
17. The examination method of pain points and areas (Erb's points, Vale's points, paravertebral, Head's areas).
18. The examination method of symptoms of tension of the radices, gluteal and femoral nerves (Neri, Lasègue, Dezherin, Turin, Wasserman, Matskevych).
19. The examination method of olfactory analyzer functions.
20. The examination method of visual analyzer functions (acuity, field of vision, color perception).
21. The investigation of oculomotor nerves dysfunctions (ptosis, strabismus, anisocoria, convergence) and sympathetic innervation of the eye (Bernard-Horner's syndrome).
22. The examination method of the trigeminal nerve (sensitivity on the face, pain points, trigger zones, superciliary corneal, mandibular reflexes).
23. The examination method of the facial nerve (functions of facial muscles, taste sensitivity).
24. The examination method of the vestibular-cochlear nerve. Detection of auditory disorders (hyper-hypoacusia, Rinne's and Weber's tests).
25. The examination method of vestibular disorders (nystagmus, coordination of movements), vestibular ataxia.
26. Methods of detection of bulbar and pseudobulbar disorders (pharyngeal reflexes, from soft palate, articulation, reflexes of oral automatism).
27. Methods of detection of aphasia (motor, sensory, amnesic).
28. Methods of detection of apraxia (motor, ideational, constructive).
29. Methods of detection of agnosia (visual, auditory, asterogenesis, anosognosia).
30. The examination method of the autonomic nervous system. Investigation of autonomic tone, autonomic reactivity (dermographism, Dagnini-Aschner's reflex test, ortho-clinostatic).
31. Study methodology of meningeal symptoms (Kernig's symptom, Brudzinski's symptoms, occipital muscle rigidity).
32. The lumbar puncture technique.
33. The evaluation of craniograms (signs of CSF, size of the Turkish saddle).
34. The evaluation of spondylograms of the cervical and lumbar spine.
35. The evaluation of encephalograms (characteristic of the main rhythms, focal changes of the ECG, paroxysmal epiactivity).
36. The evaluation of reoencephalograms (tone and blood filling, venous outflow).
37. The evaluation of electromyography and electrodiagnosis data.

38. The evaluation of echoencephalography data (displacement of midline structures, signs of hydrocephalus).

The form of final control of the success of training - FMC, SFC.

The final module control is carried out after completing of the study of all topics of the module at the last control lesson from the module.

Students who have had a grade point average from 4.5 to 5.0 during their studies are exempted from compiling FMCs and SFCs and they will automatically (with their consent) receive a final grade based on the table.

Criteria of correspondence of grade point of current academic performance to the results of the preparation of the FMC and SFC

| Average grade point | Correspondence to FMC points | Correspondence to SFC points | Traditional mark |
|---------------------|------------------------------|------------------------------|------------------|
| 4,5 | 69 | 164 | 4 |
| 4,6 | 70 | 167 | |
| 4,7 | 71 | 170 | 5 |
| 4,8 | 73 | 180 | |
| 4,9 | 77 | 190 | |
| 5,0 | 80 | 200 | |

Students who have completed all types of work required by the curriculum and who have scored at least the minimum required for the module are admitted to final module control. The minimum converted total of points of all modules is **72 points**.

System of current and final control.

Criteria of evaluation of students' knowledge:

– «excellent» – the student has at least 90% of knowledge of the subject during interview and test control. The student has a good sense of direction in subject terminology, competently and consistently answers all the questions. The practical work is carried out fully and completely.

– «good» – the student has knowledge at least 75-89%, makes minor mistakes, and corrects them during answer the questions, answers 75% of the questions while completing the test tasks. The practical work is carried out fully and completely, minor errors are allowed.

– «satisfactory» – the student has at least 60-74% of knowledge of the topic, answers at least 60% of the questions during the test. The answers are not accurate and the leading questions do not correct them. The practical work has not been fully implemented.

– «unsatisfactory» – the student has not acquired the required minimum knowledge of the topic and the tests were completed about 59%, the student is unable to answer the leading questions, operates inaccurate formulations. The test control tasks were completed less than 59%. The student has not acquired practical skills.

The conversion of 4-points scale (traditional) into a multi-point scale (maximum 120 points) is made only after the current lesson, which precedes the final module control.

The correspondence of the average score of current grade by the traditional 4-point scale of total mark of current academic performance per module

| Average score of current grade by the traditional 4-point scale | Total mark of current academic performance per module |
|---|---|
| 2,00 | 0 |
| 2,05 | 49 |
| 2,10 | 50 |
| 2,15 | 52 |
| 2,20 | 53 |
| 2,25 | 54 |
| 2,30 | 55 |
| 2,35 | 56 |
| 2,40 | 58 |
| 2,45 | 59 |
| 2,50 | 60 |
| 2,55 | 61 |
| 2,60 | 62 |
| 2,65 | 64 |
| 2,70 | 65 |
| 2,75 | 66 |
| 2,80 | 67 |
| 2,85 | 69 |
| 2,90 | 70 |
| 2,95 | 71 |
| 3,00 | 72 |
| 3,05 | 73 |
| 3,10 | 74 |
| 3,15 | 75 |
| 3,20 | 77 |
| 3,25 | 78 |
| 3,30 | 79 |
| 3,35 | 80 |
| 3,40 | 82 |
| 3,45 | 83 |
| 3,50 | 84 |
| 3,55 | 85 |

| | |
|------|-----|
| 3,60 | 86 |
| 3,65 | 87 |
| 3,70 | 89 |
| 3,75 | 90 |
| 3,80 | 92 |
| 3,85 | 93 |
| 3,90 | 94 |
| 3,95 | 95 |
| 4,00 | 96 |
| 4,05 | 97 |
| 4,10 | 98 |
| 4,15 | 99 |
| 4,20 | 101 |
| 4,25 | 102 |
| 4,30 | 103 |
| 4,35 | 104 |
| 4,40 | 106 |
| 4,45 | 107 |
| 4,50 | 108 |
| 4,55 | 109 |
| 4,60 | 110 |
| 4,65 | 111 |
| 4,70 | 113 |
| 4,75 | 114 |
| 4,80 | 115 |
| 4,85 | 116 |
| 4,90 | 118 |
| 4,95 | 119 |
| 5,00 | 120 |

The form of the 1st final module control is standardized and includes the check of practical skills (5 points for 4 questions), the solution of tasks (6 points for 5 tasks) and the oral answer (10 points for 3 questions).

The form of conduction of the last final lesson for admission to SFC includes the control of theoretical (solution of test tasks «Krok-2») and practical training (be able to investigate and interpret neurological status, analyze data of paraclinical methods of research and prescribe treatment).

The maximum score for the final module control is 80.

The final module control is considered to be credited if the student has scored at least 50 points.

After the final module control is compiled, the total number of points per module is calculated:

- a) the total of points of the current academic performance;
- b) points of the final modular control.

The maximum number of points per module is **200 points**.

Semester final certification.

Students who have fulfilled all the requirements of the curriculum and have a mark about the admission to passing of the exams are allowed to take the semester final certification.

The exam is the last FMC (the 2nd FMC) of the discipline. Students who have had a grade point average from 4.5 to 5.0 during their studies are exempted from taking of the SFC (with consent) and automatically receive a final grade.

The exam paper consists of 2 theoretical questions (topical and special neurology) and a clinical task. The student receives 5 marks: for 1 question, for 2 questions and 3 marks for solvution of a clinical task (establishment of a topical diagnosis, clinical diagnosis, prescription of treatment).

**Criteria of correspondence of average point of FSC
to points of FMC, SFC and to general traditional SFC mark**

| Average traditional mark for each SFC question | Correspondence to FMC points | Points of SFC | General SFC mark |
|--|------------------------------|---------------|------------------|
| 2,0 | 10 | 82 | 2 |
| 2,1 | 20 | 92 | |
| 2,2 | 25 | 97 | |
| 2,3 | 30 | 102 | |
| 2,4 | 35 | 107 | |
| 2,5 | 40 | 110 | |
| 2,6 | 45 | 117 | |
| 2,7 | 50 | 122 | 3 |
| 2,8 | 51 | 123 | |
| 2,9 | 52 | 124 | |
| 3,0 | 53 | 126 | |
| 3,1 | 54 | 128 | |
| 3,2 | 55 | 130 | |
| 3,3 | 56 | 132 | |
| 3,4 | 57 | 134 | |
| 3,5 | 58 | 136 | |
| 3,6 | 59 | 138 | |
| 3,7 | 61 | 140 | |
| 3,8 | 62 | 143 | |
| 3,9 | 63 | 146 | |
| 4,0 | 64 | 149 | |

| | | | |
|-----|----|-----|----------|
| 4,1 | 65 | 152 | 4 |
| 4,2 | 66 | 155 | |
| 4,3 | 67 | 158 | |
| 4,4 | 68 | 161 | |
| 4,5 | 69 | 164 | |
| 4,6 | 70 | 167 | |
| 4,7 | 71 | 170 | 5 |
| 4,8 | 73 | 180 | |
| 4,9 | 77 | 190 | |
| 5,0 | 80 | 200 | |

The maximum number of points for FSC is 200 points.

The exam is provided by examiners who are approved by the order of the rector.

The discipline grade is given by the department on the traditional (national) 4-point scale based on the average number of points for all modules due to the discipline program.

The exam score corresponds to the scale: Mark «5» – 80-71 point;

Mark «4» – 70-61 points;

Mark «3» – 60-50 points;

Mark «2» – less than 50 points.

The total grade of the discipline is given only to students who have credited all modules of the discipline.

Learning methods.

1. Methods that ensure the perception and acquisition of knowledge by students (lectures, independent work, instruction, consultation);
2. Methods of application of knowledge and acquisition and consolidation of skills (practical classes, control tasks, work at clinic);
3. Methods of test and evaluation of knowledge, skills and abilities;
4. Methods of encouragement and punishment.

The topics of the lecture reveal the problematic issues of the relevant sections of neurology.

Practical classes include:

- 1) student's study of the neurological status of a healthy person;
- 2) student's research of the status at various diseases of the nervous system; identification of symptoms and syndromes;
- 3) establishment of topical and clinical diagnosis; differential diagnosis;
- 4) appointment of modern treatment for neurological patients;
- 5) solution of situational tasks, tasks based on licensing exam «Krok-2».

It is recommended for students during practical classes briefly record theoretical material, data about the course of neurological disease of this patient.

Control methods:

- oral control;
- written control;
- test control;
- programmed check;

- practical check;
- self-control and auto-evaluation.

Methodological support

1. Plans of lectures, practical classes and independent work of students.
2. Methodical planning of lectures.
3. Methodical instructions for independent work of students during the preparation for the practical training and at the lesson.
4. Methodical materials that ensure the independent work of students.
5. Multimedia presentations.
6. Volumes of clinical tasks, resultset of paraclinical studies.
7. Test and control tasks for practical classes.
8. Questions and tasks to control the acquirement of sections.
9. A list of questions for the exam, a task to check practical skills during the exam.

Recommended literature

Basic

1. **Neurology** : [textbook for students of higher education establishments - medical universities, institutes and academies] / ed. I. A. Hryhorova, L. I. Sokolova ; A. Hryhorova, L. I. Sokolova, R. D. Herasymchuk et al. - K. : Medicine Publishing, 2017. - 623 p.
2. **Neurology** : textbook for students of higher medical institutions of IV level of accreditation / ed. L. Sokolova ; L. Sokolova, O. Myalovitska, V. Krylova et al. ; Ministry of health of Ukraine. - Vinnytsia : Nova Knyha, 2012. - 275 p.
3. **Neurology: Clinical Cases** : a practical guide for students of higher medical education institutions of the 4th level of accreditation / ed.: L. Sokolova, L. Panteleienko ; L. Sokolova, L. Panteleienko, T. Dovbonos et al. ; Ministry of Health of Ukraine, O. O. Bogomolets National Medical University. - K. : Medicine Publishing, 2016. - 93 p.

Supporting

1. Clinical Neurology / ed. V. A. Gryb ; V. A. Gryb, O. O. Doroshenko, S. I. Genyk et al. ; Ivano-Frankivsk national medical university. - K. : Medknyha, 2017. - 287 p.

Information resources

1. <https://www.umsa.edu.ua/fakultets/med/kafedry/nervovhvorob>
2. www.umsa.edu.ua
3. https://link.springer.com/chapter/10.1007/978-1-59259-371-2_29
4. <http://neuroscience.uth.tmc.edu/>
5. <http://www.sinauer.com/neuroscience-621.html>
6. <http://www.columbia.edu/cu/psychology/courses/1010/mangels/neuro/neurotutorial.html>
7. <http://www.bioon.com/bioline/neurosci/course/index.htm>

8. <http://neuro.tv/>
9. www.biblumsa.blogspot.com
10. www.vertigo.ru
11. Rehabilitat.h12.ru
12. <http://www.mif-ua.com/archive/mezhdunarodnyij-nevrologicheskij-zhurnal/numbers>
13. <http://neuronews.com.ua>
14. www.med.harvard.edu/AANLIB/home.html
15. www.brighamrad.harvard.edu/education/online/BrainSPECT
16. <http://www.nlm.nih.gov/>
17. <http://www.neurology.ua/>
18. <http://www.nsi.ua/>
19. <http://www.neuronet.ua/>
20. <http://www.stroke-center.gd/>
21. <http://www.veinclinic.ru/>
22. http://www.ensinfo.org/join_the_ens/index.html
23. <http://www.efns.org/>
24. <http://www.ninds.nih.gov/>
25. <http://www.aan.com/>
26. <http://www.ccns.org/>
27. <http://neuronet.cochrane.org/>
28. <http://www.nabi.ru/>
29. <http://neurology.com.ua/>
30. <http://www.neurosite.org/>
31. www.osdm.org 1
32. <http://www.nmss.org/>
33. www.waisman.wisc.edu/child-neuro/

Developer:
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Pinchuk V.A.

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